Report Title	Aboriginal Cultural Heritage Assessment Wollar Solar Farm - Final
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Aboriginal Cultural Heritage Assessment

WOLLAR SOLAR FARM

NOVEMBER 2018

ngh environmental

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NGH Environmental has been contracted by Wollar Solar Development Pty Ltd to prepare an Aboriginal Cultural Heritage Assessment Report (ACHAR) for the proposed Wollar Solar Farm, located approximately 7 km south of the town of Wollar in 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* (NPW Act). The purpose of the 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 to Aboriginal heritage were as follows:

> Including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, including adequate consultation with the local Aboriginal community (SEARS for Wollar Solar Farm 4/05/18).

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 Mid-Western Regional Local Government Area. It should be noted that the Heritage study area assessed in this report is smaller than the proposal area submitted in the EIS. Further archaeological assessment would be required if the proposal activity extends beyond the Heritage study area as detailed in this report.

PROJECT PROPOSAL

The Wollar Solar Farm proposal would comprise of the installation of a solar panels which would produce up to 290 MW of electricity that would supply electricity to the national electricity grid. The Wollar Solar Farm Heritage assessment area is approximately 680 ha and Wollar Solar Development Pty Ltd proposes to develop approximately 461 ha.

The key infrastructure for the proposal would include:

- Construction laydown and parking areas.
- PV modules.
- Inverter stations.
- Site office and maintenance building with associated car park.
- Internal access tracks to allow for site maintenance.
- Overhead lines and underground electrical conduits and cabling to connect the PV arrays onsite.
- Overhead high voltage transmission lines to connect to the grid onsite.

- Maree 330kV substation will be constructed within the site boundary (likely north-east corner), connecting to the grid via an existing 330 kV transmission line.
- Intersection treatment, upgrades and construction of an access track either off Maree Road, or via an easement between the proposed substation and existing TransGrid substation. Final access will be determined by further traffic investigations.
- Space for a future energy storage facility with a capacity of up to 30MWh and comprising of lithium ion batteries with inverters.
- Perimeter security fencing.
- Native vegetation planting to provide visual screening for specific viewers, if any are required.

The Wollar Solar Farm would be expected to operate for 30 years. The construction phase of the proposal would take 12 – 18 months.

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, ten Aboriginal groups and an individual registered their interest in the proposal.

These groups were:

- North West Wiradjuri Company LTD;
- Murong Gialinga Aboriginal & Torres Strait Islander;
- Buudang;
- Wellington Valley Wiradjuri Aboriginal Corporation;
- Gallaggabang Aboriginal Corporation;
- Mudgee LALC;
- Binjang Wellington Wiradjuri heritage Survey;
- Barraby Cultural Services;
- Yulay Cultural Services; and
- Yurrandaali Cultural Services.

The individual who registered was:

- Paul Brydon

No other party registered their interest, including the entities and individuals recommended by OEH.

The fieldwork was organised, and four of the registered parties were asked to participate in the fieldwork. The fieldwork was carried out in July 2018.

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

ARCHAEOLOGICAL CONTEXT

The assessment included a review of relevant information relating to the existing landscape of the proposal site. Included in this was a search of the OEH AHIMS database. Two previously recorded Aboriginal sites with

artefacts (Wollar Creek 1/AHIMS #36-3-0335 and Wollar Creek 2/AHIMS #36-3-0336) are located within the proposal area along the proposed access track near the substation.

Assessment of Aboriginal site models for the region suggests that there appears to be a pattern of site location that relates to the presence of potential resources for Aboriginal use. The most archaeologically sensitive areas are noted to occur within close proximity of water. Nonetheless, given that Aboriginal people have lived in the region for tens of thousands of years, there is some potential for archaeological evidence to occur across the proposal site. This would most likely be in the form of stone artefacts and scarred trees.

SURVEY RESULTS

The survey strategy was to cover as much of the ground surface as possible within the proposal area. Although the actual ground impact from the construction method for the proposed solar farm was likely to be low, the placement of solar arrays across the landscape has the potential to cover any cultural heritage sites. Survey transects were undertaken on foot across the proposal area to achieve maximum coverage. All mature native trees and sandstone outcrops within the proposal area were also inspected for evidence of Aboriginal use.

Visibility within the proposal site was variable however as a whole the proposal area generally had good visibility averaging 20% overall. The effective visibility in the proposal area ranged from 96% in exposures and recently ploughed fields to less than 5% in areas with a dense low grass cover. Between the survey participants, over the course of the field survey, approximately 400 km of transects were walked across the proposal area. Allowing for an effective view width of 5 m for each person and given the variability in the ground visibility across the proposal site, overall the survey effectively examined 12.5% of the proposal area. It is considered that the survey of Wollar Solar Farm proposal area had sufficient and effective survey coverage.

Despite the variable visibility encountered during the survey there were a number of stone artefacts found across the proposal site that were recorded as 37 site occurrences. These archaeological features have been recorded as 12 artefact scatters and 25 isolated finds. One grinding groove, one scarred tree, one possible scarred tree and a culturally significant site were also recorded. Of the two previously recorded Aboriginal sites within the proposal area, only artefacts from Wollar Creek 2/ AHIMS #36-3-0336 was able to be relocated. Despite intensive survey around the coordinate location for Wollar Creek 1/AHIMS #36-3-0335 no objects could be relocated.

Based on the land use history, an appraisal of the landscape, soil, level of disturbance and the results from the field survey, it was concluded that there was negligible potential for the presence of intact subsurface deposits with high densities of objects or cultural material within the proposal area with the exception of the site Wollar SF AFT 11.

The results of previous archaeological surveys in the Wollar region show that there are sites and artefacts present across the landscape. The predictions based on the modelling for the proposal site were that stone artefacts and scarred trees were the most likely manifestation of Aboriginal occupation of the area. It was noted that while Aboriginal sites may be expected throughout all landscapes the most archaeologically sensitive areas occur in proximity to water. The survey results have confirmed this prediction with stone artefacts recorded as isolated finds and artefact scatters across the proposal site, even in areas highly disturbed by farming activities. The sites were identified across a range of landforms including slopes, flats, spurs, hill crests and along creeks/drainage lines. It should also be noted that the results of this investigation have increased the number of sites recorded in the local area significantly. The dominance of artefacts as a common site type within the area is further supported by the results of this survey.

The cultural significance of the sites recorded during this assessment 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. The development will result in disturbance of approximately 461 ha. The table below provides a summary of site types to be impacted and avoided by the proposed solar farm development footprint.

Site Type	Type of Harm	Degree of Harm	Consequence of harm	No. of Sites	% of site type
Isolated Finds	Direct	Complete	Total loss of value	15	60
	Nil	Nil	Not Applicable	10	40
Artefact Scatters	Direct	Complete	Total loss of value	11	92
	Nil	Nil	Not Applicable	1	8
Grinding Groove	Nil	Nil	Not Applicable	1	100
Modified tree	Nil	Nil	Not Applicable	2	100
Cultural site	Nil	Nil	Not Applicable	1	100
Previously recorded AHIMS sites	Nil	Nil	Not Applicable	2	100

A total of 26 sites with stone artefacts (Wollar SF AFT 1 to Wollar SF AFT 5, Wollar SF AFT 7 to Wollar SF AFT 12, Wollar SF IF 3 to Wollar SF IF 7, Wollar SF IF 13, Wollar SF IF 15 to Wollar SF IF20 and Wollar SF IF 22 to Wollar SF IF 24) are situated within the area of the proposed solar arrays, tracks, trenches and fencing that would be impacted by the proposed development. `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 assessment of harm overall for the project is therefore assessed as moderate.

The cultural site (Wollar SF Cultural Site 1), grinding groove (Wollar SF GDG 1), modified tree (Wollar SF ST1) and possible modified tree (Wollar SF ST2) will not be impacted by the proposal as per the proposed design in this report and as agreed by Wollar Development.

While the majority of the stone artefact sites are rated as having total loss of scientific value it is argued that there are likely to be a number of similar sites in the local area and therefore the impact to the overall local archaeological record is considered to be low. The stone 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. The impact to the axe blank artefact at Wollar SF AFT 4 is considered to have low to moderate loss of scientific value and the impact to the site Wollar SF AFT 11 is considered to have moderate loss of scientific value given the density of artefacts and the possibility for subsurface deposits.

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

The Wollar Solar Farm proposal is classified as State Significant Development under the EP&A Act which 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 as the Department of Planning and Environment provides development approval.

RECOMMENDATIONS

It is recommended that:

1. The development avoids the cultural site (Wollar SF Cultural Site 1). A minimum 20 m buffer should be in place around this tree to prevent any inadvertent impacts to the tree canopy and root system.
2. The development avoids the grinding groove (Wollar SF GDG 1). A minimum 15 m buffer should be placed around this site to prevent any inadvertent impacts.
3. The development avoids the modified tree (Wollar SF ST 1) and possible modified tree (Wollar SF ST 2). A minimum 15 m buffer should be in place around these trees to prevent any inadvertent impacts to the trees canopy and root systems.
4. If complete avoidance of the 12 artefacts scatters, 25 isolated finds and the two previously identified AHIMS sites (#36-3-0335 and #36-3-0336) recorded within the proposal site is not possible, the artefacts within the development footprint must be salvaged prior to the proposed work commencing and moved to a safe area within the property that will not be subject to any ground disturbance.
5. The collection and relocation of the artefacts should be undertaken by an archaeologist with representatives of the registered Aboriginal parties and be consistent with Requirement 26 of the *Code of practice for Archaeological Investigation of Aboriginal Objects in New South Wales.* A new site card/s will need to be completed once the artefacts are moved to record their new location on the AHIMS database.
6. The Aboriginal community requests that a Cultural Smoking Ceremony take place to cleanse any artefacts salvaged and the reburial location.
7. If the raised sandy deposits of Wollar SF AFT 11 are to be impacted a subsurface salvage testing/excavation program must be conducted. Excavated material may need to be analysed off site and this is most likely to be undertaken in NGH offices, where the material will be analysed and then subsequently returned to site for reburial.
8. A minimum 5 m buffer should be observed around all artefact scatters and isolated find sites that can be avoided, including those outside the development footprint.
9. Wollar Solar Development Pty Ltd should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal artefacts during the construction of the Solar Farm and management of known sites and artefacts. The Plan should include the unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties.
10. 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 the registered Aboriginal parties should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal.
11. Further archaeological assessment would be required if the proposal activity extends beyond the Heritage study area as detailed in this report, including the whole of Lot 24 DP 755430 and an additional portion of Lot 91 DP 755430. This would include consultation with the registered Aboriginal parties and may include further field survey.

