West Mokoan Solar Farm

Complex Cultural Heritage Management Plan No. 16918

ADVERTISED PLAN

Sponsor: 892 Yarrawonga Development Pty Ltd (South Energy)

Heritage Advisor/s: Geordie Oakes, Darran Jordan, Jen Burch

Author: Geordie Oakes

Activity Size: Large

Assessment: Standard and Complex

Date: 16-Jun-2021

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Job No. 605-9809

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Quality Information

Activity:	West Mokoan Solar Farm
Location:	Benalla Yarrawonga Road, Benalla
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Author:	Geordie Oakes
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Executive Summary

AECOM Australia Pty Ltd (AECOM) was commissioned by 892 Yarrawonga Development Pty Ltd (South Energy), to complete a Cultural Heritage Management Plan (CHMP) for the West Mokoan Solar Farm Project, located in Benalla, Victoria (VIC) (the "Activity Area"). The Sponsor proposes to use and develop the land for a Renewable Energy Facility (solar and energy storage) (the Project) on land at 892 Benalla-Yarrawonga Road, Goorambat; Benalla-Yarrawonga Road, Benalla, and 616 Benalla-Yarrawonga Road, Benalla (the subject site).

A search of the Aboriginal Cultural Heritage Information System (ACHRIS) database was undertaken on 7 January 2019 for the Activity Area. No registered Aboriginal cultural heritage sites were identified within the Activity Area. However, two areas of Aboriginal cultural heritage sensitivity were identified as partially located within the Activity Area comprising one area of sensitivity associated with Stockyard Creek (*Aboriginal Heritage Regulations 2018 regulation 26*) and one area associated with Koo-Wee-Rup Plain (*Aboriginal Heritage Regulations 2018 Regulation 34)*.

Accordingly, as the Activity Area contains area of Aboriginal cultural heritage sensitivity and the proposed activity is considered a high impact activity, a mandatory CHMP is required. This complex CHMP documents the results of AECOM's assessment and has been compiled with reference to the *Aboriginal Heritage Act 2006, Aboriginal Heritage Regulations 2018*, and the Guides, *Forms and Practice Notes for Aboriginal Heritage Management* using the CHMP template and CHMP checklist.

Desktop Assessment

The desktop assessment reviewed the archaeological context; geographic region; registered Aboriginal Places; previous reports; the ethnohistory and land use of the Activity Area. A review of the existing archaeological and environmental context of the Activity Area suggested that material evidence of past Aboriginal activity is likely to be restricted to flaked stone artefacts in surface and subsurface contexts. Culturally modified trees may also be present where remnant mature vegetation is extant.

Standard Assessment

Archaeological survey as part of the standard assessment was completed over four days from 3 – 6 March 2020. A total of 28 individual artefacts and three scarred trees were identified during the survey. These have been assigned to two Aboriginal Places - one Artefact Scatter and one complex of scarred trees. Given the identification of surface artefacts, the presence of swamp resources and poor ground surface visibility across the Activity Area, it was assessed the much of the Activity Area had subsurface archaeological potential. Accordingly, it was determined a subsurface investigation was required to better understand Aboriginal use and occupation of the Activity Area

Complex Assessment

As part of the complex assessment a 16 day program of archaeological test excavation was completed between 10 and 20 March 2020, 14 and 18 November 2020, and 3 and 4 February 2021. The overarching objective of the test excavation program was to collect information about the nature and extent of subsurface Aboriginal objects present within the Activity Area including previously identified areas of Aboriginal cultural heritage sensitivity associated with Stockyard Creek and Koo-Wee-Rup Plain. A total of 308 0.25 m² Shovel test Pits (STPs) were excavated across the Activity Area resulting in the recovery of 219 Aboriginal stone artefacts.

Aboriginal Cultural Heritage

Aboriginal cultural heritage identified within the Activity Area consists 28 surface stone artefacts, 219 subsurface artefacts and three culturally modified trees. Combining both the results of the standard assessment archaeological survey and the complex assessment test excavation, two Aboriginal Places are recognised within the Activity Area. These consist of one Artefact Scatter incorporating all surface and subsurface artefacts (WMSF-AS1) and one complex of modified trees (WMSF-ST1).

Conditions of Management Plan and Contingencies

The conditions of the management plan are set out in Part 1 of the CHMP.

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Part 1 – Cultural Heritage Management Conditions

These conditions become compliance requirements once the Cultural Heritage Management Plan (CHMP) is approved. Failure to comply with a condition is an offence under section 67A of the *Aboriginal Heritage Act 2006*.

The CHMP must be readily accessible to the sponsor and their employees and contractors when carrying out the activity.

1.0 Specific Cultural Heritage Management Requirements

1.1 Condition 1: VAHR [XXXX] (Components [XXXX]) – WMSF-AS1

This condition becomes a compliance requirement once the CHMP is approved. This condition allows harm to VAHR (XXXX) (Components XX) [WMSF-AS1] and must include, without limitation:

1. A salvage program comprising controlled surface collection of all VAHR (XXXXX) stone artefacts (i.e. Components XX) will be undertaken prior to any construction works or other on-site preparation activities. The surface collection will be completed by a suitably qualified Heritage Advisor and at least one (1) Registered Aboriginal Party (RAP) representative. The Sponsor must engage a suitably qualified Heritage Advisor and RAP representative/s at least two (2) weeks prior to commencement of construction works or other on-site preparation activities.
2. The Heritage Advisor and RAP representative should record all identified Aboriginal stone artefact locations using a differential Global Positioning System (GPS). If human skeletal remains are identified during the salvage program or at any stage of works within the Activity Area, the works should cease immediately, and the procedure outlined in Section 2.2 should be followed.
3. All Aboriginal stone artefacts should be placed in sealable bags and appropriately labelled.
4. The project Heritage Advisor should revise and submit relevant Victorian Aboriginal Heritage Register (VAHR) site card forms to the Heritage Registrar, Aboriginal Victoria (AV).
5. When all surface components of VAHR (XXXXX) (Components (XX)) have been completed within the Activity Area, the salvage program will cease. No further monitoring or assessment will be required.
6. If surface Aboriginal objects (not including Aboriginal ancestral remains) other than those components associated with VAHR (XXXXX) are identified during the salvage program, the above process should be followed. The project Heritage Advisor should prepare and submit VAHR site card forms to the Heritage Registrar, AV, or amend the existing VAHR site card, as determined appropriate by the project Heritage Advisor. All Aboriginal archaeological objects or places identified during the salvage program should be recorded to the standard required by *Aboriginal Heritage Regulations 2018* with reference to the *Standards for Recording Victoria Aboriginal Heritage Places and Objects* (Duncan, Freslov, & Clark, 2008).
7. The Heritage Advisor should prepare a report in accordance with the Practise Note: Salvage Excavations (*Aboriginal Heritage Act 2006*) summarising the outcomes of the salvage program including details of any additional Aboriginal Place components identified and collected.
8. The Heritage Advisor must lodge the salvage program report with the Sponsor and RAP within ninety (90) days of completion of the salvage program. The Heritage Advisor must lodge one electronic copy of the report in Portable Document Format (PDF), and one bound, hard copy with the Heritage Registrar, AV. The Heritage Advisor must also lodge

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all other relevant documentation including any updated reporting place forms with the Heritage Registrar, AV.

9. All Aboriginal objects recovered during the salvage program must be returned to the RAP within six (6) months of the completion of the salvage program to allow for ongoing management.

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Figure 1. Authorisation to Harm VAHR (XXXX) (Components XXXX)

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1.2 Condition 2: VAHR [XXXX] (Components [XXXX]) – WMSF-ST1

These conditions become compliance requirements once the CHMP is approved. Aboriginal Place (XXXXX) must be protected and is not allowed for harm within the allowances of this CHMP. These conditions must include, without limitation:

1. Aboriginal Place (XXXXX) listed below must be marked on plans as exclusion zones to be avoided during construction and operation of the project. The Sponsor must engage a suitably qualified Heritage Advisor and RAP representative/s at least two (2) weeks prior to commencement of construction works or other on-site preparation activities. The Heritage Advisor and at least one (1) RAP representative must establish an exclusion zone around the place extent to restrict vehicle and pedestrian movements within their vicinity. The exclusion zone must comprise, at a minimum, a fine (5)-metre radius around the outer Place Extent of the Aboriginal Place, to be marked by a permanent fencing.
2. The Sponsor and their contractors must take care when working in the vicinity of Aboriginal Place (XXXXX) to reduce the impact risk to these places.
3. All on-site personnel should be made aware of their legal obligations to protect Aboriginal Places that are not authorised for impact under this CHMP. Such information must be provided in a site-specific induction which includes information of relevant Aboriginal heritage.

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- **Figure 2. Protection of Aboriginal Place (XXXXX)**

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1.3 Condition 4: Compliance Checklist

Prior to the commencement of the Activity, the Sponsor must complete the relevant sections of the compliance checklist (refer below). The Sponsor is also to periodically review the compliance checklist throughout the Activity and ensure any other applicable sections are completed.

Prior to Commencement of Activity	**Yes/No/NA**
Has the CHMP been approved?	
Has the final CHMP been compiled and lodged to the Sponsor, the RAPs and VAHR?	
Have conditions for pertaining to VAHR (XXXX) (components XX) [WMSF-AS1] been followed (Condition 1)?	
Have requirements for pertaining to Condition 2 been followed (i.e. all place extents fenced)?	
Have all relevant personnel been inducted or trained with regard to the requirements, conditions and contingencies contained within the CHMP?	
During Construction Activities	**Yes/No/NA**
Is a copy (either digital or hard copy) of this CHMP available to on-site personnel, if required?	
Unexpected Discovery of Aboriginal objects (other than Aboriginal Ancestral remains, see below)	
Have unexpected Aboriginal cultural material been discovered during the Activity? If yes, have the following been taken:	
Have works ceased in the area and temporary safety webbing or fencing erected at a distance of 10 meters with signage displayed clearly identifying the location as an exclusion zone?	
Has a suitably qualified Heritage Advisor and the RAP been notified of the discovery (note: must be completed within two (2) working days)?	
Has Aboriginal Victoria been notified by the project Heritage Advisor of the discovery (i.e. have forms been submitted)?	
Unexpected Discovery of Human Remains (refer Section 2.0 of this CHMP)	
Have actual or suspected human remains been discovered during the Activity? If yes, have the following been taken:	
Have works in the vicinity ceased and the remains left in place, and protected from harm or damage?	
Have the Victoria Police and the Coroner's Court been notified?	
If it is confirmed by the above authorities the discovered remains are Aboriginal Ancestral Remains, has the Project Manager reported the discovery to the Victorian Aboriginal Heritage Council?	
Has the reburial site(s) been fully documented by an experienced and qualified Heritage Advisor, clearly marked and all details provided to AV?	
Has the appropriate management measures been implemented to ensure the remains are not disturbed in the future?	

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Additional Comments:

Note: If a non-compliance with the CHMP has been identified, then notification must be made to Aboriginal Victoria.

Compliance checklist conducted by:

Name: ……

Organisation: …….

Date: ……..…

- **Condition 5: Copy of this CHMP**
    1. The Sponsor, site supervisor and all relevant supervisory staff must read the approved CHMP and be aware of the legal conditions and contingency plans concerning Aboriginal cultural heritage within the Activity area.
    2. The sponsor, site supervisor and all relevant supervisory staff are responsible for implementing the conditions contained within the CHMP.
    3. A printed copy of the approved CHMP must always be available onsite.
    4. The Sponsor or site supervisor is responsible for ensuring that all personnel onsite are aware of the management conditions and contingency plans, and of the onsite location of the copy of the approved CHMP.
- **Condition 6: Cultural Heritage Induction**
    1. A cultural heritage induction must be held prior to the commencement of any construction or construction-related activities (including but not limited to surveying, site establishment, fencing of ground-breaking etc) within the Activity Area.
    2. The Sponsor must submit a booking request/notification to the RAP at least two weeks before the Cultural Heritage induction is required, using the standard Yorta Yorta booking request form[1].
    3. The Sponsor must invite the RAP to present the Cultural Heritage induction to the Sponsor and/or their representative/project manager. Information presented in the induction will be decided by the RAP to determine what is appropriate.
    4. The costs associated with the cultural heritage induction must be met by the Sponsor or site contractor(s).
    5. The site supervisor(s) and all personnel directly involved in on-site works within the Activity area should be provided with cultural awareness training presented by the Sponsor or their delegate. All relevant information pertaining to Aboriginal cultural heritage both in the Activity Area and local environs should be included. In this training, all personnel should also be made aware of their legal obligations under the *Aboriginal Heritage Act 2006* to protect Aboriginal cultural heritage.
    6. Notification of the Commencement of the Activity:
        i. The Sponsor must notify the Yorta Yorta at least (2) two weeks prior to commencement of the Activity.

[1] https://static1.squarespace.com/static/59c30286e3df28fd2295efbb/t/5efc01877196e75c462d39f5/1593573769253/Final+Cultural+Heritage+Booking+Form.pdf

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ii. The Sponsor must notify Yorta Yorta of the anticipated completion date of the Activity.

iii. The Sponsor must notify Yorta Yorta at the completion of the Activity.

- **Condition 7: Protocol for Handling Sensitive Information**

(i) Apart from publicly available information there shall be no communication or public release of information concerning Aboriginal cultural heritage without the written permission of the RAP.

(ii) No photographs of on-site cultural heritage, or information concerning Aboriginal cultural heritage is to be circulated to the media or via public media without written permission of the RAP.

- **Condition 8: Communication**
- The representatives responsible between the Sponsor and the RAP for communication regarding the CHMP are:

Sponsor: 892 Yarrawonga Development Pty Ltd (South Energy)
Contact: David Huang
Business Number: 03 8842 6888
Email: david.huang@southenergy.com.au

RAP: Yorta Yorta Nation Aboriginal Corporation
Contact: Wade Morgan
Business Number: 03 58320 222
Mobile: xxxxxxxxx

- Where possible the Sponsor and the RAP will ensure that all communication and correspondence is responded to within five business days. The Sponsor and RAP may nominate backup contacts to those listed above but all correspondence should be directly though the primary contacts.
- **Condition 9: Costs Associated with Implementation of CHMP Conditions**
- The Sponsor (892 Yarrawonga Development Pty Ltd (South Energy)) will be responsible for incurring all cost associated with the implantation of the conditions within this CHMP.

2.0 Contingency Plans

In accordance with Section 61 of the *Act*, a CHMP must consider any contingencies required in relation to disputes, delays and other obstacles that may affect the conduct of the Activity. Clause 13(1) Schedule 2 of the *Regulations* specifically identify that the CHMP must contain a 'contingency plan' for the matters referred to in Section 61 of the Act. Section 61 of the Victorian *Aboriginal Heritage Act 2006* requires consideration of:

1. Whether the Activity will be conducted in a way that avoids harm to Aboriginal cultural heritage.
2. If it does not appear to be possible to conduct the Activity in a way that avoids harm to Aboriginal cultural heritage, whether the Activity will be conducted in a way that minimises harm to Aboriginal cultural heritage.
3. Any specific measures required for the management of Aboriginal cultural heritage likely to be affected by the Activity, both during and after the Activity.
4. Any contingency plans required in relation to disputes, delays and other obstacles that may affect the conduct of the Activity.
5. Conditions relating to the custody and management of Aboriginal cultural heritage during the course of the Activity.

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The following contingencies are outlined in the sections below:

- Matters Referred to Under Section 61 (Avoiding or Minimising Harm).
- Disputes, delays and obstacles.
- Management of Aboriginal cultural heritage before, during and after the Activity.
- Notification in accordance with the act of discovery of Aboriginal Cultural Heritage.
- Operational issues associated underboring for the connection between existing pipe subnetworks
- Reviewing Compliance with the Management Plan and Mechanisms for Remedy Non-Compliance.

2.1 Resolution of any Disputes Between the Sponsor and the RAP in Relation to the Implementation of the Management Plan or the Conduct of the Activity

Procedures for dispute resolution aim to ensure that all parties are fully aware of their rights and obligations, that full and open communication between parties occurs and that those parties conduct themselves in good faith.

1. If a dispute arises that may affect the conduct of the Activity, resolution between the parties using the following dispute resolution procedure is required:
    i. All disputes will be jointly investigated and documented by both the RAP and the Sponsor.
    ii. Where a breach of the CHMP conditions is identified, and there is no agreement between the parties as to how that breach is to be remedied within one (1) week unless otherwise agreed after the RAP is first notified of the breach by the Sponsor, the RAP and the Sponsor will meet in good faith to seek to agree to a suitably appropriate corrective method to remedy the breach. The Sponsor shall arrange for a meeting of authorised representatives of the parties for this purpose, within this [one week] timeframe.
    iii. The authorised representatives of the RAP and Sponsor must communicate to each other their understanding of the issue(s) in dispute at the meeting, to ensure each party is aware of the other's position. If requested by either the RAP or Sponsor, third party mediation may be held during the meeting.
    iv. If the authorised representatives of the parties reach agreement, the agreed corrective method for the breach must be recorded in writing and signed by both parties ('Agreed Method Statement'). If the authorised representatives of the parties do not reach agreement, the parties will participate in third party mediation of the dispute by an agreed mediator within two (2) weeks. The fees, if any, of the mediation are to be met equally by the parties. Any agreed outcome of the mediation must be recorded in writing and signed by both parties ('Agreed Method Statement').
    v. The Sponsor, site supervisor, contractor and any relevant personnel will not undertake any correction or remedial activities except in accordance with the Agreed Method Statement. Further, any correction or remedial activities required must:
        a. Be recorded in writing and signed off by the authorised representatives of the RAP and Sponsor.
        b. Be supervised by a RAP representative.
        c. Occur in accordance with the RAP representative's instructions, provided they are consistent with the agreed correction activities.
    vi. The RAP will strive to minimise delays to work schedules while not compromising Aboriginal cultural heritage, places or values.
2. Issues related exclusively to cultural heritage management, which do not have an impact on the conduct of the Activity, will be handled through the following dispute resolution mechanism:
    i. Authorised representatives of the RAP and the Sponsor will attempt to negotiate a resolution to any dispute related to the cultural heritage management of the Activity Area within two

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working days (unless otherwise agreed) of a notice being received by either party, from either party, that a dispute between the parties is deemed to exist.

ii. If the authorised representatives of the parties do not reach agreement, the parties will participate in third party mediation of the dispute by an agreed mediator within two weeks. The costs, if any, of the mediation are to be met equally by the parties. Any agreed outcome of the mediation must be recorded in writing and signed by both parties ('Agreed Method Statement').

3. Regardless of the category of dispute, the dispute resolution process does not preclude:

i. The parties seeking advice from Aboriginal Victoria to assist in resolution of the dispute.

ii. Any legal recourse open to the parties being taken; however the parties must agree that the above resolution mechanism will be implemented before such recourse is made.

For the purpose of dispute resolution, the following persons will represent the parties. If a party changes the personnel appointed as its authorised representative, then they will promptly notify the other party.

Sponsor: 892 Yarrawonga Development Pty Ltd (South Energy)

Contact/Project Manager: David Huang

Business Number: 03 8842 6888

Email: david.huang@southenergy.com.au

RAP: Yorta Yorta Nation Aboriginal Corporation

Contact: Wade Morgan

Business Number: 03 58320 2222

Mobile: xxxxxxx

Email: wade.m@yynac.com.au

Any change in personnel appointed as authorised representatives in one party will be notified promptly to all parties.

2.2 Management of Aboriginal Cultural Heritage Found During the Activity

Clause 13(1) Schedule 2 of the *Regulations* requires that the CHMP must contain a contingency plan for the management of Aboriginal cultural heritage found during the Activity.

2.2.1 Unexpected Discovery of Aboriginal Cultural Heritage Other than Aboriginal Ancestral Remains

The Sponsor must at all times avoid unlawful harm to Aboriginal cultural heritage. Clause 13(1) Schedule 2 of the *Regulations* requires that a CHMP contain a plan for the notification, in accordance with the *Act*, of the discovery of Aboriginal cultural heritage during the carrying out of the Activity. In accordance with Section 24 of the *Aboriginal Heritage Act 2006* 'Reporting discovery of Aboriginal Places and objects', if a person discovers an Aboriginal Place or object and the person knows that the place or object is an Aboriginal Place or object, the person must report the discovery to the Secretary as soon as practicable unless, at the time of making the discovery, the person had reasonable cause to believe that the Register contained a record of the place or object. If a discovery of an Aboriginal Place or object is made in the course of works being carried out on any land, the person in charge of the works is deemed for the purposes of Section 24 of the *Aboriginal Heritage Act* 2006 to be the person who discovered the place or object. The following steps must be taken by the Sponsor as a minimum if suspected previously unrecorded Aboriginal cultural heritage is identified during the Activity:

1. If suspected previously unrecorded Aboriginal cultural heritage is identified, then:

- All works in the immediate vicinity must cease.
- The suspected Aboriginal cultural heritage must not be disturbed.

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- Temporary fencing/safety webbing must be erected to create a ten (10) metre buffer zone around the location, with signage clearly identifying the location as a 'No-Go-Zone'.
- Work may continue outside of the buffer zone.
- The Sponsor must notify the RAP and a Heritage Advisor within two (2) working days of the discovery.
- The heritage advisor and RAP representative must inspect the reported discovery as soon as possible to determine if it is, or is not, Aboriginal cultural heritage.

2. If the discovery is determined not to be Aboriginal cultural heritage, then the buffer zone may be removed, and work recommence.
3. If the discovery is determined to be Aboriginal cultural heritage, the Sponsor, Heritage Advisor and the RAP representative must determine an appropriate course of action regarding the cultural heritage within three (3) working days. The outcome of discussions must consider the requirements of s.61 of the *Act* regarding the avoidance or minimisation of harm, where possible.
4. If an agreement cannot be reached as required in Point 3 of this contingency plan, then this will be deemed to be a dispute and the dispute resolution process outlined in the conditions and contingencies provisions of this CHMP must be followed.
5. If harm to the discovered Aboriginal cultural heritage cannot be avoided:
   - A salvage program conducted by a qualified Heritage Advisor must be conducted before the Activity proceeds.
   - The methodology and extent of the salvage must be agreed to by the RAP.
   - The RAP must be invited to participate in the salvage program.
   - The processes followed must:
     - Be culturally appropriate.
     - Use standard archaeological equipment.
     - Be carried out in accordance with best archaeological practice.
     - Conform to all appropriate AV guidelines and standards regarding recording and excavation.
   - At the conclusion of the salvage an archaeological report detailing the methodology, analysis[2], and interpretation must be prepared and provided to the Sponsor, the RAP and Aboriginal Victoria.
6. The RAP will notify the Sponsor and their representatives when the suspended works can recommence. This will generally be:
   - When the appropriate management and protective measures have been implemented; and/or
   - When the relevant Aboriginal cultural heritage records have been updated and/or completed.
7. Under this schedule, the Heritage Advisor engaged by the Sponsor is responsible for ensuring that all Aboriginal cultural heritage discovered is correctly reported to Aboriginal Victoria.

2.2.2 Unexpected Discovery of Human Remains

The Sponsor must at all times avoid unlawful harm to Aboriginal cultural heritage. The following steps must be taken by the Sponsor as a minimum if suspected human remains are identified during the Activity:

1. Discovery
   - If suspected human remains are discovered, all activity in the vicinity must stop; and,

[2] Analysis includes any appropriate testing and dating carried out on the recovered heritage materials.

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- The remains must be left in place and protected from harm or damage.

2. Notification
   - If suspected human remains have been found, the State Coroner's Office and the Victoria Police must be notified immediately.
   - If there is reasonable grounds to believe the remains are Aboriginal Ancestral Remains, the Coronial Admissions and Enquiries hotline must be immediately notified on **1300 888 544.**
   - All details of the location and nature of the human remains must be provided to the relevant authorities.
   - If it is confirmed by these authorities the discovered remains are Aboriginal Ancestral Remains, the person responsible for the activity must report the existence of them to the Victorian Aboriginal Heritage Council in accordance with section 17 of the *Aboriginal Heritage Act 2006.*
   - **Do not contact the media.**
   - **Do not take any photographs of the remains unless expressly requested to do so by the Coroner's Office, Victoria Police, or Aboriginal Victoria.**
   - **Do not circulate any information via social media.**
3. Impact Mitigation or Salvage
   - The Victorian Aboriginal Heritage Council, after taking reasonable steps to consult with any Aboriginal person or body with an interest in the Aboriginal Ancestral Remains, will determine the appropriate course of action as required by section 18(2)(b) of the Aboriginal Heritage Act 2006.
   - An appropriate impact mitigation or salvage strategy as determined by the Victorian Aboriginal Heritage Council must be implemented by the Sponsor.
4. Curation and further analysis
   - The treatment of salvaged Aboriginal Ancestral Remains must be in accordance with the direction of the Victorian Aboriginal Heritage Council.
5. Reburial
   - Any reburial site(s) must be fully documented by an experienced and qualified archaeologist, clearly marked and all details provided to Aboriginal Victoria.
   - Appropriate management measures must be implemented to ensure the Aboriginal Ancestral Remains are not disturbed in the future.

2.3 Reviewing Compliance with the Management Plan and Mechanisms for Remedying Non-Compliance

1. The Heritage Advisor shall develop a compliance checklist to assist the Sponsor and/or their representatives in implementing the CHMP.
2. The compliance checklist should be used as a reference if compliance with the plan is questioned.

3.0 Other Considerations

The following considerations are outlined in the section below:

- Proposed changes to conduct to the Activity.
- Management of Aboriginal cultural heritage.
- Reburial of Aboriginal cultural heritage material.
- Non-compliance with the management plan.

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- Salvage resulting in change to nature, extent and significance of Aboriginal Place.
- Limited interim retention of Aboriginal cultural heritage by a suitably qualified Heritage Advisor.
- Custody of Aboriginal cultural heritage.

3.1 Proposed Changes to Conduct of the Activity

If any proposed changes to an Activity require a statutory authorisation (for example, an amendment to the planning permit application), the Sponsor must determine if a new CHMP is required. The Sponsor must refer any proposed changes to the Activity, including proposed changes that require works outside of the Activity Area, to a suitably qualified Heritage Advisor for guidance on cultural heritage conditions.

3.2 Management of Aboriginal Cultural Heritage

In accordance with Section 61 of the *Act*, a CHMP must consider requirements relating to the custody and management of Aboriginal cultural heritage during the course of the Activity. The following must be followed:

1. A suitably qualified Heritage Advisor must ensure that all Aboriginal cultural heritage other than Aboriginal Ancestral Remains, recovered from the Activity Area either during the assessment phase of the CHMP, during subsequent salvage activities or during the Activity (i.e. construction works) are:
    i. Fully documented, bagged and securely stored until repatriated to the RAP; and
    ii. Properly recorded on ACHRIS.
2. The Heritage Advisor may initially retain the Aboriginal cultural heritage for scientific analysis for a period of up to six (6) months from the completion of the Activity.
3. At the end of six (6) months from the completion of the Activity, the Heritage Advisor must contact the RAP to arrange the repatriation of all materials recovered during the Activity.
4. The RAP may choose to rebury the material within the Activity Area. This will be done in accordance with the reburial procedure set out below.

3.3 Reburial of Aboriginal Cultural Heritage Material

1. The RAP may nominate an area in which they have arrangements in place for conducting reburial of cultural heritage. If the RAP chooses to rebury the repatriated material it must be in part of the Activity Area.
    i. That will not be disturbed within the foreseeable future; and
    ii. In a location as close as possible to the original extent of the registered Aboriginal Place.
2. The cultural heritage material must be reburied in a durable sealed ceramic container, or other durable container.
3. The container must also include a catalogue of the cultural material and a copy of the relevant sections of the management plan.
4. RAP representatives must be given the opportunity to be present at the sealing of the container.
5. RAP representatives must be present during the reburial of the cultural heritage material.
6. A suitably qualified Heritage Advisor must attend the reburial to record the location of the reburial and is responsible for updating all relevant records held on the Victorian Aboriginal Heritage Register (VAHR).
7. The Sponsor and/or site contractor are responsible for the costs involved in the reburial process.

3.4 Non-Compliance with Management Conditions and Contingency Plans

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1. It is RAP policy that all non-compliance issues must result in a stop-work situation until such time as a meeting can be held between the RAP and the Sponsor.
2. Stop-work measures must be implemented even if the non-compliance has not resulted in harm to Aboriginal cultural heritage.
3. *If a breach of the CHMP is identified the Sponsor must immediately report the breach by contacting the Statewide Compliance & Enforcement Unit, Aboriginal Victoria via email to compliance.aboriginalvictoria@dpc.vic.gov.au or by telephoning 1800 762 003.*

3.5 Salvage Resulting in Change to Nature, Extent and Significance of Aboriginal Place

If, in the opinion of the RAP, the nature, extent, or significance of an Aboriginal Place is changed as a result of salvage activities, Aboriginal Victoria must be contacted to conduct a cultural heritage audit in accordance with S.81 of the Act. Aboriginal Victoria should be consulted by the Sponsor, RAP and Heritage Advisor if a salvage program is proposed as a result of a discovery

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Part 2 – Cultural Heritage Management Assessment

4.0 Introduction

4.1 Introduction

AECOM Australia Pty Ltd (AECOM) has prepared this Planning Report for South Energy on behalf of 892 Yarrawonga Development Pty Ltd to support a planning permit application for the use and development of a Renewable Energy Facility (solar and energy storage) (the Project) on land at 892 Benalla-Yarrawonga Road, Goorambat; Benalla-Yarrawonga Road, Benalla, and 616 Benalla-Yarrawonga Road, Benalla (the subject site). The subject site is approximately 10 kilometres north-east of the town centre of Benalla and is within Rural City of Benalla. Benalla Rural City forms part of the Hume Region in North East Victoria.

This complex CHMP documents the results of AECOM's assessment and has been compiled with reference to the *Aboriginal Heritage Act 2006, Aboriginal Heritage Regulations 2018*, and the *Guides*, *Forms and Practice Notes for Aboriginal Heritage Management* using the CHMP template and CHMP checklist.

4.2 Reason for Preparing the CHMP

This CHMP has been prepared in accordance with Part 4 of Victoria's *Aboriginal Heritage Act 2006* (the Act). The Act directs proponents to the Victorian *Aboriginal Heritage Regulations 2018* (the Regulations) to determine when a CHMP is required. Reference to Regulation 7 indicates that a CHMP is required for an activity if:

(a) all or part of the activity area for the activity is an area of cultural heritage sensitivity; and

(b) all or part of the activity is a high impact activity.

A search of the Aboriginal Cultural Heritage Information System (ACHRIS) database was undertaken on 7 January 2019 for the Activity Area. No registered Aboriginal cultural heritage sites were identified within the Activity Area. However, three areas of Aboriginal cultural heritage sensitivity were identified within the Activity Area, the first associated with Stockyard Creek (*Aboriginal Heritage Regulations 2018 regulation 26*), the second associated with the Koo-Wee-Rup Plain (*Aboriginal Heritage Regulations 2018 Regulation 34)*, and the third associated with a portion of a swamp/wetland associated with Sergeants Swamp (*Aboriginal Heritage Regulations 2018 Regulation 34*).

