# APPENDIX G ABORIGINAL CULTURAL HERITAGE ASSESSMENT

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# Aboriginal Cultural Heritage Assessment

## PARKES SOLAR FARM

MARCH 2016

ngh environmental

## Document Verification

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# EXECUTIVE SUMMARY

## INTRODUCTION

NGH Environmental has been contracted by Neoen Australia Pty Ltd (Neoen) to prepare an Aboriginal Cultural Heritage Assessment Report (ACHAR) for the proposed Parkes Solar Farm, located 10 km north west of Parkes, NSW.

The solar farm proposal would involve ground disturbance that has the potential to impact on Aboriginal heritage sites and objects which are protected under the NSW *National Parks and Wildlife Act 1974*. The purpose of the Aboriginal Cultural Heritage Assessment (ACHA) is therefore to investigate the presence of any Aboriginal sites and to assess the impacts and management strategies that may mitigate any impact.

The Secretary of the DPE Environmental Assessment Requirements (SEARs) relating the Aboriginal heritage were as follows:

> The EIS must identify and describe the tangible and intangible Aboriginal cultural heritage values that exist across the whole area that will be affected by the Parkes Solar Project and document these in the EIS. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECC 2011)* and consultation with Office of Environment and Heritage (OEH) regional officers.
>
> Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW)*.
>
> Impacts on Aboriginal cultural heritage values are to be assessed and documented in the EIS. The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment will be documented and notified to OEH. (SEARS for Parkes Solar Farm 21/11/14).

This ACHA Report was prepared in line with the following:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011);
- *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH 2010a), and
- *Aboriginal cultural heritage consultation requirements for proponents 2010* (ACHCRP) (OEH 2010b) produced by the NSW Office of Environment and Heritage (OEH).

The proposal area is within the Parkes Shire Council Local Government area.

## PROJECT PROPOSAL

The Parkes Solar Farm proposal site covers up to 240 hectares of land. Key infrastructure components would include the installation of a solar plant with a capacity of up to 57 MVA.

The project would include the following elements:

- Solar arrays: approximately 215,000 solar panels supported by approximately 27,000 piles, driven or screwed into the ground in order to support the solar array's mounting system. The panels to be installed would be either:
    - single-axis tracking panels (which would have approximately 2,850 tracker units)
    - north-oriented fixed-tilt panels
    - east-west facing fixed-tilt panels
    - or a combination of these alternatives.
- Approximately 28 PV boxes or PV skids (either containerised or installed on a 'skid' platform), each of them containing an inverter and an 11 kV, 22 kV or 33 kV transformer.
- Onsite cabling and electrical connections between solar arrays and panel inverters.
- One delivery station in a container or on a skid platform.
- Cables and trenches.
- Internal access tracks to allow for site maintenance vehicles, and gravel access road and parking for staff and visitors.
- Staff amenities and offices.
- Perimeter security fencing, approximately 2.3m high.
- Vegetation buffer.
- A 66kV overhead or underground power line to connect into the existing Parkes Transgrid substation, approximately 600 m north of the site.

## ABORIGINAL CONSULTATION

The consultation with Aboriginal stakeholders was undertaken in accordance with clause *80C of the National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010* following the consultation steps outlined in the (ACHCRP) guide provided by OEH.

The full list of consultation steps, including those groups and individuals that were contacted and a consultation log is provided in Appendix A.

As a result of this process, two groups contacted the consultant to register their interest in the proposal. The groups who registered interest were the Binjang Wellington Wiradjuri Heritage Surveys and the Wiradjuri Council of Elders. No other party registered their interest, including the entities and individuals recommended by OEH, nor the Peak Hill LALC, despite numerous attempts to contact them.

The fieldwork was organised and Jamie Gray of Binjang Wellington Wiradjuri Heritage Surveys and Robert Clegg of the Wiradjuri Council of Elders were asked to participate in the fieldwork.

A copy of the draft report was provided to both registered parties for comment.

## ARCHAEOLOGICAL CONTEXT

The assessment included a review of relevant information relating to the existing landscape of the proposal area. Included in this was a search of the OEH AHIMS database. Three Aboriginal sites had previously been

recorded within and adjacent to the proposal area. Assessment of Aboriginal site models suggest that the proposal area would only contain small scatters of Aboriginal stone artefacts.

## SURVEY RESULTS

Survey transects were undertaken on foot and traversed the main part of the proposed solar farm site. The survey was impeded by overall poor visibility, although there were areas where visibility was variable and in some instances quite high.

Between the three survey participants, just over 52 km of transects were walked across the main proposal area. Allowing for an effective view width of 5 m each person, this equates to a surface area of 262,500 $m^2$, representing 10.9% of the 240 hectare proposal area. However, allowing for the visibility restrictions, the effective survey coverage is reduced. The visibility varied across the paddocks but averaged about 20%. The effective survey coverage was therefore 52,500$m^2$, which equates to 2.2% of the proposal area.

The effective survey coverage for the proposed powerline was higher at about 7.5% of the alignment corridor.

Despite the poor visibility encountered during the survey, there were seven isolated artefacts found across the proposal area (PSIF1, PSIF2, PSIF3, PSIF4, PSIF5, PSIF6 and PSIF7).

In terms of the current proposal, extrapolating from the results of this survey, it is likely that additional artefacts could occur within the proposed development footprint. However, based on the land use history of the proposal area, and an appraisal of the area from the field survey, there is low potential for the presence of intact subsurface deposits.

The models of site location for the Parkes area have been shown to be accurate, with the current survey confirming the predicted distribution and nature of archaeological material.

The research potential of the sites located during this assessment are considered to be generally low, as their scientific value for further research is limited.

The cultural significance of the sites is only determined by the local Aboriginal community.

## POTENTIAL IMPACTS

The proposal involves the construction of a solar farm and includes connection to the nearby substation with an above ground or underground powerline. The development will result in disturbance of almost all of the 240 hectare property. The impact is likely to be most extensive where earthworks occur and would involve the removal, breakage or displacement of artefacts. This is considered a direct impact on the Aboriginal objects by the development in its present form.

The impact to the scientific values if the artefacts were to be impacted by the current proposal is considered low. The isolated artefacts have little research value apart from what has already been gained from the information obtained during the present assessment. This information relates more to the presence of the artefacts and in the development of Aboriginal site modelling, which has largely now been realised by the recording.

Proposal is classified as State Significant Development under the EP&A Act have a different assessment regime. As part of this process, Section 90 harm provisions under the NPW Act are not required, that is, an AHIP is not required to impact Aboriginal objects.

## RECOMMENDATIONS

It is recommended that:

1. The development proposal should be able to proceed with no additional archaeological investigations. No areas of potential archaeological deposits have been identified and the significance of the Aboriginal heritage objects within the proposal site have been assessed as low.
2. If complete avoidance of the recorded artefacts within the proposal area (PS IF1-7, PIF1/Ridgey Creek-Parkes) is not possible, the artefacts should be collected and moved to a safe area within the property, as close as possible to their original location, but which will not be subject to ground disturbance. The collection and relocation should be undertaken by representatives of the registered Aboriginal parties. A new AHIMS site card will need to be completed identifying the new location of the moved artefacts.
3. Prepare a Cultural Heritage Management Plan (CHMP) in consultation with the registered Aboriginal parties that incorporates the following;
    - Where avoidance of the recorded artefacts within the proposal area is not possible, the artefacts would be collected and moved to a safe area within the property, as close as possible to their original location, but which will not be subject to ground disturbance. The collection and relocation should be undertaken by representatives of the registered Aboriginal parties. A new AHIMS site card will need to be completed identifying the new location of the moved artefacts.
    - Incorporates an unexpected finds protocol to allow for management of finding additional Aboriginal artefacts during the construction of the solar farm.
    - Includes a protocol where, in the unlikely event that human remains are discovered during the construction, all work must cease in the immediate vicinity. OEH, the local police and Peak Hill LALC should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal.
4. Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the registered Aboriginal parties and may include further field survey.

# 1 INTRODUCTION

NGH Environmental has been contracted by Neoen Australia Pty Ltd (Neoen) to prepare an Aboriginal Cultural Heritage Assessment Report (ACHAR) for the proposed Parkes Solar Farm, located 10 km north west of Parkes, NSW (Figure 1).

The solar farm proposal would involve ground disturbance that has the potential to impact on Aboriginal heritage sites and objects which are protected under the NSW *National Parks and Wildlife Act 1974* (NPW Act). The purpose of the Aboriginal Cultural Heritage Assessment (ACHA) is therefore to investigate the presence of any Aboriginal sites and to assess the impacts and management strategies that may mitigate any impact.

## 1.1 DEVELOPMENT CONTEXT

The development of renewable energy projects is considered to be one of the most effective ways to achieve the commitments of Australia and a large number of other nations under the Kyoto Protocol to reduce greenhouse gas emissions. The Parkes Solar Farm would provide the following benefits:

- Reduction in greenhouse gas emissions.
- Provision of embedded electricity generation to supply into the Australian grid close to a main consumption centre.
- Provision of social and economic benefits through the provision of direct employment opportunities.

The establishment of a Solar Farm would therefore have both local, National and International benefits.

As part of the development impact assessment process, the proposed development application will be assessed under part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposed solar farm at Parkes has a capital investment estimated to be $98 million, therefore the proposal is classified as “state significant development” (SSD) under Part 4 of the EP&A Act. SSDs are major projects which require approval from the Minister for Planning and Environment. The EIS has been prepared in accordance with the requirements of the Secretary of the Department of Planning and Environment (DPE).

The Secretary of the DPE Environmental Assessment Requirements (SEARs) relating the Aboriginal heritage were as follows:

> The EIS must identify and describe the tangible and intangible Aboriginal cultural heritage values that exist across the whole area that will be affected by the Parkes Solar Project and document these in the EIS. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECC 2011)* and consultation with Office of Environment and Heritage (OEH) regional officers.
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> Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW)*.
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> Impacts on Aboriginal cultural heritage values are to be assessed and documented in the EIS. The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment will be documented and notified to OEH. (SEARS for Parkes Solar Farm 21/11/14).