1 INTRODUCTION

Wollar Solar Development Pty Ltd (Wollar Development) proposes the development of a commercial scale solar farm approximately 7 km south of Wollar, NSW. The proposed solar farm and its associated access would be located on Lots 22-25, 27, 30, 45,46, 49-51, 60-63, 69-80, 84, 91, 96, 105-107, 119 and 152-154 of DP 755430 and Lot 1 of DP 650653, Lot 7303 DP1139558 and Lots 1, 2, 4, 6, 8, 10, 11 of DP1090027 in the Mid-Western Regional Local Government Area. The proposed site for the heritage study for the Wollar Solar Farm is approximately 680 hectares (ha) in size and would produce up to 290 MW of electricity.

NGH Environmental has been contracted by Wollar Development to prepare an Aboriginal Cultural Heritage Assessment (ACHA) to investigate and examine the presence, extent and nature of any Aboriginal heritage sites within the proposal area as part of an Environmental Impact Assessment (EIS).

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 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 location of the proposed development area is shown as the Heritage study area in Figure 1 to 3. It should be noted that the Heritage study area assessed in this report is smaller than the proposal area submitted in the EIS. Further archaeological assessment would be required if the proposal activity extends beyond the Heritage study area as detailed in this report.

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 Paris Agreement to reduce greenhouse gas emissions. The Wollar Solar Farm would provide the following benefits:

- Reduction in greenhouse gas emissions from energy generation (when compared with fossil fuel generating sources).
- 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 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). Section 4.36 of the EP&A Act provides that a development will be State Significant Development (SSD) if it is declared to be an SSD by the State Environmental Planning Policy (SEPP).

The *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) declares the proposed Wollar Solar Farm to be an SSD. 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 to Aboriginal heritage were as follows:

> Including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, including adequate consultation with the local Aboriginal community (SEARS for Wollar Solar Farm 4/05/18).

The assessment area is comprised of the proposed solar farm development area and its associated access options that are located on Lots 22-25, 27, 30, 45,46, 49-51, 60-63, 69-80, 84, 91, 96, 105-107, 119 and 152-154 of DP 755430 and Lot 1 of DP 650653, Lot 7303 DP1139558 and Lots 1, 2, 4, 6, 8, 10, 11 of DP1090027 in the Mid-Western Regional Local Government Area.

Following the completion of the field survey the proposed development footprint has had some minor adjustments, specifically the inclusion of the whole of Lot 24 DP 755430 and an additional portion of Lot 91 DP 755430 within the proposed development footprint. This additional 19 ha proposed for development was not assessed during the field survey and is therefore not assessed in this report. Further archaeological assessment would be required if the proposal activity extends beyond the Heritage study area as detailed in this report into the whole of Lot 24 DP 755430 and an additional portion of Lot 91 DP 755430 as shown in Figure 3.

1.2 PROJECT PROPOSAL

The Wollar Solar Farm Heritage assessment area is approximately 680 ha. The assessment area is primarily agricultural and pastoral land.

The Wollar Solar Farm proposal would comprise of the installation of a solar panels which would produce up to 290 MW of electricity that would supply electricity to the national electricity grid.

An existing TransGrid 330kV transmission line transects the proposal site in the north eastern corner and would be used to connect the solar farm to the national electricity grid.

Construction access

Access to the proposal site during construction is proposed along the existing TransGrid Wollar substation access road via Barigan Road. The TransGrid access road is 1km in length and incorporates a concrete causeway to cross Wollar Creek. No upgrade to this portion of the road is proposed.

Construction of an access road (up to 1km in length) would be required between the Wollar substation and the proposed onsite substation.

Operational access

Access to the solar farm during operation would be off Barigan Road via Maree Road and an unnamed track. Maree Road is approximately 7km along Barigan Road; both of which are owned by Mid-Western Regional Council. The unnamed track is partially located within Lot 46 DP755430 (owned by Peabody Pty Ltd) and the solar farm site. This unnamed track is the existing access track for the landowner. Road upgrades along this route are not required as the estimated number of light vehicles during operation is low.

Key infrastructure

It is anticipated that the proposed solar farm would include development of the following key infrastructure:

- Approximately 922,432 PV solar panels mounted on either fixed or tracking systems, both of which are considered feasible:
    - Fixed-tilted structures in a north orientation at an angle of 32 degrees or
    - East-west horizontal tracking systems.
- Approximately 58 PCU composed of two inverters, a transformer and associated control equipment to convert DC energy generated by the solar panels to 33kV AC energy.
- Steel mounting frames with driven pile foundations.

- An onsite 330kV substation containing two transformers and associated switchgear to facilitate connection to the national electricity grid via the existing 330kV transmission line onsite.
- Underground power cabling to connect solar panels, combiner box and PCUs.
- Underground auxiliary cabling for power supplies, data services and communications.
- Buildings to accommodate a site office, protection and control facilities, maintenance facilities and staff amenities.
- Up to 1km of construction access track off Barigan Road to the site via the existing TransGrid substation access road, which would require construction of an access road between the Wollar substation and the proposed onsite substation.
- Internal access tracks for construction and maintenance activities.
- Space for a future energy storage facility with a capacity of up to 30MWh and comprising of lithium ion batteries with inverters.
- Perimeter security fencing up to 2.3m high.
- Native vegetation planting to provide visual screening for specific receivers, if any are required.

During the construction phase, temporary ancillary facilities would be established on the site and may include:

- Laydown areas.
- Construction site offices and amenities.
- Car and bus parking areas for construction staff.

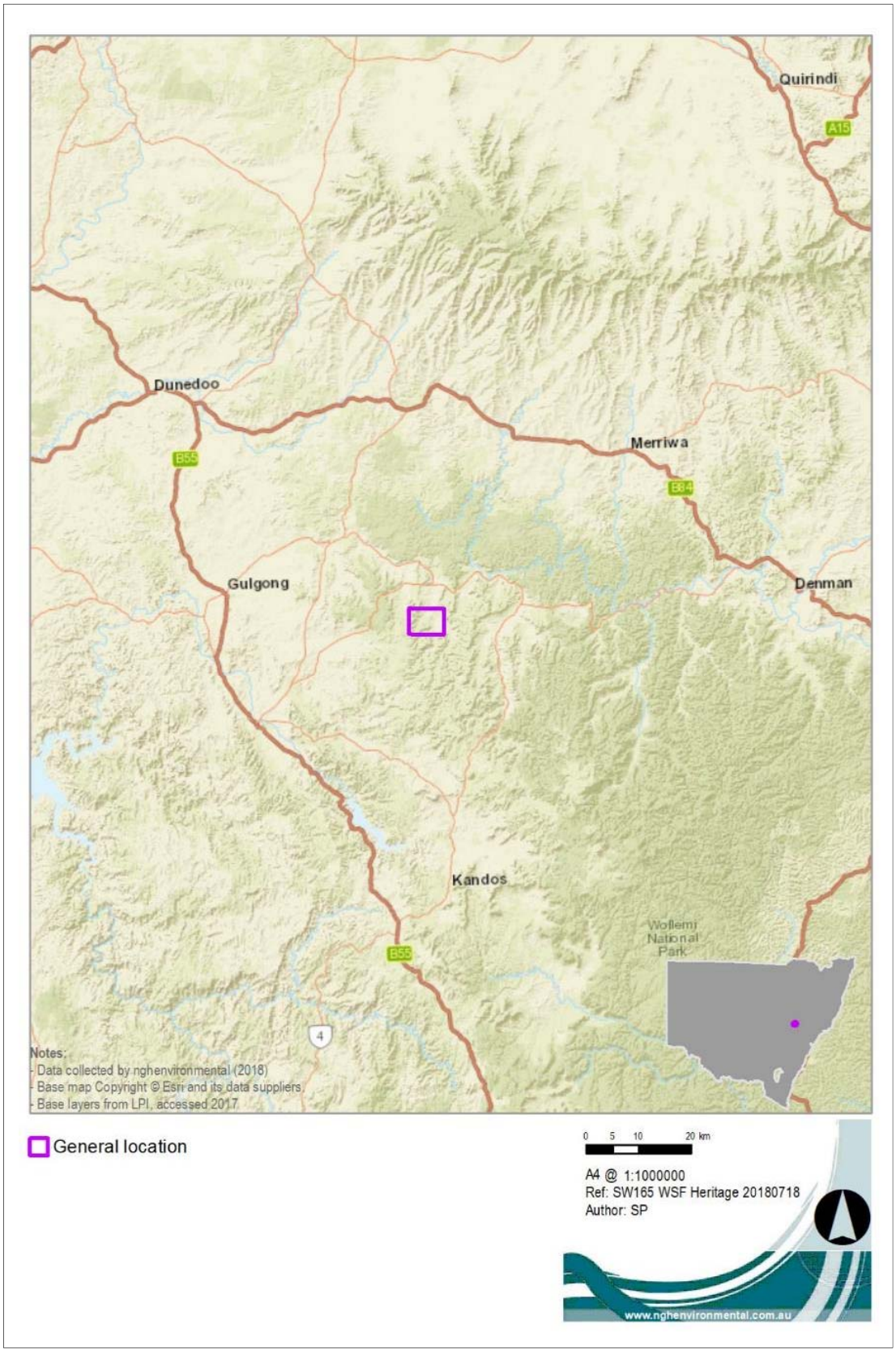

Figure 1. General project location of the proposed Wollar Solar Farm.