As the Activity Area contains areas of Aboriginal cultural heritage sensitivity and the proposed activity comprises a high impact activity, a mandatory CHMP is required.

4.3 Assessment Objectives

The overarching objectives of this CHMP are as follows:

- to identify the Aboriginal cultural heritage values of the Activity Area by way of background research, archaeological survey, and consultation with the RAP.
- to assess the potential impact of the Project on the identified Aboriginal cultural heritage values of the Activity Area.
- to provide an appropriate management strategy for avoiding or minimising potential harm to the identified Aboriginal cultural heritage values of the Activity Area.
- to prepare a complex CHMP that will be assessed by the RAP.

4.4 Scope of Current Assessment

This assessment has been undertaken in accordance with the *Aboriginal Heritage Act 2006*, the *Aboriginal Heritage Regulation 2018*, and the Guides, Forms and Practice notes for Aboriginal

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Heritage Management using the CHMP Template and the CHMP checklist. As such, its key requirements have been:

- to undertake a desktop assessment to review environmental context, previously registered Aboriginal Places, previous reports, ethnohistorical sources and previous land use of the Activity Area.
- to provide the RAP with information about the scope of the proposed works and Aboriginal heritage assessment process:
  - to undertake consultation with the RAP and facilitate a process whereby RAP representatives can contribute culturally appropriate information to the proposed assessment methodology.
  - provide information that will enable the cultural significance of Aboriginal objects and/or places within the Activity Area to be determined.
  - have input into the development of cultural heritage management.
- to undertake a standard assessment (survey) in consultation with the RAP.
- to undertake a complex assessment (test excavation) in consultation with the RAP.
- to prepare and finalise a complex CHMP with input from the RAP.

4.5 Notifications

Due to the proposed activity triggering a mandatory CHMP, a Section 54 Notice of Intention (NoI) under the *Aboriginal Heritage Act 2006* to prepare a CHMP was submitted to relevant stakeholders on 29 October 2019 including:

- The Secretary for the Primary Industries/Aboriginal Victoria (AV).
- Yorta Yorta.
- Landowners.
- Benalla Rural City Council.

AV allocated CHMP number 16918 to this assessment. NoI responses are provided in Appendix A.

4.6 Location of the Activity Area

The Activity Area is located approximately 10 kilometres (km) north-west of the town centre of Benalla within the Benalla Rural City Local Government Area (LGA) (Figures 1 and 2). The site comprises an c.426 ha triangular-shaped parcel of farmland that is bordered to north by Farnley Road, to the south by Snowy Lane, to the west by Sergeants Swamp and the Winton Wetlands and the east by Benalla Yarrawonga Road.

Land within the Activity Area has been registered as Lot 1\PS625748, 1 and 2\TP173518, 1\TP104377, 95C\PP2704, 97B\PP2704, 97C\PP2704, 98B\PP2704, 1 to 5\LP206524, 1\TP576184 and is situated between MGA (Zone 55) grid coordinates 409762E and 412254E, and 5961854N and 5965417N. It cross-cuts the Parishes of Mokoan and Goorambat in the County of Moira. Surrounding suburbs include Winton North to the east, Winton to the south, Goomalibee to west and Chesney Vale to the north. Major parks and reserves in the surrounding area include Winton Wetland National Features Reserve, Warby-Ovens National Park and Reef Hills State Park. At its closest point, Broken River is located approximately 5 km to the west.

4.7 Owner/Occupier

Land ownership details for the Activity Area is provided in Table 1.

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Table 1 Land ownership

Address	Standard Parcel Identifier	Owner of Land	Note
892 Benalla-Yarrawonga Road, Goorambat; *Volume 11122 Folio 146*	Lot 1 on Plan of Subdivision 625748F	Hendrika Mizzi and Gene Louis Mizzi	Land for development
Benalla-Yarrawonga Road, Benalla *Volume 0354 Folio 266*	Lot 1 and Lot 2 on Title Plan 173518C	Pentown PTY LTD of R M B 1201 Chesney Vale Road, Goorambat 3725	Lot 1 - Land for development Lot 2 – Land for vegetation management
Benalla-Yarrawonga Road, Benalla *Volume 09742 Folio 669*	Lot 1 on Plan of Subdivision 206524H	KJN Greaves PTY LTD of 42 Nunn Street Benalla 3672	Land for development
616 Benalla-Yarrawonga Road, Benalla *Volume 09742 Folio 670, 671, 672, 673*	Lot 2 to 5 on Plan of Subdivision 206524H	Kelvyn Malcolm Greaves of “Lyndhurst” Benalla 3672	Land for development
Benalla-Yarrawonga Road, Benalla *Volume 9519 Folio 148*	Lot 1 on Title Plan 104377J	Pentown PTY LTD of R M B 1201 Chesney Vale Road, Goorambat 3725	Land for vegetation management and restoration
Benalla-Yarrawonga Road, Benalla Crown Land *Volume 11738 Folio 046*	Crown Allotment 95C Parish of Goorambat (95C PP2704)	Secretary to the Department of Environment, Land, Water and Planning of 8 Nicholson Street, East Melbourne Vic 3002	Crown Land for vegetation management
Lake Mokoan Road, Benalla 3672 Crown Land *Volume 11738 Folio 047*	Crown Allotment 97B Parish of Goorambat (97B PP2704)	Secretary to the Department of Environment, Land, Water and Planning of 8 Nicholson Street, East Melbourne Vic 3002	Crown Land for vegetation management
Benalla-Yarrawonga Road, Benalla Crown Land *Volume 11738 Folio 049*	Crown Allotment 97C Parish of Goorambat (97C PP2704)	Secretary to the Department of Environment, Land, Water and Planning of 8 Nicholson Street, East Melbourne Vic 3002	Crown Land for vegetation management

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Address	Standard Parcel Identifier	Owner of Land	Note
Lake Mokoan Road, Benalla 3672 Crown Land *Volume 11738 Folio 048*	Crown Allotment 98B Parish of Goorambat (98B PP2704)	Secretary to the Department of Environment, Land, Water and Planning of 8 Nicholson Street, East Melbourne Vic 3002	Crown Land north of Stockyard Creek for vegetation management and restoration. Crown Land south of Stockyard Creek for development.
Benalla-Yarrawonga Road, Benalla *Volume 8916 Folio 940*	Lot 1 TP576184J	Goulburn-Murray Rural Water Corporation of 40 Casey Street, Tatura VIC 3616	Stockyard Creek – Land for overhead powerline crossing.

4.8 Sponsor

Sponsor: 892 Yarrawonga Development Pty Ltd (South Energy)

Contact: David Huang (Project Manager)

Address: Level 19, 303 Collins Street, Melbourne VIC 3000

ABN: 63 628 034 300

4.9 Heritage Advisors

The Heritage Advisors for this CHMP are Geordie Oakes (AECOM Heritage Specialist), Darran Jordan (AECOM Heritage Specialist) and Jen Burch (Director Jem Archaeology).

Geordie Oakes (AECOM Principal Heritage Specialist) was the primary author of this CHMP. Dr Darran Jordan (AECOM Principal Heritage Specialist) directed the initial field program and was assisted by Luke Wolfe (AECOM Senior Heritage Specialist), and Julia Atkinson (Graduate Heritage Specialist). Jen Burch (Director Jem Archaeology) directed the second field program. Jem Archaeology was engaged following COVID 19 restrictions which limited the ability for AECOM personnel to complete the field works.

Geordie holds a Bachelor of Arts (Honours) degree in historic and prehistoric Archaeology from Sydney University and a Graduate Certificate in Paleo-anthropology from the University of New England and has over thirteen years of experience as a heritage consultant in both Aboriginal and historical archaeology. Geordie has undertaken work in heritage consultancy across NSW, ACT, VIC and NT. As a result, Geordie has gained extensive experience in both Aboriginal and historic heritage assessment. Key skills include project management, report preparation, surveying, stakeholder liaison and excavation. With a background in information technology, Geordie also has experience in GIS mapping and database systems.

Geordie is a listed Heritage Advisor under the Victorian *Aboriginal Heritage Act 2006*.

Darran holds a Bachelor of Arts (Honours) degree in historic and prehistoric Archaeology and a Doctorate in archaeology from Sydney University. With over 15 years of experience as an archaeologist and heritage specialist in both Indigenous and historical archaeology, Darran has worked across multiple states of Australia on a variety of heritage projects. Darran has published and presented papers at a variety of history, archaeology and heritage related conferences, both nationally and internationally. Darran has worked on various heritage inputs for rail, roads, bridges and highways.

Darran is a listed Heritage Advisor under the Victorian *Aboriginal Heritage Act 2006*.

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4.10 RAP

Yorta Yorta Nation Aboriginal Corporation (Yorta Yorta) is the RAP under the *Aboriginal Heritage Act 2006* with responsibility for all Aboriginal Cultural Heritage Management matters in the region including the Activity Area and have elected to evaluate this CHMP.

To date, Yorta Yorta have been involved in the preparation of this CHMP, including participation in the field assessment and meetings to determine fieldwork and management strategies.

4.11 Report Structure

This report contains 13 sections. This section – **Section 4.0** - has provided background information on the Project and assessment undertaken. The remainder of the report is structured as follows:

- **Section 5.0** details description of the Activity.
- **Section 6.0** outlines the extent of the Activity Area covered by the CHMP.
- **Section 7.0** details the Aboriginal community consultation program undertaken for this assessment.
- **Section 8.0** is the desktop assessment summarising the relevant environmental context, archaeological context, ethnohistoric information and previous land use for the Activity Area.
- **Section 9.0** is the standard assessment describing aims and objectives, methodology, limitations and presents survey results for the Activity Area.
- **Section 10.0** is the complex assessment describing aims and objectives, methodology and presents test pit program results for the Activity Area.
- **Section 11.0** details Aboriginal cultural heritage identified during the standard and complex assessment and assesses the significance of the Aboriginal sites.
- **Section 12.0** provides an assessment of the potential impacts of the Project on identified Aboriginal heritage values and the appropriate management strategy for the identified Aboriginal heritage values.
- **Section 13.0** lists the references cited in-text.

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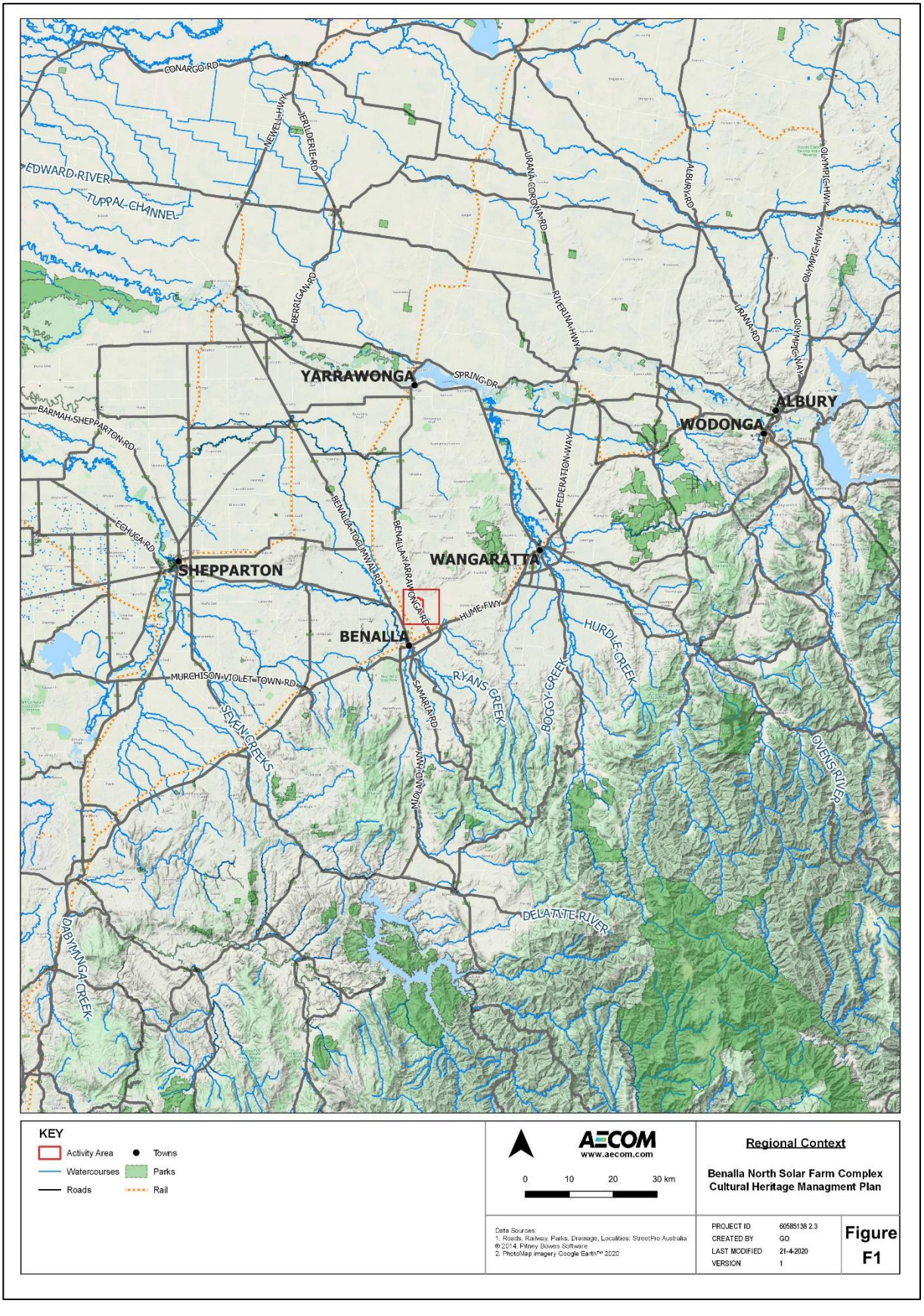
Figure 3 Regional context



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5.0 Description

5.1 Activity Description

The purpose of the Project is to supply electricity generated from solar irradiation into the National Energy Market. The solar farm (referred to as the West Mokoan Solar Farm) is to connect to the overhead powerline via the existing 220 kV transmission lines associated with the Glenrowan to Shepparton network, operated by the Australian Energy Market Operator.

The Project is expected to have an installed capacity of up to 233 Megawatts (MW) (DC) which will be provided by approximately 531,216 solar photovoltaic (PV) panels/modules of 440 Watt PV collectors mounted on single axis trackers. Associated infrastructure for the solar farm will include approximately 57 power conversion units (PCUs) containing electrical switchgear, inverters and transformers and a central substation, operations and maintenance facility and energy storage area along with internal access tracks and security fencing which will surround the site. The Project also includes the realignment of easements.

The primary project components will consist of:

- approximately 531,216 solar PV panels on a single-axis tracking system mounted on aluminium or steel piles with an installed capacity of up to approx. 192 MW Alternating Current (AC) (233 DC Capacity).
- Approximately 57 Power Conversion Units (PCU – Inverter buildings with hard standings).
- Direct Current (DC) and AC cabling for electrical reticulation.
- A designated substation and operations and maintenance (O&M) facility area that includes a substation, a Battery Storage Facility/Energy Storage System (ESS) of up to 20MW/20MWh (TBC) capacity, a control building, substation transformers, office and amenities.
- Internal all-weather access tracks and a laydown area.
- The creation of access to Benalla-Yarrawonga Road and Lake Mokoan Road.
- Landscaping.
- Removal of 1.891 hectares of native vegetation.
- Security fencing, CCTV and Infra-Red lighting.
- Business identification signage (details of the signage are not confirmed at this stage and will be determined during the detailed design phase to the satisfaction of the responsible authority).
- Maintenance.
- Realignment of easements.

5.2 Impacts to the Ground Surface

The following works and associated ground surface impacts are anticipated for the project.

- Installation of trackers embedded into the ground surface with lengths from 2 m to 3 m;
- Embedding of PCU supporting structures into the ground surface;
- Excavation of trenches measuring 1.2 m (D) x 0.3 m (W) to install cables per trench; and
- Installation of substation concrete pad (UG portion) up to 1 m in depth.

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6.0 Extent of Activity Area

The Activity Area is located approximately 10 kilometres (km) north-west of the town centre of Benalla within the Benalla Rural City Local Government Area (LGA) (Figure 4). The site comprises an c.426 ha triangular-shaped parcel of farmland that is bordered to the north by Farnley Road, to the south by Snowy Lane, to the east by Sergeants Swamp and the Winton Wetlands, and to the west by Benalla Yarrawonga Road. It is noted that the Activity area was modified to exclude Lot 2\PS625748 in January 2021 following completion of the Standard and Complex assessments.

Land within the Activity Area has been registered as Lot 1\PS625748, 1 and 2\TP173518, 1\TP104377, 95C\PP2704, 97B\PP2704, 97C\PP2704, 98B\PP2704, 1 to 5\LP206524, 1\TP576184.

Table 2 Activity Area details

Information	Comment
Address	892 Benalla Yarrawonga Road, Benalla
Local Government Area	Benalla Rural City
Lot/Plan	Lot 1\PS625748, 1 and 2\TP173518, 1\TP104377, 95C\PP2704, 97B\PP2704, 97C\PP2704, 98B\PP2704, 1 to 5\LP206524, 1\TP576184.
Parish	Arcadia, County of Moira
Planning Zone	Farming Zone
Centroid coordinate (GDA94 Zone 55)	411303E, 56964248N

7.0 Documentation of Consultation

Consultation for the current assessment was carried out in accordance with s60 of the *Aboriginal Heritage Act 2006*. The initial phases of the current assessment determined that the Yorta Yorta is the RAP under the *Aboriginal Heritage Act 2006.* Consultation included NoI containing the proposed methodology and Activity specific details including:

- relevant maps.
- organisation and active participation in physical on- site assessment.
- consultation regarding management conditions based on fieldwork.

7.1 Consultation in Relation to this Assessment

Table 3 summarises consultation between the AECOM representatives and the Yorta Yorta in relation to the standard and complex assessment.

Table 3 Summary of consultation in relation to the assessment

Date	Name	Role and organisation	Activity
29 October 2019	Dr Darran Jordan	Heritage Advisor, AECOM	NoI submitted to Secretary, DPC on behalf of Sponsor
29 October 2019	Secretary	DPC, Aboriginal Victoria	Issue of CHMP #16918
29 October 2019	Dr Darran Jordan	Heritage Advisor, AECOM	Submission of NOI to RAP
29 October 2019	Wade Morgan	Cultural Heritage Unit Coordinator, Yorta Yorta	Response of intention to evaluate the CHMP

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Date	Name	Role and organisation	Activity
14 November 2019	Dr Darran Jordan	Heritage Advisor, AECOM	Project methodology provided to the RAP
22 January 2020	Dr Darran Jordan Wade Morgan	AECOM Yorta Yorta	Inception and methodology meeting held with Yorta Yorta at office
31 January 2020	Dr Darran Jordan	Heritage Advisor, AECOM	Modification of methodology and resubmission to Yorta Yorta
March/December 2020	AECOM/Jem Archaeology	Heritage Advisor	Yorta Yorta provision of field staff
February 2021	Jem Archaeology	Heritage Advisor	Yorta Yorta provision of field staff
PLACEHOLDER]			Yorta Yorta review and approval of the CHMP

7.2 Participation in the Conduct of the Assessment

Yorta Yorta provided support for the field-based assessment of the Activity Area, including provision of input into fieldwork methodologies and sampling strategies for subsurface testing and on-site labour. Once the field assessment was completed, those representatives present were asked if there were any areas of concern they wished to revisit, or extra testing required.

7.3 Consultation in Relation to the Conditions

[PLACEHOLDER]

7.4 Summary of Outcomes of Consultation

[PLACEHOLDER]

8.0 Desktop Assessment

8.1 Search of the Victorian Aboriginal Heritage Register

A search of the Aboriginal Cultural Heritage Information System (ACHRIS) database for the Activity Area was undertaken by Dr Darran Jordan on 21 April 2020. No registered Aboriginal cultural heritage places were identified within the Activity Area. However, three areas of Aboriginal cultural heritage sensitivity were identified partially located within the Activity Area with these comprising a section of waterway linked to Stockyard Creek (Reg No.26), a portion of a swamp/wetland associated with Sergeants Swamp (Reg No.26) and a swamp/lake associated with Koo-Wee-Rup Plain (Reg No.34) (Figure 5). Descriptions of these areas are provided below.

8.1.1 Stockyard Creek

Stockyard Creek rises out of Sergeants Swamp, a part of the Winton Wetlands, directly adjacent to the eastern boundary of Activity Area. The creek functions as the wetlands' main outlet and flows in a westerly direction through the Activity Area as a 1st order watercourse before continuing on westward to join the central channel of Broken River approximately 7 km west of the Activity Area. Reference to 1941 historical aerial imagery indicates that within the eastern portion of the Activity Area Stockyard Creek was at this time characterised by a wide, braided, flat stream bed lacking a central incised channel (Figure 6). Labelled as 'swampy' on the Goorambat Mokoan 1847-1882 Pastoral Run Parish map (see Section 8.8), the braided portion of the stream consolidated within the western Activity Area to form a single narrow stream bed that fed into another swamp – Gum Swamp located west of the Activity Area. Following approval of the Lake Mokoan Scheme in the 1960s, the creek channel was significantly modified with it being straightened and deeply trenched to allow water flowing to Broken

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River, via Stockyard Creek, to the Winton Wetlands Reserve to be controlled in order to form a water reservoir.

8.1.2 Sergeants Swamp

Sergeants Swamp forms the western part of the Winton Wetlands Reserve (Figure 7). Named after the Sergeant family who had a pastoral property that bordered the wetland, the swamp occupies an area of approximately 600 ha. The area is labelled on various parish maps as ‘swamp’, with gum and box woodland, as well as grassland, noted within and around the area. Land surrounding Sergeants Swamp was modified during works for the Lake Mokoan Scheme with a number of dams and the outfall from Stockyard Creek installed. Today, this part of the wetland is mostly cleared of standing vegetation and goes through cycles of inundation and drought.

8.1.3 Koo-Wee-Rup Plain

Koo-Wee-Rup Plain comprises swamp deposits associated with the former Koo-Wee-Rup Swamp, which, alongside Damore Swamp, formed the largest major wetland complex in Victoria, covering an area of approximately 30,000 ha inclusive of the Winton Wetlands. The swamp developed after the Last Glacial Maximum (LGM) (c. 20,000 years ago) in what had previously been an arid or semi-arid landscape. As the climate warmed and rainfall increased, permanent watercourses flowed into the swamp, of which Bunyip River was the major contributor. The swamp comprised an outer area of extensive scrubland on mineral rich soils and a relatively open inner swamp formed on permanently inundated organic peat dominated by reeds and rushes. Narrow sinuous sandy rises and levees are widespread across the area and what appear to be wind-formed lunettes are found on the east side of former intermittent lakes (Agriculture Victoria, 2019a). However, such features have not been previously identified within the Activity Area. In the 1870s, the Victorian Department of Lands to drained the swamp to open up areas for agriculture.

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Figure 4 Activity Area

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Figure 5 ACHRIS search

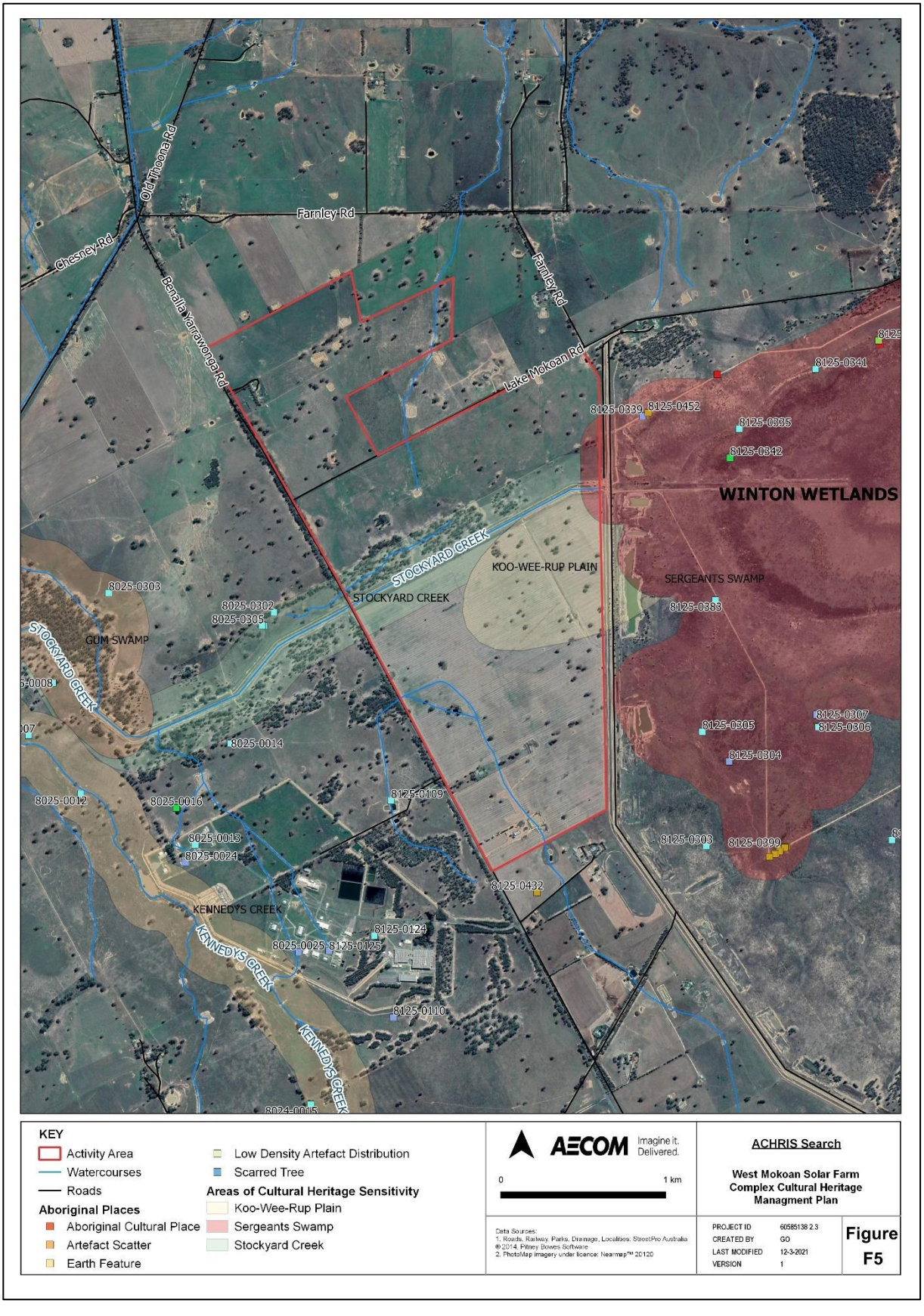

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Figure 6 1941 aerial showing Stockyard Creek (source: Vicmap 2020)

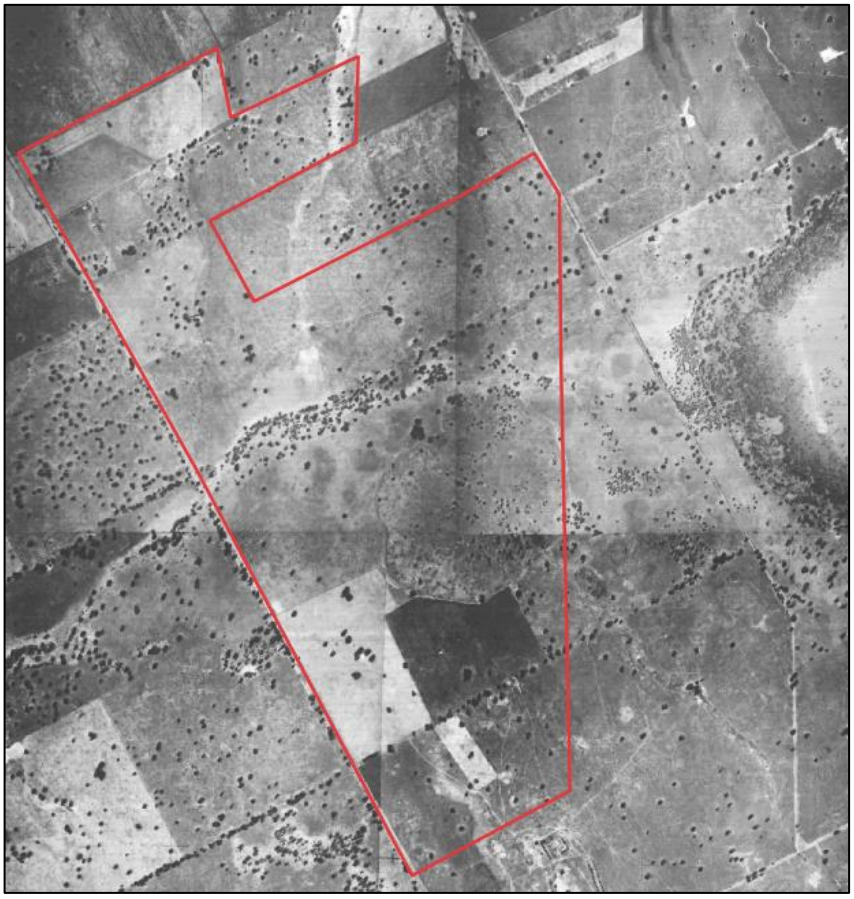

Figure 7 Undated Goorambat Parish Map showing Sergeant Swamp (Source: PROV 2020)

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8.2 The Geographic Region

The geographic region for this assessment has been selected based on the landform features and associated resources that were potentially accessible to Aboriginal people occupying the Activity Area in the past. For the purposes of this assessment, this roughly includes land within a 7 km radius of the Activity Area which encompasses part of Winton Wetlands Reserve, located immediately to the east, as well as a section of the Broken River, located to the west (Figure 8). Defined in this way, the geographic region for this assessment covers an area of approximately 15,000 ha and incorporates parts of the Victorian Riverina and Northern Inland Slopes bioregions

The Victorian Riverina, located north of the Great Dividing Range, is a large area that occupies much of the central north of Victoria. It extends from around Swan Hill in the west to Albury in the east. The region is characterised by flat to gently undulating low hills and wide floodplains associated with major rivers. Consistent with this description, land within the Activity Area, land west to Broken River, as well as land to the east including the Winton Wetlands, for the most part comprises level low lying floodplain. Broken River, for its part, cuts through a wide floodplain valley commencing around Shepparton to the northwest to Mansfield to the southeast. The Winton Wetlands likewise occupies a low lying floodplain or bowl shaped depression that forms a catchment for the surrounding watercourses.

The Northern Inland Slopes, located in northeastern Victoria is a small, somewhat dispersed, bioregion area that forms the easternmost boundary of the Victorian Riverina bioregion. The region is characterised by foothill slopes and minor mountain ranges separated by river valleys that generally drain northward from higher country to the Murray River. A review of topographic maps for the geographic region indicates that a minor mountain range, mapped as Northern Inland Slopes is found directly north of the Activity Area with its lower most footslopes mapped as located approximately 300 m north of the Activity Area.