The proposal area is within the Parkes Council Local Government area on Lot 4, DP 854193.

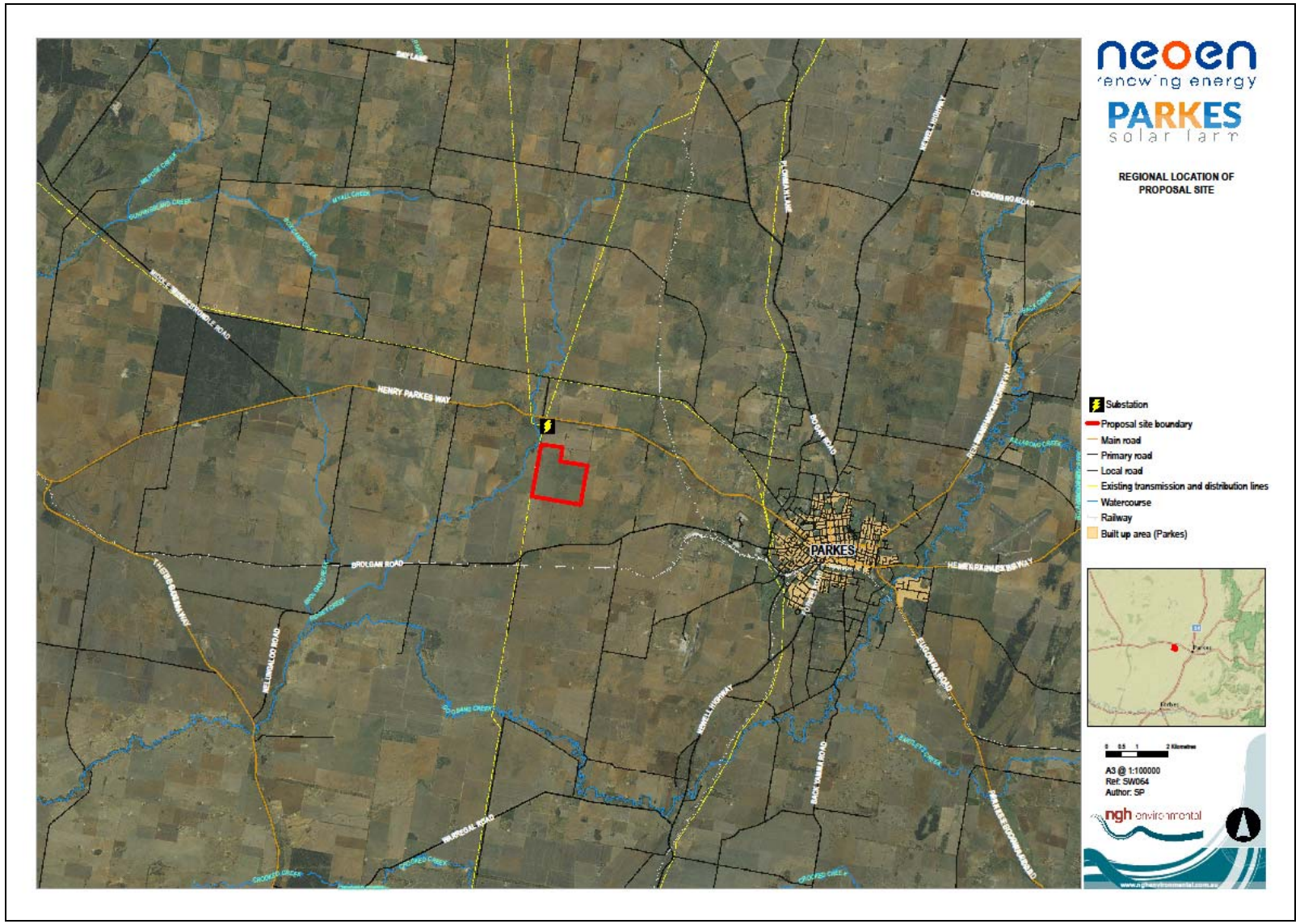


Figure 1. Location of proposal site.

## 1.2 PROJECT PROPOSAL

The Parkes Solar Farm proposal site covers approximately 240 hectares (ha) of land. The layout is shown in Figure 2.

The project would include the following elements:

- Solar arrays: approximately 215,000 solar panels supported by approximately 27,000 piles, driven or screwed into the ground in order to support the solar array's mounting system. The panels to be installed would be either:
    - single-axis tracking panels (which would have approximately 2,850 tracker units)
    - north-oriented fixed-tilt panels
    - east-west facing fixed-tilt panels
    - or a combination of these alternatives.
- Approximately 28 PV boxes or PV skids (either containerised or installed on a 'skid' platform), each of them containing an inverter and an 11 kV, 22 kV or 33 kV transformer.
- Onsite cabling and electrical connections between solar arrays and panel inverters.
- One delivery station in a container or on a skid platform.
- Cables and trenches.
- Internal access tracks to allow for site maintenance vehicles, and gravel access road and parking for staff and visitors.
- Staff amenities and offices.
- Perimeter security fencing, approximately 2.3m high.
- Vegetation buffer.
- A 66kV overhead or underground power line to connect into the existing Parkes Transgrid substation, approximately 600 m north of the site.

The Proposed Infrastructure map in Figure 2 illustrates the indicative area of the proposed solar array. Detailed design will allow for avoidance of sensitive features on the site, including a row of trees through the centre of the site and groups of trees in south eastern portion of the site which would be retained.

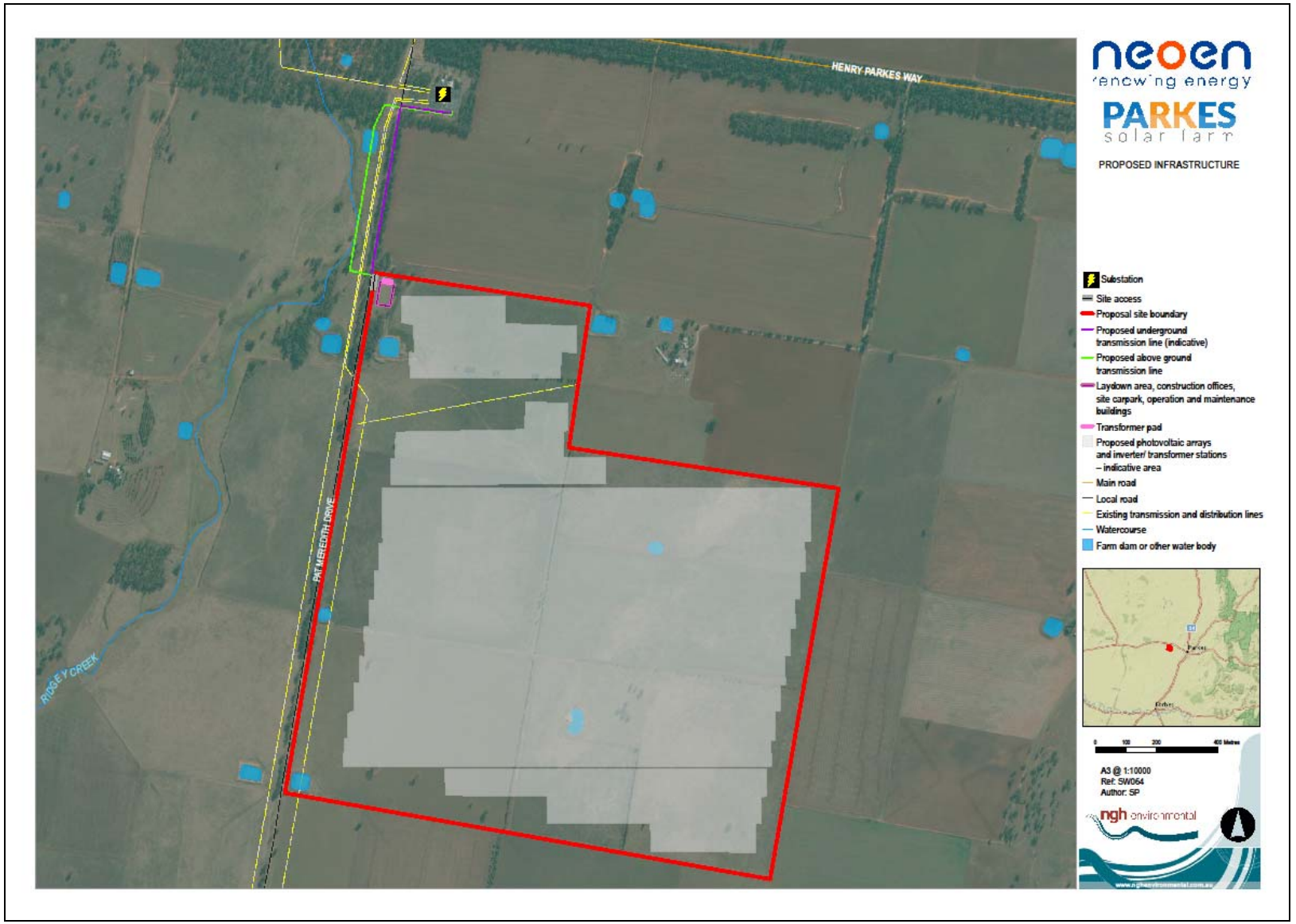


Figure 2. Proposed Solar Farm Detail.

## 1.3 PROJECT PERSONNEL

The assessment was undertaken by archaeologist Matthew Barber of NGH Environmental, including research, Aboriginal community consultation, field survey and report preparation.