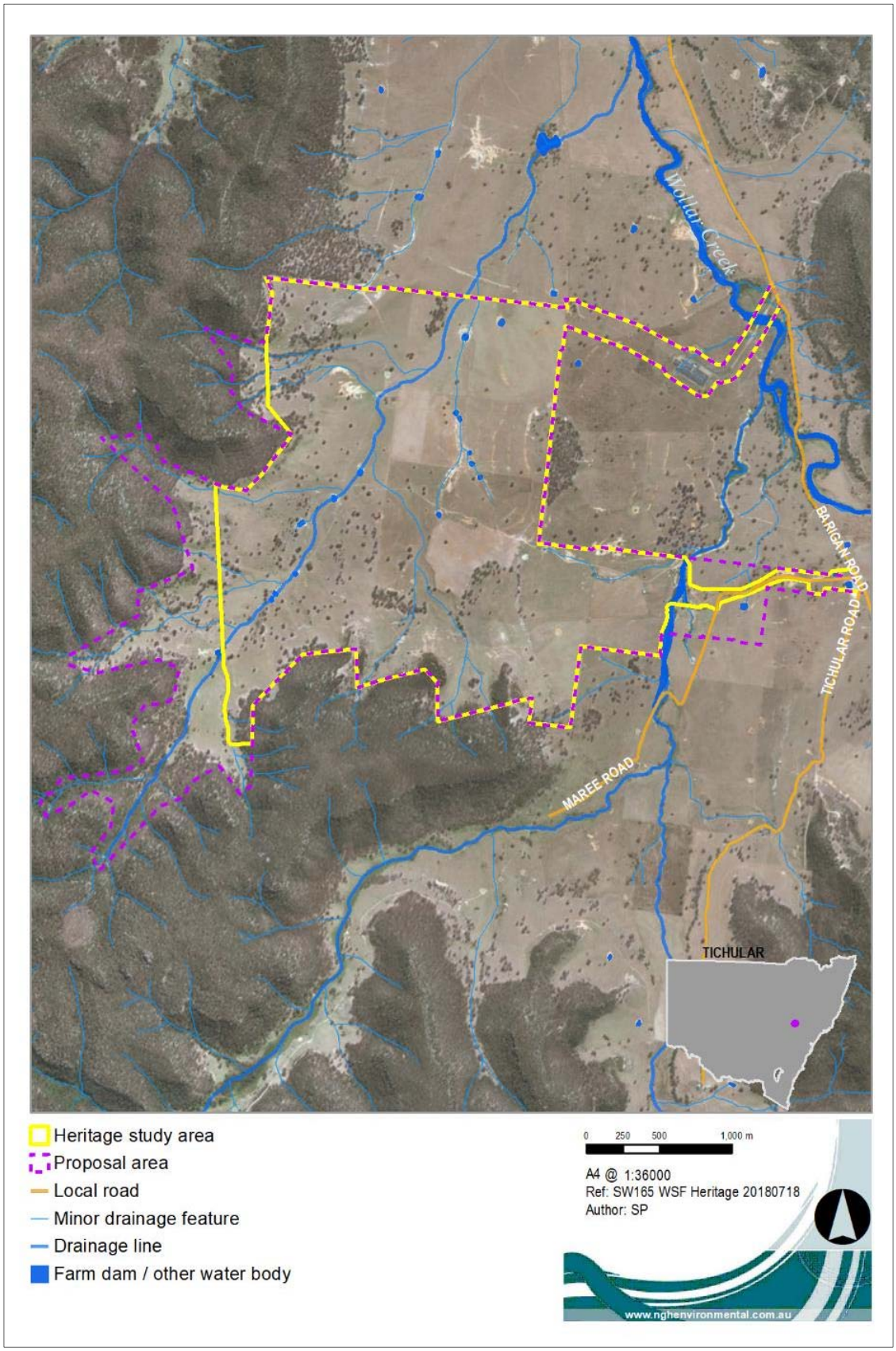

Figure 2. Project area of the proposed Wollar Solar Farm

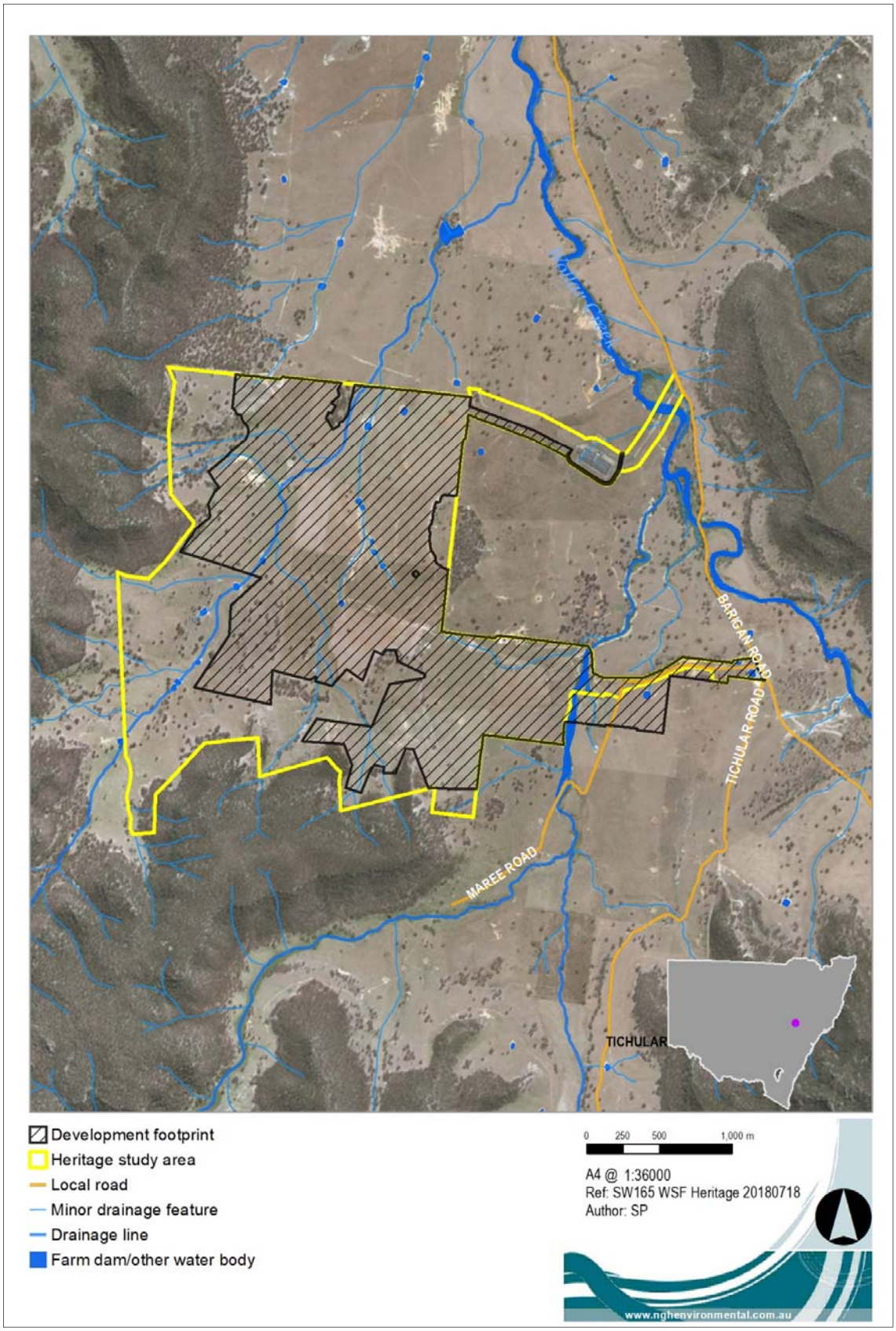

Figure 3. Proposal site with development design.

The Wollar Solar Farm would be expected to operate for 30 years. The construction phase of the proposal would take 12 -18 months. After the initial 30-year operating period, the solar farm would either be decommissioned, removing all above ground infrastructure and returning the site to its existing land capability, or repowered with new PV equipment subject to landowner and planning consents.

1.3 PROJECT PERSONNEL

The assessment was undertaken by archaeologists Kirsten Bradley of NGH Environmental, including research, Aboriginal community consultation, field survey and report preparation. Amy Ziesing of NGH Environmental participated in the field survey and Matthew Barber of NGH Environmental reviewed the report.

Consultation with the Aboriginal community was undertaken following the process outlined in OEH's *Aboriginal cultural heritage consultation requirements for proponents 2010.* Ten Aboriginal groups and an individual registered their interest in the proposal.

These groups were:

- North West Wiradjuri Company LTD;
- Murong Gialinga Aboriginal & Torres Strait Islander;
- Buudang;
- Wellington Valley Wiradjuri Aboriginal Corporation;
- Gallaggabang Aboriginal Corporation;
- Mudgee Local Aboriginal Lands Council (Mudgee LALC);
- Binjang Wellington Wiradjuri heritage Survey;
- Barraby Cultural Services;
- Yulay Cultural Services; and
- Yurrandaali Cultural Services.

The individual who registered was:

- Paul Brydon

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

1.4 REPORT FORMAT

For the purposes of this assessment 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 to provide an assessment of the Aboriginal cultural values associated with the Wollar Solar Farm proposal 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 proposal area and any Aboriginal sites therein;
- Assess the cultural and scientific significance of any archaeological material:
- Assess the impacts of the development proposal on cultural sites, 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 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 Mudgee LALC and various statutory authorities including OEH, as identified under the ACHCRP. An advertisement was placed in the local newspaper, the Mudgee Guardian on the 1st of May 2018 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, ten groups and an individual contacted the consultant to register their interest in the proposal.

The groups who registered interest were:

- North West Wiradjuri Company LTD;
- Murong Gialinga Aboriginal & Torres Strait Islander;
- Buudang;
- Wellington Valley Wiradjuri Aboriginal Corporation;
- Gallaggabang Aboriginal Corporation;
- Mudgee LALC;
- Binjang Wellington Wiradjuri heritage Survey;
- Barraby Cultural Services;
- Yulay Cultural Services; and
- Yurrandaali Cultural Services.