8.3 Aboriginal Places within the Geographic Region

The ACHRIS is the online tool that is used to access the Victorian Aboriginal Heritage Register (VAHR). The register is a central repository for Traditional Owners to store information about cultural heritage. The Department of Premier and Cabinet (DPC) is required to maintain a register of Aboriginal Places and objects under the Aboriginal Heritage Act 2006.

A search of the VAHR database for land within the geographic region was undertaken by Dr Darran Jordan (AECOM Principal Heritage Specialist) on 21 April 2020. A total of 71 discrete Aboriginal Places, comprising 29 scarred trees, 18 artefact scatters 11 low density artefact distributions, four earth features, four stone features, three Aboriginal cultural places and two object collections, were identified within this area (Table 4 and Figure 9). Consideration of the centroid locations of previously recorded places indicates that none are located within the Activity Area with the majority of these sites are clustered in and around the Winton Wetland to the east, as well as a cluster of mostly scarred trees to the west of the Activity Area. The list of places recorded in the VAHR is provided in Appendix B.

Table 4 VAHR search results

Site Type	Count	%
Scarred Tree	29	40.8
Artefact Scatter	18	25.4
Low Density Artefact Distribution	11	15.5
Earth Feature	4	5.6
Stone Feature	4	5.6
Aboriginal Cultural Place	3	4.3
Object Collection	2	2.8
Total	**71**	**100**

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8.4 Aboriginal Places within the Activity Area

Results of the VAHR database search indicate there are no previously recorded Aboriginal Places within the Activity Area. The closest Aboriginal Place to the Activity Area is low density artefact distribution ‘Mollymusk Artefact Collection’ (Place No. 8125-0432) located approximately 245 m to the south.

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Figure 8 Geographic region

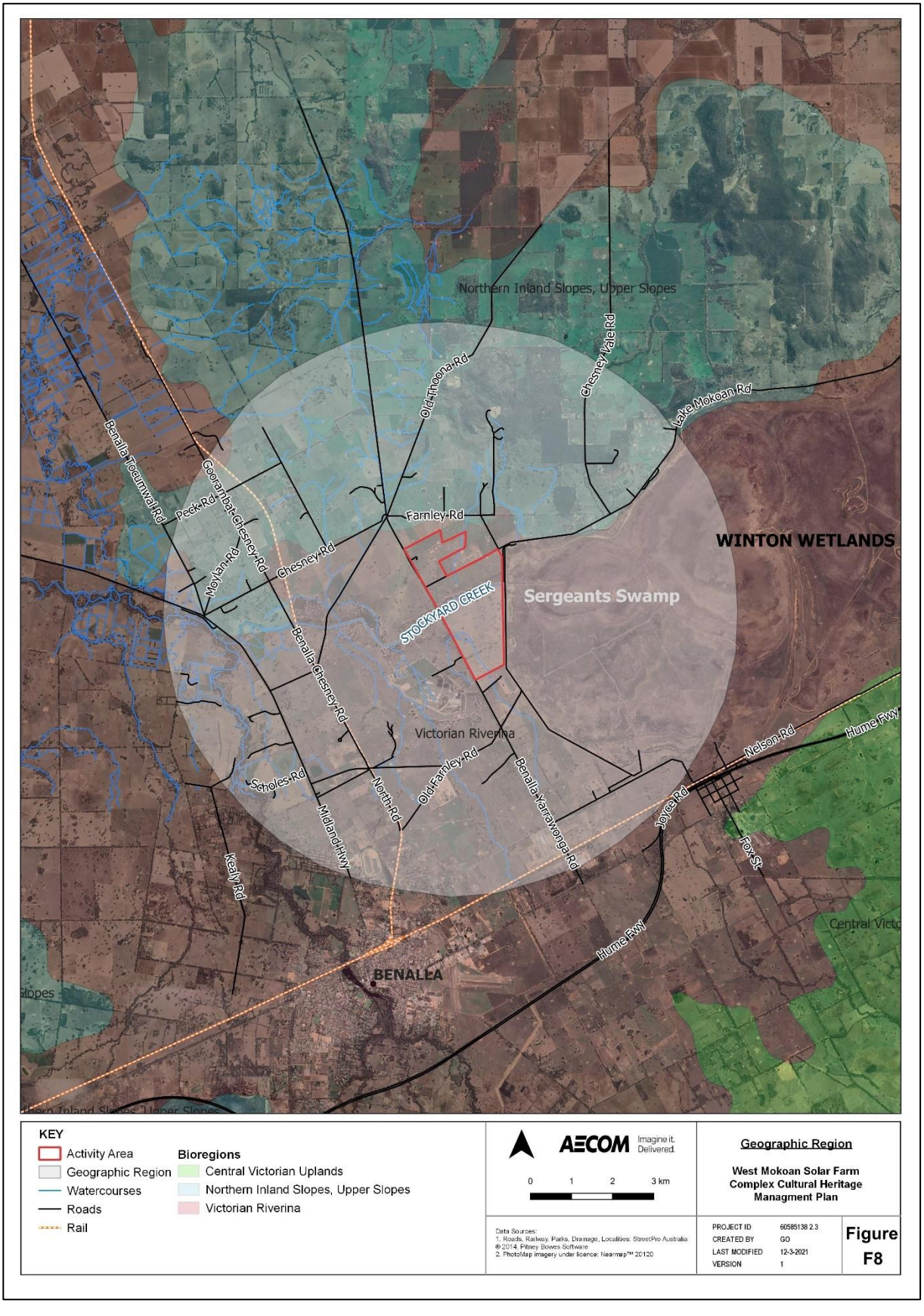

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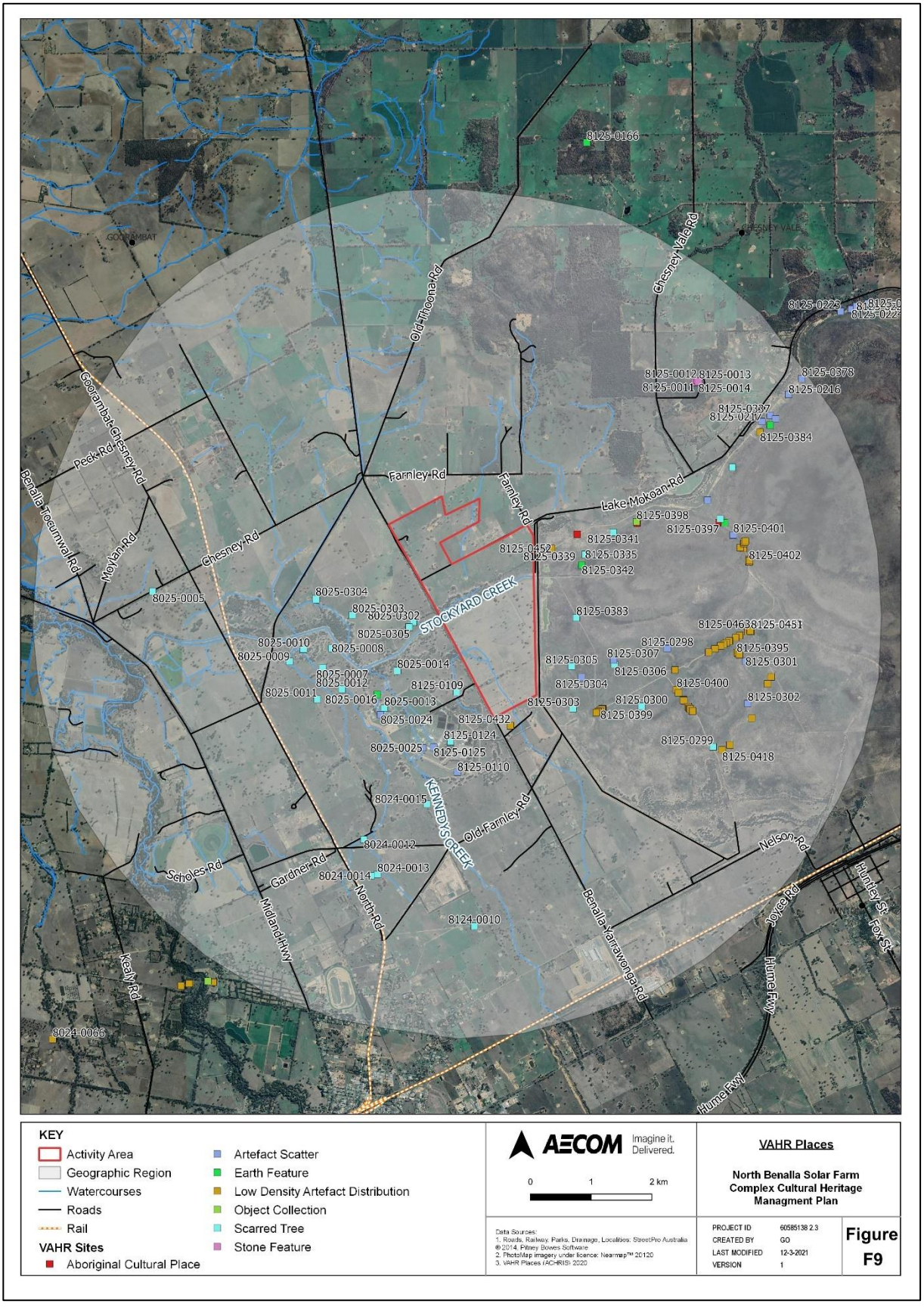
Figure 9 Aboriginal Places



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8.5 Previous Heritage Assessments

Existing VAHR data indicate that numerous Aboriginal heritage investigations incorporating survey and/or test excavation have been undertaken in the geographic region. A summary of findings from a review of these assessments are provided below.

In 1993, Catherine Upcher completed a program of subsurface testing at the proposed Australian Defence Industries (ADI) munitions plant in Benalla, VIC. The program of testing followed a 1992 archaeological survey across the site that resulted in the identification of 14 Aboriginal Places including nine scarred trees, four possible scarred trees, one isolated artefact (grindstone). The testing program was undertaken over a period of three months between December 1992 and February 1993. The testing program employed a process of ploughing within a 2 m wide zone, turning up soil to a depth of approximately 10 cm with each area inspected on foot following ploughing. During the inspection, three isolated artefacts and one scarred tree were recorded. Artefacts were manufactured from silcrete and included one Bondi point.

In 2005, Heritage Insight Pty Ltd completed an existing conditions report for Lake Mokoan in order to assess the potential for heritage sites to be located within the area. The assessment noted that the study area comprises floodplain and wetlands that are considered areas of archaeological sensitivity, in particular land on the margins of more permanent wetland areas. Moreover, the dune system (lunette), separating the main swamps (Sergeants, Greens and Winton) was noted as being sensitive for Aboriginal burial sites. Scarred trees were noted as also likely to be present where remaining mature trees were extant. At the time, only two registered sites were present within the Lake Mokoan area.

In 2007, Heritage Insight Pty Ltd completed an Aboriginal cultural heritage assessment report for a proposed irrigation pipeline and outlet channel to service irrigators in the Lake Mokoan area. Archaeological survey of the proposed 15 km alignment was completed, as well as the storage area and pump station locations. A total of 18 Aboriginal sites were identified during the assessment comprising 17 artefact scatters, and one scarred tree. Artefacts were manufactured from silcrete, quartz, sandstone and greenstone. Artefact types included ground-edge axes, grindstones, cores and flakes.

In 2008, Heritage Insight Pty Ltd completed a CHMP for a proposed irrigation pipeline and outlet channel to service irrigators in the Lake Mokoan area. Archaeological survey of the proposed alignment was undertaken resulting in the identification of 28 Aboriginal sites include 20 artefact scatters, seven mounds, and one scarred tree. The majority of the sites were identified associated with strandlines from former lake levels.

In 2009, Heritage Insights Pty Ltd completed a CHMP for the decommissioning of a 13 km section of one of Lake Mokoan's inlet channels. Archaeological survey of the channel was completed but no Aboriginal sites were identified. It was noted that extensive ground disturbance had occurred along the entire length of the channel.

In 2010, Jo Bell Heritage Services Pty Ltd completed an archaeological survey of the remaining un-surveyed portion of Lake Mokoan as part of the drawdown process. During the survey, eight Aboriginal Places were identified comprising seven artefact scatters, two scarred trees, and an earth feature. Raw materials included quartz, chert, silcrete and quartzite. Artefact types include hammerstones, scrapers, and grindstones. Lake Mokoan generally was identified as a place of considerable social, historical, scientific and spiritual value to contemporary Aboriginal people. Jo Bell Heritage Services Pty Ltd (2010) argued that inundation of the original wetlands and surrounding landscape had significantly impacted on Aboriginal sites in the region. It was noted that Aboriginal artefacts have been found in association with lake strand lines.

In 2014, Jo Bell Heritage Services Pty Ltd completed a CHMP for the proposed Winton Wetlands Visitor Centre. As part of the CHMP archaeological survey was undertaken. However, no Aboriginal Places were identified.

In 2015, Jo Bell Heritage Services Pty Ltd completed a CHMP for the Winton Wetlands Visitor Centre wastewater treatment system comprising a desktop and standard assessment. While the Activity Area was located on floodplain considered archeologically sensitive, no Aboriginal Places were identified.

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In 2015, Archaeology KWP Cultural Heritage Services completed a desktop, standard and complex CHMP for the construction of a car park at 2-4 Mair Street, Benalla. The proposed works were located in an area of cultural heritage sensitivity (200 m of Broken River), however no previously recorded places were identified within the Activity Area. Archaeological survey of the Activity Area did not locate any Aboriginal Places. A single 50 cm x 50 cm STP and four 40 cm x 40 cm STPs were excavated as part of the complex assessment with no Aboriginal objects identified.

In 2015, Jo Bell Heritage Services Pty Ltd completed a desktop, standard and complex CHMP for the construction of a boat ramp and boardwalk/cycle path within the Winton Wetlands. Archaeological survey for the standard assessment resulted in the identification of three Aboriginal Places comprises two low-density artefact distributions (VARH#8125-0401 and 0402) and one multicomponent place (VAHR# 8125-0397) incorporating an object collection, earth feature, scarred trees and a ring tree. A total of 117 artefacts were identified associated with surface sites, with quartz being the most common raw material utilised, followed by silcrete then chert, crystal quartz, quartzite and rhyolite. Artefact types included flake shatter, angular shatter fragments, cores and two grindstones. One STP and seven shovel probes were excavated within the Activity Area which was located across the swamp foreshore and floodplain. No Aboriginal cultural heritage was identified during excavation of the STP or shovel probes.

In 2016, Jo Bell Heritage Services Pty Ltd undertook an archaeological salvage as part CHMP 13517 for the proposed walking/cycling path and boardwalk within the Winton Wetlands. The salvage incorporated surface collection of three Aboriginal Places (VAHR#8125-0397, 8125-0401, and 8125-0402). A total of 73 flaked stone artefacts were recovered as part of the salvage. The dominant raw material was quartz, followed by rhyolite then silcrete, quartzite and basalt. Artefact types included complete flakes, flake shatter, angular shatter fragments, cores and scrapers. The assessment suggested that due to little cortex being present on the artefacts, their general small size and intensive core reduction, the artefact raw material source was likely not local and raw materials were brought to site for knapping.

In 2017, Biosis Research Pty Ltd completed a desktop and standard CHMP for a proposed bicycle track within an area of cultural heritage sensitivity associated within Winton Wetlands. Archaeological survey was completed across the Activity Area, however no new Aboriginal Places or areas of cultural heritage sensitivity were identified. Due to the nature of the works and limited associated impacts, archaeological test excavation as part of a complex CHMP was note recommended.

In 2017, Biosis Research Pty Ltd completed a desktop and standard CHMP for a proposed Indigenous trail within an area of cultural heritage sensitivity associated within Winton Wetlands. The desktop assessment identified a moderate to high potential for unidentified Aboriginal Places to be present within the Activity Area. Accordingly, a standard assessment was completed incorporating archaeological survey that identified an area of archaeological potential in a dune northwest of Bill Friday Swamp. However, impacts to this area was avoided so a complex CHMP was not required. In addition, one Aboriginal Place was identified – low density artefact distribution (VAHR# 8125-0452). It was argued that test excavation would cause more harm to the area than the proposed Activity. As such, test excavation was not undertaken.

In 2017, Alpha Archaeology Pty Ltd completed a complex CHMP for a proposed aged care facility located in Benalla. The desktop assessment concluded that there was moderate potential for Aboriginal archaeological sites to occur within the Activity Area due to the presence of areas of sensitivity, as well as previously recorded Aboriginal Places nearby. Accordingly, a standard assessment was required. Archaeological survey was undertaken over the Activity Area with no Aboriginal sites identified. Due to poor ground surface visibility, archaeological test excavation as part of a complex CHMP was recommended. A total 27 mechanical STPs were excavated in six transects spaced evenly across the activity area. No Aboriginal archaeological sites or areas of archaeological potential were identified.

8.6 Regional Archaeological Background

Available archaeological data for the broader Riverina Bioregion and its immediate environs suggest that Aboriginal people have occupied this region since the late Pleistocene, with radiometric dates from the Lake Urana burial site on the eastern margin of the Riverine Plain, for example, indicating a 20 to 30 kyr age range for this site (Page et al., 1994). While a detailed review of the Aboriginal

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archaeology and prehistory of the Riverina Bioregion is beyond the scope of this report, some key investigation themes are detailed in brief below.

8.6.1 Open Artefact Sites: Distribution and Contents

Surface and subsurface distributions of stone artefacts, variously referred to as open artefact sites, open sites and open campsites are the most common and widely distributed form of Aboriginal archaeological site across the Riverina Bioregion. Other site types, such as rockshelters, shell middens, burials, fish traps, earth mounds, scarred trees, carved trees, quarries, grinding grooves and stone arrangements have also been identified but are comparatively rare. Accordingly, open artefact sites remain the most intensively investigated component of the Aboriginal archaeological record of the Bioregion with site distribution, geomorphology and the technology of associated flaked stone artefact assemblages, in particular, comprising key research topics (see, in particular, AECOM, 2010; English & Gay, 1995; Kelly, 1980; Kelly & Pollock, 2005; Knight, 2001; Long & Associates, 2010; Officer et al., 1998; OzArk, 2004, 2012; Pardoe, 2009a, 2009b; Paton, 1994; Pearson, 1981; Silcox, 1987a, 1987b; Witter, 1980, 1990).

Existing archaeological survey data for the region indicate a strong trend for the presence of open artefact sites on landform elements adjacent to creeks, rivers and lakes (e.g., source-bordering dunes, creek flats, terraces, lower slopes and spur crests). Although this distribution pattern can be attributed in part to geomorphic dynamics and archaeological sampling bias, with fluvial erosion activity along watercourses, for example, resulting in higher levels of surface visibility and concentrated survey effort, an occupational emphasis on linear and area-based water features is supported by the results of several subsurface investigations. Together with available survey data, the results of these investigations have demonstrated that assemblage size and complexity tend to vary significantly in relation to the landscape variables of landform and water permanency, with larger, more complex[3] assemblages occurring on landform elements adjacent to regionally and locally significant watercourses (e.g., the Murrumbidgee, Murray, Lachlan and Macquarie Rivers), as well as lakes (eg, Lake Mokoan). Outside of these contexts, surface and subsurface artefact distributions have typically been found to be sparse and discontinuous and are often referred to as ‘background scatter’, being “artefactual material which is insufficient in number or in association with other material to suggest focussed activity in a particular location” (Douglas and McDonald, 1993).

Flaked stone artefacts dominate archaeological finds assemblages from investigated open artefact sites across the region. Other stone artefacts, such as complete and broken grindstones, anvils, hammerstones and edge-ground hatchet heads[4] have also been recorded though comparatively infrequently. Faunal remains have likewise proven elusive (but see Witter (1978) for an example). Associated archaeological features, meanwhile, have included knapping floors[5], hearths and ground ovens.

8.6.2 Flaked Stone Artefact Technology

Virtually indestructible, flaked stone artefacts are a ubiquitous element of the Aboriginal archaeological record of the SWSB and, as such, have assumed a prominent position in archaeological reconstructions of past Aboriginal land use across this region. Studies of excavated and surface collected stone artefact assemblages to date have ranged from basic descriptive accounts of assemblage composition[6] to detailed attribute analyses. Notable excavated and surface collected assemblages include those recovered from sites, PADs and landscapes investigated by Officer et al. (1998), AECOM (2016, in prep), Andrew Long & Associates (2010), Ozark (2004, 2012), Kelly (1980), Silcox (1987a, 1987b), Witter (1978, 2004), Cane (1995) and Pardoe (2009a, 2009b).

Available technological and typological data for surface collected and excavated flaked stone artefact assemblages from the region suggest that the overwhelming majority of these assemblages belong to what is known as the ‘Australian small-tool tradition’, a term coined by Gould (1969) to describe what

[3] Those containing a wider variety of raw materials and technological types and/or higher mean artefact densities.
[4] Note that some hatchet-heads were manufactured on unifacially or bifacially-flaked blanks
[5] These features have also been referred to as ‘flaking floors’ and ‘workshops’.
[6] Ie, with respect to the relative representation of different artefact types and raw materials

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was then thought to be the first appearance, in the mid-Holocene[7], of a new suite of flaked stone tool forms in the Aboriginal archaeological record of Australia, including backed artefacts, adzes and points (both unifacially and bifacially flaked). Complex, hierarchically-organised reduction sequences associated with the production of these tools contrast markedly with the simple sequences of earlier periods (Moore, 2011). Tools of the Australian small-tool tradition, it has been suggested, formed part of a portable, standardised and multifunctional tool kit aimed specifically at risk reduction (Hiscock, 1994, 2002, 2006). Stone artefact assemblages from late Pleistocene and early Holocene contexts, in contrast, are described by archaeologists as belonging to the 'Australian core tool and scraper tradition', a term first used by Bowler et al. (1970) to describe the Pleistocene assemblages recovered from Lake Mungo in western New South Wales. Bowler et al. (1970) saw the main components of these assemblages - core tools, steep-edged scrapers and flat scrapers - as characteristic of early Australian Aboriginal assemblages and as being of a distinctly different character to those associated with the proceeding small-tool tradition.

Flaked stone artefact assemblages from excavated and surface collected/recorded open artefact sites across the region attest to the exploitation of a diverse range of lithic raw materials, with a degree of sub-regional variability in raw material use also apparent (see, for example, Cane, 1995; Pardoe, 2009b). However, artefacts manufactured out of quartz - both milky and crystal - overwhelmingly dominate the region's existing stone artefact record. Other, less commonly exploited raw materials represented in excavated and surface collected/recorded assemblages include materials such as silcrete, quartzite, chert, chalcedony, silicified tuff, chalcedony and fine-to-coarse-grained volcanics (e.g,. rhyolite and basalt). Alongside quartz, these materials occur variously in a number of geological formations and units across the SWSB. Notably, cortical data for analysed flaked stone artefact assemblages indicate the exploitation of both primary (ie, outcrop) and secondary (ie, fluvial gravel deposits) raw material sources.

To date, procurement evidence at documented Aboriginal quarry sites across the region has consisted of surface scatters of flaked stone artefacts in direct spatial association with naturally-occurring exposures of lithic raw materials (eg, Brayshaw, 1987; Go Green Services, 2011; Smith, 1987). Quarries with topographic indicators of 'open cut' mining activities, such as localised circular/semi-circular depressions or trenches (cf. Binns & McBryde, 1972; Jones & White, 1988; McBryde, 1973, 1984), have yet to be identified. One of the best known quarry sites within the region is the Bomen axe quarry and axe manufacturing site, located in Bomen, near Wagga Wagga (Go Green Services, 2011; Navin Officer, 1998). Initially identified by Navin Officer (1998), this site provides evidence for the quarrying of a localised exposure of basalt cobbles associated with an unmapped basalt dyke or sill, as well on-site axe manufacture. Surface indications of the site, which is located on north-south trending ridgeline approximately 3 km north of the Murrumbidgee River, include approximately 500 artefacts spread across an area of c.150 x 70 m (10,500 m2), with recorded artefacts including cores, primary flakes, secondary flakes and axe preforms (Go Green Services, 2011: 32). Artefacts within the site occur in close spatial association with exposed basalt cobbles, which outcrop across an area of c.120 x 70 m (8,400 m^2), exhibit a naturally rounded brown to red brown cortex with extensive iron oxide staining and range in size from 10 cm to 50 cm in maximum linear dimension. Smaller flaked materials within the site are reported as being concentrated along the crest of the ridgeline and as having a distribution suggestive of the presence of several variously discrete and merged working floors ((Go Green Services, 2011: 32).

In contrast to the adjoining Sydney Basin and Southeastern Highlands Bioregions, existing analyses of excavated flaked stone artefact assemblages from the region have largely omitted any consideration of the issue of diachronic changes in lithic raw material use, a product of generally small assemblage sizes and a lack of associated radiometric dates. To date, the only notable assessment of this issue was undertaken by OzArk (2004) as part of their analysis of a sizeable lithic assemblage (n = 2,484) recovered from a source-bordering sand dune adjacent to the Cudgegong River, west of the township of Gulgong, in the northernmost portion of the region. While quartz was the dominant raw material in this assemblage, accounting for 79.4% of the assemblage by count, analysis of the vertical distribution

[7] Note that more recent research into the chronology of backed artefacts and points in Australia has demonstrated a long history of production and use for these implement types, with backed artefact, for example, known to have been produced in the early Holocene and late Pleistocene (eg, Attenbrow et al., 2009; Hamm et al., 2016; Hiscock & Attenbrow, 2004; Slack et al., 2004).

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of raw materials within the sand body at this location revealed relatively higher frequencies of 'silicified tuff / FGS' in deeper spits (OzArk, 2004: 76, Fig. 24).

Excavated lithic assemblages from rockshelter sites located to the north of the region (e.g., Bobadeen 1 (Moore, 1970); Botobolar 5 (Pearson, 1981); SG5 (White, 2001)) have likewise demonstrated change over time in the relative importance of different raw materials, namely, quartz and fine-grained siliceous materials (ie, chert, silicified tuff and FGS). At Bobadeen 1 and Botobolar 5, low relative frequencies of quartz in the deepest or oldest spits were observed to give way to higher frequencies that subsequently declined again over time, albeit gradually (see OzArk, 2004: 76, Fig. 24). A different pattern, meanwhile, was apparent for the SG5 rockshelter assemblage, with quartz dominant in the site's bottom three (ie, Spits 7-10) and upper four (ie, Spits 1-4) spits, potentially of Early Bondaian and Late Bondaian association respectively, and 'chert'[8] dominant in Spits 5-6, potentially of Middle Bondaian association.

In the Southeastern Highlands, archaeological considerations of change over time in raw material use to date have focused on change over the course of the mid-to-late Holocene (eg, Flood, 1980; Hughes et al., 2014; but see Flood et al., 1987 for a longer term perspective). As recently highlighted by Hughes et al. (2014), several excavated sites from across this region, which borders the region to the east, have yielded flaked stone artefact assemblages that document a change from 'early' silcrete or chert-dominated assemblages with moderate to high frequencies of backed artefacts and low frequencies of bipolar artefacts to 'later' quartz-dominated assemblages with high proportions of bipolar artefacts and few backed artefacts. At Nardoo, near Lake George, and Yankee Hat Shelter 2, in the Namadgi National Park, Flood (1980) placed the transition between these distinctive 'industries' as occurring about 900 cal. BP. At Hanging Rockshelter Shelter 1, also in the Namadgi National Park, the transition was suggested to have occurred even later, at around 500-300 cal. BP (Flood, 1980). Packard (1986), in summarising the results of Jones and Allen's 1983 investigation of the 'Butmaroo 1' site, southeast of Lake George, cites a date range of 500-1,000 BP for the site's upper quartz-dominant assemblage and a range of 3,000-4000 BP for an underlying assemblage "of silcrete and quartz artefacts with backed blades made on both raw materials". More recently, Hughes et al. (2014: 30-31) cited a minimum age of "2,400 ya" for the 'early' silcrete and backed artefact-rich / bipolar-poor assemblage recovered from the eastern ridge of the 'WE-1' site, located on the Woolshed Embankment at the northern end of Lake George. A quartz and bipolar-rich 'later' assemblage recovered from the western ridge, in contrast, was argued to post-date 1300 cal. BP (Hughes et al., 2014: 31).

These observations notwithstanding, attention is also drawn to the results of Theden-Ringl's (2017) recent reassessment of Flood's (1980) technological change model for the Southeastern Highlands. As highlighted, Flood's (1980) model posits a change from a chert-dominated backed blade industry to a quartz-dominated bipolar industry in the past millennium. However, Theden-Ringl has argued that available highland assemblages, including those excavated by her in the Namadgi Ranges (see Theden-Ringl, 2016), do not, in fact, support such a model. Bipolar artefacts, Theden-Ringl (2017: 95) notes, appear to be relatively common at all highland sites and there is little, if any, convincing evidence to support an increased emphasis on bipolar knapping or quartz use <1,000 cal BP. The 'replacement' of backed artefacts by bipolar pieces is likewise not attested. Contra Flood's (1980) model, Theden-Ringl has identified a trend, over time, towards the use of a more diverse range of lithic raw materials, with finer-grained materials (e.g., cherts and fine-volcanics), for example, more strongly represented (after quartz) in the past millennium. Other notable trends identified by Theden-Ringl include a decrease in mean artefact size from the mid-Holocene towards the past millennium, a universally rare but persistent use of retouch and marked inter-site variation in artefact density (Theden-Ringl, 2017: 92).

Backed artefacts, scrapers and cores dominate the "formed" components of dated and undated Bondaian stone artefact assemblages from the region. Other implements types, such as unifacially and bifacially-flaked pebble tools (i.e., 'choppers'), notched flakes, edge-ground hatchet heads, points, burins and miscellaneous retouched flakes, have also been recorded, albeit relatively infrequently. Excavated and surface collected / recorded assemblages of backed artefact assemblages from the region include the main three categories of this implement type, namely, Bondi points, geometric

[8] Note that White (2001: 22) used the term 'chert' as a "very wide ranging term" for fine-grained siliceous materials, including chert and silicified tuff.

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microliths and elouera. Scrapers, meanwhile, have been identified in a wide range of shapes and sizes. Recovered cores indicate the use of both freehand percussion and bipolar reduction, with cores flaked via freehand percussion indicating the application of a variety of core reduction methods.

8.6.3 Earthen Mounds

Typically associated with the Riverina Bioregion (e.g., Klaver, 1998; Martin, 2006; Pardoe & Martin, 2001), significant numbers of earthen mounds have also been identified. Concentrated within the Murrumbidgee, Murray and Lachlan River corridors, mounds are by-products of Aboriginal peoples' long term use of particular locations in the landscape. Circular to oval in shape, most are between 10 to 20 m in diameter. However, much larger examples, up to 80 metres in diameter, are known (Pardoe & Martin, 2001). While some mounds remain in the landscape as locally prominent rises, many have been completely or partially levelled by agricultural or other activities. Regardless, mounds can be distinguished from the landscape surrounding them by their dark coloured, sometimes greasy, constituent sediments, a product of greater proportion of organic material, including ash and charcoal. Where vegetation remains, mounds are usually vegetated differently than the surrounding area.