Consultation with the Aboriginal community was undertaken following the process outlined in OEH's *Aboriginal cultural heritage consultation requirements for proponents 2010.* Two Aboriginal groups registered their interest in the proposal and a representative from each participated in the fieldwork. The groups where:

- Binjang Wellington Wiradjuri Heritage Surveys (Jamie Gray); and
- Wiradjuri Council of Elders (Robert Clegg).

Further detail and an outline of the consultation process is provided in Section 2.

The Aboriginal heritage assessment was also assisted by the, Neoen representative Chris Leonard and Jenny Walsh from NGH Environmental.

## 1.4 REPORT FORMAT

For the purposes of this assessment of the Parkes Solar Farm, we have prepared the report in line with the following:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011);
- *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH 2010a), and
- *Aboriginal cultural heritage consultation requirements for proponents 2010* (ACHCRP) (OEH 2010b) produced by the NSW OEH.

The purpose of this ACHA Report is therefore to provide an assessment of the Aboriginal cultural values associated with the study area and to assess the cultural and scientific significance of any Aboriginal heritage sites. This conforms to the intention of the SEARs.

The objectives of the assessment were to:

- Conduct Aboriginal consultation as specified in clause 80c of the *National Parks and Wildlife Regulation 2009*, using the consultation process outlined in the ACHCRP*;*
- Undertake an assessment of the archaeological and cultural values of the study area and any Aboriginal sites therein;
- Assess the cultural and scientific significance of any archaeological material, and
- Provide management recommendations for any objects found.

# 2 ABORIGINAL CONSULTATION PROCESS

The consultation with Aboriginal stakeholders was undertaken in accordance with clause *80C of the National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010* following the consultation steps outlined in the ACHCRP guide provided by OEH. The guide outlines a four stage process of consultation as follows:

- Stage 1 – Notification of project proposal and registration of interest.
- Stage 2 – Presentation of information about the proposed project.
- Stage 3 – Gathering information about cultural significance.
- Stage 4 – Review of draft cultural heritage assessment report.

The full list of consultation steps, including those groups and individuals that were contacted and a consultation log is provided in Appendix A. A summary of actions carried out in following these stages are as follows.

**Stage 1.** Letters outlining the development proposal and the need to carry out an ACHA were sent to the Peak Hill Local Aboriginal Land Council (Peak Hill LALC), and various statutory authorities including OEH, as identified under the ACHCRP. An advertisement was placed in the local newspapers, the Parkes Champion Post on 23 October 2015 seeking registrations of interest from Aboriginal people and organisations. A further series of letters was sent to other organisations identified by OEH in correspondence to NGH Environmental. In each instance, the closing date for submission was 14 days from receipt of the letter.

As a result of this process, two group contacted the consultant to register their interest in the proposal. The groups who registered interest were:

- Binjang Wellington Wiradjuri Heritage Surveys (Registered by phone); and
- Wiradjuri Council of Elders (Registered by email).

No other party registered their interest, including the entities and individuals recommended by OEH nor the Peak Hill LALC, despite numerous attempts to contact them.

**Stage 2**. On the 23 December 2015 an Assessment Methodology document for the Parkes Solar Farm was sent to all registered parties. This document provided details of the background to the proposal, a summary of previous archaeological surveys and the proposed heritage assessment methodology for the proposal. The document invited comments regarding the proposed methodology and also sought any information regarding known Aboriginal cultural significance values associated with the subject area and/or any Aboriginal objects contained therein. A minimum of 28 days was allowed for a response to the document. No written response was received but Jamie Gray (Binjang Wellington Wiradjuri Heritage Surveys) and Robert Clagg (Wiradjuri Council of Elders) indicated by phone and email respectively that they were satisfied with the methodology and were happy to proceed with the fieldwork.

**Stage 3.** The *Assessment Methodology* outlined in Stage 2 included a written request to provide any information that may be relevant to the cultural heritage assessment of the study area. It was noted that sensitive information would be treated as confidential. No response regarding cultural information was received.

At this stage, the fieldwork was organised and Jamie Gray of Binjang Wellington Wiradjuri Heritage Surveys and Robert Clegg of the Wiradjuri Council of Elders were asked to participate in the fieldwork.

**Stage 4** In March 2016 a draft version of this *Aboriginal Cultural Heritage Assessment Report* for the proposal (this document) was forwarded to the Binjang Wellington Wiradjuri Heritage Surveys and the Wiradjuri

Council of Elders inviting comment on the results, the significance assessment and the recommendations. A minimum of 28 days was allowed for responses to the document.

## 2.1 ABORIGINAL COMMUNITY FEEDBACK

To be inserted after Aboriginal community review

# 3 BACKGROUND INFORMATION

## 3.1 REVIEW OF LANDSCAPE CONTEXT

### *3.1.1 Geology and Topography*

The study area is positioned within the undulating plain and low hills of the NSW South Western Bioregion. The base geology of the proposal area comprises inactive Tertiary alluvial plains made up and red-brown clays and silts on the flats, of stony yellow earths and, thin brown structured loams on the hills. The presence of Goonumbla Volcanics on the hills to the east of the proposal area contain volcaniclastic conglomerate and sandstone and breccia may have provided a source of stone material for Aboriginal people for flaking. Granite, quartz and quartzite are also common materials in this landscape (OEH 2016).

There is no topographic variation within the land for the proposed Solar Farm. The ground is level except in areas in close proximity to agricultural dams where the ground has been modified. There is minor variation in the natural elevation between the eastern boundary of the proposal area and the western boundary but the difference is only in the order of a metre or two.

Soils in the study area are generally a red-brown coarse, sandy loam which is highly friable with some silt content and very little natural gravels.

### *3.1.2 Vegetation and Climate*

The natural vegetation across the proposal area has been cleared and is now considered a modified environment, as such it comprises predominantly exotic grass species. Some native trees were present, scattered across the paddocks. Also, along Pat Meredith Drive on the western boundary of the proposal area, the road reserve contained stands of trees. The natural vegetation of the area would most likely have consisted of open Eucalyptus woodland dominated by grey box (*Eucalyptus microcarpa*), yellow box (*Eucalyptus melliodora*) and white box (*Eucalyptus albens*) trees with isolated stands of white cypress pine (*Callitris glaucophylla)* and various wattles (Acacia spp.) with an understorey of native grasses.

The Parkes area is characterised by a sub-humid climate, with average temperatures ranging from 2.4$^{o}$C during winter to 33.4 ºC in the summer. The area receives an average rainfall of 612.9 millimetres annually (BOM 2016)

### 3.1.3 Historic Landuse

The Parkes region has a long history of intensive agricultural and pastoral use. The majority of the area has been utilised for grazing and crop production since European settlement in the early 1800's. The location of the proposed Parkes Solar Farm is within cleared paddocks that are currently used for grazing cattle. However the paddocks have also been subject to ploughing and therefore have been subject to impacts from farming activities for many decades. Overall, the proposal area would be categorised as disturbed through consistent farming practices and land clearing, although not continuous cropping.

### 3.1.4 Landscape Context

Most archaeological surveys are conducted in a situation where there is topographic variation and this can lead to differences in the assessment of archaeological potential and site modelling for the location of Aboriginal archaeological sites. However, as already noted, the terrain is generally flat with no relief. There are no differences observed in the soil types and no micro features within the proposal area. That could be used to delineate different land forms or units.

The landforms for the survey were therefore determined to be one single unit, described as a level plain. There are no natural water courses or drainage lines across the proposal area, the nearest formals drainage line is Ridgey Creek, at its nearest point, located about 130 m to the west of the north western corner of the proposal area. This is a minor tributary of Goobang Creek which lies approximately 8 km south west of the proposal area. Several small dams have been installed across the area for pastoral use.

## 3.2 REVIEW OF ABORIGINAL ARCHAEOLOGICAL CONTEXT

### 3.2.1 Ethnohistoric Setting

Cultural areas are difficult to define and "must encompass an area in which the inhabitants have cultural ties, that is, closely related ways of life as reflected in shared meanings, social practices and interactions"(Egloff *et al*. 2005:8). Depending on the culture defining criteria chosen - i.e. which cultural traits and the temporal context (historical or contemporary) - the definition of the spatial boundary may vary. In Australia, Aboriginal "marriage networks, ceremonial interaction and language have been central to the constitution of regional cultural groupings" with the distribution of language speakers being the main determinate of groupings larger than a foraging band (Egloff *et al*. 2005:8 & 16).

The Parkes area is within an area identified as part of the Wiradjuri language group. This is an assemblage of many small clans and bands speaking a number of similar dialects (Howitt 1996, Tindale 1974, MacDonald 1983, Horton 1994).

The Wiradjuri language group was the largest in NSW prior to European settlement. The borders were however, not static, they were most likely fluid, expanding and contracting over time to the movements of smaller family or clan groups. Boundaries ebbed and flowed through contact with neighbours, the seasons and periods of drought and abundance.

It was the small family group that was at the core of Aboriginal society, the basis for their hunting and gathering life. The immediate family camped, sourced food, made shelter and performed daily rituals together. The archaeological manifestations of these activities are likely to be small campsites, characterised by small artefact scatters and hearths across the landscape. Places that were visited more frequently would develop into larger site complexes with higher numbers of artefacts and possibly more diverse archaeological evidence.

The small family units were part of a larger band which comprised a number of families. They moved within an area defined by their particular religious sites (MacDonald 1983). Such groups might come together on special occasions such as pre-ordained times for ceremonies, rituals or simply if their paths happened to cross. They may also have joined together at particular times of the year and at certain places where resources were known to be abundant. The archaeological legacy of these gatherings would be larger sites than small family camps. They may include large hearth or oven complexes, contain a number of grinding implements and a larger range of stone tools and raw materials.

Identification and differentiation of such sites are difficult in the field. A family group and their antecedents and descendants occupying a particular campsite repeatedly over a long period of time may leave a similar pattern of archaeological signatures as a large group camped over a shorter period of time.