The individual who registered was:

- Paul Brydon (Midnight)

No other party registered their interest, including the other entities and individuals recommended by OEH.

Stage 2. On the 7th of June 2018, an Assessment Methodology document for the Wollar 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 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.

Bradley Bliss responded for the Wellington Valley Wiradjuri Aboriginal Corporation (WVWAC) and the Gallangabang Aboriginal Corporation (GAC). While it was noted that they agreed in principal to the methodology they would like spacing to be no greater than 30 m between survey participants with 20m spacing being optimal. These comments were addressed by NGH in a reply letter sent to the WVWAC on the 6th of July 2018 that propose a compromise of 20 m to 25 m spacing. Bradley Bliss responded to this on the 6th of July 2018 noting that WVWAC and GAC were happy with the reply.

Murong Gialinga Aboriginal & Torres Strait Islander and Buudang responded that while they agreed in principal to the methodology, they would prefer that the spacing of the survey transects be reduced to 10 m to 15 m between survey participants. These comments were addressed by NGH in a reply letter sent on the 6th of July 2018 that proposed a compromise of 20 m to 25 m spacing. No further correspondence was received regarding the letter from NGH Environmental that addressed the spacing comments on the methodology.

Mr Paul Brydon responded that he was happy with the methodology and would not be available to participate in any fieldwork due to other commitments.

The Mudgee LALC, Barraby Cultural Services and Yurrandaali Cultural Services did not raise any issues with the methodology and noted that they would like to participate in the field survey.

No other comments were provided from other registered parties.

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 prior to fieldwork.

The fieldwork was organised and four of the registered parties were asked to participate in fieldwork. A single representative from each of the four RAPs selected participated in the fieldwork. The fieldwork was carried out over six days in late July 2018.

The Aboriginal community representatives who participated in the field survey were:

- Larry Foley- Buudang
- Steven Flick - Murong Gialinga Aboriginal & Torres Strait Islander
- Bradley Bliss - Wellington Valley Wiradjuri Aboriginal Corporation; and
- James Williams - Mudgee LALC

Stage 4. In October 2018 a draft version of this *Aboriginal Cultural Heritage Assessment Report* for the proposal (this document) was forwarded to each registered Aboriginal party 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

Community consultation occurred throughout the project. The draft report was provided to each of the Registered Aboriginal Parties (RAPs) and feedback was sought on the recommendations, the assessment and any other issues that may have been important.

Report feedback was provided in writing via email by Bradley Bliss for the Wellington Valley Wiradjuri Aboriginal Corporation and the Gallangabang Aboriginal Corporation on the 5th of November 2018. A copy of the written response is provided in Appendix A. Bradley Bliss noted that the report had be discussed with the community and that the Wellington Valley Wiradjuri Aboriginal Corporation and the Gallangabang Aboriginal Corporation were in agreeance with the findings and recommendations in the report. It was also stated that the Elders requested that the cultural site be submitted to AHIMS and the site card information be restricted. Copy of all the AHIMS site cards submitted for the project, including the site card for the cultural site were also requested. NGH has consequently submitted a site card to AHIMS for the cultural site. A copy of all the site cards has been provided to Bradley Bliss as requested.

The individual, Mr Paul Brydon (Midnight), responded via email on the 14th of November 2018. A copy of the written response is provided in Appendix A. Mr Brydon noted that he was happy with the report and no further comments were provided.

Report feedback was provided via a phone call from Debbie Foley to the NGH archaeologist Kirsten Bradley for the Murong Gialinga Aboriginal & Torres Strait Islander and Buudang registered groups on the 15th of November 2018. Debbie Foley noted that both groups were happy with the report, recommendations and updated reduction to the development footprint. No further comments were provided.

No comments were received from the Mudgee LALC, North West Wiradjuri Company LTD, Binjang Wellington Wiradjuri Heritage Survey, Barraby Cultural Services, Yulay Cultural Services and Yurrandaali Cultural Services.

3 BACKGROUND INFORMATION

3.1 REVIEW OF LANDSCAPE CONTEXT

3.1.1 Geology and Topography

The landscape context assessment is based on a number of classifications that have been made at a national and regional level for Australia. The national IBRA system identifies the proposal site as located within the NSW Sydney Basin Bioregion (DE&E 2016).

The NSW Sydney Basin Bioregion extends from north of Batemans Bay to Nelson Bay on the central coast and almost as far west as Mudgee. This region encompasses Sydney itself and occupies about 4.53% of NSW. It includes significant portions of the Hawkesbury-Nepean, Hunter and Shoalhaven river systems. The bioregion lies within a geological basin filled with sandstones and shales of Permian to Triassic ages that overlie the Lachlan Fold Belt.

There are 13 subregions identified within the NSW Sydney Basin Bioregion. The proposal area is within the Kerrabee (Cerrabee) subregion. The geology of the Kerrabee subregion is Triassic Narrabeen with quartz, sandstones and shales with singleton coal in the valley floors. There are numerous Jurassic volcanics and small areas of ridge top Tertiary basalts. The landform is a sandstone plateau with cliffed edges that open into wide valleys with Quaternary sandy alluvium deposits. The soils tend to be shallow profiles on bare rock outcrops on the plateau (DE&E 2016).

The Dubbo Geological map (1:250,000 SI/55-4) indicates that the geology underlying the proposal area consists of the Permian and Quaternary geological sequences with Triassic geological sequences adjacent to the proposal area as shown in Figure 4 and detailed below (Colquhoun et al. 1999). The majority of the proposal site is within the Sydney Basin group with the eastern portion of the proposal area within the Cainozoic unit. The geological subgroups within the proposal area are the Illawarra coal measures (Pi) and the Shoalhaven group (Ps). The units are listed below.

- **Pi**- Quartz-lithic sandstone, mudstone (sporadically carbonaceous), claystone, coal, torbanite, rhyolitic tuff, some lenses of polymictic conglomerate
- **Ps**- Polymictic conglomerate, lithic sandstone, shale, siltstone, claystone, minor carbonate and evaporite
- **Qa**- Alluvial silt, clay and sand, variable humic content, sporadic pebble- to cobble-sized unconsolidated conglomeratic lenses
- **Rn**- Green mudstone, sporadic lenses of quartz paraconglomerate

The proposal site is encompassed by a single Mitchell Landscape, the Upper Goulburn Valleys and Escarpment, which is surrounded by the Wollemi Ranges landscape. The Mitchell Landscape descriptions are provided in Table 1 below and shown in Figure 5:

Table 1 Description of the Mitchell Landscape relevant to the proposal (DECC 2002)

Mitchell Landscape
Upper Goulburn Valleys and Escarpment
Steep hills and sandstone escarpments with cliffs, rock outcrop and long debris slopes on Permian and Triassic quartz sandstone, lithic sandstone, conglomerate and shale, general elevation 250 to 700m, local relief to 250m. Stony coarse textured rubbly earths and harsh texture-contrast soils. Woodland of; grey box (*Eucalyptus moluccana*), forest red gum (*Eucalyptus tereticornis*), white box (*Eucalyptus albens*), yellow box (*Eucalyptus melliodora*) and grasses. Rainforest elements in protected sites.
Wollemi Ranges
Strongly undulating ranges and dissected plateau on horizontal Triassic quartz and lithic sandstones, conglomerate and some shale, general elevation 300 to 800m, local relief 200m. Extensive rock outcrop with thin sandy soils in joint crevices and on benches. Steeper slopes below plateau remnants with iron cemented gravels, gradational yellow earth and yellow texture-contrast profiles. Woodland and heaths on the plateau with red bloodwood (*Corymbia gummifera*), smooth-barked apple *(Angophora costata*), blue-leaved stringybark (*Eucalyptus agglomerata*), silvertop ash (*Eucalyptus sieberi*) and snow gum (*Eucalyptus pauciflora*). Marginal slopes with scribbly gum (*Eucalyptus* sclerophylla), red bloodwood, grey ironbark (*Eucalyptus paniculata*), patches of mountain mallee (*Eucalyptus stricta*) and diverse shrubs. Deep valleys with rainforest elements and rare species.

Fifteen dams and six watercourses occur within the proposal area. All the watercourses are tributaries of Spring Flat Creek which bisect the area and runs roughly north/ south through the centre of the site. Wollar Creek is located on the eastern boundary of the proposal area. All watercourses on the site are classified as ephemeral. The areas high in elevation immediately surrounding the site give rise to watercourses that are typically characterised by short steep gullies. The flows arriving at the site from these gullies would likely have reasonably high and erosive velocities.

The topography of the proposal site is generally undulating with forested hills boarding the site. Native vegetation has been removed from much of the area, particularly within the broad open valleys which tend to be dominated by grasses and used for pastoral purposes.

The site includes the following three main topographic features:

- Steep hills and sandstone escarpments with cliffs, rock outcrop and long debris slopes;
- Broad open floodplain valleys; and
- Spring Flat Creek and Wollar Creek with several other unnamed tributaries and drainage lines.

	
Plate 1 View of landscape with steep hills in background and open floodplain valleys within the proposal area.	Plate 2 View of sandstone rock outcropping in the proposal area.
	
Plate 3 View north of Wollar Creek in the south-eastern portion of the proposal area.	Plate 4 View west across Spring Flat Creek within the proposal area.

Soils within the proposal site are typically a brown loam. The 1:250,000 Dubbo Soils Landscape series sheet indicates that the proposal area is within two soil landscapes, Barigan Creek and Lees Pinch as detailed below in Table 2 (Murphy and Lawrie 1998) and show in Figure 6.

Table 2 The 1:250,000 Dubbo Soils Landscapes within the proposal area.