Mounds on the Riverine Plain of southeastern Australia exhibit variable material culture assemblages, with documented finds including charcoal, burnt clay and/or stone heat retainers (i.e., from cooking ovens), animal bones (including bone tools), shells, stone tools and, sometimes, burials. While most mounds appear to derive from the operation of earth ovens, multiple mound types have been proposed on the basis of differing site formation processes and contents. Following Klaver (1998, in Pardoe & Martin, 2001: 83), these include:

1. **Oven Mounds,** resulting from the repeated operation of earth ovens.
2. **Ash dumps,** consisting of secondary accumulations of oven waste. Some ash dumps appear to have been strategically positioned while others appear to be incidentally positioned.
3. **Domestic Hearth Mounds, resulting** repeated operation of 'hearth' fires as opposed to pit ovens.
4. **Dwelling Platforms**, consisting of deliberately accumulated elevated living spaces.
5. **Garden Mounds**, where earth has been raised to produce better yields.
6. **Burial Mounds or Tumuli**, mounds that have an origin in occupation or oven mounds but have been given over to burial.
7. **Semi-Cultural Mounds,** consisting of natural mounds that are later occupied (e.g., small hummocky sand dunes exhibiting minor staining from cremations or fires related to burial ceremonies, as well as typical mound material such as baked clay heat retainers, burnt animal bone and charcoal).
8. **Non-Cultural Mounds**, comprising natural features with similar composition to cultural mounds (e.g., burnt tree stumps and burnt termite nests).

In terms of their distribution, mounds are largely, though not exclusively, restricted to the major floodplains of the Riverine Plain (e.g., the Murray, Murrumbidgee, Lachlan, Wakool, Edwards Rivers). They are most commonly associated with poorly drained soils and occur the margins of river floodplains, typically on the first break of slope above the floodplain, as well the margins of creek, lakes, swamps, and smalls depressions in the floodplain (Wood, 1992: 22). Mounds are not usually located on lunettes, which are characterised by sandy, well-drained soils. Studies indicate that mounds are often clustered in 'complexes' of 20 or more individual mounds. Densities, meanwhile, appear to vary significantly by landform, with Klaver (1998), for example, citing mounds densities between 0.24 (mounds/ha) and 2.32 for the four landform regions of eastern portion of the Murrumbidgee Province (i.e., the Eastern Sloping Plains, Eastern Alluvial Plains, Western Alluvial Plains and Western Plains)

Available radiometric dates indicate that mounds are mid-to-late Holocene phenomena, with various hypotheses, incorporating both social and environmental factors, put forward to account for their introduction into the Aboriginal archaeological record of southeastern Australia. One such hypothesis links the appearance of mounds to broader, continent-wide processes of socio-economic intensification in Aboriginal societies, with mound creation one of several archaeological manifestations of increasing socio-economic complexity (Klaver, 1998).

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8.6.4 Quartz Flaking: Problems of Artefact and Site Identification

As highlighted in Section 8.6.2, excavated and surface recorded stone artefact assemblages from the region attest to Aboriginal peoples' use of a diverse array of raw materials for flaked and edge-ground stone tool manufacture. However, here, as in several other regions of Australia, assemblages tend to be dominated by artefacts manufactured out of quartz, typically vein, or milky quartz, but also crystal quartz. Despite this, the quartz technology of this region remains poorly documented in the published literature, a product of the well documented analytical and interpretive challenges posed by quartz assemblages (eg, Dickson, 1977; Driscoll, 2011; Hiscock, 1982; Holdaway & Stern, 2004; Knight, 1991; Moore, 1997, 2000; Tallavaara et al., 2010). As highlighted by numerous Australian and international researchers, the internal characteristics of the quartz are such that the patterned conchoidal features used by archaeologists to identify quartz artefacts are often poorly expressed, complicating artefact identification and our ability to draw substantiative behavioural inferences from assemblages made predominantly, or exclusively, from this raw material.

Moore (1997), like many other Australian researchers, has argued that sorting culturally modified quartz items from naturally-fractured ones, is a "very difficult" task. Building on early replicative and archaeological studies by researchers such as Dickson (1977), Hiscock (1982) and Knight (1991), the results of Moore's (1997) experimental study of Aboriginal quartz reduction, a study "implemented as a preliminary attempt to define characteristics that can be used to differentiate quartz debris produced exclusively by human action from quartz debris produced by both natural (modern) human action" (Moore 1997: 271), are of particular relevance to the region and current assessment.

Prior to Moore's study (1997), the identification and classification of quartz artefacts in Australian lithic studies had rarely been examined in detail. As noted by Moore (1997: 272-3), before this time, the most common approach to identifying quartz flakes in potential Aboriginal assemblages involved searching for the same attributes used to identify flakes in other raw materials, with two of the most commonly cited attributes being a striking platform and bulb of percussion. Dickson (1977: 110), for example, identified quartz flakes in his replicated assemblage as those that met "the usual [conchoidal] specifications". Similarly, Bird (1995: 18), in his analysis of the flaked stone assemblage recovered from Mount Talbot 1 rockshelter in the Southern Wimmera of Victoria, identified flakes of all raw materials, including quartz, on the basis of "any of the defining characteristics of conchoidal fracture". Brown (1993: 264), too, identified quartz flakes at Mannalargenna Cave on Prime Seal Island in Bass Strait, as those exhibiting a striking platform and bulb of percussion. Other scholars, however, have stressed that conchoidal attributes in quartz are either poorly developed or absent altogether. Bowdler (1984: 112), for example, in her analysis of quartz artefacts from Cave Bay cave on Hunter Island, Tasmania, stressed that bulbs of percussion and striking platforms were extremely rare and, as a consequence, assigned the term 'flake' to all lithics which appeared to have been flakes, split or broken. In a similar fashion, Vanderwal (1984), in his analysis of a series of large quartz assemblages from coastal Tasmania, identified as flakes all "relatively flat" quartz fragments with "at least one sharp edge". Witter (1990), meanwhile, has argued that materials such as quartz "do not fracture conchoidally" (cf. Dickson, 1977; Hiscock, 1982: 38)

Working from this basis, Moore's (1997) study involved a series of quartz reduction experiments aimed at the development of a set criteria for the identification of quartz artefacts. Approximately 20 unmodified milky quartz pebbles from a number of inland locations throughout northeastern Tasmania were reduced via freehand percussion using a medium-sized metasedimentary beach cobble hammerstone. All objective flake and/or shatter products were subsequently examined to identify potential impact characteristics. Based on this examination, Moore (1997: 277) identified several variables which he argued should, in combination, "prove reliable for identifying quartz debris that is clearly cultural in origin". The first variable relates to the angularity of fragments produced during quartz reduction. Moore observed that the majority of fragments produced during his reduction experiments exhibited at least one margin created by two planes intersecting at an acute angle (<90°). Residual quartz exposures examined in unaltered settings, in contrast, were typically dominated by small quartz pebbles with faces orientated closer to 90° to each other. The faces in question also tended to be uniformly damaged and/or rounded due to soil abrasion (Moore, 1997: 277). Nonetheless, given the ubiquity of angular quartz fragments in areas subject to modern disturbance, Moore has stressed that "angularity alone is not a sufficient criterion for declaring a concentration of quartz cultural in origin" (Moore, 1997: 284)

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The second variable identified by Moore (1997) concerns the morphology of flake striking platforms produced during freehand quartz reduction. These, Moore (1997: 277) suggests, will typically exhibit a platform angle between 45° and "somewhat less than 90°" and will be between 0.5 and 2.5 cm in width. Flakes created by bipolar reduction, he qualifies, will not exhibit the above morphology, with this form of reduction typically resulting in dorsal platform shattering and other diagnostic shatter characteristic, including 'annular cracks', 'ring cracks' and 'linear striation-like features' (Moore, 1997: 278-83). Annular cracks appear within a circular area surrounding the point of percussion (up to 0.5 cm but typically <0.3cm) and are most readily identifiable on cores. Radial cracks, in contrast, radiate out from the point of percussion and are typically orientated more-or-less at right angles to the annular cracks. Both features, Moore (1997: 281) proposes, combine "in such a way as to produce considerable quantities of percussion shatter" during quartz core reduction. Finally, Moore notes that linear striation-like features are often visible on the ventral surface of quartz flakes, radiating out from the point of percussion, and relate to the propagation of the fracture front following impact (Moore, 1997: 282)

The above attributes notwithstanding, the results of Moore's (1997) own replication experiments reinforce the difficulties encountered by archaeologists attempting to identify and analyse quartz assemblages. When classified based upon the presence or absence of the conchoidal features described above, approximately 85% to 90% of the replicated quartz debris from Moore's quartz cobble reduction 'events' lacked such features. Indeed, Moore (1997: 284) was himself forced to conclude that "most or all of this debris will be inseparable from natural quartz in settings where cultural reduction is mixed with naturally deteriorated quartz". The percentage of fragments with conchoidal features was uniformly low, ranging from 9.6% to 15.9%.

Outside of the technological attributes described above, Moore (1997: 276) has argued that the "context of a potential Aboriginal quartz scatter should be the first consideration of the field archaeologist". Where identified in areas known to contain no naturally occurring quartz, the likelihood that a scatter is, in fact, cultural in origin is high (Moore, 1997: 285). Conversely, quartz scatters identified in areas known to contain an abundance of quartz must be treated with caution and their constituent fragments carefully examined for conchoidal fracture attributes.

8.6.5 Aboriginal Burial Practices

Bonhomme's (1987) review of Aboriginal burials across the Riverine Plain of southeastern NSW identified three distinct types of burials sites within this region: 'Type 1', 'Type 2' and 'Cemeteries'. Type 1 sites contain only a few individuals burials (1-5) and likely represent random burials over long periods of time. Type 1 burials are most commonly occuring in source bordering dunes and consist of shallow simple burials with little evidence of complex mortuary procedures or grave preparation (Bonhomme, 1987: 47). Type 2 burial sites occur "in areas where prior stream sediments are the only sand source standing above the floodplain" and can contain "great numbers" of burials. Such locations, Bonhomme (1987: 47) notes, are not easily distinguishable in the field. Cemeteries, meanwhile, are defined as "discrete areas containing possible hundreds of burials". Such sites, the majority of which are of Holocene age, display a range of complex burial practices and tend to be associated with "complex resource environments" (Bonhomme, 1987: 47-48).

Previously identified Aboriginal burial sites within the region have included single and multiple internments and have been identified, or reported as occurring in, riverine, hillslope and lakeshore contexts (Bonhomme, 1987; Bowdler, 1976; Kayandel Archaeological Services, 2007; Page et al., 1994; Pardoe, 1990, 2009b; Paton & Hughes, 1984). Notable examples include the Taronga Drive burial at Cowra (Pardoe, 1990), dated to between 100 and 150 years ago, the Lake Urana burial, dated to between 20 and 30 kyr (Page et al., 1994), the Halls Pit burial site, near Condobolin (Webb, 1986), and the four burials identified in the Roseleigh Sand Dune, near Albury (Bowdler, 1976; Paton & Hughes, 1984). Skeletal remains associated with 'misadventure', as opposed to formal burial, have also been identified (Pardoe & Webb, 1986). No cemeteries are known. However, it should be noted that there remains high potential for their identification in the future, with source-bordering dunes associated with the Murrumbidgee, Murray, Lachlan and Macquarie Rivers, in particular, representing prime potential burial locations.

At present, the Lake Urana burial, located on the eastern margin of the Riverine Plain, remains the oldest known burial site within the immediate vicinity of the Activity Area. Thermoluminescence (TL) dates for the stratum containing the human remains at this site (i.e., 25.6±7.3 kyr and 32.4±8.0 kyr),

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which occurred in a lunette at the southern end of the lake, indicated a 20 to 30 kyr age range (Page et al., 1994: 43). While partially destroyed by quarrying activities, analysis of the Lake Urana remains identified these as belonging to an adult female aged between 35 and 40 years old (Page et al., 39-41). No burial goods were identified in association with the skeletal remains at the time of the original find. However, additional archaeological materials, consisting of “two large grindstones and numerous amorphous quartzite artefacts” were identified at the site during a subsequent detailed survey (Page et al. 1994: 39). The spatial relationship of these finds to the original burial remains unclear. However, it is noted that the site has been referred to as both a burial and occupation site (Page et al., 1994). Notably, TL dates on beach and lunette deposits at Lake Urana suggest that the period between c.30 and 25 kyr was one of full freshwater lake conditions, with associated faunal resources, which would have included marsupials, reptiles, emu eggs, mussels and fish, capable of supporting human occupation (Page et al., 1994: 43).

While based on burial and skeletal datasets from the north of the Activity Area, broader-scale archaeological interpretations of the mortuary record of the Murray River corridor are also of note here (e.g., Hiscock, 2008; Littleton & Allen, 2007; Pardoe, 1988, 1990b, 1995, 2003; Webb, 1987, 1995). Drawing on various lines of evidence, including burials, human biology, ecological patterning and historical documentation, Pardoe (1988) proposed a still influential cultural model of social and territorial organisation based on the concept of exclusion. Central to this model is the idea that Aboriginal societies occupying the Murray River corridor were based on strict territorial boundaries, with a social organisation characterised by corporate, localised and unilineal descent groups. Pardoe argued that Murray River cemeteries represent territorial markers, with increasing numbers of these sites, as well as greater burial densities within some cemeteries, suggestive of population increase through time. Extreme levels of biological variation along Murray River corridor, as evidenced in skeletal remains, have similarly been attributed by Pardoe (1990b) to the existence of large, high-density populations occupying relatively small territories.

Like Pardoe, Webb (1987, 1995) identified the central Murray as an area occupied by sedentary groups living under high population densities. Unusually high frequencies of pathological skeletal conditions in this area, Webb (1987) argued, could be attributed to relatively high levels of aggregation and sedentism, with both variables creating living conditions in which intestinal parasites and infectious diseases were common (but see Robertson, 2003). More recently, Littleton and Allen (2007) have challenged the concept of cemeteries as symbols of bounded territories or common group identify, arguing that these sites were not exclusively or continuously used by single sedentary groups of people but rather, were used by multiple groups moving flexibly across the land. Utilising the concept of persistent place use (after Schlanger, 1992), Littleton and Allen (2007) contend that the existence of cemeteries within the Murray River corridor need not be linked to increased territorialism, as hypothesised by Pardoe (1988). Instead, the existence of such sites is best interpreted as a product of the structured re-use of particular locations over long periods of time, with the groups involved sharing similar ideas about what constituted a suitable location for burials and initial burial activities at each site focusing and restructuring their successive use (Littleton and Allen, 2007: 295-296). Hiscock (2008: 227-228), for his part, has suggested that variations in cemetery abundance and grave densities within the Murray River corridor need not be linked to population size or growth but may instead reflect factors such as taphonomic bias and changing local cultural practices.

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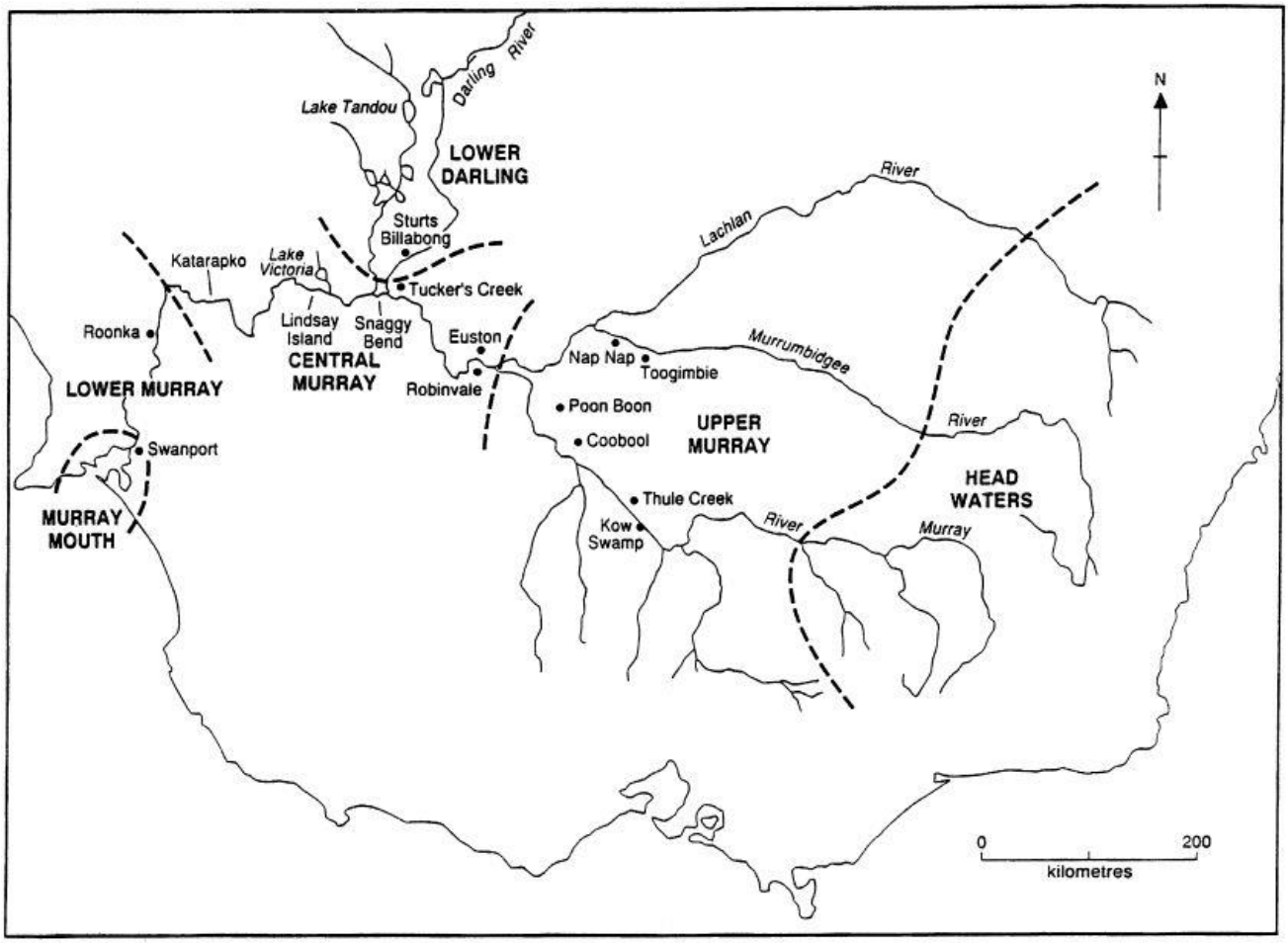
Figure 10 Map of the Murray Bason showing burial site with more than 20 burials (from Littleton, 1998: 2, Fig. 1)



8.6.6 3.1.6 Occupation models

Of-cited occupation models for the region include those formulated by Witter (1980) and Pearson (1981). Witter's (1980) model, developed as part of an archaeological assessment of a proposed natural gas pipeline route between Wagga Wagga and Young, identified two "cultural adaptions" for the broader study region, namely, a "Riverine Oriented Cultural Adaption" and a "Plateau Oriented Cultural Adaption". The former, Witter (1980) proposed, would have focused on the abundant floral and faunal resources of the Murray, Darling and Murrumbidgee River ecosystems. In riverine contexts, root staples such as Typha and *Triglochia procera* would have been supplemented by freshwater faunal resources such as mussels, yabbies and fish. Witter (1980) suggested that the principal archaeological indicator of this adaption are the remains of "cooking pits" (ie, hearths / ground ovens), which were used to bake the roots of aquatic plants.

For the region between Wagga Wagga and Junee, Witter's (1980) Riverine Oriented Cultural Adaption holds that, excluding periods of flooding, occupation would have been concentrated in red gum woodlands (*Eucalyptus camaldulensis*) on alluvial flats adjacent to watercourses. Such areas "would have provided an abundant source of aquatic and semi-aquatic plant flood in the form of roots and tubers" as well as "shelter from the open plains and reduced heat radiation during the night" (Witter, 1980: 11). For the region between Junee and Young, Witter's Plateau Oriented Cultural Adaption holds that, while occupation in this region was still focused on watercourses, a wider variety of landform elements would have been utilised, including ridges and other elevated landform elements. Use of such landforms may have been prompted by the development of cold air traps in valley bottoms (Witter, 1980: 12).

Formulated as part of a wide-ranging investigation into pre- and post-contact Aboriginal occupation in the upper Macquarie River region, Pearson's (1981) land use model was based, in part, on an analysis of archaeological site distribution within four selected sample areas. Consistent with the

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results of more recent site distribution analyses, Pearson (1981) found that the size of Aboriginal camp sites in his dataset (n = 42), defined by him as “the area of ground covered with a reasonable density of artefacts”, increased as distance from water decreased. In other words, larger sites were concentrated along watercourses. While acknowledging that several factors may have been responsible for this trend, Pearson (1981: 94) identified the spatial and economic[9] requirements of larger groups as potentially important factors. Away from creeklines, in areas of hilly or undulating terrain, Pearson (1981: 99) identified a preference for dry, well-drained locations, with the majority of sites also sheltered from prevailing winds (or located near such shelter) and/or offering commanding views over nearby watercourses.

Drawing the various strands of his analysis together, Pearson (1981: 101) concluded that the “desirable features” of a camp site within the selected sample areas were accessibility to water, good drainage, favourable elevation, the presence of level ground, a sunny leeward aspect and adequate fuel. Landform contexts identified by Pearson (1981:101) as meeting these needs included gentle (i.e., low gradient) hillslopes and undulating ground, flat areas on ridges (particularly at lower elevations), river flats and creek banks, with the last two offering “accessibility to water but few of the other desirable features” (Pearson, 1981: 101). While pertinent to camp site selection, Pearson (1981: 101) cautioned that the location of non-occupational sites, such as quarries, burials, grinding groove and ceremonial sites, was likely based on different locational principles.

8.7 Ethnographic Context Ethno-Historical Accounts of Aboriginal Occupation of the Geographic Region

Sections 8.5 summarised the Aboriginal archaeological context of the Activity Area. This section builds on this foundation by summarising relevant ethnohistoric information for this area. As in other parts of Victoria and Australia more broadly, non-Aboriginal people occupying the region began to document Aboriginal culture from first contact, with explorers, missionaries, settlers and the like recording their observations of Aboriginal people and/or their material culture in letters, journals and official reports. Many of these accounts are overtly Eurocentric in tone and the content and veracity of some is, at best, questionable. Nonetheless, taken together, they form an important source of information on Aboriginal lifeways at the time of British colonisation and can, in conjunction with available archaeological data, be used to generate working predictive models of prehistoric Aboriginal land use.

8.7.1 Language Groups and Boundaries

While the RAP for the Activity Area is the Yorta Yorta, there is considerable debate as to the name of the Aboriginal people who occupied the Benalla region at the time of contact. According to Wesson (2000) the Activity Area falls within the traditional country of the Waveroo people, who spoke variants of the Waveroo (also referred to as Waywurru) language.

Wesson (2000:57) suggests that Waveroo utilised the Murray Ovens, and Kiewa Rivers, as well as Broken, Reidy and Fifteen Mile Creeks and numerous swamps in the regions. This language group, as Clark (2000) has highlighted, is one of the more problematic names in northeast Victoria as it likely refers to a cluster or constellation of different clans or bands. According to Clark (2000), the name Waveroo first appears in Robinson’s (1844) journal with a description suggesting that it included a large number of smaller groups with Clark (1996) himself identifying at least 19 clans that spoke Waywurru language. Wesson (2002: 130) agrees, further noting that amongst these smaller groups there were likely some variants of the language including the *Min u budding* variant language group which she maps as occupying the Activity Area (Figure 11). Further confusing the issue, Tindale (1974) maps the area as belonging to the Pangerang (also spelt Bangerang and Bangarang) but this group may well be just one of the large number of clans in the region. Howitt, meanwhile, (1904: 71) identifies the Yirun-illam-baluk as the group occupying the Benalla area.

[9] Ie, with respect to water

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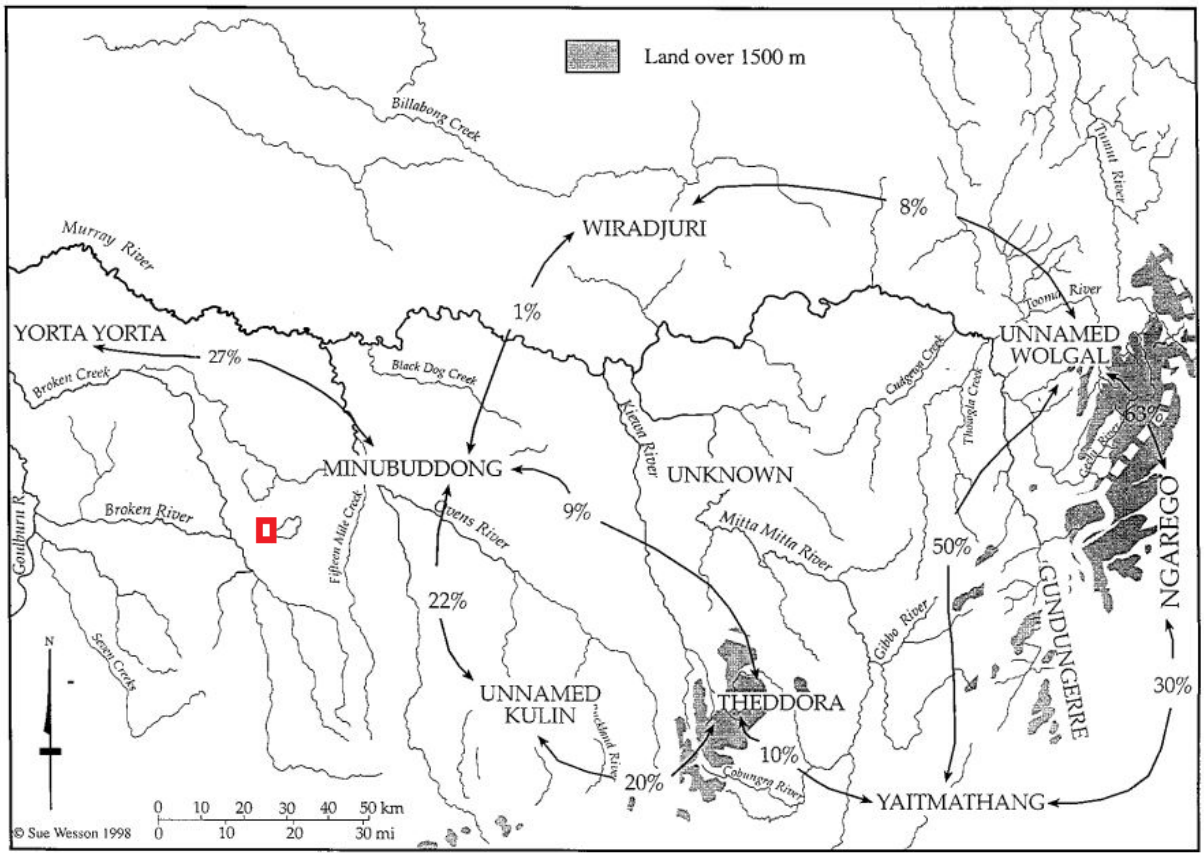
Figure 11 Aboriginal language group (Activity Area is red) (source: Wesson, 2002: Figure 18)



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8.7.2 Social Organisation

Available historical records suggest that the primary units of social organisation amongst the Waveroo were the clan and band, with Kohen (1993:15) equating the term ‘clan’ with ‘band’, and defining both as “groups of people who lived together and hunted together. Wesson (2002) for her part, uses the phrase ‘named groups’ suggesting that this better suits the fluid nature of such groups as their composition and division could vary. Individual bands or groups will have habitually occupied and exploited the resources of particular tracts of land within the overall territory of their named group. The size of the individual bands occupying the region at contact appears to have varied considerably and was no doubt activity and season dependent. Wesson (2002: 34) suggests that each group ranged in size between 9 and 300 people but were commonly less than 100. Individual band sizes notwithstanding, much larger groups of Aboriginal people, numbering in the hundreds, are known to have come together for ceremonial activities, ritual combats and feasts (Wesson 2002: 90). According to Atkinson & Berryman (1983), drawing on observations by Le Soef (1878), such meetings were often held in the spring and summer seasons when greater resources were available over longer periods. One such gathering in the 1840s was recorded as attended by ‘upwards of 500’ people (Hinkin 1845, in Atkinson & Berryman 1983).

Some idea of population size for the region prior to contact is provided by Wesson (2002) who suggests that the north east region of Victoria was populated by between 21-28 people per 100 km². Wesson’s estimate is based on Radcliffe-Brown’s (1930, in Kirk 1983) population densities for Victoria and New South Wales.

8.7.3 Settlement and Subsistence

Available historical records attest to exploitation, for food and other resources (e.g., skins for clothing), of a large and diverse range of terrestrial, avian and aquatic fauna by Aboriginal peoples occupying the Murray River Valley at the time of contact. The people occupying the Murray River Valley were generally hunter-fisher-gatherers, however, it has been argued that they lived a semi-sedentary lifestyle moving across the landscape but always remaining close to the Murray River and wetland areas including swamps (Curr (1883) in Craib, J.L 1991). Atkinson & Berryman (1983) suggest that the broad pattern of Aboriginal group dispersal in times of resource scarcity and congregation during periods of resource abundance is held for the Murray Valley. However, they suggest that the extremes of this pattern are somewhat avoided in riverine environments due to greater variety and abundance of food resources. The presence of several large and smaller swamps, as well Broken River, suggest the land within and surrounding the Activity Area would have, depending on the season, provided sufficient food resources for sustained occupation. Warm months would see groups occupying river valleys and swamplands, while in the colder month’s groups would move away from main water bodies (Beverage 1889:27).

The diet of Aboriginal groups occupying the Murray Valley at contact consisted of a variety of foods including fish, waterbirds, yabbies, mussels, turtles, frogs, woodland, wetland and grassland birds, possum, kangaroos, wallabies, emu, rats, dingos, lizards, snakes, insects, grubs, cumbungi reeds, water lily, dandelions, angled pig face, sow thistle and lerp (Atkinson & Berryman 1983: 19).

8.7.4 Material Culture

Aboriginal material culture is explicitly linked to the natural environment and resource availability. For the Murray River Valley, available historical records identify an extensive array of hunting and gathering ‘gear’ and provide detailed insight into associated materials and manufacturing processes. Tools often utilised for subsistence activities included the use of stone implements, canoes, nets, spears, weirs and poison (Craib 1991). Freshwater mussel shells were also used for fibre and skin preparation such as for carry bags (Atkinson & Berryman 1983).