European settlers started arriving in the district in the 1830s, after the explorer Oxley passed through the region in 1817. In April 1835 Mitchell's party which had set out to explore the Bogan River encountered a group of the local Aboriginal population on the outskirts of what is today the town of Parkes (Kass 2003; 29). At this point the Aboriginal population in most parts of NSW was in decline, due to disease such as small pox and influenza as well as dispossession from traditional lands. Acts of violence against Aboriginal people meant there was great social upheaval and partial disintegration of the traditional way of life. This meant that access to traditional resource gathering and hunting areas, religious life and marriage links and access to sacred ceremonial sites were disrupted or destroyed.

However, despite these disruptions, Aboriginal people continued to maintain their connections to sites and the land in the early days of European settlement. Where Aboriginal people were taken to missions, people were able to maintain at least some form of association with country and tell traditional stories. The Wiradjuri people continue to have a strong connection to their land.

Early settlers and others who wrote about the Wiradjuri people and customs differentiated between the origin of some groups, referring to people as the Lachlan or Murrumbidgee tribes, or the Levels tribe for those between the two major rivers (Woolrych 1890). The extent of the Wiradjuri group means that there were many different environments that were exploited for natural resources and food. Like everywhere in Australia, Wiradjuri people were adept at identifying and utilising resources either on a seasonal basis or all year round.

Terrestrial animals such as the possum was noted by many early observers as a prime food source and the skins were made into fine cloaks that evidently were very warm (Evans 1815, Oxley 1820, Mitchell 1839). Kangaroos were also eaten and their skins made into cloaks as well. A range of reptiles and other mammals were also food sources. Fish and mussels would have been prevalent from the rivers and creeks. Insects were also a common food type; in particular grubs, ants and ant eggs (Pearson 1981, Fraser 1892). Birds including emus were common as a food source, often being caught in nets made from fibres of various plants such as flax, rushes and kurrajong trees. Bird hunts were also often undertaken as group activities, with emus, ducks and other birds targeted through groups of people flushing them out and driving them into pre-arranged nets (Ramson 1983).

Plant foods were equally as important and mostly consisted of roots and tubers, such as *Typha* or Cumbungi whose tubers were eaten in late summer and shoots in early spring. Other edible plants from the Wiradjuri region include the Yam Daisy or *Murnong*, eaten in summer and autumn, the Kurrajong seeds and roots, Acacia seeds and other rushes too (Gott 1982).

Some of the early settlers and pastoralists, surveyors, explorers, administrators and others observed traditional Aboriginal activities, including ceremonies, burial practices and general way of living, and recorded these in letters, journals and books. These early records of Aboriginal lifestyle and society within

the region assist in understanding parts of the traditional Aboriginal way of life, albeit already heavily disrupted at the time of the observations and through the eyes of largely ignorant and uninformed observers.

The early observations also note that some weapons and tools were carried, some made from wood such as spears, spear throwers, clubs, shields, boomerangs, digging sticks, bark vessels and canoes. Other materials were observed in use such as stone axes, shell and stone scrapers and bone needles.

In an archaeological context, few of these items would survive, particularly in an open site context. Anything made from bark and timber and animal skins would decay quickly in an open environment. However, other items, in particular those made of stone would survive where they were made, placed or dropped. Shell material may also survive in an archaeological context. Sources of raw materials, such as the extraction of wood or bark would leave scars on the trees that are archaeologically visible, although few trees of sufficient age survive in the modern context. Outcropping stone sources also provide clues to their utilisation through flaking, although pebble beds may also provide sources of stone which leave no archaeological trace.

### *3.2.2 AHIMS Search*

The Aboriginal Heritage Information Management System (AHIMS) is maintained by OEH and provides a database of previously recorded Aboriginal heritage sites. Searches of the AHIMS database can be made providing information about any sites previously identified within a designated search area. The results of the search are able to be relied upon for 12 months.

An extensive search of the AHIMS database was undertaken on 10 November 2015. The search area focussed on a rectangular area approximately 25 km (east-west) x 20 km (north-south) centred on the study area. The coordinates for the search area were Lat. Long. from: -33.1838, 147.9467 – Lat. Long to: -33.0229, 148.2018 with a buffer of 50 meters. The AHIMS Client Service Number was: 198658.

The AHIMS register search revealed that there were 35 Aboriginal heritage sites within the search area and a breakdown of the site types is shown in Table 1.

Table 1. Site types within AHIMS search

| Site Type | Number |
|---|---|
| **Isolated Find/artefact scatter** | 8 |
| **Modified tree** | 27 |

It is clear from these results that the dominant site type in the region are occurrences of modified trees and stone artefacts, either as isolated finds or in clusters as artefact scatters. Three of these sites are adjacent to the solar farm proposal area. These sites are PIF1, an isolated artefact situated on the bank of Rdgey Creek, most likely on the easement of the existing powerline, PIF2, an isolated artefact situated on the western boundary of the proposal area, or possibly within the Pat Meredith road reserve and Ridgey Creek- Parkes a possible artefact scatter likely ot be within the road reserve or the existing powerline easement.

### 3.2.3 Archaeological Setting

Aboriginal people have occupied what we now know as the Australian continent for at least 40,000 years and perhaps 60,000 years and beyond. There have been no dated excavations in the Parkes area, although the archaeological evidence from Lake Mungo, 450 km to the south west provides ample evidence of Aboriginal occupation dating back 40,000 years (Mulvaney and Kamminga 1999, Hiscock 2007). While no regional synthesis of the archaeology has been completed for the Parkes area, several research projects have been undertaken in the Upper Macquarie region by Pearson (1981) and Keottig (1985) in the 1980's. The following is a summary of the finding from these studies.

Pearson (1981) analysed a series of sites provided by informants and built a predictive model for what he categorised as occupation sites or non-occupation sites (sites that are occupied generally for a single purpose ie. scarred trees, grinding grooves and burial sites). During this study he excavated three rockshelters (Botobolar 5, Granites 1 and Granites 2) providing a record of regional Aboriginal occupation to 5,000 years before present.

A comprehensive desktop study of the Dubbo region by Koettig (1985) continued to build the archaeological understanding of this area and concluded that:

- Aboriginal sites may be expected throughout all landscapes;
- Artefact scatters, scarred trees and grinding grooves are the most frequently occurring site types; and
- The location and size of sites were determined by various factors; predominately environmental and social (proximity to water, geological formation and availability of food resources).

The following are summaries of those archaeological survey reports that have been completed in the Parkes area.

During early surveys of the area several studies located a range of sites. The survey of a transmission line approximately 40 km to the north of Parkes by Thornhill (1977) identified a basalt quarry. Subsequent transmission line surveys in the region by Lance (1985) from Wellington to Forbes which stretched from the north east to south of Parkes located 16 open artefact scatters, two scarred trees and 14 isolated finds. It was noted during this survey that the artefact densities at each site was low, generally containing 10 artefacts or less.

In 1986 the survey of North Parkes Mine approximately 20 km north-west of Parkes by Stone identified 15 open campsites and a single scarred tree (Brayshaw 1993:6). In line with the modelling of Pearson and Koettig, Stone noted that most sites were found in close proximity to a water source. Further surveys in this area in relation to the mine's expansion and infrastructure needs was conducted in 1990 by Nicholson who found no sites. Brayshaw's survey for a proposed water supply pipeline for North Parkes Mine noted that based on the historic data of this area the most common sites types would be artefact scatters and scarred trees within close proximity to water sources (Brayshaw 1993:7). She recorded two open camp sites (both with less than 10 artefacts) and an isolated find.

Based on the preliminary survey results of Witter (1987) for the London- Victoria Gold Mine to the south west of Parkes, Dallas recorded 10 scarred trees in 1988. All were identified as bimble box (*Eucalyptus populnea*) or cypress pine (*Callitris glaucophylla) (*Brayshaw 1993:7).

A reconnaissance assessment of the Marsden-Dubbo Natural Gas Pipeline in 1997 by Navin Officer Heritage Consultants. In total five artefact scatter and 17 scarred trees were identified within the pipeline route. Navin

Officer Heritage Consultants (NOHC 1997:36) recommended further survey of this route. The report is not available in the AHIMS library so little further information is available. It appears however, that in 2008, an addendum was undertaken including additional field survey of a proposed Peaking Power Plant to be built adjacent to the current substation. Three sites were identified as a result of this addendum, in proximity to the current proposal area.

The AHIMS site cards identifies two isolated artefacts (PIF1 – AHIMS #43-3-0083 and PIF2 – AHIMS #43-3-0081) which are located adjacent to the current solar farm proposal area. The location of the sites is shown in Figure3. PIF1 was recorded as a 'Bogan Pick', a rare item of which nothing is known of their function. The map supplied with the site card show the artefact to have been found on the edge of the Pat Meredith Road reserve, or just within the adjacent property boundary. The site card reveals that the artefact was unlikely to be *in situ* and that it had probably been moved by farming activities. There was also low potential for subsurface deposits to occur at the location.

PIF2 was recorded as a flake, also in a disturbed context with low potential for additional artefacts and subsurface deposits. The artefact was found within the ploughed paddock, adjacent to and south of the substation, close to the road reserve.

The third site P2 was a possible scarred tree, situated within the wide reserve of Henry Parkes Way to the north east of the solar farm proposal area.

In 2002, eight scarred trees were recorded by Robinson from the Peak Hill LALC for the Parkes Shire Council. In 2004 Comber surveyed an area referred to as Parkes Hub to the west of Parkes and its associated service corridors along existing travelling stock routes to the north, west and southern outskirts of Parkes. During the survey Comber reassessed several of the scarred trees previously identified by Robinson and identified three additional scarred trees within the area (Comber 2004).

In 2011 OzArk undertook the archaeological management of sites along an area between Manildra to Parkes in accordance with AHIP # 31122901. The most common sites types identified were artefact scatters, isolated artefacts and scarred trees.