1:250,000 Dubbo Soils Landscape
Barigan Creek
Undulating low rises and flats. Shale, sandstone, siltstone, conglomerate, chert. Common soils are Yellow Podzolic Soils on lower slopes and along drainage lines. Red Podzolic Soils on higher colluvial slopes, benches and rises. Lower slopes of sandstone plateaux escarpments, low undulating rises and creek flats. Horizontal beds of sandstone outcrop as benches. Elevations vary from 360 m- 470 m above sea level. Slopes between 2 - 10%. Local relief varies between 10 - 30 m. Stream channels are tributaries to larger streams
Lees Pinch
Rolling hills and low hills with steep rocky slopes and valley sides. Narrabeen sandstone, conglomerate sandstone, shale, conglomerate, mudstone, chert, coal and torbanite seams. Relief 60 - 240 m; slopes 15 - 40%. Shallow, sandy soils with extensive rock outcrop, boulder debris slopes and sandstone cliffs. Other soils include grey or Yellow Earths and Yellow Podzolic Soils on lower slopes, shallow acid loams on coal- bearing strata, and Podzols on lower slopes Sandstone plateaux and hillslopes with boulder debris, from 400 - 680 m above sea level. Slopes are moderately inclined to steep 15 - 40%, or cliffs, with slopes from 300 - 1000 m long. Drainage lines are 400 - 1200 m apart.

3.1.2 Flora and Fauna

Much of the proposal site has been extensively cleared of woody vegetation and has been highly modified by agricultural practices. However, small fragmented areas of moderate-good condition woodland occur within the proposal site. Cleared areas predominantly consist of a high abundance of annual weeds such as *Centaurea solstitialis*, however some areas do contain a high cover but low abundance of derived native grasses. The valley flats and lower slopes contain a combination of scattered trees and small remnant clumps of Box-Gum Grassy woodland dominated by *Angophora floribunda*, *Eucalyptus blakleyi* and *Eucalyptus albens* transitioning into shrubby dry sclerophyll forest and dry rainforest vegetation on higher slopes, gullies and sandstone ridgelines consisting of *Eucalyptus albens*, *Callitris endlicheri*, *Cassinia arcuata* and *Eucalyptus crebra*. Remnant paddock trees are scattered throughout the proposal site and small rocky outcrops occur. These remnant areas have been highly disturbed and lack a diverse native understory due to grazing and pasture improvement practices. Additionally, vegetation within the proposal site is recovering from a significant bushfire that occurred within the last 12 months, with signs of die back as well as epicormic regrowth observed.

The vegetation communities within the proposal area provide numerous habitat types for fauna. Canopy trees provide foraging and nesting/resting habitat for birds and arboreal fauna. The mid-storey provides foraging and nesting habitat for smaller birds, as well as refuge for small-medium sized mammals and reptiles. Ground cover plants, logs and fallen leaves also provide shelter and foraging habitat for terrestrial fauna. Where hollow-bearing trees are present, they may provide daytime resting habitats for bats and mammals, and roosting habitats for birds. Numerous wombat dens were also observed within the lower valley flats.

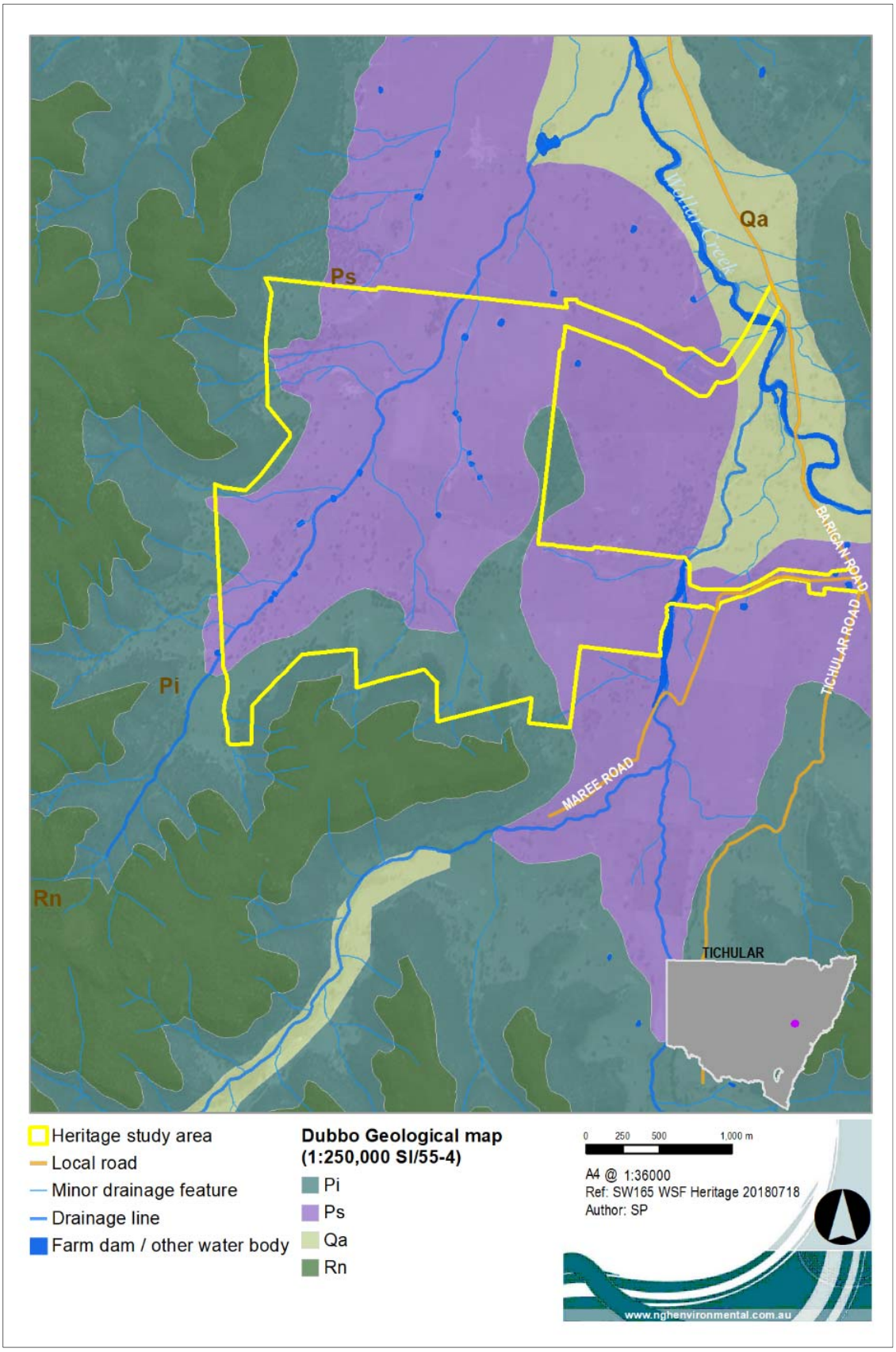

Figure 4. The Dubbo Geological map

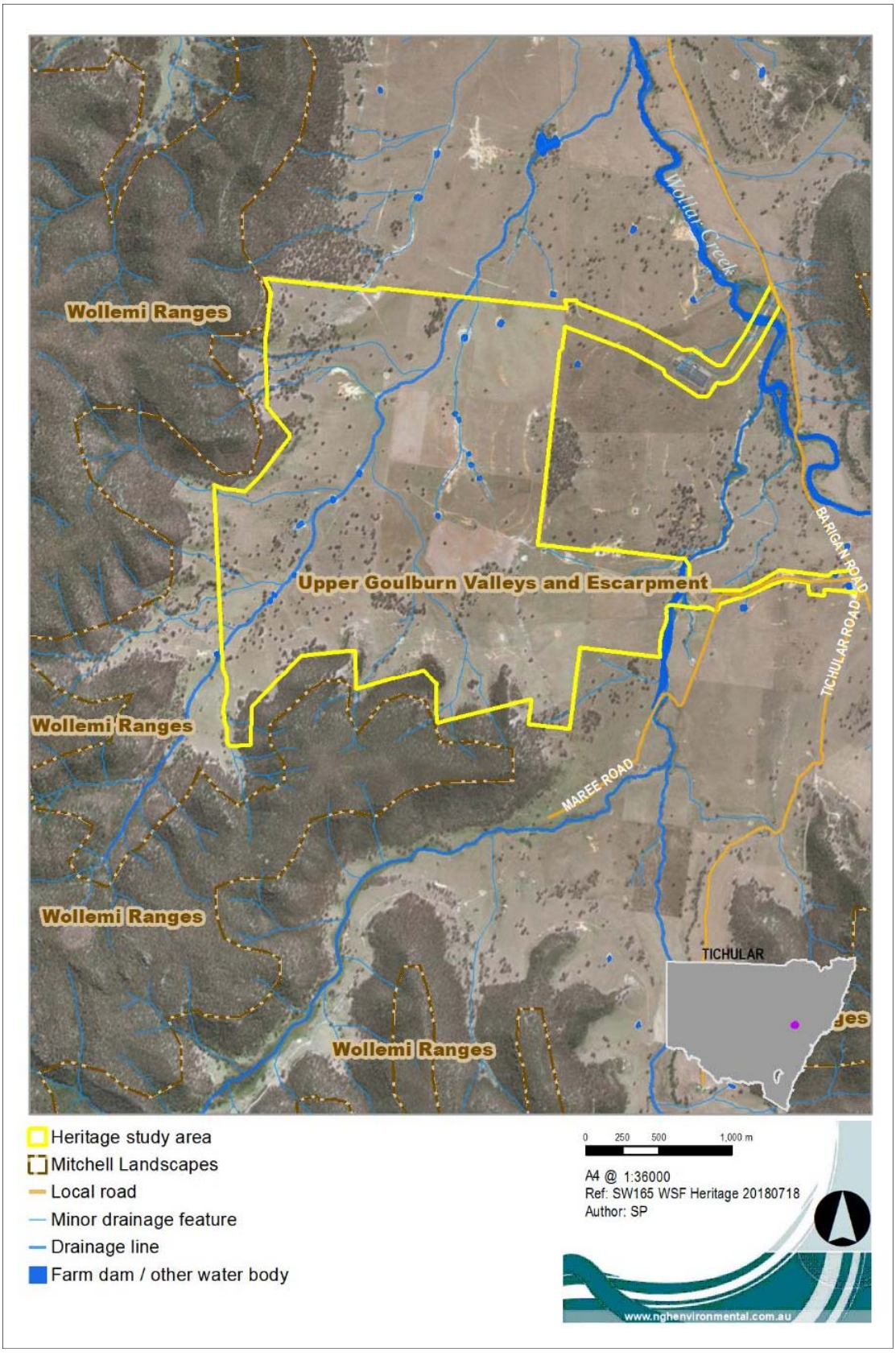

Figure 5. Location of Mitchell landscapes.