Tree bark served as the primary construction medium for canoes, an integral component of the material culture repertoire of Aboriginal peoples occupying the Murray River Valley at contact. Available descriptions indicate that canoes were manufactured using hafted stone axes to strip bark from River Red Gums which was bent, with the assistance of fire, into shape and season in the sun before the ends were blocked with clay (Atkinson & Berryman 1983). Nets were made from a fibre like masticated cumbungi called Typha and used to catch yabbies and fish as well as being strung low across a waterbody to catch driven ducks. There are also records of nets being placed at strategic locations to catch emus and kangaroos (Atkinson & Berryman 1983).

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Spears, which feature prominently in the literature, were an important component of men's 'gear' and were used in hunting, fishing, combat and ceremony. Accounts of early explores include observations of a number of different types of spears including reed spears with hafted bone or hardened wood points or wood spears with carved barbs or inset stone barbs (Atkinson & Berryman 1983).

Oven mounds are common archaeological feature in the region and were used by local Aboriginal people to cook large game as well as large volumes of vegetables such as Typha and cumbungi root. Hardened or baked clay was used as heat retainers to form underground cooking pits with accumulated materials resulting in what was a 'mound' (Beverage 1889).

8.7.5 Ceremony and Ritual

Evidence for ceremonial or ritual behaviour amongst the Aboriginal groups occupying the Murray River Valley at contact can be found in the accounts of a number of early observers (e.g., Beverage 1883 Curr 1883, Howitt 1904, Mathews 1889, 1904), with documented 'ceremonial' activities including groups/clan gatherings, male initiation ceremonies, marriage, ritual combat and various burial, body adornment and modification practices. Although limited in number, references to spiritual beliefs of the Aboriginal groups occupying the region are also noted. However, many of these events were not directly witnessed by European observers but rather described by Aboriginal people who had participated in them or knew of them from their childhood (Atkinson & Berryman 1983).

Male initiation ceremonies in which boys in the region became men are described by Howitt 1904: 610-612). In the Benalla region, Howitt (1904) notes that the male initiation ceremony was known as *Jibauk* and was a complex cultural practice involving boys of around ten years of age. Nearby groups had similar ceremonies but often had different names (e.g., *Talangung* to the Bunurong group (Howitt 1904: 612)). Initiation grounds were elaborately prepared and consisted of a "screen of boughs made some two or three hundred yards from the main encampment, with a large fire in front of it" Howitt (1904: 611).

Alongside its use in the initiation ceremonies described above, body painting with animal fat and/or ochre was undertaken as part of gatherings and for the purposes of ritual combat. Amongst some groups in the regions body scarification and septum piercing appear to have been undertaken in ceremonies subsequent to that associated with initiation. However, unlike other parts of Australia, tooth avulsion is not known to be practiced in the region.

Marriages usually occurred between groups rather than within groups and were usually arranged in some form. According to Howitt (1904) a marriage ceremony could be as simple as a girl's father and some of the old men taking the girl to the camp of her promised husband and saying to her "That is your husband; if you run away from him, you will be punished". Howitt (1904: 255) recalls one instance in Benalla:

In one case, which happened in the Kulin tribe, near Benalla, an old man had a grown-up son, and a girl lived with them who was in the relation of daughter to the old man, and therefore in the relation of sister to his son. The man's friends told him to get the girl married, because it was not right to have her living single in the same camp with his son. He did not do this, and his son took the girl. Then the old man was very angry, and said, "I am ashamed; every one will hear of this; why have you done this thing? I have done with you altogether." Then he speared his son, who died soon after.

Available historical records suggest that burial in the earth was the most common form of burial practised by Aboriginal groups occupying the Murray River Valley at contact. Grave goods often consisted of items of personal gear such as spear, hatchets and digging sticks (Howitt 1904: 450).

Atkinson & Berryman (1983) note the similarity in spiritual beliefs of Aboriginal groups occupying the Murray River Valley at the time of contact. Their beliefs revolved around ancestral beings who established the foundations of life. Amongst the ancestral beings, *Bunjil* (also known as *Biame* to other groups) the sky-hero was the most powerful ancestor and was often credited as the hero who led the tribe to its present place of occupation, gave men their material culture, their social lays and instituted their initiation rites.

8.7.6 Post-Contact History

As in other parts of Victoria and Australia more generally, the early post-contact history of Aboriginal people in central and northern Victoria is primarily one of dispossession and loss, with traditional

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hunting and camping grounds rapidly claimed and settled by Europeans and populations significantly reduced by introduced diseases (Bride, 1898; Cahir, 2012; Clark, 1990; Howitt, 1904; Morrison, 1965). However, active resistance and friendly relations are also attested to in the available records (Cahir, 2012).

The introduction of European diseases had a devastating impact on the Aboriginal population, with diseases such as whooping cough, typhoid, influenza, bronchitis, tuberculosis, small-pox, pneumonia and even the common cold causing or contributing to the deaths of large numbers of Aboriginal people (Bride, 1898; Shaw, 1998). The loss of traditional hunting grounds, a decline in the abundance of game that populated these areas and historical impacts on the waterways (i.e., gold mining and pastoral activities), have also been identified as factors relevant to the marked population decline that accompanied the European settlement of the gold fields (Cahir, 2012; Morrison, 1965).

During the early 1800s, growing concerns over the plight of Aboriginal people across Victoria led to a series of Governmental initiatives. In 1838, the Aboriginal Protectorate was established in Port Phillip comprising Chief Protector, George Augustus Robinson, and four Assistant Protectors, one of which was responsible for the Aboriginal people of the Loddon District. Edward Stone Parker commenced his work over this district in September 1893. He reported on several Indigenous tribes within his protectorate including the Taoungutong, Witourong, Nilangborrin and Jajowurrong (Clark, 1990; Morrison, 1965).

Aboriginal people were often employed for their skills in bark cutting to build huts as well as hunting and gathering, offering an abundant supply of fresh food. Soon thereafter, Aboriginal people started to participate in fossicking for gold, trading finds for goods such as tea, sugar and tobacco. In 1852, F Mckenzie Clarke observed that Aboriginal people “camped at Myer’s Flat could be seen picking up gold from the red clay and heaps of mullock around the holes” (Cahir, 2012, p. 22).

The events unfolding for Aboriginal communities in the late 1800s essentially displaced them from their country. The protectorate system was replaced in 1860 by Aboriginal reserves, where camping places were nominated for Aboriginal people to reside. The Aboriginal communities within the Loddon protectorate were relocated to reserves such as Coranderrk and the Maloga Mission (Clark, 1990).

After being displaced from their country, Aboriginal people have since returned to country and retain strong cultural connections to the land. Today, the Yorta Yorta people are actively involved in the protection and promotion of their culture for future generations.

8.8 Regional History

The Benalla region was first explored in 1824 as part of Hume and Hovell’s journey between Sydney and Geelong. On November 26 1824, they crossed and named Oxley’s Creek (King River), 30 km east of the Activity Area, and then on 28 November passed near Benalla (Dunlop, 1973). Major Mitchell also passed through the area in 1836 as part of his third expedition. Occupation of the Benalla district, like so many areas, began with squatters who by 1839 began to occupy the district for pastoral and agricultural purposes (Dunlop 1973). Ham’s squatting map of Victoria (1851) and the Map of Victoria Including Pastoral Runs (1869) indicate that the Activity Area is located within the Mokoan Run, an area that encompassed the towns of Benalla and Winton as well as part of the Winton Wetlands (Figure 12). As shown on Figure 13, the Activity Area is described as part ‘swampy’, part ‘open plain’, ‘timbered with chiefly with gum’ and generally as land of ‘medium quality’. The Mokoan Run was farmed by Thomas Turnball (Special Reporter, 1866), who with his brokers also farmed Broken Creek Run, Emu Plains Run, and Upotipotpon Run at various stages of the mid to late Nineteenth Century. According to the Squatters Directory of the Port Phillip Bay District (1849), sheep and cattle grazing were the key stock grazed.

The discovery of gold during the 1850s at several locations in Victoria, including at Beechworth located approximately 65 km northeast of the Activity Area led to farming and other agricultural practices becoming well-established in the region.

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Figure 12 Map of Victoria Including Pastoral Runs (1869)

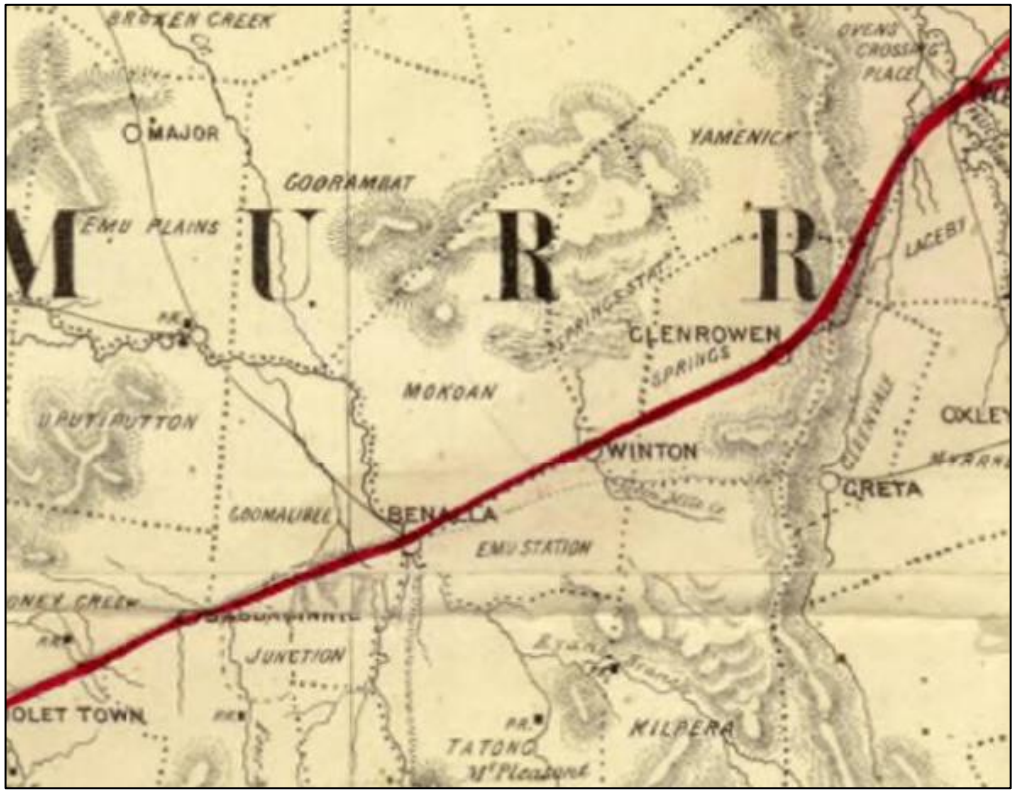
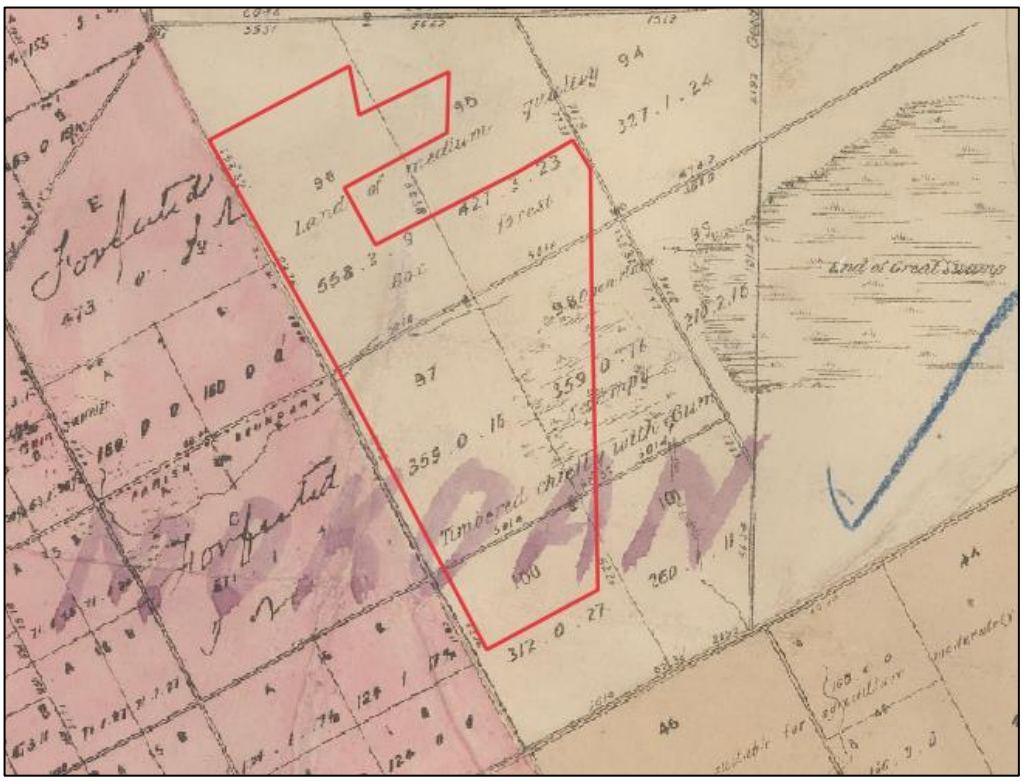


Figure 13 Mokoan run (Activity Area in red) (source: Map 10223 PROV)



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8.9 Environmental Background

8.9.1 Topography and Landform

The topography of the Activity Area is typical of the Victorian Riverina and Northern Slopes bioregions. Land north of Stockyard Creek within the Activity Area, in close proximity to the mapped boundary of the Northern Slopes bioregion, comprises gently undulating low hills and footslopes with elevations ranging from 162 to 174 m AHD, providing a total relief of 12 m. Land in this area, for the most part, is very gently (1-3%) to gently (3-10%) inclined.

South of Stockyard Creek, the Activity Area encompasses flats, mostly level, and the lower slopes of several low hills located on the southern boundary. Slope within these areas is very gently inclined (1-3%). Following Speight (2009), a breakdown of the relative representation of morphological landform units within the Activity Area is provided in Table 5. Identified landform units, meanwhile, are shown on Figure 14, slope on Figure 15 and elevation on Figure 16.

Table 5 Landform units

Landform unit	Area (ha)	%
Footslopes	226.5	48.7
Low rise	8.6	1.8
Simple slope	45.5	9.8
Flat	185	39.7
Total	**465.6**	**100**

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Figure 14 Topography and landform

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Figure 15 Slope

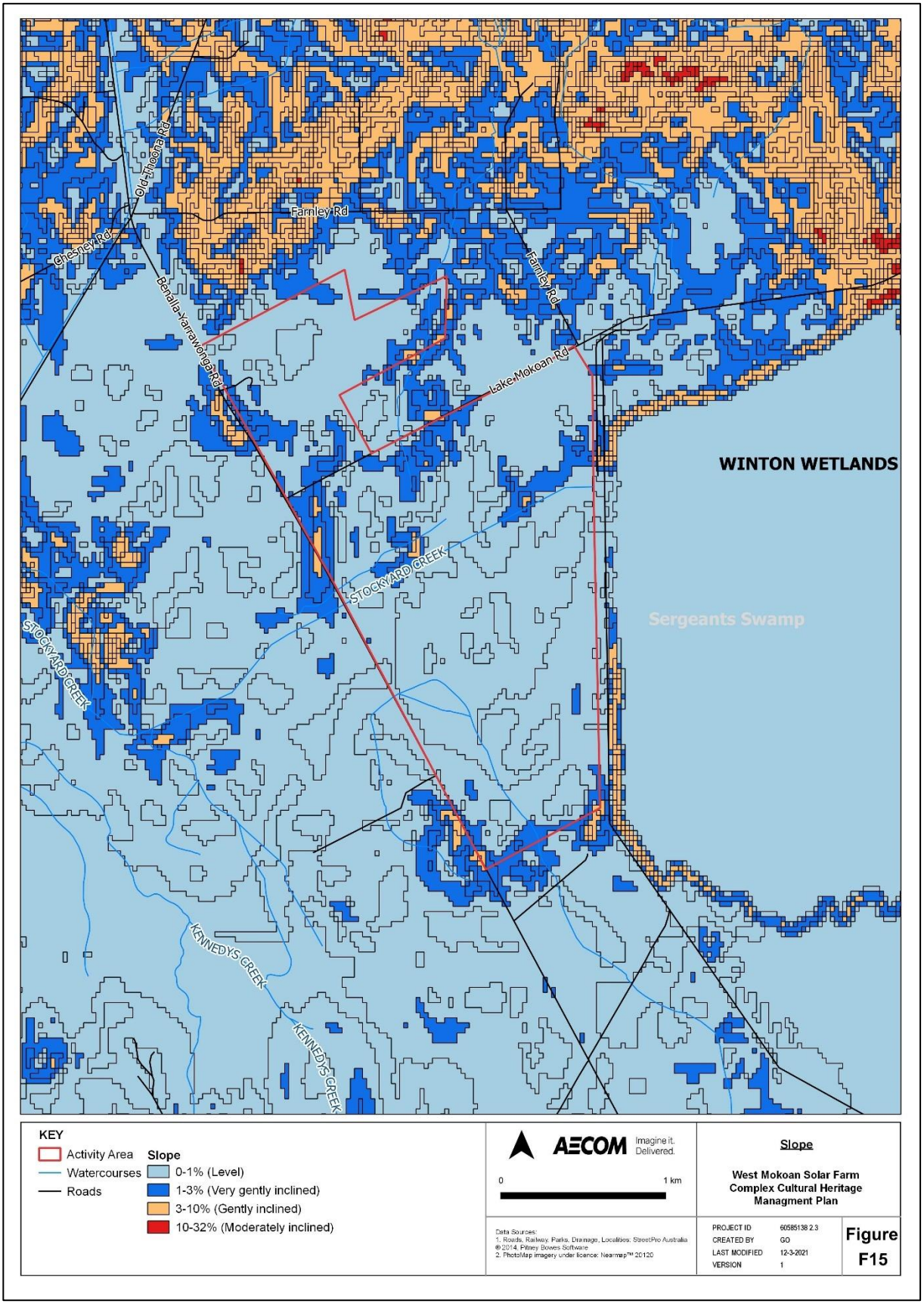

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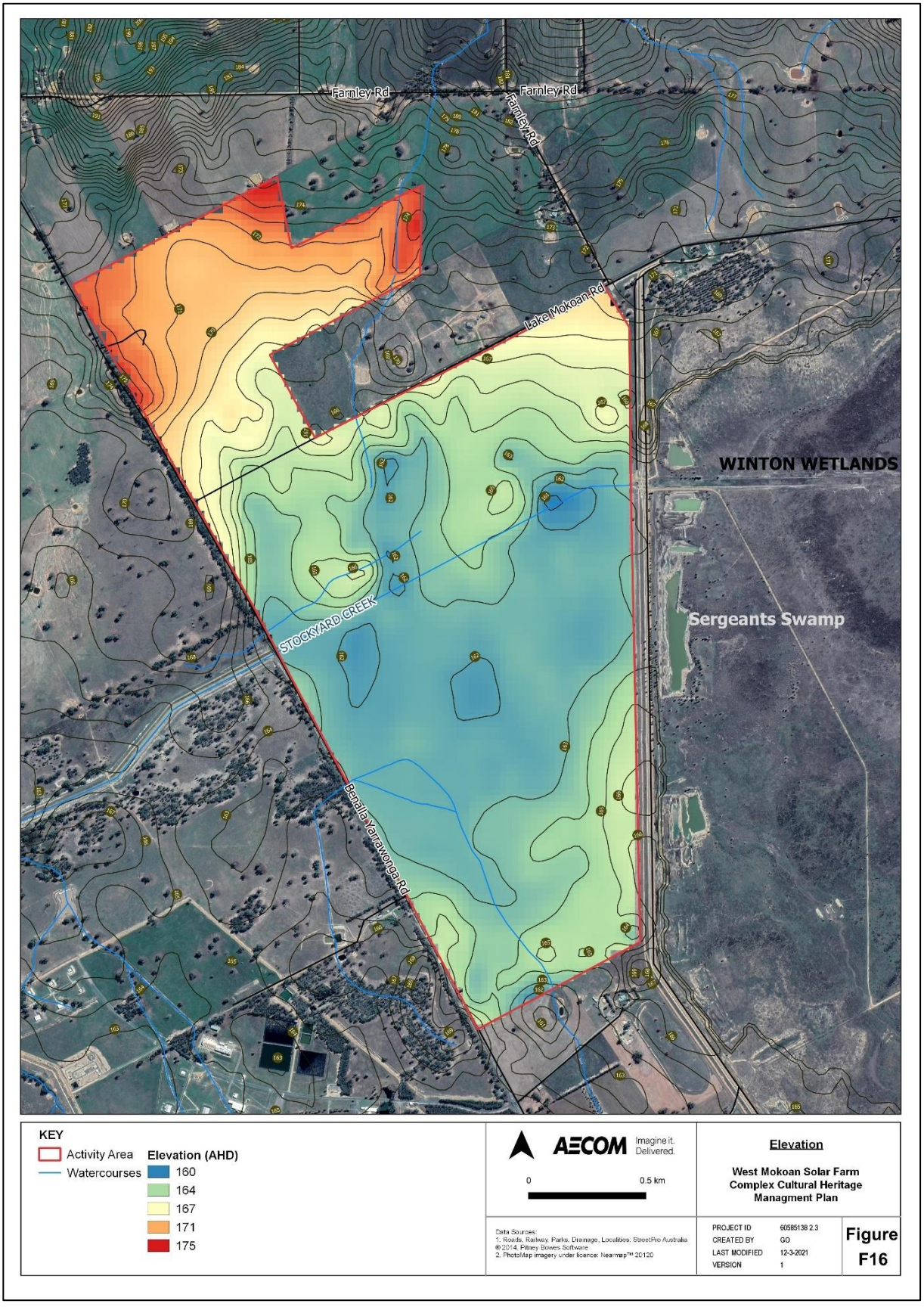
Figure 16 Elevation



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8.9.2 Hydrology

Located within the Broken River sub-catchment of the broader Murray-Darling basin, the Activity Area contains parts of several watercourses (Figure 14). In addition, the Activity Area contains a number of artificial water features including constructed drains and farm dams. Two dams in the centre of the site are connected by an artificial channel.

Broken River, a regionally significant perennial watercourse, flows in the northward direction approximately 5 km west of the Activity Area. The river cuts across floodplain within the Broken River basin which includes land within the Activity Area. At its closest point to the Activity Area the River comprises a deeply incised perennial watercourse that enters the Goulburn River 58 km west of the Activity Area.

Stockyard Creek, as discussed in Section 8.1.1, rises out of Serjeants Swamp to the east of the Activity Area and functions as the Winton wetlands' main outlet. The creek flows in a westerly direction through the Activity Area as a 1st order watercourse before continuing on westward to join the central channel of Broken River approximately 7 km west of the Activity Area. Following approval of the Lake Mokoan Scheme in the 1960s, the creek channel was significantly modified with it being straightened and deeply trenched to allow water flowing to Broken River, via Stockyard Creek, to the Winton Wetlands Reserve to be controlled in order to form a water reservoir. The creek flows across level (<1°) to very gently (1-3°) inclined floodplain located in the centre of the Activity Area. All sub-catchment flows within both the northern and southern sections of the Activity Area generally flow towards the Stockyard Creek.

North of Stockyard Creek, an unnamed 1st order drainage channel flows southward from the series of slopes located to the north of the Activity Area. Dammed in multiple locations, the drainage channel comprises a degraded, ephemeral watercourse. A similar 1st order ephemeral drainage channel is mapped within the southern portion of the Activity Area, rising out the slopes to the south and flowing into the Activity Area's flats.

Consistent with existing historical reference materials, in particular the 1941 aerial (see Figure 19) which shows the central portion of the Activity Area as swampy, an area mapped as forming part of the Koo-Wee-Rup Plain, reference to the surface water assessment completed by AECOM (2020) for this project indicates that parts of the Activity Area are flood prone and subject to extended periods of waterlogging. Archaeologically, this is a particularly important observation given that landscapes prone to flooding are liable to impart bias on the preservation of Aboriginal archaeological materials and features. As Brown (1997: 280) has highlighted, the factors responsible for this bias include the erosion and destruction (though movement) of sites by channel activity as well as sediment deposition which acts to bury/preserve sites but also renders them invisible.

The Winton Wetlands Natural Features Reserve located east of the Activity Area is a complex of hydrological features including Sergeants Swamp, Winton Wetlands and Green Swamp. Historically, the complex was referred to as the Mokoan Swamp, with Mokoan being the Aboriginal name for the area. The western portion of the wetlands historically comprised grasslands and River Red Gum bordering a shallow lake. In 1961, it was proposed that Broken River be connected via an inlet channel (the Mokoan Inlet Channel), to the wetlands, in order to create a large off river water storage. Several homesteads and farms surrounding the wetlands were identified for acquisition. A dam wall was built adjacent to the eastern border of the Activity Area and Stockyard Creek was modified as an outlet channel for the reservoir (Winton Wetlands Committee of Management, 2018). By 1971, the wetlands and surrounding land was inundated and Lake Mokoan officially opened.

Over the years the lake began losing a considerable amount of water through evaporation, even drying out at one point. In 2004, the decision to decommission Lake Mokoan and return it to a wetland state was announced by the Victorian Government, with the decommissioning process ultimately completed in 2010. At this time, the lake was drained, with the Winton Wetland Committee of Management established to oversee the restoration of the old wetlands, now known as the Winton Wetlands (Winton Wetlands Committee of Management, 2018). At present, the Winton Wetlands are being restored back to their original ecological habitat.

8.9.3 Geology and Geomorphology

Available geological mapping for the Benalla area indicates that the Activity Area encompasses two geological formations – the Shepparton Formation of late Neogene age, and the more recent

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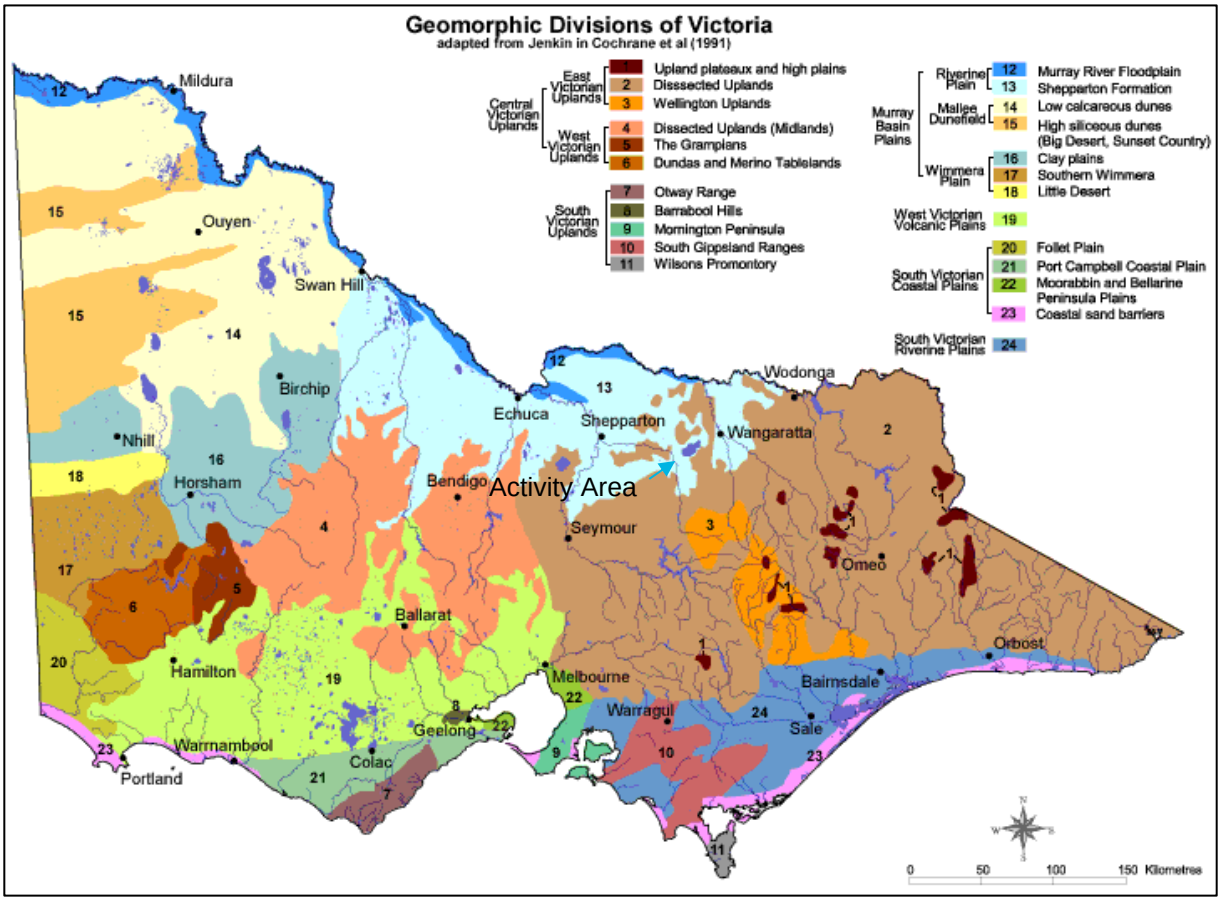
Coonambidgal Formation (Figure 17). The Shepparton Formation can be subdivided into three units – plains with small, meandering, leveed stream channels, plains without channels, and plains with lakes and lunettes. Lake Mokoan and the Activity Area are mapped as the most easterly expression of the last of these units and are suggested to have been associated with an earlier course of Broken River. The older terraces and fans associated with the Eastern Uplands and Western Uplands are also regarded as belonging to the Shepparton Formation with these adjoining the lakes and lunettes around Lake Mokoan. Clayey alluvium associated with the Shepperton Formation includes lenses of sand and gravel.

Modern floodplains containing alluvial sediments are known geologically as the Coonambidgal Formation and date from end of the last glacial period about 15 000 years ago to the present. These have been mapped over Lake Mokoan to the east of the Activity area and represent areas frequently subject to inundation.

Figure 17. Geomorphological Divisions of Victoria. Jenkin and Cochrane et al (1991) in (Agriculture Victoria, 2019b)



8.9.4 Soils

Reference to the Victorian Resources Online soils and geomorphological mapping for the Northern Riverine Plain indicates that soils within the Activity Area derive from alluvial fans and aprons associated with the Northern Riverine Plains region. Soils within the lowland areas associated with Broken River are yellowish and reddish duplex soils with areas of pale gradational soils (Rowe, 1972). Soils are generally characterised as organic rich, self-mulching cracking clays (Vertosols and Sodosols) overlayed by fine sands.