OzArk (2013) undertook an assessment of transmission lines and an industrial development proposal in the Parkes area. Their survey identified a single scarred tree in a stand of trees bordering a highly disturbed agricultural field.

One other site listed under AHIMS is recorded as Ridgey Creek-Parkes (AHIMS#43-3-0090). This is listed as an artefact but the site card is not available from AHIMS. Its grid coordinates place it at the same location as PIF1, the Bogan Pick recorded by Navin Officer Heritage Consultants and the site is likely therefore to be a duplicate of this recording.

### *3.2.4 Summary of Aboriginal land use*

The results of previous archaeological surveys in the Parkes region serve to show that there are sites and artefact present throughout the landscape. There is a dominance of scarred trees especially in areas where there are remnant stands of native trees. Scarred trees provide a tangible link to the past and provide evidence of Aboriginal subsistence activities through the deliberate removal of bark or wood.

There appears to be a pattern of site location that relates to the presence of a water source with artefact scatters located near permanent or temporary water sources. In addition artefact density in the Parkes area appears to be low (less than 10 artefacts). This may suggest a lack in useable raw material in the form of stone, an essential material for Aboriginal people, which resulted in a low discard rate of materials. This may

also suggest the seasonal occupation of the area by Aboriginal people using water availability to move through the land.

A detailed understanding of the Aboriginal land use of the region is in reality lacking, as few in depth studies have been completed. It is possible however, to ascertain that proximity to water sources and raw materials was a key factor in the location of Aboriginal sites. It is also reasonable to expect that Aboriginal people ventured away from these resources to utilise the broader landscape, as suggested by the large number of small scatters or isolated finds that have so far been recorded.

### *3.2.5 Archaeological Site Location Model*

OzArk proposed a model of site location for their study area at Parkes Industrial Estate (2013). This included that there were likely to be scarred trees present as it was the dominate site type of the locality. Despite European land clearing, there was some potential for the presence of artefact scatters though it was noted they had a high likelihood of being disturbed, and isolated artefacts had the potential to occur anywhere but were most likely in association with disturbed locations.

Based on the results of these previous archaeological investigations in the local Parkes area, and through extrapolation of Wiradjuri sites from other areas within close proximity of Parkes, it is possible to provide the following model of site location in relation to the proposed Solar Farm area.

**Stone artefact scatters** – representing camp sites, artefact scatters can occur across the landscape, usually in association with some form of resource or identifiable landscape unit such as a terrace or spur crest. Within the Parkes district it is noted that locations close to permanent water courses are a desirable location for occupation. Within the proposal area, no such features exist and therefore large campsites are unlikely to occur.

**Burials** – are generally found in elevated sandy contexts or in association with rivers and major creeks. No such features exist with the proposal area and therefore such sites are unlikely to occur.

**Scarred Trees** – these require the presence of mature trees and are likely to be concentrated along major waterways and in stands of native trees. These conditions exist adjacent the western boundary of the proposal area, along the road reserve.

**Hearths/Ovens** – are identified by burnt clay used for heat retainers. None are recorded in the district but they could occur either independently or in association with other Aboriginal cultural features such as campsites, often in association with resource locations. Such places are not obvious within the proposal area and this feature is therefore unlikely to occur.

**Stone resources** – are areas where people used natural stone resources as a source material for flaking. This requires geologically suitable material outcropping so as to be accessible. The proposal area contains no natural outcropping stone.

**Shell Middens** – are the agglomeration of shell material disposed of after consumption. Such places are found along the edges of significant waterways, swamps and billabongs. No such features occur and therefore this site type is unlikely to exist at the proposal area.

**Isolated Artefacts** – are present across the entire landscape, in varying densities. As Aboriginal people traversed the entire landscape for thousands of years, such finds can occur anywhere and indicate the presence of isolated activity, dropped or discarded artefacts from hunting or gathering expeditions or the ephemeral presence of short term camps.

In summary, the lack of topographic, environmental or landscape features within the proposal area means that there are few loci that could potentially be attractive to Aboriginal people to concentrate activity and therefore have a better chance of leaving archaeological traces. Nonetheless, give that Aboriginal people have lived in the region for tens of thousands of years, there is some potential for archaeological evidence to occur. This is most likely to be in the form of stone artefacts.

### *3.2.6 Comment on Existing Information*

The AHIMS database is a record of those places that have been identified and had site cards submitted to OEH. It is not a comprehensive list of all places in NSW as site identification relies on an area being surveyed and on the submission of site forms to AHIMS. There are likely to be many areas within NSW that have yet to be surveyed and therefore have no sites recorded. However, this does not mean that sites are not present.

Within the Parkes district there have only been a few archaeological investigations. The information relating to site patterns, their age and geomorphic context is little understood.

The robustness of the AHIMS survey results are therefore considered to be only moderate for the present investigation. There are likely to be many sites that exist that have yet to be identified.

With regard to the limitations of the information available, archaeologists rely on Aboriginal parties to divulge information about places with cultural or spiritual significance in situations where non archaeological sites may be threatened by development. To date, no such places have been identified within the archaeological reports carried out within the broader Parkes area. No such places have been identified through the consultation process for the Parkes solar farm proposal area.

It should also be noted that grid references provided by the sites cards and site listing from AHISM can sometimes be inaccurate. The two sites listed above recorded by NOHC (PIF1, PIF2) had been plotted using the provided grid coordinates, but upon viewing the site card, have had to be repositioned to match the site card plan.

# 4 ARCHAEOLOGICAL INVESTIGATION RESULTS

## 4.1 SURVEY STRATEGY

As already noted, while the proposal for the Parkes Solar Farm involves a number of components the landscape could not be differentiated into separate land units as it was part of a uniform plain. The survey strategy in terms of standard practice for delineating different survey units based on topography, soils or other landscape features was not applicable to this survey area.

The survey method was therefore to carry out a series pedestrian survey transects across the proposal area, and to ensure enough coverage to be able to assess and characterise the archaeology of the proposal area. The proposal was divided into two sections as follows:

- The solar farm proposal area- comprising approximately 240 hectares.
- The linking overhead or underground powerline – approximately 750 m in length immediately west of or along Pat Meredith Drive.

The survey was undertaken by a team of three on 28 January 2016. The team members walked in parallel lines across each paddock looking for the evidence of Aboriginal occupation. Notes were made about visibility and discussions had in the field with regard to team spacing.

It was decided that spacing at approximately 50 m intervals was suitable for the nature of the area and the nature of the potential archaeological finds. All mature trees within the property were also inspected for evidence of Aboriginal scarring.

## 4.2 SURVEY COVERAGE

Survey transects were undertaken on foot and traversed the main part of the proposed solar farm site. The survey was impeded by overall poor visibility, although there were areas where visibility was variable and in some instances quite high. These were particularly so where ground had been more recently ploughed and vegetation or crops had not regrown to any great extent. However much of the area was covered in short pasture grasses, offering glimpses of the ground surface.

In addition, bare ground around the perimeter fences and on cattle track, as well as a well utilised farm track in the centre of the proposal area all contributed to the effectiveness of the visibility and the survey coverage.

Table 2 below shows the calculations of effective survey coverage and plates 1-4 show examples of the transects within the proposal area.

Between the three survey participants, 52.5 km of transects were walked across the main proposal area. Allowing for an effective view width of 5 m each person, this equates to a surface area of 262,500 $m^2$, representing 10.9% of the 240 hectare proposal area. However, allowing for the visibility restrictions, the effective survey coverage is reduced. The visibility varied across the paddocks but averaged about 20%. The effective survey coverage was therefore 52,500 $m^2$, which equates to 2.2% of the proposal area.

The effective survey coverage for the proposed powerline was higher at about 7.5% of the alignment corridor.

Overall, it is considered that the surface survey of the solar farm proposal area had modest but effective survey coverage. The discovery of seven Aboriginal artefacts indicates that the survey technique was effective enough to identify the presence of Aboriginal occupation evidence. While visibility was generally

low, archaeological objects were identified, leading to some ability to characterise the Aboriginal archaeology present and the potential impacts by the proposed development.

| | |
|---|---|
|  |  |
| Plate 1. View north across south western paddock | Plate 2. View south east across paddock showing survey team. |
|  |  |
| Plate 3. View west across paddock in north eastern portion of proposal area, note increased visibility. | Plate 4. View south to typical exposure in gate and along fence. |

Table 2. Transect information.

| Survey Section/Unit | Survey transect numbers | Topography | Exposure type | Surveyed area (length m x width m) | Survey Area $m^2$ | Visibility | Effective coverage (area x visibility) $m^2$ | Project Area | Percentage of Project area | Archaeological result |
|---|---|---|---|---|---|---|---|---|---|---|
| Main proposal area | 25 | Level plain | Plough lines, soil mounds, vehicle tracks, stock track | 17,500 x 15 | 262,500 | 20% average overall | 52,500 | 2,400,000 | 2.2 | 7 isolated artefacts |
| Powerline | 1 | Level plain | Track and drains | 600 x 15 | 9,000 | 10% | 900 | 12,000 | 7.5 | Nil (2 previous records) |

## 4.3 SURVEY RESULTS

Despite the poor visibility encountered during the survey, there were seven isolated artefacts found across the proposal area. The details of the sites are outlined below, their location is shown in Figure 3 and artefact characteristics provided in Table 3 and photographs are provided in Plates 5-16.

*Parkes Solar Isolated Find 1*

A broken retouched flake found an open paddock of flat terrain with fine silty soils and visibility of about 15%. There is low potential for subsurface archaeological deposits to be present.

*Parkes Solar Isolated Find 2*

A piece of grinding stone in open flat paddock. Visibility about 10% in immediate area with dark brown silty clay deposit. Situated about 35 m west of small stand of trees and 95 m east of tank. There is low potential for subsurface archaeological deposits to be present.