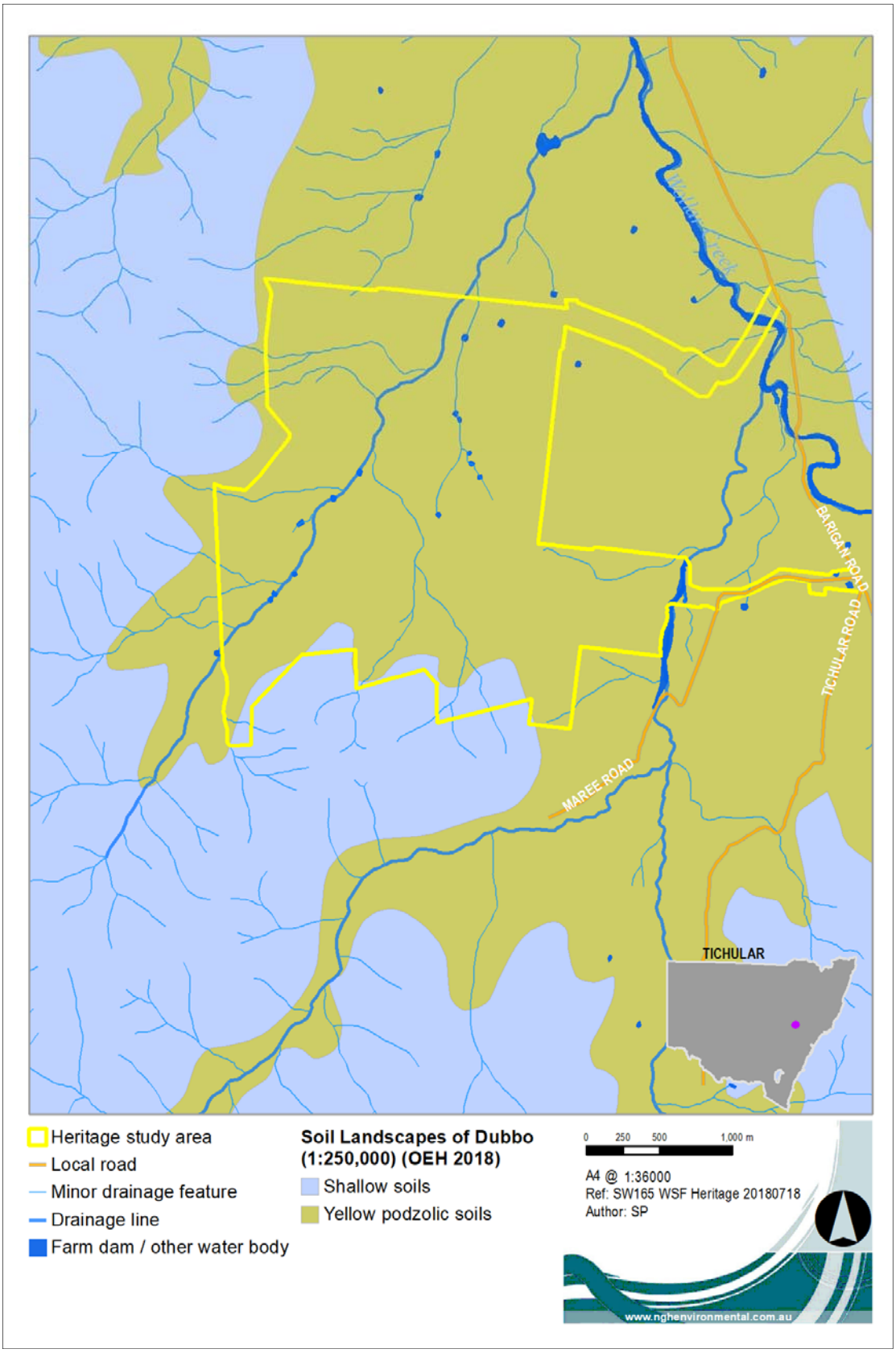

Figure 6. The 1:250,000 Dubbo Soils Landscape

3.1.3 Historic Land use

The proposal site has a 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 mid 1800's. The location of the proposed Solar Farm is within pastoral and agricultural fields and therefore has been subject to considerable impacts from farming for many decades. There are also several man-made dams and drainage lines within the proposal site. A number of contour banks have also been constructed across the project area which has modified the ground. The contour banks can clearly be seen in aerial photographs of the area. Overall, the project area would be categorised as highly disturbed through consistent farming practices and land clearing over many decades.

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. As already noted, the terrain generally has steep hills with long debris slopes that opens onto broad valley floodplains. The areas in close proximity to a water source on slightly raised flat areas and hill crests are likely to have been a major focus for Aboriginal people. However, prior to European land modifications, this area as a whole may have provided resources, shelter, water and food for Aboriginal people.

The different geological landscapes noted on the Dubbo Geological map (1:250,000 SI/55-4) were not readily identifiable within the project area and were not used as a means of landscape differentiation. The single Mitchell landscapes within the project area was readily identifiable however was deemed to be too broad to be used as a means of landscape differentiation. The landforms for the survey were instead determined to be two units which included steep hills and sandstone escarpments with cliffs, rock outcrop and long debris slopes and broad open valleys and floodplain with creeks and drainage lines (see Figure 7). These landform divisions are based on landscape maps of the proposal site and the visual inspection of the proposal area during field survey.

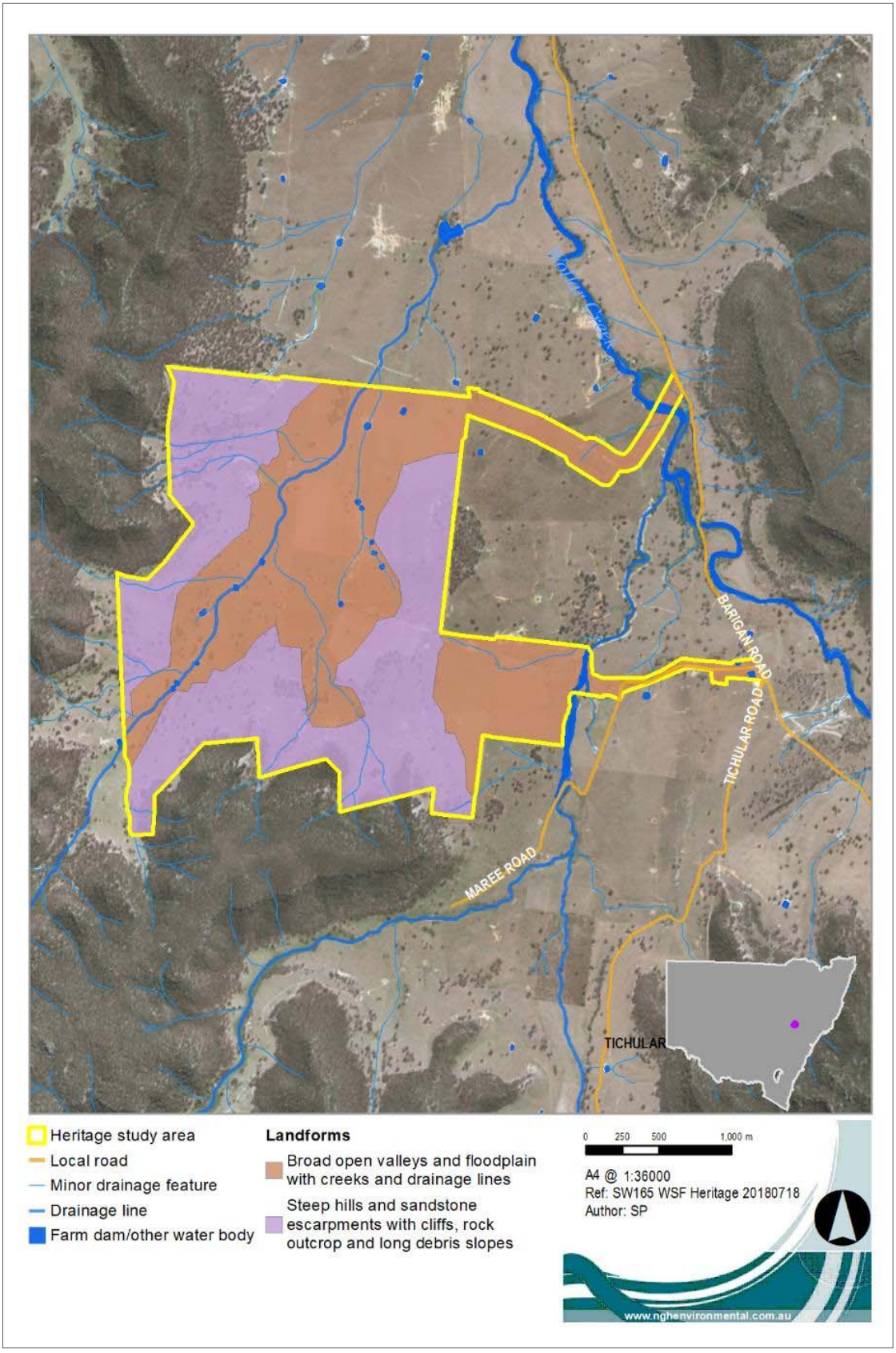

Figure 7. Location of landforms within Proposal area.

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, p. :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, pp. 8 & 16).

Wollar 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 (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 and 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.