8.9.5 Flora and Fauna

Native vegetation within the Activity Area has been extensively modified as a result of historical land use activities, with the site's current vegetation regime consisting principally of managed and unmanaged native/exotic grasses, isolated paddock trees and patches of regenerating woodland. Reference to ecological studies completed for the Winton Wetlands indicates that vegetation within and surrounding the Activity Area consists of a number of wetland Ecological Vegetation Classes

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(EVC's), and dryland EVCs on the surrounding slopes and lunettes. Plains Swampy Woodland occupies seasonally moist zones between the wetlands and woodlands. Plains Swampy Woodland is dominated by River Red Gum (Eucalyptus camaldulensis) over a grassy/sedgy understorey variously dominated by grasses such as Brown-backed Wallaby Grass (Austrodanthonia duttoniana),Common Swamp Wallaby Grass (Amphibromus nervosus), and Rigid Panic (Walwhalleya proluta), together with a suite of moisture tolerant forbs (e.g. Creeping Knotweed (Persicaria prostrata, P. lapathifolia), rushes and sedges. Deeper depressions on the floodplain, which contains surface water for longer periods, support Red Gum Swamp and include a suite of semi-aquatic plants such as Common Spike-sedge (Eleocharis acuta), Moira Grass (Pseudoraphis spinescens), Common Reed (Phragmites australis), Swamp Lily (Ottelia ovalifolia) and Common Nardoo (Marsilea drummondii) (Barlow 2011).

8.10 Historical Land Use and Disturbance

The current dominant land uses within the Activity Area comprise cropping and cattle/sheep grazing. Since European settlement of the area in the 1840s, the flora and fauna, hydrology regimes and general landform have been subject to considerable modification as a result of European agricultural activities.

Together with available documentary sources and field observations, historical aerial photographs provide a framework for assessing the nature and extent of previous land disturbance across the study area. Examination of aerial photographs from 1941 (Figure 18), 1984 (Figure 20) and 2010 (Figure 21), provided below, attest to a range of land use activities and associated ground surface impacts across the site including:

- extensive native vegetation clearance (prior to 1941);
- cropping and pastoral activities including livestock grazing, fencing, the construction of multiple farm dams both prior to 1941 to present day;
- fluvial erosion activity, particularly along creeklines and on cleared hillslopes;
- construction of residential dwellings and associated structures, driveways and access tracks;
- construction of essential services including power lines and road; and
- modification of Stockyard Creek in the 1960s including widening, straightening and deep trenching to allow water from Broken River to flow eastward, via Stockyard Creek, to the Winton Wetlands east in order to form a water reservoir.

To varying degrees, all the above-cited land use activities and associated ground impacts are relevant to the survival, integrity and identification of Aboriginal archaeological evidence within the Activity Area. Key implications for the current assessment include:

- the likely destruction, in areas of severely disturbed terrain, of any pre-existing sites and deposit(s);
- the disturbance of pre-existing archaeological deposits through both direct (e.g., ploughing, bulldozing) and indirect (e.g., erosion) means, resulting in a loss of archaeological integrity;
- a reduced likelihood any culturally scarred trees that once existed within the Activity Area; and
- an increase, in areas affected by erosion, of archaeological site visibility.

A disturbance map combining these various ground surface impacts is provided as Figure 22. Levels of disturbance are defined as:

- **High** - Severe disturbance to natural soil profiles including complete-to-near complete topsoil loss through erosion, earthworks, buildings, vehicle tracks and dams;
- **Moderate** – Having been subject to ploughing; and
- **Low** - Cleared and/or grazed at some time.

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Figure 18 1941 aerial photograph of the Activity Area (Source: Land.VIC 2020)

Figure 19 1941 aerial photograph of the Activity Area showing swampy area (Source: Land.VIC 2020)

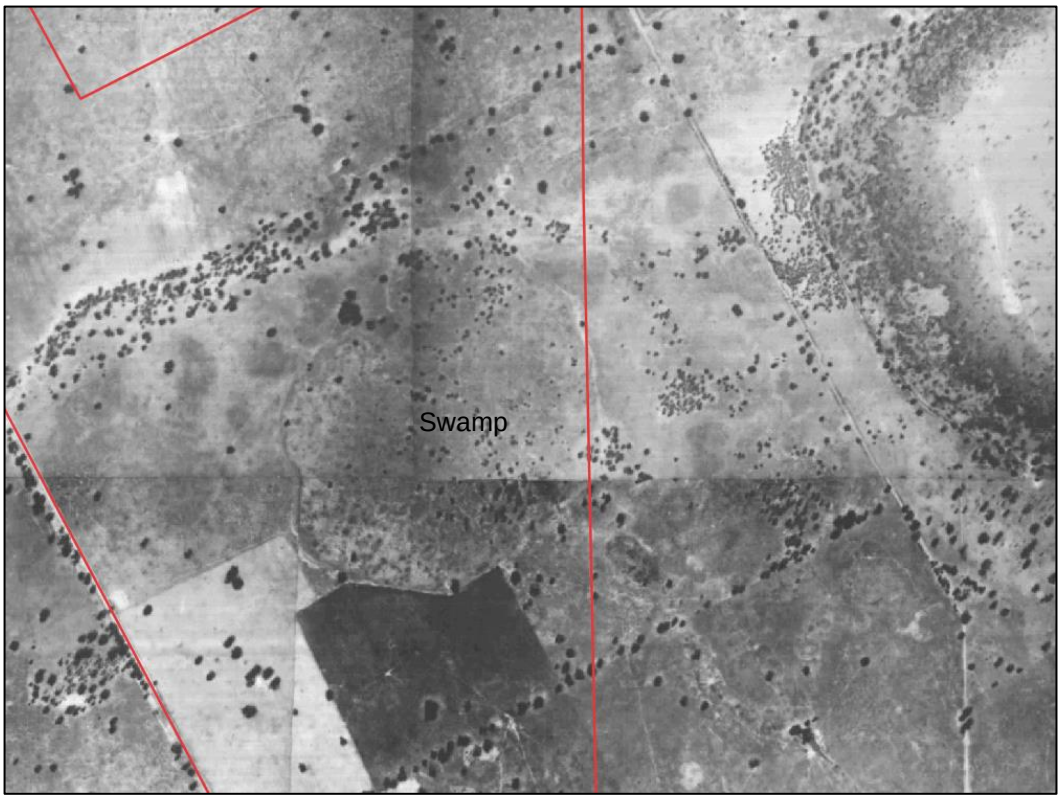

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Figure 20 1984 aerial photograph of the Activity Area (Source: Google Earth 2020)

Figure 21 2010 aerial photograph of the Activity Area (source: Nearmap 2020)

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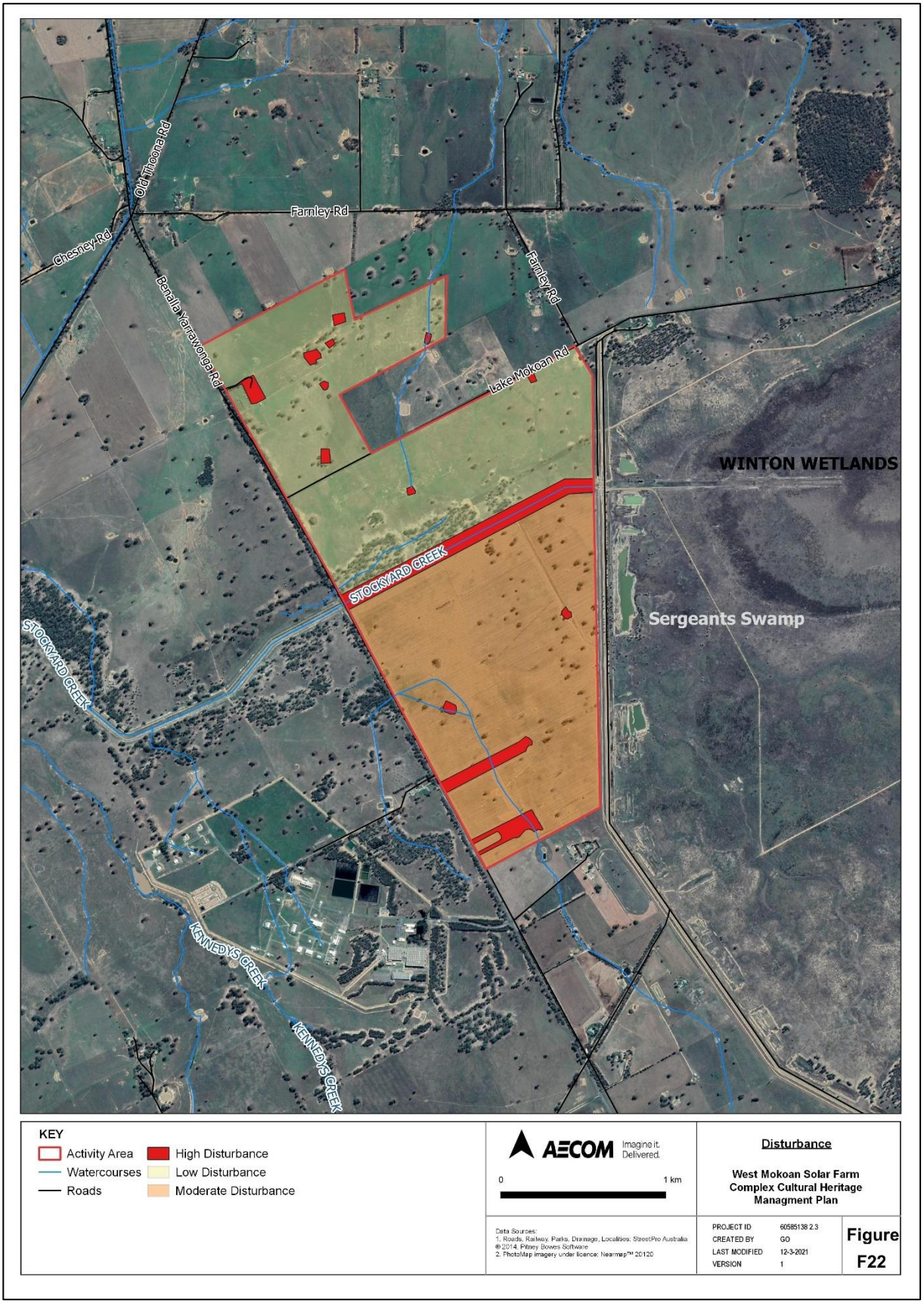
Figure 22 Disturbance



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8.11 Predictive Model

A review of the existing archaeological and environmental context of the Geographic Region suggests that material evidence of past Aboriginal activity within the area is likely to be restricted to flaked stone artefacts in surface and subsurface contexts or culturally modified trees. Furthermore, historical land use suggests that significant disturbance has occurred within the Activity Area and has likely impacted Aboriginal cultural heritage, if present. Key findings and predictions for the Activity Area's Aboriginal archaeological record are as follows:

- The topography of the Activity Area is typical of the Victorian Riverina and Northern Slopes bioregions. Land north of Stockyard Creek comprises gently undulating low hills and footslopes and land south of Stockyard Creek comprises flats, mostly level, and the lower slopes of several low hills.
- The Activity Area contains parts of several watercourses, all comprising 1st order streams (after Strahler, 1952).
- Reference to the 1941 historical aerial indicates that the central portion of the Activity Area comprised swampy terrain.
- Prior to European settlement, the floral and faunal resources of the Activity Area and environs, including the Winton Wetlands, would have been sufficient to facilitate intensive occupation by Aboriginal people.
- Native vegetation within the Activity Area has been significantly modified as a result of agricultural and pastoral land use activities as well as urban development. This reduces the likelihood of Aboriginal scarred trees being present within the Activity Area.
- Lunettes are not known to be located within the Activity Area.
- Examination of historical aerial imagery for the Activity Area indicates a range of historical land use activities and associated ground surface impacts. Major activities/impacts have included native vegetation clearance, earthworks for the construction of roads, dams and the modification of Stockyard Creek.
- Artefact scatters and isolated objects are common throughout the region and are likely to be the dominant site type represented within the current Activity Area. If present, they are likely to be represented by low density and relatively dispersed scatters and isolated finds.
- Existing archaeological data indicates that there are no known sources of raw material suitable for the manufacture of Aboriginal stone tools located directly within the Activity Area.
- Material evidence of past Aboriginal activity within the Activity is likely to be restricted to flaked stone artefacts in surface and subsurface contexts. However, there remains reasonable potential for the presence of grinding groove sites, stone quarries and scarred trees.
- Most areas, irrespective of the presence or absence of associated surface evidence, will contain subsurface archaeological deposits, albeit of highly variable character and extent.
- Most, if not all, of the Aboriginal archaeological materials present within the Activity Area will be of mid-to-late Holocene antiquity.
- The dominant raw material for flaked stone artefact production within the Activity Area will be quartz, with silcrete, chert, quartzite and basalt also present.
- Flaked stone assemblages will be dominated by flake debitage items (flakes and flaked pieces), with formed objects (i.e., cores and retouched flakes) comparatively poorly represented.
- Tool types of demonstrated temporal significance, if present, will be limited to edge-ground hatchet heads and backed artefacts.
- Elevated, low gradient landform elements adjacent to Serjeants Swamp and the Activity Area's watercourses will contain larger and more complex flaked stone assemblages than landform elements in other contexts.

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8.12 Conclusions from the Desktop Assessment

The review of environmental data, previous assessments and ethnographic records for the Geographic Region suggests Aboriginal people in the region favoured environs close to major water bodies, with the Mokoan Swamp of particular relevance as both a primary resource and place of cultural importance. Searches of Aboriginal heritage registered places within the Geographic Region indicate a preference for locations within 200 m of major water sources, reflected by the number of scarred trees, middens and artefact sites within that zone. Environs further away from watercourses were seemingly less favoured as permanent occupation sites.

As a result of this desktop assessment, in consideration of both environmental factors, archaeological context and previous investigations both within and near the current Activity Area, there is moderate to high likelihood for artefact scatters to be present within the Activity Area. Historical land uses within the Activity Area do suggest that localised disturbance has occurred however, and has likely impacted Aboriginal cultural heritage, where present. On this basis, progression to a standard assessment is deemed warranted.

9.0 Standard Assessment

9.1 Aims

The aim of the archaeological survey was to identify, record and map Aboriginal heritage values within the Activity Area. These values include both the tangible remains of past Aboriginal activity (i.e., archaeological evidence) as well as intangible cultural values. To achieve these aims, the following specific survey objectives were developed:

- To comprehensively survey, by pedestrian transects, land within the Activity Area;
- To identify and record Aboriginal archaeological sites within the Activity Area;
- To inspect, where appropriate, areas of known or potential Aboriginal cultural value, including VAHR sites and areas of cultural heritage sensitivity; and
- To obtain sufficient data to facilitate the development of appropriate management and mitigation measures for identified Aboriginal sites and areas of archaeological sensitivity.

9.2 Methodology

A field team of two AECOM heritage specialists and Yorta Yorta representatives completed the archaeological survey of the Activity Area over four days from 3 – 6 March 2020 (Table 6). As noted in Section 7.0, the project methodology issued to RAPs on 31 January 2020 indicated that a “full coverage” systematic archaeological survey was proposed for the entire Activity Area.

Table 6 Field team for standard assessment

Name	Function and organisation
Darran Jordan	AECOM Principal Heritage Specialist
Luke Wolfe	AECOM Senior Heritage Specialist
Janarli Bux	Yorta Yorta Field Representative
Michael Clarke	Yorta Yorta Field Representative
Sissy Cooper	Yorta Yorta Field Representative
Stag Cooper	Yorta Yorta Field Representative
McKenzie Joachim	Yorta Yorta Field Representative
Berniece Joachim	Yorta Yorta Field Representative

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A total of 87 pedestrian transects were completed across the Activity Area during the survey (refer Figure 23). Participants (on average six participants per day) were spaced at 10 m – 15 m intervals and walked abreast in a line.

All Aboriginal archaeological objects or places identified during the survey were recorded to the standard required by *Aboriginal Heritage Regulations 2018*. For each site located, individual artefact locations were captured using a Trimble Geo 7x handheld (differential GPS with sub-metre accuracy). Attribute data for all identified flaked stone artefacts were entered directly into a GPS unit using the attributes forms outlined in the *Aboriginal Heritage Regulations 2018.* All artefacts identified during the standard assessment were recorded and catalogued in the field.

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Figure 23 Survey transects

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9.2.1 Lithic Attributes

Attributes recorded during the survey are listed and defined in Table 7. Utilised artefact and 'non-artefact' types are defined in Table 8.

Table 7 Stone artefact attributes

Attribute	Definition	Recorded for
Manufacture type	See Table 8	All lithic items
Raw material	Lithic raw material (e.g., silcrete, chert, quartz)	All lithic items
Maximum linear dimension (MLD)	Maximum linear dimension of artefact in millimetres	All lithic items
Cortex	Presence/absence of cortex	All lithic items
Flake length (mm)	Distance between the point of percussion and the furthest distal point of the flake (i.e., length to the most distal point) (Holdaway & Stern, 2004)	All complete flakes
Flake width (mm)	Longest line that can be drawn at right angles to the length dimension (i.e., maximum width) (Holdaway & Stern, 2004)	All complete flakes
Flake thickness (mm)	Maximum distance from dorsal to ventral face (i.e., maximum thickness) (Holdaway & Stern, 2004)	All complete flakes
Flake platform	Nature of the platform surface on complete and proximal flakes	All complete and proximal flakes
Core length (mm)	Maximum linear dimension of core	All complete cores
Core width (mm)	Width at mid-point of maximum dimension	All complete cores
Core thickness (mm)	Thickness at mid-point of maximum dimension	All complete cores
Tool length (mm)	Maximum linear dimension of tool	All retouched and unmodified utilised implements
Tool width (mm)	Width at mid-point of maximum dimension	All retouched and unmodified utilised implements
Tool length (mm)	Thickness at mid-point of maximum dimension	All retouched and unmodified utilised implements

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Table 8 Artefact type definitions

Type	Definition	Reference
Complete Flake	A flake that has a striking platform or impact point, lateral margins, a termination and a ventral surface that preserves a compete fracture plane	(Holdaway & Stern, 2004, p. 111)
Proximal Flake	Broken flake that lacks termination but retains one or more of the following: platform and/or impact point, bulb of percussion, bulbar scar, fissures	(Holdaway & Stern, 2004, p. 111)
Split Flake	Flake that has been split longitudinally. Split flakes retain portions of platforms and/or impact points and have identifiable terminations	(Holdaway & Stern, 2004, p. 111)
Redirecting Flake	Complete or proximal flake whose dorsal surface preserves an old platform edge	(Attenbrow, 2010, p. 207)
Flake Shatter	Flake shatter is defined as a flake fragment with no recognizable striking platform or impact point including angular shatter	Flake piece/flake shatter (Andrefsky, 2005, p. 83) Angular shatter (Andrefsky, 2005, p. 84)
Unidirectional Core	Core with scars originating from a single platform	(Holdaway & Stern, 2004, p. 180)
Multidirectional Core	Core with scars originating from two or more platforms	(Holdaway & Stern, 2004, p. 180)

9.3 Standard Assessment Results

9.3.1 Landforms

The field survey found that the topography of the Activity Area is typical of the Victorian Riverina and Northern Slopes bioregions. Land north of Stockyard Creek within the Activity Area comprises gently undulating low hills and footslopes, which for the most part, were very gently inclined. South of Stockyard Creek, land comprises flats, mostly level, and the lower slope portion of several low hills located on the southern boundary.

9.3.2 Previous Ground Disturbance

Field observation indicate that land within the Activity Area has been subject to a range of historical disturbances including:

- extensive native vegetation clearance (Plate 1);
- cropping and pastoral activities including livestock grazing, fencing, the construction of multiple farm dams both prior to 1941 to present day (Plate 2 and Plate 3);
- fluvial erosion activity, particularly along creeklines and on cleared hillslopes;
- construction of residential dwellings and associated structures, driveways and access tracks;
- construction of essential services including power lines and road; and
- modification of Stockyard Creek in the 1960s including widening, straightening and deep trenching to allow water from Winton Wetlands to flow westward to Broken River, via Stockyard Creek (Plate 4).

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Plate 1 Southern Activity Area

Plate 2 Southern Activity Area view northwest

Plate 3 Central Activity Area view southeast

Plate 4 Stockyard Creek outlet view east

9.3.3 Ground Surface Visibility

Ground Surface Visibility (GSV) varied across the Activity Area. Land north of Stockyard Creek primarily comprised pasture grasses with GSV ranging from poor to good (i.e., 10 - 50%) due to dense native and exotic grass cover. Land south of Stockyard Creek, that has been subjected to historical and current ploughing, was characterised by generally good (i.e., ~50%) GSV. Areas of enhanced GSV comprised erosion exposures along and adjacent to watercourses, with significant, ongoing creek bank erosion observed, as well as, in areas of cropping gaps between farrows offering improved visibility.

9.3.4 Coverage

Recorded transect data indicate that a total survey coverage of approximately 397 ha, representing around 85% of the total Activity Area, was achieved. All landform units were subject to survey, with individual unit totals (%) more-or-less consistent with the representation of each unit across the site as a whole.

9.3.1 Lithic Assemblage

A total of 28 individual artefacts were recorded during the archaeological survey. The artefacts were generally clustered within the central portion of the Activity Area, but with one located in the northern section and one located on the eastern boundary. The artefacts, for the most part, are located on the lower most footslopes of the section of Northern Island Slopes located in the northern Activity Area. This area lies above floodplain flats within 250 m of the central channel of Stockyard Creek and

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directly adjacent to the portion of the Activity Area labelled as 'swampy' on the Mokoan Run parish map.

Artefacts recorded during the survey (n=28) included flake debitage (n= 13, 46.4%) comprising complete flakes (n=7, 25%), proximal flakes (n=3, 10.7%), and flake shatter fragments (n=3, 10.7%). Ten angular shatter fragments were also present. The remaining assemblage comprised five cores, four unidirectional and one multidirectional. The majority of artefacts were manufactured from quartz (n=22, 78.3%), with artefacts of chert (n=4, 14.3%) and petrified wood (n=2, 7.1%) also present. Recovered artefacts are, in general, small-sized, with an average maximum linear dimension of 18.8±6 mm (range: 7.2-31.01 mm). Table 9 provides a simplified typological breakdown of identified artefacts with their locations shown on Figure 24.

Table 9 Simplified typological breakdown of identified surface artefacts

Type	Quartz	Chert	Petrified wood	Total (n)	% Total (lithics)
Complete flakes	5	2	-	7	25
Flake shatter	2	1	-	3	10.7
Proximal flake	1	1	1	3	10.7
Angular shatter	10	-	-	10	35.7
Cores	4	-	1	5	17.9
Total artefacts (n)	**22**	**4**	**2**	**28**	**-**
% Total artefacts (n)	**78.6**	**14.3**	**7.1**	**100**	**-**

Table 10 Length of identified artefacts (n = 28)

Attribute	N	Mean	StDev	Min	Max
MLD (mm)	28	18.8	6	7.2	31.01

9.3.2 Scarred trees

Three potential scarred trees were identified clustered within a 30 m x 30 m area. All three trees exhibiting scars are Grey Box (*Eucalyptus macrocarpa)* with two in good condition and one deceased. A single scar is present on each tree. Details are provided in Table 11 with their locations shown on Figure 24.

Table 11 Scarred trees

	Tree 1	Tree 2	Tree 3
Tree type	Grey Box (*Eucalyptus macrocarpa)*	Grey Box (*Eucalyptus macrocarpa)*	Grey Box (*Eucalyptus macrocarpa)*
Scar length (mm)	1030	1160	1450
Scar width (mm)	Top: 170 Middle: 340 Base: 310	Top: 102 Middle: 200 Base: 105	Top: 109 Middle: 260 Base: 1250
Scar height from ground (mm)	0	120	n/a
Scar thickness (mm)	150	60	104
Tree girth (mm)	3250	4050	n/a
Scar condition	Good	Good	Poor. Tree deceased and lying on ground

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	Tree 1	Tree 2	Tree 3
Coordinates (MGA Zone 55)	E: 411444 N: 5964272	E: 411434 N: 5964266	E: 411446 N: 5964255

Plate 5 **Tree locations view east**

Plate 6 **Scar tree 1 view east**

Plate 7 **Scar tree 2 view east**

Plate 8 **Scar tree 3 view east**

9.3.3 Discussion and Conclusion

As indicated in Section 9.2, the overarching objective of the survey undertaken for the current investigation was to collect information about the nature and extent of Aboriginal heritage values across the Activity Area and to assess levels of subsurface archaeological sensitivity. The results of this the assessment are discussed below.

A total of 28 artefacts and three scarred trees were identified during the archaeological survey. While acknowledging issues surrounding ground surface visibility across the Activity Area, the overall pattern of surface artefact distribution revealed during the survey is one suggestive of an occupational focus on slightly elevated terrain found on the northern footslopes on the verges of the historical swamp (Koo-Wee-Rup Plain) shown on the 1941 aerial (see Figure 19). This area likely offered more favourable conditions for camping, lying slightly above the flood plain proper forming a slope interface giving both access to swamp resources and protection from flooding and dampness.

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Given the identification of surface artefacts and potential scarred trees, the presence of swamp resources and poor ground surface visibility across the Activity Area, it was assessed the much of the Activity Area had subsurface archaeological potential. Accordingly, it was determined a subsurface investigation was required to better understand Aboriginal use and occupation of the Activity Area.

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Figure 24 Standard assessment results

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10.0 Complex Assessment

10.1 Aims and Objectives

The aim of the subsurface testing/excavation was to identify the nature and extent of subsurface Aboriginal heritage values within the Activity Area. Objectives of the assessment are as follows:

- To comprehensively test the subsurface archaeological potential of the Activity Area using systematic sampling.
- To identify and record Aboriginal archaeological places within the Activity Area.
- To investigate, where appropriate, areas of known or potential Aboriginal cultural value, including VAHR sites and areas of cultural heritage sensitivity identified by RAP representatives.
- To obtain sufficient data to facilitate the development of appropriate management and mitigation measures for identified Aboriginal Places and areas of archaeological sensitivity.

10.2 Methodology

In view of generally poor GSV conditions across the Activity Area, a 16 day program of archaeological test excavation was completed between 10 and 20 March 2020, 14 and 18 November 2020, and 3 and 4 February 2021. The overarching objective of the test excavation program was to collect information about the nature and extent of subsurface Aboriginal objects present within the Activity Area including previously identified areas of Aboriginal cultural heritage sensitivity associated with Stockyard Creek and Koo-Wee-Rup Plain.

As per the methodology provided to the RAP, the archaeological test excavation was undertaken in three phases with all landforms within the Activity Area subject to testing. Phase 1 involved the excavation of 140 50 x 50 cm unit (0.25 m²) STPs placed on a 150 m wide grid across all areas of proposed disturbance within the Activity Area (Figure 25). Phase 2 included STPs excavated within the vicinity of identified surface artefacts located within areas of proposed disturbance. Phase 3 involved the employment of the “negative two” methodology where at least two additional 0.25 m² STPs were excavated at 1 m intervals offset at cardinal points from artefact bearing Phase 1 STPs. This resulted in a minimum of eight additional STPs being excavated at each artefact bearing pit. Where additional artefacts were identified in the additional pits excavations proceeded at 1 m intervals in the direction the artefacts were identified. This methodology was specifically requested by Yorta Yorta as a method for gathering information on the geographic distribution of subsurface deposits. It is noted that AECOM’s original methodology issued to the RAP included the requirement to expand artefact bearing STPs to 1 m² in accordance with AV’s *Practice Note: Subsurface Testing.* However, at the request of Yorta Yorta this was modified. Excavation of a minimum of eight additional STPs (i.e., 2 m²) directly adjacent to the artefact bearing pit at the request of the RAP was deemed to comply with guidelines as it allowed the excavation “to properly consider the nature of the cultural material”.

All STPs were hand excavated as 50 x 50 cm units, with 10 cm spits employed during the excavation. Test pits were excavated to the base of extant A horizon soils. All excavated sediment was dry-sieved through a 5 mm aperture wire-mesh sieve. All definite and potential cultural lithic items were collected at the sieves and bagged by square and spit. In order to guide Phase 3 testing, total artefact counts for each Phase 1 and 2 STPs were made and recorded at the sieves by the applicable supervising archaeologist. Section drawings and photographs were taken for all STPs with STP stratigraphy recorded on pro forma STP recording sheets using standard sedimentological terms and criteria (after McDonald & Isbell 2009). All pits were backfilled following excavation.

A combined field team of AECOM heritage specialists and Yorta Yorta representatives completed the archaeological test excavation of the Activity Area (Table 12).

Table 12 Field team for complex assessment

Name	Function and organisation
Darran Jordan	AECOM Heritage Specialist

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Name	Function and organisation
Luke Wolfe	AECOM Heritage Specialist
Julia Atkinson	AECOM Heritage Specialist
Jen Burch	Jem Archaeology
Emily Evans	Jem Archaeology
Janarli Bux	Yorta Yorta Field Representative
Michael Clarke	Yorta Yorta Field Representative
Shannon Atkinson	Yorta Yorta Field Representative
Berniece Joachim	Yorta Yorta Field Representative

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Figure 25 Phase 1 STP locations and results

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Figure 26 Phase 2 STP locations and results

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Figure 27 Phase 3 STPs (northern)

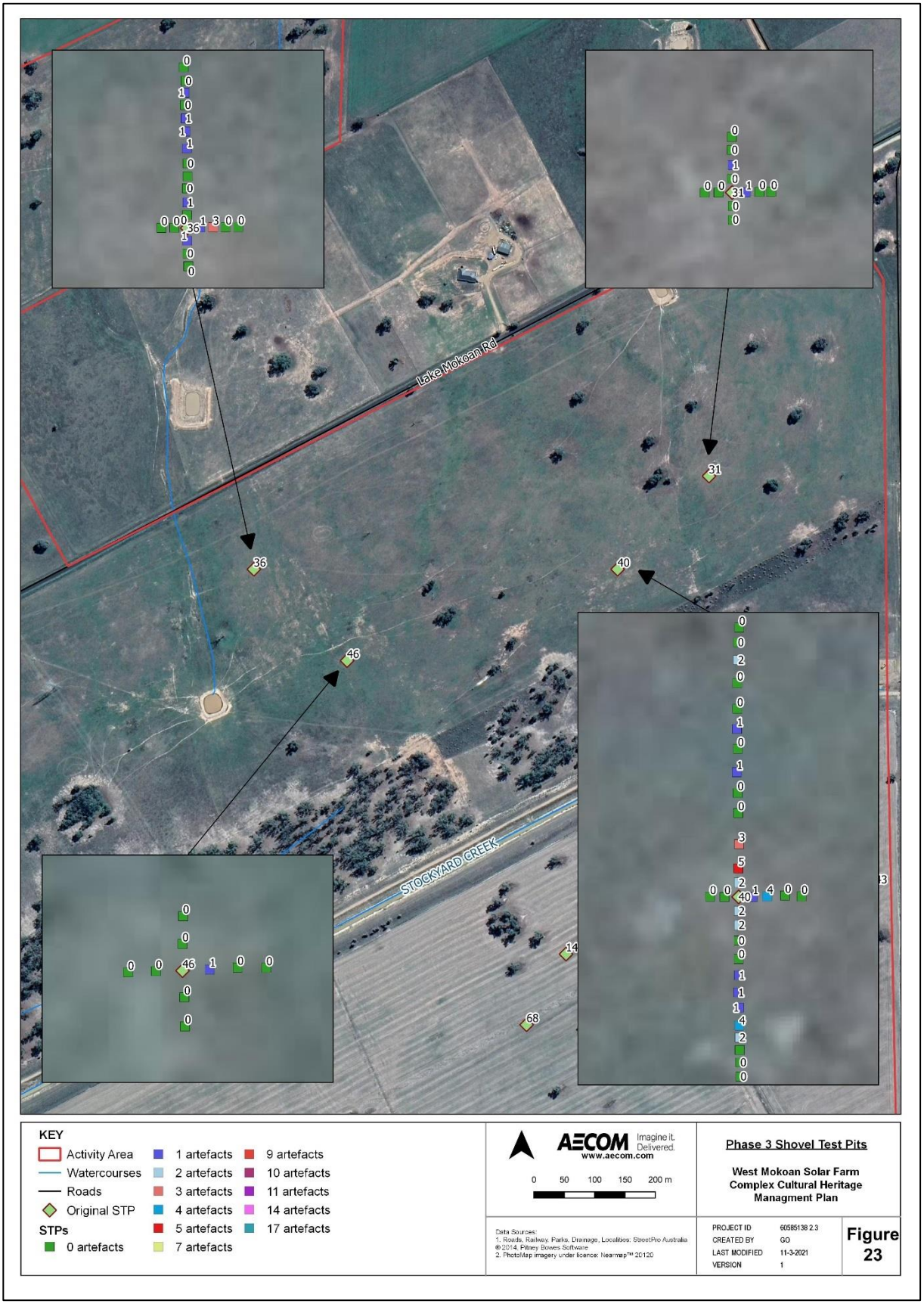

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Figure 28 Phase 3 STPs (southern)

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10.3 Results

As indicated in Section 10.1, a total of 140 50 x 50 cm (0.25 m²) STPs were hand excavated across the Activity Area as part of Phase 1 of the archaeological test excavation program. The locations of excavated STPs are shown on Figure 25. Detail on the locations and artefactual contents of all Phase 1 STPs is provided in Appendix D. Seven Phase 1 contained artefacts and were subsequently subjected to Negative Two excavations (i.e., STPs 31, 36, 40, 46, 68, 98 and 149[10]). Table 13 summarises the results from Phase 1 testing.