*Parkes Solar Isolated Find 3*

Broken flake with steep retouch found in open paddock flat, about 65 m from IF2 and 20 m east of windmill and 15 m from large spoil mound of a tank. Visibility was 35% in surrounding 5m x 5m area but no other artefacts located. There is low potential for subsurface archaeological deposits to be present.

*Parkes Solar Isolated Find 4*

Piece of grinding stone with some possible flaking on edge. Found on very basal slope, gradient about $2^0$ sloping to west. Soils reddish brown loam with some gravels. Adjacent ploughed paddock, (outside proposal area) inspected through fence but no other artefacts observed. There is low potential for subsurface archaeological deposits to be present.

*Parkes Solar Isolated Find 5*

An isolated core, located on western boundary fenceline, on red brown silty sandy deposit. Visibility along fenceline with stock tracks and vehicle tracks but no other artefacts observed. There is low potential for subsurface archaeological deposits to be present.

*Parkes Solar Isolated Find 6*

Isolated milling slab located in open flat paddock, with visibility 15% and red brown silty sandy deposit, obviously ploughed. There is low potential for subsurface archaeological deposits to be present.

*Parkes Solar Isolated Find 7*

Isolated core found in north west corner of proposal area, about 200 m east of Ridgey Creek and 30 m from mature tree. Area has brown silty loam deposit, area disturbed by channel or contour bank about 40 m east of artefact. Visibility was about 15%. There is low potential for subsurface archaeological deposits to be present.

Table 3. Artefact characteristics

| Artefact Number | Artefact Type | Raw Material | Dimensions mm | Comment |
|---|---|---|---|---|
| **PS IF1** | Retouched flake | Fine grained siliceous | 30x35x12 | Broken distal end with retouch on margins |
| **PS IF2** | Grindstone fragment | Sandstone | 120x85x15 | Both sides ground but one side flatter with possible depression, recent plough damage |
| **PS IF3** | Retouched flake | Silcrete | 26x25x11 | Broke with steep retouch on one part of margin |
| **PS IF4** | Grindstone fragment | Sandstone | 80x55x35 | Thick piece with grinding both sides and slight depression towards centre, possible flaking on edge, has 30% pebble cortex |
| **PS IF5** | Core | Fine grained siliceous | 22x40x30 | Unifacial core with 6 negative scars, mostly small step terminations |
| **PS IF6** | Milling slab | Sandstone | 140x140x48 | Intact with concave surface both sides, one has rough shallow depression, other sie has grinding and minor anvil pitting |
| **PS IF7** | Core | Volcanic | 28x45x45 | Core has 3 platforms and 9 negative scars with 20% vein cortex |

Plate 5. View north to PS IF1, note fair visibility.

Plate 6. Retouched flake PS IF1.

Plate 7. View north east to PS IF2.

Plate 8. Close up of ground surface of PS IF2.

Plate 9. View south west to PS IF3.

Plate 10. View north to PS IF4.

| | |
|---|---|
| Plate 11. Grindstone fragment of PS IF4. | Plate 12. View north to PS IF5, note good visibility. |
|  |  |
| Plate 13. View east to PS IF6. | Plate 14. Ground surface of PS IF6 |
|  |  |
| Plate 15. Concave rough surface of PS IF6. | Plate 16. View east to PS IF7, note contour bank in background and good visibility. |

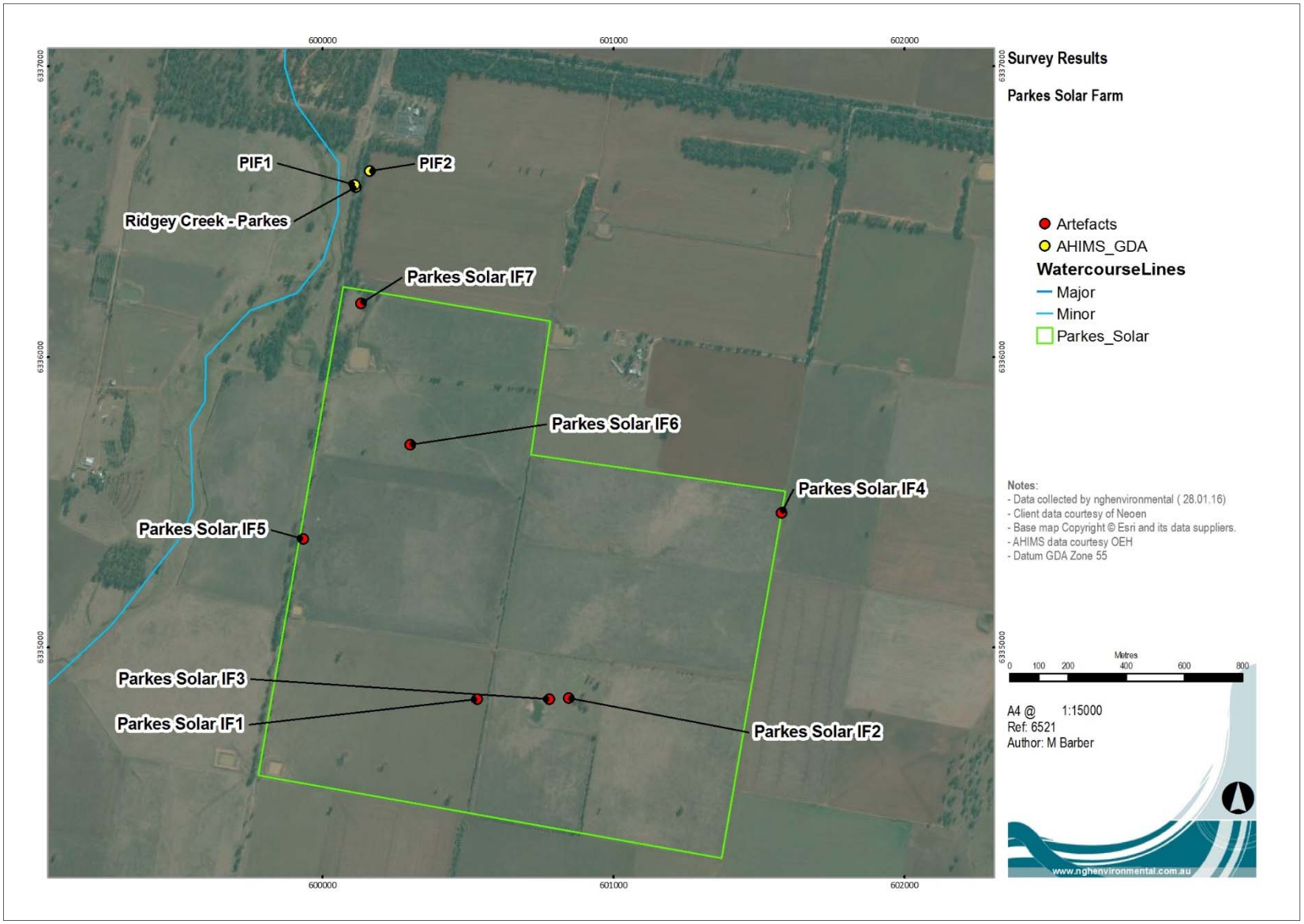


Figure 3. Location of recorded artefacts.

## 4.4 DISCUSSION

The predictions based on limited modelling for the proposal area were that isolated artefacts were the most likely manifestation of Aboriginal occupation of the area. The survey results have confirmed this prediction with seven isolated finds being recorded.

The landscape of the proposal area, and more broadly in the surrounding district, is generally a level plain, with the occasional creekline, most of which are ephemeral. The distribution of artefactual material shows that Aboriginal people were indeed occupying the landscape but their activities in such open plains were not generally conducive to the accumulation of large numbers of artefacts over time. Survey of ridgelines, such as those a few kilometres to the east may tell a different story but such areas have not generally been subject to archaeological investigation to date.

It is considered unlikely that there would be significant subsurface deposits in the proposal area. The soils are generally shallow (evidenced from examination of farm dams), and there are no topographic or environmental features that would serve to concentrate Aboriginal activity and result in the build-up of archaeologically rich deposits.

The seven isolated finds represent one occurrence from every 7.5 km of transect walked, or one per 3.75 ha of survey coverage. Although extrapolating density can be misleading due to different environmental and topographic variables, the calculated number of artefacts within the 240 ha proposal area based on this ratio is about 64. This number provides a general guide to the level of Aboriginal use of the area. It represents a very low artefact density and is typical of a 'background scatter', which is indicative of low, ephemeral landuse by Aboriginal people.

In terms of the current proposal therefore, extrapolating from the results of this survey, it is likely that additional artefacts will occur within the proposed development footprint. The nature of those artefacts are likely to be in keeping with the evidence found during the survey. That is, isolated artefacts representing a haphazard, ephemeral use of the area by small family groups.

The artefacts themselves provide an indication that the proposal area was used for different purposes. The presence of grinding implements indicates potential family activities, either in food preparation or in maintenance of a hunting toolkit. The retouched items also suggest a maintenance activity. The lack of additional artefacts such as debitage flakes would indicate however, that the locales were not used for longer term campsites and daily living areas, reinforcing the view of transient use of the area.

It should also be noted that there are three previously recorded sites in the vicinity of the proposal area. PIF1 (AHIMS# 43-3-0083) and Ridgey Creek – Parkes (#43-3-0090) are probably the same site which is apparently adjacent to the road reserve and therefore may be impacted by any activity relating to the construction of the underground powerline. PIF2 (#43-3-0081) is within farmland between the current solar farm proposal and the electrical substation, but outside the proposed development footprint.

These artefacts were not be relocated during the assessment. Their exact position in relation to the powerline options would be considered once the final decision is made about the project's options.