These 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 rather 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 1820s. At this point the Aboriginal population was in decline, due to disease such as small pox and influenza as well as dispossession from traditional lands and acts of violence against the Aboriginal people meant there was great social upheaval and partial disintegration of the traditional way of life. The dramatic increase in the number of non-indigenous settlers around Mudgee from the 1850s to the 1870s, during the gold rush resulted in the further displacement of the Aboriginal population and acts of violence (Burless 1997). 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.

It has previously been noted by Navin Officer (2005) that an Aboriginal camp may have existed at Wollar for a significant part of the late 19th Century and into the early 20th Century. This is based on an extract

from a local Wollar correspondent published by the Wollar Centenary Publications Committee (McDermott 1985) that states:

> *"By 1896 it was a rare sight, to see a colony of Aborigines, as most have long since died out in these parts – Wollar has such a small colony who have cosy quarters on the creek bank, living peaceably and happily enough and at times doing little jobs in the shape of 'ringing', burning off, and other things. The police are most particular about persons visiting the encampment without a permit, and he who infringes this rule runs the risk of incurring a substantial fine."*

Additionally, it has been previously noted by Navin Officer (2005) that some Wollar residents 1985 reminisced about their grandparent's memories of Aborigines camping and passing through the valley, although the population was severely affected by an influenza epidemic in 1902 (McDermott 1985). Despite these various disruptions, Aboriginal people continued to maintain their connections to sites and the land in the early days of European settlement. Where Aboriginal people were moved to places like missions and the Aboriginal encampment at Wollar people could maintain at least some form of association with country and maintain traditional stories.

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).Pearson (1981:81) inferred that the Wiradjuri in the Upper Macquarie River region were subdivided into three groups, one centred in the general Mudgee-Rylstone area and the others in the general areas of Bathurst and Wellington. 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 food sources. Fish and mussels would have been prevalent from the rivers and creeks and insects were also a common food type, in particular grubs and ants and ant eggs (Fraser 1892, Pearson 1981). 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 the 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 (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. A search provides basic information about any sites previously identified within a search area. However, a register search is not conclusive evidence of the presence or absence of Aboriginal heritage sites, as it requires that an area has been inspected and details of any sites located have been provided to OEH to add to the register. As a starting point, the search will indicate whether any sites are known within or adjacent to the investigation area.

A search of the AHIMS database was conducted over an area approximately 8 km east-west x 8 km north-south centred on the proposal area, was undertaken on the 25th of January 2018. The AHIMS Client Service Number was: 324297. There was a single Aboriginal site and no declared Aboriginal Places recorded in the search area. A subsequent search of the AHIMS database was conducted over an area approximately 16 km east-west x 16 km north-south centred on the proposal area, was undertaken on the 24th of May 2018 to provide a more detailed understanding of the archaeological setting of the proposal area. The AHIMS Client Service Number was: 347074. There were 94 Aboriginal sites and no declared Aboriginal Places recorded in the search area. Figure 8 and 9 shows the locations of the AHIMS sites in relation to the assessment area and Table 3 shows a breakdown the of the site types.

Table 3 Breakdown of previously recorded Aboriginal sites in the region.

Site Type	Number
Artefact (1 or more)	59
Potential Archaeological Deposit (PAD)	16
Modified Tree (Carved or Scarred)	11
Water Hole	2
Art (Pigment or Engraved)	1
Artefact, Habitation Structure and Potential Archaeological Deposit (PAD)	1
Restricted sites	4
TOTAL	**94**

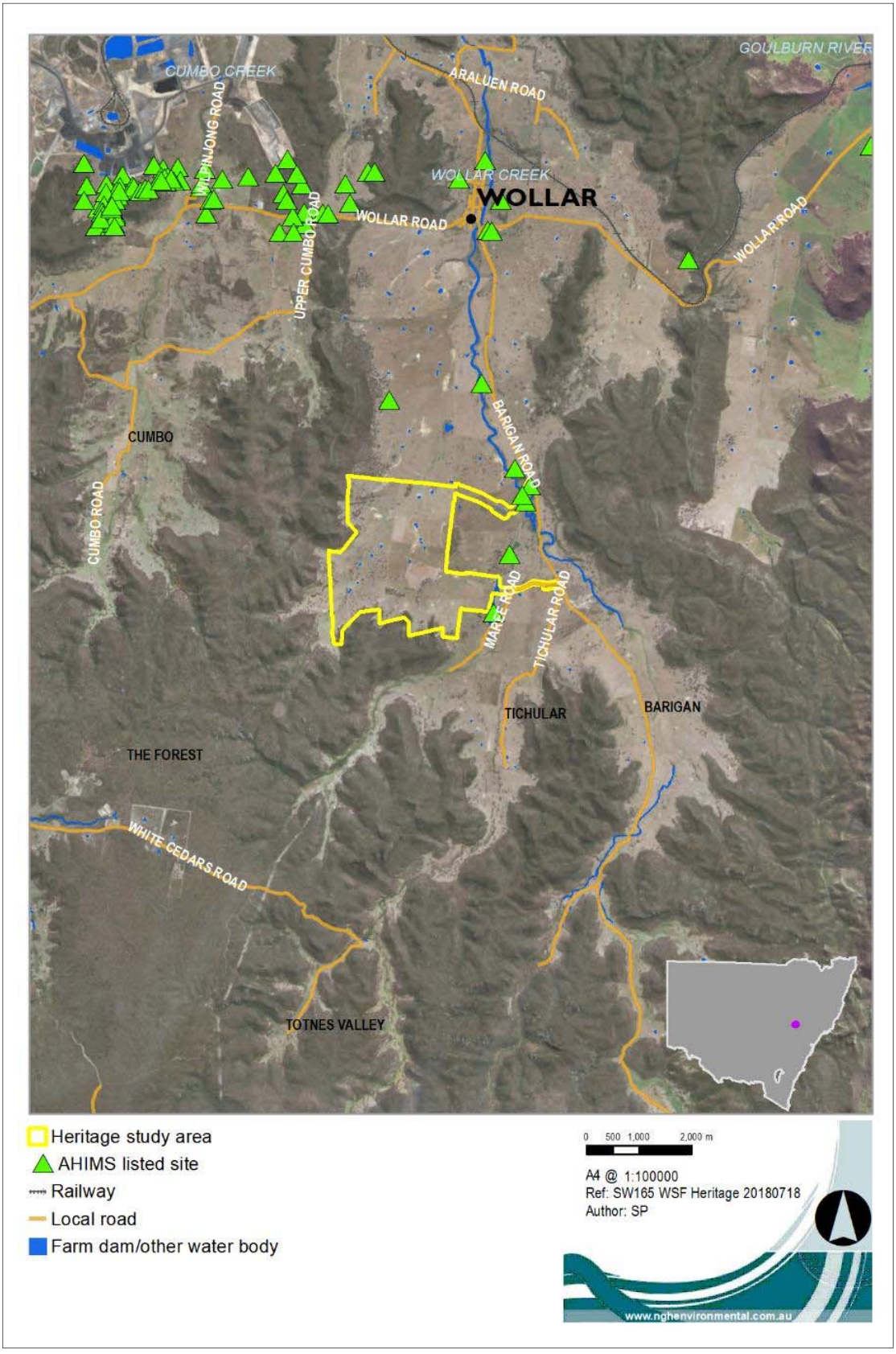

Figure 8. Location of known AHIMS sites

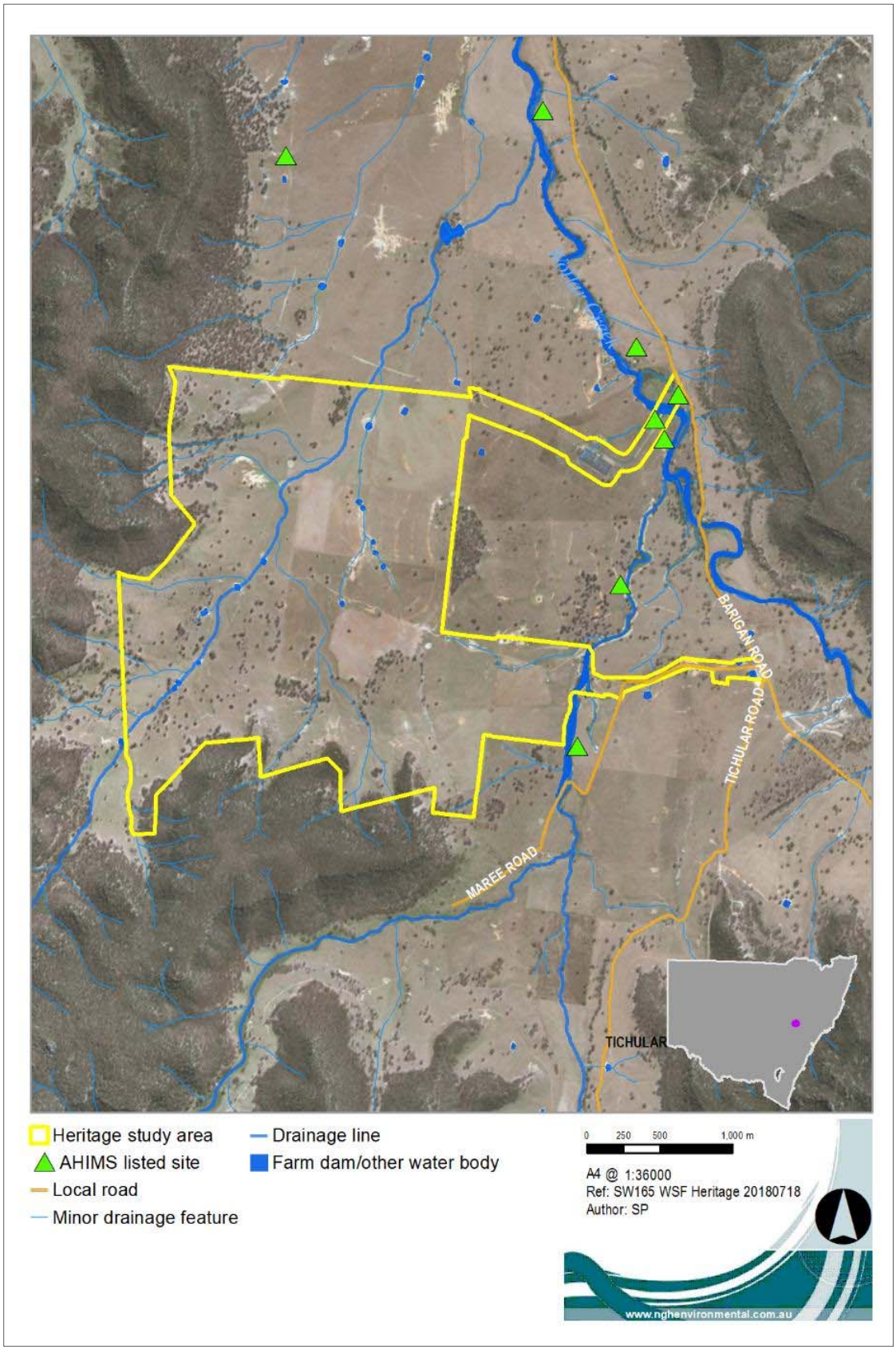

Figure 9. AHIMS Sites near the project area.