As part of Phase 2, a total of seven additional STPs were excavated in the immediate vicinity of identified surface artefacts. Artefacts were identified within two of these STPs (STPs 141 and 143) which were subsequently subjected to Negative Two excavations.

As part of Phase 3, nine artefact bearing STPs identified during Phase 1 and 2 of the excavations were subject to Negative Two excavations. In total this resulted in the excavation of an additional 161 STPs bringing the total number STPs excavated across the Activity Area to 308.

Table 13 STPs with artefacts

STP #	Phase	Results	Comment
31	Phase 1	1 artefact	11 additional -2 STPs excavated (4N, 2S, 3E, and 2W) bringing total excavation to 3 m²
36	Phase 1	1 artefact	21 additional -2 STPs excavated (12N, 3S, 4E and 2W) bringing total excavation to 5.5 m²
40	Phase 1	1 artefact	31 additional -2 STPs excavated (13N, 12S, 4E and 2W) bringing total excavation to 8 m²
46	Phase 1	1 artefact	9 additional -2 STPs excavated (2N, 2S, 3E and 2W) bringing total excavation to 2.4 m²
68	Phase 1	1 artefact	8 additional -2 STPs excavated (2N, 2S, 2E and 2W) bringing total excavation to 3 m²
98	Phase 1	2 artefacts	44 additional -2 STPs excavated (6N, 20S, 6E and 12W) bringing total excavation to 3 m²
149	Phase 1	0 artefacts	9 additional -2 STPs excavated (2N, 3S, 2E and 2W) bringing total excavation to 2.25 m²
141	Phase 2	1 artefact	20 additional -2 STPs excavated (2N, 5S, 2E and 11W) bringing total excavation to 3 m²
143	Phase 2	3 artefacts	8 additional -2 STPs excavated (2N, 2S, 2E and 2W) bringing total excavation to 3 m²
31 E1	Negative Two	1 artefact	-
31 N2	Negative Two	1 artefact	-
36 E1	Negative Two	1 artefact	-
36 E2	Negative Two	3 artefacts	-
36 N2	Negative Two	1 artefact	-
36 S1	Negative Two	1 artefact	-
40 E1	Negative Two	1 artefact	-
40 E2	Negative Two	4 artefacts	-
40 N1	Negative Two	2 artefacts	-
40 N2	Negative Two	5 artefacts	-
40 S1	Negative Two	2 artefacts	-

[10] The artefact at STP #149 was later reclassified as non-artefactual

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STP #	Phase	Results	Comment
40 S2	Negative Two	2 artefacts	-
46 E1	Negative Two	1 artefact	-
98 W9	Negative Two	2 artefacts	-
98 W8	Negative Two	3 artefacts	-
98 W7	Negative Two	2 artefacts	-
98 W6	Negative Two	1 artefact	-
98 W5	Negative Two	3 artefacts	-
98 W4	Negative Two	5 artefacts	-
98 W3	Negative Two	4 artefacts	-
98 W2	Negative Two	9 artefacts	-
98 W1	Negative Two	17 artefacts	-
98 S9	Negative Two	1 artefact	-
98 S8	Negative Two	7 artefacts	-
98 S5	Negative Two	2 artefacts	-
98 S4	Negative Two	4 artefacts	-
98 S2	Negative Two	4 artefacts	-
98 S17	Negative Two	1 artefact	-
98 S16	Negative Two	9 artefacts	-
98 S15	Negative Two	3 artefacts	-
98 S14	Negative Two	1 artefact	-
98 S12	Negative Two	2 artefacts	-
98 S10	Negative Two	2 artefacts	-
98 S1	Negative Two	14 artefacts	-
98 N4	Negative Two	2 artefacts	-
98 N3	Negative Two	4 artefacts	-
98 N2	Negative Two	11 artefacts	-
98 N1	Negative Two	9 artefacts	-
98 E4	Negative Two	1 artefact	-
98 E3	Negative Two	1 artefact	-
98 E2	Negative Two	11 artefacts	-
98 E1	Negative Two	10 artefacts	-
40 S9	Negative Two	2 artefacts	-
40 S8	Negative Two	4 artefacts	-
40 S7	Negative Two	1 artefact	-
40 S6	Negative Two	1 artefact	-
40 S5	Negative Two	1 artefact	-
40 N8	Negative Two	1 artefact	-

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STP #	Phase	Results	Comment
40 N6	Negative Two	1 artefact	-
40 N3	Negative Two	3 artefacts	-
40 N11	Negative Two	2 artefacts	-
36 N8	Negative Two	1 artefact	-
36 N7	Negative Two	1 artefact	-
36 N6	Negative Two	1 artefact	-
36 N10	Negative Two	1 artefact	-
141 W8	Negative Two	2 artefacts	-
141 W6	Negative Two	1 artefact	-
141 W4	Negative Two	1 artefact	-
141 S3	Negative Two	1 artefact	-
141 S1	Negative Two	1 artefact	-
149 S1[11]	Negative 1	2 artefacts	-

The highest artefact count was from any pit was recovered from STP #98 W1 (n = 17) comprising the first westward Negative Two pit excavated adjacent to STP #98. This pit was located on the flat landform approximately 900 m south of Stockyard Creek. The relative frequency of artefact bearing STPs per landform unit is provided in Table 14. As shown, 38 artefact bearing test pits were recorded on the footslope landform and 32 within the flat landform. However, more artefacts overall were recovered on the flat landform with an average density of 4.6 artefacts per m² recovered from excavated pits.

Table 14 Relative frequency of Phase 1 test pits per landform unit

Landform unit	Area (ha)	Number of STPs	Number of artefact bearing STPs	Number of artefacts	Artefacts per m²
Footslope	226.5	156	38	65	1.6
Low rise	8.6	4	0	0	0
Simple slope	45.5	16	0	0	0
Flat	185	132	32	154	4.6
Total	**465.6**	**308**	**70**	**219**	**100**

10.3.1 Soils and Stratigraphy

In general soil materials observed within excavated STPs were broadly consistent with those described by Rowe (1972) with excavations revealing a simple texture contrast or duplex soil profile. Soils in the northern portion of the Activity Area, north of Stockyard Creek, generally comprised grey brown silty clay loams (A Horizons) overlaying brown and orange silty clays (B Horizons). Meanwhile, soils in the southern portion of the Activity Area, south of Stockyard Creek, generally comprised grey brown clay loam (A Horizons) overlaying silty clay (B Horizons) of the same colour.

Common to abundant fine roots were present throughout the A horizon of all Phase 1 STPs. Common moderately well sorted fine gravels were also present in almost all STPs alongside rare coarser, platy gravels. Overall, observed soil materials in STPs exhibited relative stratigraphic integrity characterised

[11] Artefact identified in original STP #149 deemed not an artefact

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by well-defined A and B horizons. A horizon soils extended to a maximum depth of approximately 53 cm below ground level with an average of 16.2 cm in depth (Table 15). No clear patterning was evident in terms of proximity to Stockyard Creek or in relation to landform. The thickest A horizon soil was encountered within TP#86 (i.e., 53 cm) located on the eastern boundary of the Activity Area within the flat landform and closest to the Winton Wetlands. The thinnest A horizon soil was encountered within TP#129 (i.e., 5 cm) located in the southern portion of the activity area approximately 60 m from a 1st order creek channel.

Table 15 Descriptive statistics for all Phase 1 excavated 'A' soil horizons

N	Mean depth (cm)	StdDev	Min (cm)	Max (cm)
132	16.2	6.49	5	53

Plate 9 Texture contrast soil profile in STP TP#47 (Source: AECOM 2020)

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Plate 10 Texture contrast soil profile in TP#36 West 2 (Source: AECOM 2020)

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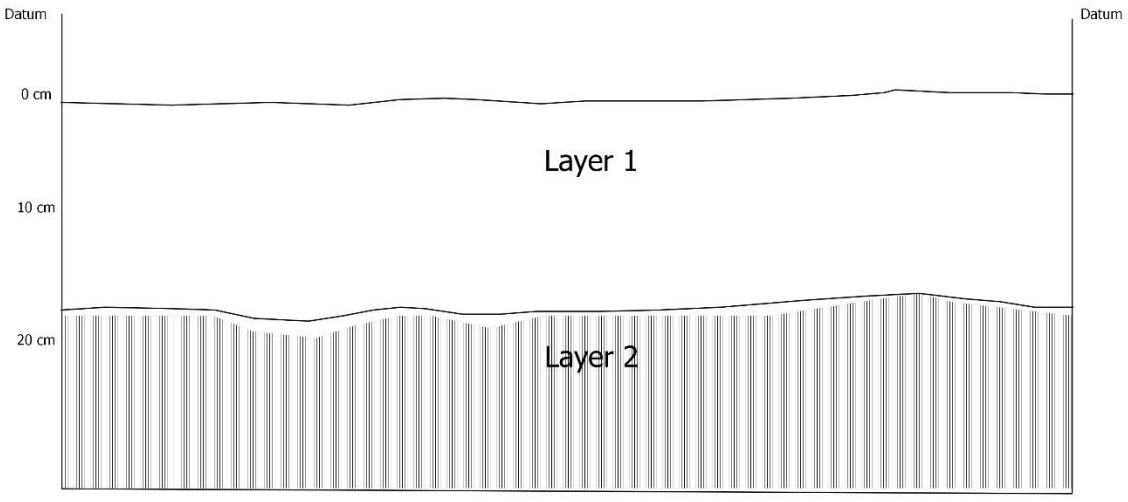
A

B



Layer 1: A horizon; Dark brown silty clay loam (7.5YR 8/1); common fine roots; weak single grained; consistent; fine subangular gravels; sharp boundary.

Layer 2: B Horizon; Clay; Dark brown clay; rare fine roots.

AECOM
www.aecom.com

Soil Profile (Phase 1, TP#47)

West Mokoan Solar Farm
Complex Cultural Heritage
Managment Plan

PROJECT ID	60632997
CREATED BY	GO
LAST MODIFIED	16-7-2020
VERSION	1

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10.3.2 Lithic Assemblage

A total of 219 lithic items which satisfied technical criteria for identification as artefacts, were recovered from Phase 1, 2 and 3 excavations (Appendix E). Non-diagnostic fragments of quartz lacking diagnostic features were not included in the artefact assemblage. A simplified typological breakdown of the artefactual component of the assemblage (Table 16), which has a total combined weight of 269.6 g, shows that is dominated by flake debitage (i.e., complete and broken flakes), which account for 76.3% (n = 167) of the assemblage by count. Recovered flake debitage items consist of complete flakes (n = 74), proximal flakes (n = 31), flake shatter fragments (n = 57), split flakes (n = 4) and one redirecting flake. 41 angular shatter fragments are also present. Formed objects include backed artefacts (n = 3), unidirectional cores (n = 3), bipolar cores (n = 2), multidirectional cores (n = 2) and one core fragment. Backed artefacts, all of which were broken, comprised one Bondi point, one geometric microlith, and one backed fragment.

The majority of artefacts were manufactured from Indurated Mudstone Tuff Chert (IMTC) (n = 142, 64.8%), with artefacts of quartz (n = 67, 30.6%), silcrete (n = 4, 1.8%), Fine Grained Siliceous (FGS) (n = 3, 1.4%), igneous material (n = 2, 0.9%) and quartzite (n = 1, 0.5%) also present. Recovered artefacts are, in general, small-sized, with an average maximum linear dimension of 16.3±6.5 mm (range: 7.4-48.4 mm) and average weight of 1.2±0.2 g (range: 0.08-24 g).

Table 16 Simplified typological breakdown of artefactual component of artefact assemblage

Type	IMTC	Quartz	Silcrete	Igneous	FGS	Quartzite	Total (n)	% Total (lithics)
Complete flake	54	16	1	2	**1**		**74**	**33.8**
Flake shatter	35	22					**57**	**26.0**
Proximal flake	20	8	2		**1**		**31**	**14.2**
Redirecting flake	1						**1**	**0.5**
Split flake	1	3					**4**	**1.8**
Angular shatter	24	16				**1**	**41**	**18.7**
Bipolar core							**0**	**0.0**
Multidirectional core	1		1				**2**	**0.9**
Unidirectional core	3						**3**	**1.4**
Bipolar core		2					**2**	**0.9**
Core fragment	1						**1**	**0.5**
Backed	2				**1**		**3**	**1.4**
Total artefacts (n)	**142**	**67**	**4**	**2**	**3**	**1**	**219**	
% Total artefacts (n)	**64.8**	**30.6**	**1.8**	**0.9**	**1.4**	**0.5**	**100.0**	

Table 17 Descriptive statistics for the size and weight of artefacts

Attribute	N	Mean	StDev	Min	Max
MLD (mm)	217	16.3	6.5	7.4	48.4
Weight (g)	217	1.2	0.2	0.08	24

As indicated, a total of 219 stone artefacts were recovered from 308 x 0.25 m² of excavation (i.e., 77 m²) providing an average overall density of 2.8 artefacts per m². Distribution data for all STPs indicate that most pits contained no artefacts (n = 238, 77.3%). 160 artefacts were recovered from the top 10 cm of deposit, 58 from 10-20 cm and one from 20-30 cm. The highest artefact count was from any pit

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was recovered from STP #98 W1 (n = 17) comprising the first westward Negative Two pit excavated adjacent to STP #98.

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10.4 Discussion and Conclusion

As indicated in Section 10.1, the aims and objectives of the complex assessment were to:

- To comprehensively test the subsurface archaeological potential of the Activity Area using systematic sampling.
- To identify and record Aboriginal archaeological places within the Activity Area.
- To investigate, where appropriate, areas of known or potential Aboriginal cultural value, including VAHR sites and areas of cultural heritage sensitivity identified by RAP representatives.
- To obtain sufficient data to facilitate the development of appropriate management and mitigation measures for identified Aboriginal Places and areas of archaeological sensitivity.

A total of 308 STPs measuring 50 x 50 cm (0.25 m²) were hand excavated in a three-stage test excavation program. A summary of key findings of the archaeological test excavation program within the Activity Area is provided below:

- Observed soils within the study area were texturally and spatially consistent with those described by Rowe (1972) with excavations revealing a simple texture contrast or duplex soil profile;
- A total of 219 lithic items which satisfied technical criteria for identification as artefacts, were recovered from Phase 1, 2 and 3 excavations. A simplified typological breakdown of the artefactual component of the assemblage shows that is dominated by flake debitage (i.e., complete and broken flakes), which account for 76.3% (n = 167) of the assemblage by count. Recovered flake debitage items consist of complete flakes (n = 74), proximal flakes (n = 31), flake shatter fragments (n = 57), split flakes (n = 4) and one redirecting flake. 41 angular shatter fragments are also present. Formed objects include backed artefacts (n = 3), unidirectional cores (n = 3), bipolar cores (n = 2), multidirectional cores (n = 2) and one core fragment);
- The majority of artefacts were manufactured from Indurated Mudstone Tuff Chert (IMTC) (n = 142, 64.8%), with artefacts of quartz (n = 67, 30.6%), silcrete (n = 4, 1.8%), Fine Grained Siliceous (FGS) (n = 3, 1.4%), igneous material (n = 2, 0.9%) and quartzite (n = 1, 0.5%) also present;
- The highest artefact count was from any pit was recovered from STP #98 W1 (n = 17) comprising the first westward Negative Two pit excavated adjacent to STP #98. This pit was located on the flat landform approximately 900 m south of Stockyard Creek on the southern margin of the historic swamp;
- 38 artefact bearing test pits were recorded on the footslope landform and 32 within the flat landform. More artefacts overall were recovered on the flat landform with an average density of 4.6 artefacts per m² recovered from excavated pits;
- No artefacts were recovered from the low rise or simple slope landforms;
- Consideration of the location of artefact bearing test pits, as well as surface artefacts indicates an occupation emphasis on two landscape features – land adjacent to the original alignment of Stockyard Creek and the margins of the swamp shown (Koo-Wee-Rup Plain) on the 1941 historic aerial (Figure 29)
- 60 artefacts were recovered from the top 10 cm of deposit, 58 from 10-20 cm and one from 20-30 cm;
- No material suitable for dating (e.g. charcoal, shell, bone etc) was recovered during the Complex Assessment.

The overall pattern of subsurface artefact distribution revealed by the program of survey and test excavation is one that points at significant intra-site variability in Aboriginal people's use of the Activity Area with an occupation focus on land adjacent to the original alignment of Stockyard Creek and the margins of the swamp (Koo-Wee-Rup Plain) shown on the 1941 historic aerial. Spatially discrete clusters of stone artefacts identified both during the surface survey and in artefact bearing STPs suggest areas of more focused Aboriginal occupation activity within the Activity Area which likely

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represent an unknown number of small-scale knapping events. Outside of these clusters, surface and subsurface artefact distributions are sparse and discontinuous and are considered 'background scatter', being "artefactual material which is insufficient in number or in association with other material to suggest focussed activity in a particular location" (Douglas and McDonald, 1993).

The highest number of artefacts recovered from a single STP was 17 artefacts from #98 W1 comprising the first westward Negative Two pit excavated adjacent to STP #98. Forming one of an additional 44 test pits excavated adjacent to STP #98, these pits resulted in the recovery of 148 artefacts. STP #98, like #61, #141 and #143 is very clearly located on the margin of the historic swamp.

Noting the above, it is acknowledged that observed artefact densities within the Activity Area may, at least in part, reflect historical land use practices (i.e., cropping) as well as post-depositional processes linked to historical flooding activity (see Section 8.9.2).

Post-depositional processes aside, consideration of the results of archaeological investigations completed surrounding the Activity Area (Section 8.5) suggest the Activity Area forms part of a broader archaeological landscape with significant intra-landscape variability in artefact densities and assemblage composition, reflecting Aboriginal peoples' long-term differential use of this landscape. Identified Aboriginal Places within and surrounding the Winton Wetlands suggest that the wetlands were regularly utilised and could be considered a 'persistent place' (after Schlanger, 1992). It is likely that the region exhibits 'zones' of more focused or repeated occupation activity within a broader low to very low density 'background scatter' of artefactual material, reflecting less intensive use.

As noted above, consideration of the location of both surface and subsurface Aboriginal artefacts within the Activity Area indicates an overall pattern suggestive of an Aboriginal focus on slightly elevated land adjacent to the original alignment of Stockyard Creek, as well as the margins of the swamp (Koo-Wee-Rup Plain) shown on the 1941 historic aerial. These areas likely offered more favourable conditions for camping, lying outside of the swamp proper giving both access to swamp resources and protection from flooding and damp.

While local resources would have been available from Stockyard Creek and the associated swampy land mapped on the Mokoan Run map within the Activity Area, it is likely that the larger Winton Wetlands and rivers, such as Broken River, would have exerted a stronger occupational "pull" for Aboriginal people occupying the greater area. These larger water features would likely have served as focal points for Aboriginal occupation of the area facilitating sustained and/or intensive occupation over thousands of years, with their smaller, more ephemeral counterparts utilised during logistical hunting forays or for short-term occupation.

In common with other local flaked stone artefact assemblages, the cultural lithic assemblage recovered from the Activity Area indicates an emphasis on the procurement and reduction of both IMTC and quartz, with other raw materials, including silcrete and igneous material, less commonly used. The recovered assemblage, while small in number, is generally small-sized and lacks cortex suggesting that raw material packages had been extensively flaked prior to entry, presumably at exploited stone sources were imported to the site.

Backed artefacts, three of which were recovered from the test excavation program, are a common element of the stone artefact record of the region and likely served as multifunctional tools in pre-contact times, with existing residue and use-wear data for this implement type (e.g., McDonald et al. 2007; Fullagar et al. 2009; Robertson et al. 2009; Robertson 2011) suggesting that they typically served as elements in flexible, multi-functional composite tools used variously for cutting, incising and drilling plant and animal materials, as well as projectile use. In south-eastern Australia, backed artefacts are known to have been produced as early as 8,500 years BP (Attenbrow & Hiscock 1998). However, between *c.*3500 BP and 1500 BP, they were manufactured and discarded in large quantities across numerous sites - the so called "backed artefact proliferation event" (Hiscock 2002). Research into this phenomenon, spearheaded by Hiscock (1994, 2002), has identified the onset of an El Niño Southern Oscillation (ENSO)-dominated climatic pattern 4,000 to 5,000 years ago as a key causal trigger, with increased backed artefact manufacture interpreted as one of number of technological strategies employed by Aboriginal people to reduce subsistence risks incurred by increased climatic variability.

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In the absence of absolute dates obtained through controlled archaeological excavation and/or a detailed geoarchaeological investigation, establishing a chronological context for the identified surface and subsurface Aboriginal archaeological resource of the Activity Area is difficult. Where absolute dates are lacking, there is often a reliance on dating assemblages by artefact technological and typological profiles. Flaked stone artefact assemblages of mid-to-late Holocene antiquity exhibit an overall diminution in the size of toolkits, as well as an emphasis on both the exploitation of locally occurring raw materials and the production of backed artefacts.

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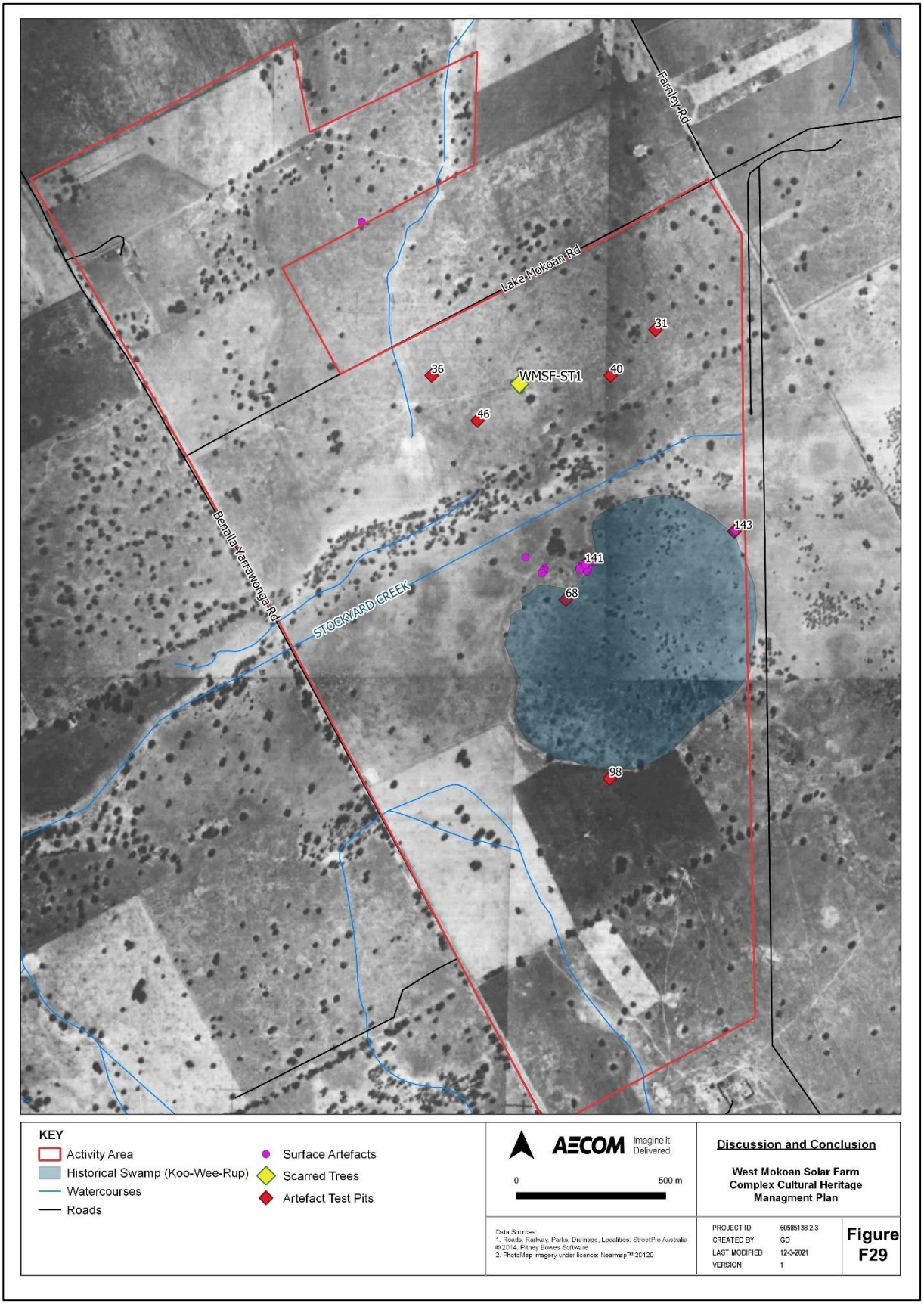
Figure 29 Discussion and conclusion



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11.0 Details of Aboriginal Cultural Heritage in the Activity Area

11.1 Site Definition

The definition, in spatial terms, of Aboriginal archaeological sites is a topic of considerable importance to modern cultural heritage management, and is one that has generated significant discussion in Australian archaeology (e.g., Doleman 2008; Holdaway 1993; Holdaway et al. 1998, 2000; MacDonald & Davidson 1998; McNiven 1992; Robins 1997; Shiner 2008). Aboriginal archaeological sites can be broadly defined as places in the landscape that retain physical evidence of past Aboriginal activity. Such evidence, of course, can assume a range of forms, depending on the nature of the activity or activities that produced it, and can vary dramatically in quantity and extent. Some Aboriginal archaeological sites are, by their very nature, easy to define in spatial terms, with scarred trees and rockshelters, for example, readily distinguishable from their surrounding landscapes. Difficulties arise, however, for sites whose present-day physical extent is, more often than not, a product of geomorphic processes, as opposed to the actions of Aboriginal people in the past.

Although relevant to a variety of site types, geomorphic processes such as soil erosion and aggradation, are of particular relevance to identification and definition of surface scatters of stone artefacts, commonly referred to as ‘open camp-sites’ or ‘artefact scatters’. It is, for example, now widely accepted that the archaeological visibility of such sites is, in most instances at least, entirely dependent on the operation of such processes, which will have acted variously to expose, conceal or remove completely associated archaeological materials (Dean-Jones & Mitchell 1993; Fanning et al. 2008, 2009; Shiner 2008). As demonstrated by countless large-scale excavation projects in south-eastern Australia, surface artefacts invariably represent only a fraction of the total number of artefacts present within these sites, with the majority occurring in subsurface contexts.

Artefact exposure, unsurprisingly, is highest on erosional surfaces and lowest on depositional ones. At the same time, in many areas, surface artefacts have been shown to form part of more-or-less continuous subsurface distributions of artefacts, albeit with highly variable artefact densities linked to environmental variables such as stream order and landform.

Such evidence poses a significant analytical and interpretive dilemma. Defining sites on the basis of surface artefacts alone is clearly problematic, with modern site boundaries invariably reflecting the size and distribution of surface exposures as opposed to the actions of Aboriginal people in the past. Nonetheless, for pragmatic reasons, this is the most commonly used approach, with ‘distance’ and ‘density-based’ definitions dominating. Two of the most commonly employed distance-definitions are ‘*two artefacts within 50 m of each other*’ and ‘*two artefacts within 100 m of each other*’. Neither definition is derived from a particular theoretical approach or body of empirical research - they are simply pragmatic devices for site definition. Definitions based on artefact density also vary in their particulars. However, one of most commonly used definitions is that which isolates, within an arbitrarily defined ‘background scatter’ of one artefact/100 m², higher density clusters that are subsequently defined as ‘sites’.

Non-site or distributional archaeology offers an alternative approach to distance and density-based site definitions (Ebert 1992; Foley 1981), with individual artefacts, not sites, treated as the basic units of analysis (for published Australian examples see Doelman 2008; Holdaway et al. 2000; McNiven 1992; Robins 1997; Shiner 2008). While recognising the interpretive potential of non-site approaches with respect to data analysis and discussion, their implementation in the context of cultural heritage management studies is difficult. Here, the identification of ‘sites’ is required for reasons of recording (i.e., their entry into site databases such as ACHRIS) as well as ease of relocation, protection, and ongoing management. The identification of spatially-discrete ‘sites’, therefore, offers the most pragmatic approach to Aboriginal heritage management in impact assessment contexts (but see McDonald 1996 for a different approach).

For this assessment, a landscape based site definition has been adopted with all stone artefacts within the Activity Area included under a single place name with each artefact cluster comprising a component of the site. Likewise, the three potential Aboriginal scarred trees have been grouped under a single place name.

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11.2 Nature of Cultural Heritage

Aboriginal cultural heritage identified within the Activity Area consists 28 surface stone artefacts, 219 subsurface artefacts and three culturally modified trees. Combining both the results of the standard assessment archaeological survey and the complex assessment test excavation, two Aboriginal Places are recognised within the Activity Area. These consist of one Artefact Scatter incorporating all surface and subsurface artefacts (WMSF-AS1) and one complex of modified trees (WMSF-ST1).

11.3 RAP Information

Yorta Yorta did not provide any additional information about the Aboriginal cultural heritage present within the Activity Area.