# 5 CULTURAL HERITAGE VALUES AND STATEMENT OF SIGNIFICANCE

The assessment of the significance of Aboriginal archaeological sites is currently undertaken largely with reference to criteria outlined in the ICOMOS Burra Charter (Marquis-Kyle & Walker 1994). Criteria used for assessment are:

- *Social or Cultural Value*: In the context of an Aboriginal heritage assessment, this value refers to the significance placed on a site or place by the local Aboriginal community – either in a contemporary or traditional setting.
- *Scientific Value*: Scientific value is the term employed to describe the potential of a site or place to answer research questions. In making an assessment of Scientific Value issues such as representativeness, rarity and integrity are addressed. All archaeological places possess a degree of scientific value in that they contribute to understanding the distribution of evidence of past activities of people in the landscape. In the case of flaked stone artefact scatters, larger sites or those with more complex assemblages are more likely to be able to address questions about past economy and technology, giving them greater significance than smaller, less complex sites. Sites with stratified and potentially in situ sub-surface deposits, such as those found within rock shelters or depositional open environments, could address questions about the sequence and timing of past Aboriginal activity, and will be more significant than disturbed or deflated sites. Groups or complexes of sites that can be related to each other spatially or through time are generally of higher value than single sites.
- *Aesthetic Value*: Aesthetic values include those related to sensory perception, and are not commonly identified as a principal value contributing to management priorities for Aboriginal archaeological sites, except for art sites.
- *Historic Value*: Historic value refers to a site or place's ability to contribute information on an important historic event, phase or person.
- *Other Values*: The Burra Charter makes allowance for the incorporation of other values into an assessment where such values are not covered by those listed above. Such values might include Educational Value.

All sites or places have some degree of value, but of course, some have more than others. In addition, where a site is deemed to be significant, it may be so on different levels or contexts ranging from local to regional to national, or in very rare cases, international. Further, sites may either be assessed individually, or where they occur in association with other sites the value of the complex as a whole should be considered.

### Social or cultural value

While the true cultural and social value of Aboriginal sites can only be determined by local Aboriginal people, as a general concept, all sites hold cultural value to the local Aboriginal community. An opportunity to identify cultural and social value was provided to the Aboriginal representatives for this proposal through the fieldwork and draft reporting process.

### Scientific (archaeological) value.

The research potential of the isolated finds located during this assessment are considered to be low. While their presence can be used to assist in the development of site modelling for the local landscape, their scientific value for further research is limited. The sparse distribution of the artefacts, lack of subsurface archaeological potential and lack of comparative inter and intra site variability prevents further assessment through excavation or analysis of spatial patterning.

The artefacts themselves are intrinsically interesting in terms of their base technical information, including the presence of grinding technology but their lack of context and absence of information about local resources or why the location was chosen makes further conclusions about land use difficult. The artefacts do indicate the presence of a family group, but beyond these simple observations, the scientific potential of the site is limited.

The only other potential area of research would be to analyse the grinding artefacts to see if there was any residues present that could indicate what materials were ground. However, this is likely to be difficult as the items would have been moved around by agricultural activity and may have been compromised through contact with cereal crops.

### Aesthetic value.

There are no aesthetic values associated with the archaeological site per se, apart from the presence of Aboriginal artefacts and in particular grindstones in the landscape.

### Other Values

There are no other known heritage values associated with the subject area. The area may have some educational value (not related to archaeological research) through educational material provided to the public about the Aboriginal occupation and use of the area, although the archaeological material is within private property and there is little for the public to see.

# 6 PROPOSED ACTIVITY

## 6.1 HISTORY AND LANDUSE

It has been noted above that historically the solar farm proposal area has been impacted through landuse practices, in particular clearing, ploughing and grazing.

The implications for this activity is that the archaeological record has been compromised in terms of the potential for scarred trees to remain. The implication for stone artefacts is that they may have been damaged or moved but they are likely to be present and remain in the general area they were discarded by Wiradjuri people.

The alignment of the proposed overhead or underground powerline has been heavily impacted by the construction of Pat Meredith Drive, although the adjacent road reserve has been subject to much less disturbance.

The possible alignment of the overhead line has also been impacted through construction of the existing high voltage powerline, which runs parallel to Pat Meredith Drive, within private property. This area is also disturbed through farming practices and land clearing and it was noted at the time of the survey that the adjacent Ridgey Creek contained no water.

Despite these impacts, Aboriginal artefacts remain in the area, indicating the presence of Aboriginal people and providing indications of their use of this landscape.

## 6.2 PROPOSED DEVELOPMENT ACTIVITY

As noted above in section 1.2, the proposal involves the construction of a solar farm and includes connection to the nearby substation via an overhead or underground powerline. The development will result in disturbance of almost all of the 240 ha property.

Disturbances will largely be in the removal of surface vegetation, which is all crop stubble or weeds, for preparation of the ground. Approximately 27,000 piles would be driven or screwed into the ground in order to support the solar array's mounting system.

Approximately 28 containerised PV boxes would be installed and spread across the site. Each of them would contain an inverter and a transformer.

There would be a series of underground cables linking the arrays across the proposal site. The trenches would be approximately 1-1.2 m deep and about 1 m wide. The trenches would contain power ducts and communication cables.

Some internal access tracks would also be required, and typically these would comprise or a compacted layer of gravel and be about 3.5 m wide, laid on stripped bare natural ground.

Some ancillary facilities would also be required including material laydown areas, temporary construction offices, including sanitary modules, change and dining rooms, warehouse area and generator. A temporary car park for construction would also be required and this would be downsized for operating staff at completion of construction.

A perimeter fence, consisting of a 2.3m high security fence and a vegetation buffer would also be constructed around the solar farm.

The proposed construction timetable is nine months duration and the operational life of the solar farm is estimated to be 25 years. Once operation ceases, the site will be rehabilitated and decommissioned and potentially revert back to farming use.

The development activity will therefore involve disturbance of the ground during the construction of the solar farm. Once established however, there would be minimal ongoing disturbance of the ground surface.

The final details and timing of the proposed construction activity have yet to be finalised but it is anticipated that construction could commence in January 2017.

## 6.3 ASSESSMENT OF HARM

There is Aboriginal archaeological material present within the proposal area and the assessment is that there are likely to be other artefacts present as well, although in similar low densities. The proposed level of disturbance for the construction of the solar farm could impact the artefacts recorded during the field survey and others that may be present within other areas of the development site.

The impact is likely to be most extensive where earthworks occur and would involve the removal, breakage or displacement of artefacts. This is considered a direct impact on the site and the Aboriginal objects by the development in its present form.

## 6.4 IMPACTS TO VALUES

The values potentially impacted by the development are any social and cultural values attributed to the artefacts and the site by the local Aboriginal community. The extent to which the loss of parts of the site would impact on the community is only something the Aboriginal community can articulate.

The impact to the scientific values if the artefacts were to be impacted by the current proposal is considered low. The isolated nature of the artefacts, with no corresponding additional artefactual material at any of the locations means there is little research value apart from what has already been gained from the information obtained during the present assessment. This information relates more to the presence of the site and in the development of Aboriginal site modelling, which has largely now been realised by the recording. The integrity of the sites is already low and any additional disturbance is therefore unlikely to make a meaningful difference to the status of the site.

The intrinsic values of the artefacts themselves may be affected by the development of the site. Any removal of the artefacts, or their breakage would reduce the low scientific value they retain.

No other values have been identified that would be affected by the development proposal.

# 7 AVOIDING OR MITIGATING HARM

## 7.1 CONSIDERATION OF ESD PRINCIPLES

Consideration of the principles of Ecologically Sustainable Development (ESD) and the use of the precautionary principle was undertaken when assessing the harm to the site and the potential for mitigating impacts to the artefacts recorded for the Parkes Solar Farm proposal. The main consideration was the cumulative effect of the proposed impact to the site and the wider archaeological record. The precautionary principle in relation to Aboriginal heritage implies that development proposals should be carefully evaluated to identify possible impacts and assess the risk of potential consequences.

In broad terms, the archaeological material located during this investigation is similar to what has been found previously within the Parkes region and the immediate local area, comprising isolated stone artefacts.

Currently there is no clear regional synthesis of the nature, number, extent and content for archaeological sites within the Parkes LGA. Nevertheless, given the size of the geographical area, it is certain that there would be similar artefacts present within the region. The result of this Aboriginal heritage assessment has confirmed the proposed model of site location and site distribution, whereby more artefacts could be expected to occur in the flat landscape.

The implications for ESD principles is that other artefacts and sites are likely to be present in the district.

As noted above, the archaeological values of the sites, considering the scientific, representative and rarity values was deemed to be low. It is believed therefore that the proposed impacts to the artefacts through the development would not adversely affect the broader archaeological record for the local area or the region.

The principle of inter-generational equity requires the present generation to ensure that the health and diversity of the archaeological record is maintained or enhanced for the benefit of future generations. We believe that the diversity of the archaeological record is not compromised by development of this particular solar farm proposal.

We therefore consider, that while the current development proposals will impact a portion of the archaeological record, the overall cumulative impact on the archaeological record for the region is likely to be minimal.

It is argued that the cumulative impacts of the proposal are not enough to reject outright the development proposal.

## 7.2 CONSIDERATION OF HARM

Avoiding harm to the seven isolated artefacts is technically possible through avoidance. However, their position, scattered across the landscape would pose serious design constraints on the solar farm proposal.

Based on the assessment of the artefacts, and in consideration of discussions with the Aboriginal representatives during the field survey, it is not considered necessary to prevent all development at this location, or for total avoidance of the artefacts. The sites have been shown to be highly disturbed with little remaining scientific value. Aboriginal cultural value has been determined by the local Aboriginal community to be generally low enough to not prevent the development proposal proceeding.

The artefacts are situated within the area of the proposed solar arrays. The most likely cause of harm to the artefacts will be through ground preparation such as vegetation clearance, installation of the posts and solar arrays.

The question remains about possible occurrence of artefacts within the balance of the solar farm site. It is possible, and considered likely that additional artefacts will be present. Without knowing their exact locations, it is difficult to manage the impacts. We do not consider that the risk of such disturbances means the development should be abandoned. The archaeological material identified in the survey, and potentially present in the balance of the development site is not of sufficient value to reject the development proposal.

Mitigation of harm to cultural heritage sites generally involves some level of detailed recording to preserve the information contained within the site. Mitigation can be in the form of minimising harm, through slight changes in the development plan or through direct management measures of the artefacts.

# 8 LEGISLATIVE CONTEXT

Aboriginal heritage is primarily protected under the NPW Act and as subsequently amended in 2010 with the introduction of the *National Parks and Wildlife Amendment (Aboriginal Objects and Places) Regulation 2010*. The aim of the NPW Act includes:

> The conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including but not limited to: places, objects and features of significance to Aboriginal people.

An Aboriginal object is defined as:

> Any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with the occupation of that area by persons on non-Aboriginal extraction and includes Aboriginal remains.

Part 6 of the NPW Act concerns Aboriginal objects and places and various sections describe the offences, defences and requirements to harm an Aboriginal object or place. The main offences under section 86 of the NPW Act are:

- A person must not harm or desecrate an object that the person knows is an Aboriginal object.
- A person must not harm an Aboriginal object.
- For the purposes of this section, "circumstances of aggravation" are:
    - that the offence was committed in the course of carrying out a commercial activity, or
    - that the offence was the second or subsequent occasion on which the offender was convicted of an offence under this section.
- A person must not harm or desecrate an Aboriginal place.

Under section 87 of the NPW Act, there are specified defences to prosecution including authorisation through an Aboriginal Heritage Impact Permit (AHIP) or through exercising due diligence or compliance through the regulation.

Section 89A of the Act also requires that a person who is aware of an Aboriginal object, must notify the Director-General in a prescribed manner. In effect this section requires the completion of OEH AHIMS site cards for all sites located during heritage surveys.

Section 90 of the NPW Act deal with the issuing of an AHIP, including that the permit may be subject to certain conditions.

The EP&A Act is legislation for the management of development in NSW. It sets up a planning structure that requires developers (individuals or companies) to consider the environmental impacts of new projects. Under this Act, cultural heritage is considered to be a part of the environment. This Act requires that Aboriginal cultural heritage and the possible impacts to Aboriginal heritage that development may have are formally considered in land-use planning and development approval processes.

Proposals classified as State Significant Development or State Significant Infrastructure under the EP&A Act have a different assessment regime. As part of this process, Section 90 harm provisions under the NPW Act are not required, that is, an AHIP is not required to impact Aboriginal objects. However, the Department of Planning and Environment is required to ensure that Aboriginal heritage is considered in the

environmental impact assessment process. The Department of Planning and Environment will consult with other departments, including OEH prior to development consent being approved.

The Parkes Solar Farm proposal is a State Significant Development and will therefore be assessed via this pathway, which does not negate the need to carry out an appropriate level of Aboriginal heritage assessment or the need to conduct Aboriginal consultation in line with the requirements outlined by the OEH *Aboriginal cultural heritage consultation requirements for proponents 2010* (OEH 2010b).

# 9 RECOMMENDATIONS

The recommendations are based on the following information and considerations:

- Results of the archaeological survey;
- Consideration of results from other local archaeological studies;
- Results of consultation with the registered Aboriginal parties;
- The assessed significance of the sites;
- Appraisal of the proposed development, and
- Legislative context for the development proposal.

It is recommended that:

5. The development proposal should be able to proceed with no additional archaeological investigations. No areas of potential archaeological deposits have been identified and the significance of the Aboriginal heritage objects within the proposal site have been assessed as low.
6. If complete avoidance of the recorded artefacts within the proposal area (PS IF1-7, PIF1/Ridgey Creek-Parkes) is not possible, the artefacts should be collected and moved to a safe area within the property, as close as possible to their original location, but which will not be subject to ground disturbance. The collection and relocation should be undertaken by representatives of the registered Aboriginal parties. A new AHIMS site card will need to be completed identifying the new location of the moved artefacts.
7. Prepare a Cultural Heritage Management Plan (CHMP) in consultation with the registered Aboriginal parties that incorporates the following;
    - Where avoidance of the recorded artefacts within the proposal area is not possible, the artefacts would be collected and moved to a safe area within the property, as close as possible to their original location, but which will not be subject to ground disturbance. The collection and relocation should be undertaken by representatives of the registered Aboriginal parties. A new AHIMS site card will need to be completed identifying the new location of the moved artefacts.
    - Incorporates an unexpected finds protocol to allow for management of finding additional Aboriginal artefacts during the construction of the solar farm.
    - Includes a protocol where, in the unlikely event that human remains are discovered during the construction, all work must cease in the immediate vicinity. OEH, the local police and Peak Hill LALC should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal.
8. Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the registered Aboriginal parties and may include further field survey.

# 10 REFERENCES

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# APPENDIX A ABORIGINAL COMMUNITY CONSULTATION

| Organisation | Contact | Action | Date Sent | Reply Date | Replied by | Response |
|---|---|---|---|---|---|---|
| OEH | | Letter to OEH Dubbo | 29/10/2015 | 20/11/2015 | letter | 13 groups to write to |
| NTScorp | | Letter to NTSCorp | 29/10/2015 | | | |
| National Native Title Tribunal | | Letter to NNTT | 29/10/2015 | 4/11/2015 | letter | No NT registrations or Claims |
| Office of Registrar *Aboriginal Land Rights Act* | | Letter to Office of the Registrar | 29/10/2015 | 2/11/2015 | letter | No registered Aboriginal owners |
| Peak Hill LALC | | Letter to Peak Hill LALC | 29/10/2015 | | | Nil |
| Riverina Local Land Services | | Letter to LLS | 29/10/2015 | | | Nil |
| | | | | | | |
| Local Newspaper | | Parkes Champion Post | 23/10/2015 | | | Nil |
| Peak Hill LALC | 02 6869 1726 phlalc@yahoo.com.au details form nsw LALC list | Sent Methodology - post | 13/11/2015 | | | |
| | | rang AM | 19/01/2016 | | | no answer |
| | | rang PM | 21/01/2016 | | | no answer |
| | | sent email requesting LALC to contact me | 21/01/2016 | | | |
| | | rang 3 pm | 27/01/2016 | | | no answer |
| **OEH list of potential stakeholders** | | | | | | |
| Binjang Wellington Wiradjuri Heritage Surveys | Dorothy Stewart | Sent letter of invitation | 20/11/2015 | 23/11/2015 | Phone | James Gray responded - confirmed interest, they are Traditional owners of Peak Hill area. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Binjang Wellington Wiradjuri Heritage Surveys | Jamie Gray | Sent methodology via email | 23/12/2015 | 12/01/2016 | phone | methodology is fine, organisation has worked on number of archaeological projects in Parkes area (OzArk, Julie Dibden), either Jamie or son would do fieldwork.<br>Agreed to send through certificate of currency for Insurance |
| Binjang Wellington Wiradjuri Heritage Surveys | Infinity financial | sent workers comp certificate | 17/01/2016 | | | |
| | Jamie Gray | sent email with fieldwork date | 21/01/2016 | | | |
| Bogan River Peak Hill Wiradjuri Ab Corp | | Sent letter of invitation | 20/11/2015 | | | Left address/Unknown RTS |
| Bulgandramine Youth Development Aboriginal Corp | | Sent letter of invitation | 20/11/2015 | | | Left address/Unknown RTS |
| Condobolin LALC | | Sent letter of invitation | 20/11/2015 | | | Nil |
| Cowra LALC | | Sent letter of invitation | 20/11/2015 | | | Nil |
| Eva Coe | | Sent letter of invitation | 20/11/2015 | | | Nil |
| Little Burnng Mountain Aboriginal Corp | | Sent letter of invitation | 20/11/2015 | | | left address/unknown RTS |
| Peter Peckham | | Sent letter of invitation | 20/11/2015 | | | Nil |
| Trevor Robinson | | Sent letter of invitation | 20/11/2015 | | | Left address/unknown RTS |
| Mooka | Neville Williams | Sent letter of invitation | 20/11/2015 | | | Nil |
| Warramunga Community Advancement Co-operative Society Ltd | | Sent letter of invitation | 20/11/2015 | | | Nil |
| Wiradjuri Council of Elders | Robert Clegg | Sent letter of invitation | 20/11/2015 | 27/11/2015 | Email via Parkes Council | Would like to register for project. |
| Wiradjuri Council of Elders | | Sent methodology via email | 23/12/2015 | | | |
| Wiradjuri Council of Elders | | responded to methodology | 24/12/2015 | | email | satisfied with methodology (complimented the thoroughness), outlined level of field experience (considerable) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Wiradjuri Council of Elders | | Sent email regarding propsoed fieldwork date of 28 Jan | 21/01/2016 | 21/01/2016 | | date is fine, just let him know time and place |
| | | rang, agreed to meet at 0800 at motel in Parkes | 26/01/2016 | | | agreed would be ok to meet at 0800 - MB to send text of motel location |
| Binjang Wellington Wiradjuri Heritage Surveys | Jamie Gray | Sent email regarding proposed fieldwork date of 28 Jan | 21/01/2016 | | | |
| Binjang Wellington Wiradjuri Heritage Surveys | Jamie Gray | sent second email seeking agreement for fieldwork on 28th | 26/01/2016 | | | |
| Binjang Wellington Wiradjuri Heritage Surveys | Jamie Gray | rang, agreed to meet at 0800 at motel in Parkes | 26/01/2016 | | | Agreed would have someone present- I would text location of motel |
| | | | | | | |
| **Fieldwork** | | | | | | |
| Binjang Wellington Wiradjuri Heritage Surveys | Jamie Gray | Assisted in field survey | 28/01/2016 | | | Satisfied with survey and results |
| Wiradjuri Council of Elders | Robert Clegg | Assisted in field survey | 28/01/2016 | | | Satisfied with survey and results |