11.4 Oral Information

Yorta Yorta did not provide any oral information about the Aboriginal cultural heritage present within the Activity Area.

11.5 Aboriginal Heritage Places

Two Aboriginal Places are recognised within the Activity area - artefact scatter site WMSF-AS1 (XXXXX) and scarred tree site WMSF-ST1 (XXXXX). Details for these sites area provided in the tables below and their locations shown on Figure 30.

VAHR [XXXXX] [WMSF-AS1]	
Location	
Type	Artefact Scatter
Centroid Coordinates (GDA94 MGA Zone55)	411658 mE, 5963659 mN
Address	892 Benalla-Yarrawonga Road
Local Government Area	Benalla Rural City
Parish	Mokoan and Goorambat
Lot/Plan	Lot 1\PS625748, 1 and 2\TP173518, 1\TP104377, 97B\PP2704, 1 to 5\LP206524
Nature	
The surface artefacts identified during the archaeological survey (n = 28), as well as the subsurface artefacts recovered during the program of test excavation (n = 219) are interpreted as being part of an artefact scatter. The artefact scatter consists of a total 247 stone artefacts spread across an area of approximately 1037343 m² (58 ha).	
Extent	
WMSF-AS1 is located within parts of 2\PS625748, 1/TP173518, 1\LP206524, 98B\PP2704 and 3\LP206524 directly east of Benalla-Yarrawonga Road. The place extent starts from south of Lake Mokoan Road extending southward approximately 1.5 km past Stockyard Creek.	

Plate 11 Location of surface artefacts view northeast

Plate 12 Example of surface artefacts

Plate 13 General location of subsurface artefacts

Plate 14 Sample of subsurface artefacts

VAHR [XXXXX] [WMSF-ST1]	
Location	
Type	Three scarred trees
Centroid Coordinates (GDA94 MGA Zone55)	411444 mE, 5964272 mN
Address	892 Benalla-Yarrawonga Road
Local Government Area	Benalla Rural City
Parish	Mokoan and Goorambat
Lot/Plan	1\TP173518
Nature	
This Aboriginal Place consists of three potential scarred trees clustered within one small area. All three trees exhibiting scars are Grey Box (*Eucalyptus macrocarpa)* with two in good condition and one deceased. A single scar is present on each tree	
Extent	
WMSF-ST1 is located wholly within 1\TP173518 and directly east of Benalla-Yarrawonga Road. The place occupies an areas of 30 m x 30 m extent 300 m south of Lake Mokoan Road.	

Plate 15 Tree locations view east

Plate 16 Scar tree 1 view east

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Plate 17 Scar tree 2 view east

Plate 18 Scar tree 3 view east

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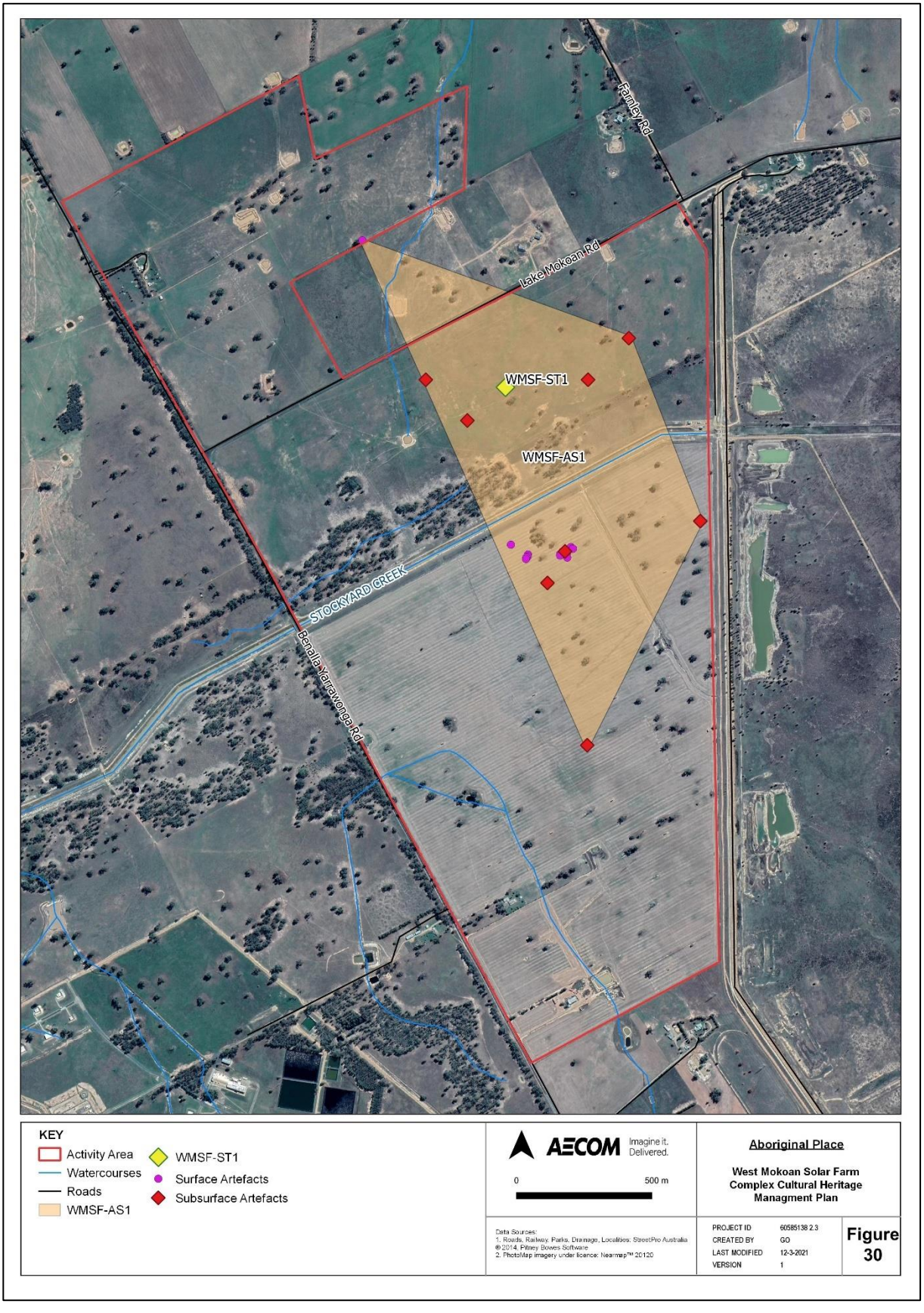
Figure 30 Map of Aboriginal Places



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11.6 Significance Assessment

11.6.1 Principles of Assessment

Heritage sites hold value for different communities in a variety of different ways. All sites are not equally significant and thus not equally worthy of conservation and management (Pearson & Sullivan 1995: 17). One of the primary responsibilities of cultural heritage practitioners, therefore, is to determine which sites are worthy of preservation and management (and why) and, conversely, which are not (and why) (Smith & Burke 2007: 227). This process is known as *the assessment of cultural significance* and, as highlighted by Pearson and Sullivan (1995: 127), incorporates two interrelated and interdependent components. The first involves identifying, through documentary, physical or oral evidence, the elements that make a heritage site significant, as well as the type(s) of significance it manifests. The second involves determining the degree of value that the site holds for society (i.e., its cultural significance) (Pearson & Sullivan 1995: 126).

In Australia, the primary guide to the assessment of cultural significance is the *Australian ICOMOS Charter for Places of Cultural Significance* (2013), informally known as *The Burra Charter*, which defines cultural significance as the "aesthetic, historic, scientific, social or spiritual value for past, present or future generations" of a site or place (ICOMOS 2013: 2). Under the Burra Charter model, the cultural significance of a heritage site or place is assessed in terms of its aesthetic, historic, scientific and social values, none of which are mutually exclusive (Table 18). Establishing cultural significance under the Burra Charter model involves assessing all information relevant to an understanding of the site and its fabric (i.e., its *physical* make-up). The assessment of cultural significance and the preparation of a statement of cultural significance are critical prerequisites to making decisions about the management of any heritage site or place (ICOMOS 2013: 2).

With respect to Aboriginal heritage, it is possible to identify two major streams in the overall significance assessment process: the assessment of *scientific value(s)* by archaeologists and the assessment of *social (or cultural) value(s)* by Aboriginal people.

Similarly, the assessment of cultural heritage significance in Victoria is also defined under two streams (*Aboriginal Heritage Regulations 2018*):

- Archaeological, anthropological, contemporary, historical, scientific, social or spiritual significance; and
- Significance in accordance with Aboriginal culture and tradition.

Table 18 Values relevant to determining cultural significance, as defined by The Burra Charter (ICOMOS 2013)

Value	Definition
Aesthetic	"Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and material of the fabric; the smells and sounds associated with the place and its use" (ICOMOS 2013).
Historic	"Historic value encompasses the history of aesthetics, science and society...[a] place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may have historic value as the site of an important event" (ICOMOS 2013).
Scientific	"The scientific or research value of a place will depend on the importance of the data involved, on its rarity, quality or representativeness, and on the degree to which the place may contribute further substantial information" (ICOMOS 2013).
Social	"Social value embraces the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a majority or minority group" (ICOMOS 2013).

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11.6.2 Scientific Value

Scientific value refers to the importance of a place in terms of its rarity, representativeness and the extent to which it may contribute further information (i.e., its research potential).

Research Potential

Research potential can be defined as the potential of an archaeological site to address what Bowdler (1981: 129) has referred to as “timely and specific research questions”. These questions may relate to any number of issues concerning past human lifeways and environments and, as suggested by Bowdler’s quote, will inevitably reflect current trends or problems in academic research (Burke & Smith 2004: 249). For their part, Bickford and Sullivan (1984: 23-4) suggest that the research potential of an archaeological site can be determined by answering the following series of questions:

1. Can the site contribute knowledge which no other resource can?
2. Can the site contribute knowledge which no other such site can?
3. Is this knowledge relevant to general questions about human history or other substantiative subjects?

Several criteria can be used to assess the research potential of an archaeological site. Particularly important in the context of Aboriginal archaeology are the intactness or integrity of the site in question, its complexity (place contents) and its representativeness.

Complexity (Place Contents)

The *complexity* of a site refers primarily to the nature or character of the artefactual materials or features that constitute it but also includes site structure (e.g., the physical size of the site, spatial patterning in observed cultural materials). In the case of open artefact sites, for example, the principal criteria used to assess complexity are the site’s size (i.e., number of artefacts and/or spatial extent), the presence, range and frequency of artefact and raw material types, and the presence of features such as hearths. Table 19 provides the assessment criteria for the complexity of the site.

Table 19 Place complexity criteria

Criteria	Value
No cultural heritage material	0
Place contains 0-10 artefacts	1
Place contains large number of artefacts but limited range of cultural heritage materials	2
Place contains large number of artefacts and diverse range of cultural heritage material	3

Rarity and Representativeness

Rarity and r*epresentativeness* are related concepts. Rarity refers to the relative uniqueness of a site within its local and regional context. The scientific significance of a site is assessed as higher if it is unique or rare within either context. Conversely, it is considered to be of lower significance if it is common in one or both. The concept of representativeness, meanwhile, refers to the question of whether or not a site is “a good example of its type, illustrating clearly the attributes of its significance” (Burke & Smith 2004: 247). Representativeness is an important criterion as one of the primary goals of cultural heritage management is to preserve for future generations a representative sample of all archaeological site types in their full range of environmental contexts.

In common with rarity, assessments of representativeness within a region are dependent on the state of current knowledge concerning the number and type of archaeological sites present within that region. This is a critical point, for as suggested by Kuskie (2000) and others (e.g., Bowdler 1981; Godwin 2011; Pearson & Sullivan 1995), the absence across most of Australia of regional-scale quantitative data for Aboriginal sites and places represents a major constraint in assessments of

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representativeness and rarity. As stressed by Bowdler (1981) some 30 years ago, detailed regional-scale assessments of the Aboriginal archaeological record of Australia are required to address this issue. Table 20 provides the assessment criteria for the place's rarity.

Table 20 Rarity criteria

Criteria	Value
Common occurrence within the geographical region	1
Irregular occurrence within the geographical region	2
Rare occurrence within the geographical region	3

Integrity/Place Condition

Integrity refers to the extent to which a site has been disturbed by natural and/or anthropogenic phenomena and includes both the state of preservation of particular remains (e.g., animal bones, plant remains) and, where applicable, stratigraphic integrity. Assessments of archaeological integrity are predicated on the notion that undisturbed or minimally disturbed sites are likely to yield higher quality archaeological and/or environmental data than those whose integrity has been significantly compromised by natural and/or anthropogenic phenomena. Establishing levels of preservation or integrity in the context of a surface survey is difficult. Nonetheless, useful rating schemes are available for 'open' sites (Coutts & Witter 1977: 34) and modified trees (Long 2003). Table 21 and **Error! Reference source not found.** provide the assessment criteria for the place's integrity.

Table 21 Integrity criteria for place's integrity

Criteria	Values
Place destroyed	0
Place demonstrates high degree of disturbance with some cultural materials remaining	1
Place in good condition with little disturbance	2
Place in excellent condition with minimum or no disturbance	3

Table 22 Integrity criteria for culturally modified trees

Criteria	Values
Poor	1
good	2
Excellent	3

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11.6.3 Identification Process for Current Assessment

For the current assessment, information on the scientific values of the Activity Area has been obtained through a review of existing environmental and archaeological data obtained through archaeological survey and test excavation within the Activity Area

Assessment of Scientific Significance

An assessment of the scientific significance of all sites within the Activity Area is presented in below. The significance rating of "scientific significance" is offered on the basis of an assessment of the place's complexity, rarity, representativeness, integrity/place condition and assigned low (n=1-3), moderate (n=4-6) and high (n=7-9) values. Table 23 prove the scientific significance assessment for Aboriginal Places within the Activity Area.

Table 23 Scientific significance

VAHR Site ID	Site Type	Complexity Rank	Reason	Rarity Rank	Reason	Integrity Rank	Reason	Overall Scientific Significance
WMNSF-AS1	Artefact scatter	2	Site is comprised of a series of isolated artefacts and low-density artefact scatters	1	Artefact scatters are a common site type in the geographic region	1	Place demonstrates evidence of historical impacts (i.e. agricultural activities) with some cultural materials remaining	4 - Moderate
WMSF-ST1	Scarred trees	2	Site comprises three scarred trees	1	Scarred trees are a common site type in the geographic region	2	Two trees are in good condition and one tree in poor condition	5 - Moderate

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12.0 Impact Assessment – Considerations of Section 61 matters

12.1 Section 61 matters in Relation to VAHR [XXXX] [WMSF-AS1]

Can harm be avoided?

In accordance with Section 61 of the Act, a Management Plan must consider whether the activity will be conducted in a way that avoids harm to Aboriginal cultural heritage.

The extent of WMSF-AS1 covers a large portion of the Activity Area (i.e., 20%). As such, it is not possible to avoid impacts to this Aboriginal Place. Table 24 details the consideration to avoid harm.

Table 24 Consideration to avoid harm

Aboriginal Heritage Component	Consideration
VAHR [XXXX] – WMSF-AS1	The construction of the solar farm does not permit avoidance of this place.

Can harm be minimised?

In accordance with Section 61 of the Act, a Management Plan must consider, if it does not appear to be possible to conduct the activity in a way that avoids harm to Aboriginal cultural heritage, whether the activity will be conducted in a way that minimises harm to Aboriginal cultural heritage.

Table 25 details the consideration to minimise harm.

Table 25 Considerations to minimise harm

Aboriginal Heritage Component	Consideration
VAHR [XXXX] – WMSF-AS1	Harm will be minimised through collection of impacted surface artefacts.

What measures are required for management of the Aboriginal cultural heritage?

In accordance with Section 61 of the Act, a Management Plan must consider any specific measures required for the management of Aboriginal cultural heritage likely to be affected by the activity, before, during and after the activity.

Table 26 details the measures needed for the management.

Table 26 Management

Aboriginal Heritage Component	Management
VAHR [XXXX] – WMSF-AS1	Surface artefacts located with area which are subject to impacts, a surface collection of lithic artefacts will be undertaken in accordance with the salvage methodology (Appendix F). No further salvage is required.

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12.2 Section 61 matters in Relation to VAHR [XXXX] [WMSF-ST1]

Can harm be avoided?

In accordance with Section 61 of the Act, a Management Plan must consider whether the activity will be conducted in a way that avoids harm to Aboriginal cultural heritage.

Impacts to this Aboriginal Place will be avoided.

Table 27 Consideration to avoid harm

Aboriginal Heritage Component	Consideration
VAHR [XXXX] – WMSF-ST1	Impacts to this Aboriginal Place will be avoided.

Can harm be minimised?

In accordance with Section 61 of the Act, a Management Plan must consider, if it does not appear to be possible to conduct the activity in a way that avoids harm to Aboriginal cultural heritage, whether the activity will be conducted in a way that minimises harm to Aboriginal cultural heritage.

Table 25 details the consideration to minimise harm.

Table 28 Considerations to minimise harm

Aboriginal Heritage Component	Consideration
VAHR [XXXX] – WMSF-ST1	This place will be fenced and avoided.

What measures are required for management of the Aboriginal cultural heritage?

In accordance with Section 61 of the Act, a Management Plan must consider any specific measures required for the management of Aboriginal cultural heritage likely to be affected by the activity, before, during and after the activity.

Table 26 details the measures needed for the management.

Table 29 Management

Aboriginal Heritage Component	Management
VAHR [XXXX] – WMSF-ST1	This place will be fenced and avoided.

12.3 Summary of Proposed Impacts

[PLACEHOLDER to be taken from Section 5.2]

12.3.1 What are the cumulative impacts?

Consideration of the location of sites located directly within the surface development areas indicates that WMSF-AS1 would be wholly impacted by construction of surface development associated with the Project.

It is noted that the three Aboriginal scarred trees will not be impacted by the project.

12.3.2 What are the Cumulative Impacts within the Region?

The results of cumulative impact assessments undertaken for cultural heritage sites and places, Aboriginal or otherwise, must be interpreted with caution, not least because they are based (in part) on heritage datasets that are inevitably incomplete and contain various inconsistencies and errors. Godwin (2011), in particular, has questioned the value of cumulative impact assessments to cultural heritage management in Australia, arguing that the ‘fundamentals’ necessary for undertaking such

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assessments simply do not exist. The 'fundamentals' Godwin is referring to are robust regional and national datasets for measuring proposed impacts and the determination of acceptable scientific and cultural impact thresholds. While recognising the validity of the issues raised by Godwin (2011), current Aboriginal Victoria guidelines necessitate that a cumulative impact assessment must be undertaken as part of any Aboriginal CHMP in Victoria.

Two avenues for assessing the cumulative impact of the Project on Aboriginal heritage can be pursued:

1. A comparison, using the results of ACHRIS searches, of the identified Aboriginal archaeological resource of the Activity Area with that of the geographic region, defined in Section 8.2; and
2. The use of existing environmental data sources (e.g., digital land use data and topographic maps) to identify the potential open artefact resource of the study region as a whole

12.3.3 Known Resource

A total of 71 discrete Aboriginal Places, comprising 29 scarred trees, 18 artefact scatters 11 low density artefact distributions, four earth features, four stone features, three Aboriginal cultural places and two object collections, were identified within the Geographical Area.

As shown in Section 8.3, artefact scatters, including LDADs, as well as scarred trees are the most common site types within the region (n = 29, 40.9%) followed by earth features and stone features both of which represent 5.6% of the archaeological places within the regions. As noted, one Artefact Scatter (WMSF-AS1) containing 247 stone artefacts will be impacted by the Project. ACHRIS data obtained for this assessment indicate that the single site directly impacted sites represent approximately 3.3% of the open artefact resources in the Geographic Region.

On this basis, it seems reasonable to conclude that the loss of this portion of the site would not constitute a significant adverse impact to the known open artefact resource of the geographic region with further research opportunities remaining for the non-impacted places.

12.3.4 Potential Resource

ACHRIS search results only represent a fraction of the likely archaeological resource present within a region, as these results are only representative of land that has been subject to archaeological investigations. Accordingly, an assessment of the *potential* Aboriginal heritage resource of the geographic regions is also a useful guide.

As a starting point, it is necessary to quantify the amount of land within the study region that has the *potential* to retain to open artefact sites. A basic assumption here is that grossly disturbed terrain is unlikely to retain such sites whereas non-grossly disturbed terrain does, both in surface and subsurface contexts.

A review of aerial photography for the region suggests that grossly modified or disturbed terrain (e.g., urban and industrial areas) accounts for only a small portion of land within the geographic region (<10%). Outside of grossly disturbed areas, fully to semi-cleared grazing land is well represented, accounting for the majority of land within the region. Wetland and associated watercourses are also well represented.

Viewed from an Aboriginal archaeological perspective, the results of a review of land uses within the region suggest that the majority of land can reasonably be considered to comprise a *potential open artefact resource* and has the potential to retain open artefact deposits in surface and subsurface contexts. While acknowledging the fact that the nature and distribution of such deposits will vary markedly in relation to environmental variables such as landform and the availability of potable water, analysis of available land use data does help to quantify the extent of the region's potential Aboriginal open artefact resource. Moreover, it provides a basis from which assess the cumulative impact of the proposed development on this resource.

In order to quantify the impact of the proposed development on the potential open artefact resource of the geographic it is necessary to compare the amount of impacted land within the Activity Area that could be considered a potential open artefact resource (i.e., 5 km²) with that available in the search area (i.e., 138 km²). On the basis, it can be stated that the Project will result in an approximate 3.6%

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decline in the geographic region's potential open artefact resource. As such, it can be concluded that the impact of the Project on the potential Aboriginal archaeological resource of the region will be low.

With regards to the existence, outside of the Activity Area, of environmental contexts that have the potential to contain sites comparable to those identified within it, an examination of relevant topographic maps for the area indicates that many such contexts exist including land within and surrounding the Winton Wetlands, and unmodified land adjacent to creeks and rivers including Broken River. On the basis of this evidence, it can be confidently concluded that land outside of the current Activity Area but within the geographic region contains a large, as yet unidentified, open artefact site resource.

12.4 Summary of Impact Assessment

Care has been taken to avoid cultural places where possible, however one place will be impacted. Impacts will be partially mitigated through surface collection of extant Aboriginal artefacts that will be impacted. A summary of the above impact assessment and any mitigation measures is provided in Table 30. Under this CHMP, harm is permitted to Aboriginal Places listed in Table 30 subject to undergoing required mitigation measures.

Table 30 Summary of management for Aboriginal Places within the Activity Area

VAHR #	Harm Avoided	Harm Minimised	Management and Mitigations
(XXXXX) WMSF-AS1	No	Yes	• For those components which are subject to direct impact, a surface collection must be undertaken. • Collected cultural material are to be retained by the Yorta Yorta and subject to the management of provisions of Condition 1 of this CHMP. • The appropriate forms and relevant spatial data must be completed and submitted to the VAHR • If unexpected Aboriginal objects are encountered during construction works within these place extents, the objects would be subject to the management provisions presented in Part 1 of this CHMP.
(XXXXX) WMSF-ST1	Yes	N/A	• The Sponsor must install permanent fencing around the place extents where they fall outside the current Activity Area to ensure those places are not harmed during construction works. • No activities are permitted within this area. • Any future potential impacts to this place may require a standalone assessment and authorisation under a CHMP.

No Aboriginal Places located outside the Activity Area require management.

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12.5 Conclusions and Recommendations

The following management recommendations are made for the identified Aboriginal heritage values of the Activity Area, with recommendations made on the basis of:

- The results of the standard and complex assessments described in **Section 9.0** and **Section 10.**
- The results of previous archaeological investigations within and surrounding the Activity Area.
- The significance and impact assessments detailed in **Section 11.6** and **Section 0**, respectively.
- Consultation with the Registered Aboriginal Party (RAP).
- The Sponsor's legal responsibilities under the *Aboriginal Heritage Act 2016*.

The following recommendations are provided:

1. The Sponsor should follow the:
    i. Conditions identified in **Part 1, Section 1.0** of this CHMP.
    ii. Contingency plans identified in **Part 1, Section 0** of this CHMP.
    iii. Schedules and other considerations identified in **Part 1, Section 3.0** of this CHMP.

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Appendix A

Notice of Intent

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Appendix A Notice of Intent

VICTORIA State Government | Premier and Cabinet

Notice of Intent to prepare a Cultural Heritage Management Plan for the purposes of the *Aboriginal Heritage Act 2006*

This form can be used by the Sponsor of a Cultural Heritage Management Plan to complete the notification provisions pursuant to s.54 of the *Aboriginal Heritage Act 2006* (the "Act").

For clarification on any of the following please contact Victorian Aboriginal Heritage Register (VAHR) enquiries on 1800-726-003.

SECTION 1 - Sponsor information

Sponsor:	892 Yarrawonga Development Pty Ltd (South Energy)		
ABN/ACN:	63 628 034 300		
Contact Name:	David Huang		
Postal Address	Level 27, 150 Lonsdale Street Melbourne VIC 3000		
Business Number:	+613 8842 6888	Mobile:	0423304785
Email Address:	david.huang@southenergy.com.au		

Sponsor's agent (if relevant)

Company:			
Contact Name:			
Postal Address			
Business Number:		Mobile:	
Email Address:			

SECTION 2 - Description of proposed activity and location

Project Name:	Lake Mokoan Solar Farm
Municipal district:	Benalla Rural City Council

Clearly identify the proposed activity for which the cultural heritage managment plan is to be prepared (ie. Mining, road construction, housing subivision)

Electricity facility (incl wind)

SECTION 3 - Cultural Heritage Advisor

Darran Jordan	AECOM Australia (AECOM)	darran.jordan@aecom.com
Name	*Company*	*Email address*

SECTION 4 - Expected start and finish date for the cultural heritage management plan

Start Date:	30-Oct-2019	Finish Date:	30-Oct-2049

Submitted on: 29 Oct 2019

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SECTION 5 - Why are you preparing this cultural heritage management plan?

☑ A cultural heritage management plan is required by the Aboriginal Heritage Regulations 2007

What is the high Impact Activity as it is listed in the regulations?

Electricity facility (incl wind)

Is any part of the activity an area of cultural heritage sensitivity, as listed in the regulations? Yes

☐ Other Reasons (Voluntary)

☐ An Environment Effects Statement is required

☐ A Cultural Heritage Management Plan is required by the Minister for Aboriginal Affairs.

☐ An Impact Management Plan or Comprehensive Impact Statement is required for the activity

SECTION 6 - List the relevant registered Aboriginal parties (if any)

This section is to be completed where there are registered Aboriginal parties in relation to the management plan.

Yorta Yorta Nation Aboriginal Corporation

SECTION 7A - List the relevant Aboriginal groups or Aboriginal people with whom the Sponsor intends to consult (if any)

*This section is to be completed only if the proposed activity in the management plan is to be carried out in an area where there is **no Registered Aboriginal Party.***

SECTION 7B - Describe the intended consultation process (if any)

*This section is to be completed only if the proposed activity in the management plan is to be carried out in an area where there is **no Registered Aboriginal Party.***

SECTION 8 – State who will be evaluating this plan (mandatory)

The plan is to be evaluated by:

☐ Joint - Registered Aboriginal Party AND The Secretary

☑ A Registered Aboriginal Party

If checked, list the relevant Registered Aboriginal Party Evaluating: Yorta Yorta Nation Aboriginal Corporation

☐ The Secretary

☐ Victorian Aboriginal Heritage Council

SECTION 9 – Preliminary Aboriginal Heritage Tests (PAHTs)

List the Reference Number(s) of any PAHTs conducted in relation to the proposed activity:

SECTION 10 - Notification checklist

Submitted on: 29 Oct 2019

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Premier and Cabinet

Ensure that any relevant registered Aboriginal party/ies is also notified. A copy of this notice with a map attached may be used for this purpose.
(A registered Aboriginal party is allowed up to 14 days to provide a written response to a notification specifying whether or not it intends to evaluate the management plan.)

In addition to notifying the Deputy Director and any relevant registerd Aboriginal party/ies, a Sponsor must also notify any owner and/or occupier of any land within the area to which the management plan relates. A copy of this notice with a map attached may be used for this purpose.

Ensure any municipal council, whose municipal district includes an area to which the cultural heritage management plan relates, is also notified. A copy of this notice, with a map attached, may also be used for this purpose.

Submitted on: 29 Oct 2019

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Farnley Rd
Farnley Rd
Lake Mokoan Rd
Activity Area
KEY
Activity Area
Areas of Cultural Sensitivity
Watercourses
Roads
ACHRIS Sites
Aboriginal Cultural Place
Artefact Scatter
Earth Feature
Low Density Artefact Distribution
Object Collection
Scarred Tree
Stone Feature
AECOM
www.aecom.com
0
1 km
Activity Area
Lake Mokoan Complex Cultural Heritage Managment Plan
Figure F1

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YORTA YORTA NATION ABORIGINAL CORPORATION
Kalitheban Wollithica Moira Bangerang Ulupna Kwat Kwat Yalba Yalba Ngurai-illiam-wurrung
ABN: 55 942 996 311 · ICN: 3279

David Huang
Level 27, 150 Lonsdale street
Melbourne VIC 3000

29th Oct 2019

NOTICE OF INTENT TO PREPARE A CULTURAL HERITAGE MANAGEMENT PLAN: 16918

Proposed Wharparilla West Residential Subdivision, Echuca

Yorta Yorta Nation Aboriginal Corporation (YYNAC) has received the Notice of Intent (NOI) to prepare a Cultural Heritage Management Plan (CHMP) for the above project which was received 29th October 2019.

The Yorta Yorta Nation Aboriginal Corporation is the Registered Aboriginal Party (RAP) under the *Victorian Aboriginal Heritage Act 2006*. It will evaluate the management plan for the project.

The cost for the evaluation of the management plan is as prescribed in the *Victorian Aboriginal Heritage Regulations 2007*. Costs for consultation with the registered Aboriginal Party are outlined in the Yorta Yorta Nation Aboriginal Corporation's fees and terms of engagement document.

The Yorta Yorta Nation Aboriginal Corporation request an inception meeting be held with the Project Sponsor and the Cultural Heritage Advisor before any works are to commence.

Yours Sincerely,

Wade Morgan
Cultural Heritage Unit Coordinator

Shepparton Office
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Echuca Office
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Yenbena Training Centre
c/o Barmah Post office
Barmah Vic 3638
Ph: 03 5869 3336
Fax: 03 5869 3292
ytcreception@yynac.com

Appendix B

RAP Evaluation of CHMP

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Appendix B RAP Evaluation of CHMP

Appendix C

VAHR Search

D R A F T

Appendix C VAHR Search

Appendix D

Test Pit Details

D R A F T

Appendix D Test Pit Details

Appendix E

Lithic Assemblage

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Appendix E Lithic Assemblage

Appendix F

Salvage Methodology

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Appendix F Salvage Methodology

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Appendix G

Compliance Checklist for CHMP

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Appendix G Compliance Checklist for CHMP

Appendix H

VAHR Site Cards

D R A F T

Appendix H VAHR Site Cards

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