Two sites with artefacts (Wollar Creek 1/AHIMS #36-3-0335 and Wollar Creek 2/AHIMS #36-3-0336) are located within the proposal area along the proposed access track near the substation.

Two additional artefact sites are located in close proximity to the proposal area with AHIMS#36-3-0075 located approximately 30 m south-east of the project area and AHIMS # 36-3-0077 located approximately 90 m east of the project area. Another two artefact sites (AHIMS # 36-3-0668 and AHIMS#36-3-0076) are also recorded within 300-500 m of the proposal area. In total there are eight recorded open artefact sites within a 2 km buffer of the proposal area. All other sites on AHIMS are over 5 km away from the assessment area.

Additionally, it should be noted that NGH Environmental received email correspondence from David Gordon (Senior Heritage Information Officer, Heritage Information Management team, Heritage Division, The Office of Environment & Heritage) on the 25th of May 2018 that confirmed that the four restricted Aboriginal sites listed in AHIMS are located outside the project area and will not be impacted by the works for the proposed Wollar Solar Farm. No further details regarding the four restricted sites was provided. NGH also questioned the difference in site numbers near the proposal area between the two AHIMS searches. OEH noted that the additional sites near the proposal area were only recent additions to the AHIMS database.

3.2.3 Previous archaeological studies

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 (Mulvaney and Kamminga 1999, Hiscock 2007). While no regional synthesis of the archaeology has been completed for the Wollar area a number of archaeological surveys have been completed for the development of the area and for the Wilpingjong coal mine. The following are summaries of those archaeological survey reports that have been completed in the Wollar area and in relative proximity to the proposal area.

From 1982 to 1984 ANU Archaeological Consultancies (1985) conducted the survey of the Bayswater to Mt Piper Transmission Line which passes through Wollar and the eastern section of the current project area. The proposed transmission line extends for 222 km and included 577 pylon structures at varying intervals along the line. A total of 44 sites were located during the survey including 41 artefact scatters, 2 rock shelters and an axe grinding groove complex. An additional 24 isolated finds and 16 rock shelters which potential archaeological deposit were also recorded. Sites were generally noted to be located on lower hillslopes and along creek banks near water.

In 2005 OzArk conducted a survey of the Wollar to Wellington 330 kV electricity transmission. The survey inspected various tower locations and access tracks, excluding those areas for where property access was not available. A total of 19 artefact scatters, seven isolated artefacts and two PADs were identified during the survey, including the site WC-OS-11/ AHIMS # 36-3-0668 which is located approximately 400m north east of the current project area

Wilpingjong coal mine

The Wilpingjong coal mine, located approximately 11 km north west of the proposal area, has been surveyed from 2005 to 2015. A number of Aboriginal sites have been recorded including artefact scatters, isolated finds, rock shelter with artefacts, PADs, art and modified trees. Quartz was the dominate lithology in the area followed by tuff with lesser numbers of chert, volcanic, jasper, rhyolite and quartzite artefacts. Complete and broken flakes were the dominate artefacts recorded. A number of salvage programs and excavations have occurred, including the baseline recording and monitoring of rock art sites (Kuskie 2015).

Surface collections, controlled mechanical exposure (surface scrapes) and mechanically excavated test pits have been conducted at a number of sites within the Wilpingjong coal mine project area. The test excavation

of site WCP33 the southern portion of Pit 5 excavated ten 0.5 x 0.5 m test pits by shovel. A total of 20 artefacts were recorded with quartz the dominate lithology. The test excavation of site WCP2016 recovered 97 artefacts and the site was noted to have a low artefact density of artefacts with 8.1 artefacts per m^2. Test excavation was also conducted at site WCP92 in Pit 7 with only two artefacts recovered from eleven 1m x 1m pits. However, mechanical surface scrapes of approximately 7,950m^2 and the hand excavation of the site WCP1 has been noted to have recovered a number of artefacts with the report still in preparation (Kuskie 2015:26-29)

In 2005 Navin Officer recorded a total of 224 sites during the survey for the initial Wilpingjong coal mine assessment. The site types recorded included artefact scatters, isolated finds, rock shelters, art sites, PAD, waterhole/wells and possible scarred trees. Artefact scatters and isolated finds were generally located on the valley floor and basal valley slopes. Larger sites with over 100 artefacts were all located on either valley floors and/or basal valley slopes, with the two sites that had over 500 artefacts located adjacent to Wilpinjong Creek. Navin Officer (2005) noted that quartz dominated the lithologies recorded followed by tuff. Artefact types noted included flakes, cores, hammerstones, micro blades, backing flakes, hatchets and pebble cores.

Since the initial Navin Officer survey in 2005 and the 2015 survey for the expansion of the mine by Kuskie a number of archaeological investigations and salvage programmes have been undertaken. The key reports for the archaeological investigations conducted for the Wilpinjong coal mine have been detailed in Table 4 below by Kuskie (2015, Table 3; p. 24-26) and a summary of the known Aboriginal sites within the Wilpinjong coal mine and adjacent land from 2013 is provided in Table 5 (Kuskie 2015, Table 4; p. 19).

Table 4 : Summary of known Aboriginal heritage investigation reports within the Wilpinjong Coal Mine (Kuskie 2015, Table 3; p. 24-26).

Author	Date	Title	Investigation Type	Details
Navin Officer	2005	*Wilpinjong Coal Project Appendix F: Aboriginal Cultural Heritage Assessment*	Survey for the original EA	Resulted in identification of 224 heritage sites and PADs.
Navin Officer	2005	*Supplementary Archaeological Survey of Site Depot, Borrow Pit, ROM PAD and [Proposed] Radio Facility, Wilpinjong Coal Project*	Report on Cultural Heritage Works Program arising from EA	Supplementary archaeological survey of some infrastructure areas to determine if any Aboriginal had become visible since the original EIS. One additional site located in proximity to the Radio Facility.
Navin Officer	2006	*Wilpinjong Coal Project: Archaeological Salvage and Post EIS Investigations*	Report on Cultural Heritage Works Program arising from EA	Detailed report on the salvage of sites within the "Pit 1" area, initial infrastructure areas, Bungalla Road and new disturbance area; survey of additional disturbance areas not covered in the original EIS.
Navin Officer	2006	*Baseline Recording of Three Aboriginal Rock Art Sites WCP72, 152 and 153, at Wilpinjong, NSW: Wilpinjong Coal Project Aboriginal Cultural Heritage Management Program*	Report on Cultural Heritage Works Program arising from EA	Baseline recording of three rock art sites beyond the area of direct mine impact; carried out as part of a monitoring program, as required under the Project Approval and Native Title Agreement Ancillary Deed.
Navin Officer	2006	*Wilpinjong Coal Project: Archaeological Salvage and Post EIS Investigations: Interim Summary Report*	Report on Cultural Heritage Works Program arising from EA	Final report detailing outcomes from the salvage of sites within the "Pit 1" area, initial infrastructure areas, Bungalla Road and new disturbance area; survey of additional disturbance areas not covered in the original EIS.

Author	Date	Title	Investigation Type	Details
Navin Officer	2006	*Archaeological Survey. Three Proposed Fence-Line Alignments and Two Power Pole Locations, Wilpinjong Coal Project*	Summary report on Cultural Heritage Works Program arising from EA	Archaeological survey of three proposed fence-lines and two power poles required for pastoral stock management and installation of site offices.
Kayandel	2006	*Wilpinjong Coal Project Aboriginal Cultural Heritage Survey: Supplemental Survey of Escarpment Areas and Report of Findings*	Report on Cultural Heritage Works Program arising from EA	Survey of the escarpment area beyond the area of direct mine impact to identify sites that may be susceptible to indirect impacts (such as through blasting).
Kayandel (Hubschmann and Markus)	2011	*Archaeological Excavation and Salvage: WCP33, October 2009 and December 2010 – January 2011*	Report on site WCP33 Cultural Heritage Investigations	Draft report on details of salvage of site WCP33 undertaken under approved ACHMP.
Kayandel (Syme, Zaghloul and White)	2013	*WCP216 Archaeological Excavations: Test and Open Area. Main Report and Associated Appendices*	Draft report on site WCP216 Cultural Heritage Investigations	Draft report on details of salvage of site WCP216 undertaken under approved ACHMP.
Brennan	2013	*Wilpinjong Coal Mine, Rock Art Conservation and Monitoring Project: Field Inspection Report and Recommendations*	Report on Rock Art Monitoring	Report on three rock art sites beyond the area of direct mine impact; carried out as part of the monitoring program undertaken under the approved ACHMP (WCPL 2008).
Kuskie	2013	*Wilpinjong Coal Mine, Central Tablelands of New South Wales Modification: Aboriginal Cultural Heritage Assessment*	Survey for Mod 5	Survey of additional disturbance areas not covered in the original EIS as part of the Mod 5 EA.
Kuskie	2013	*Wilpinjong Coal Mine - Pit 3 Clearance Areas: Preliminary Discussion Paper Regarding Aboriginal Heritage Management Strategies for Sites WCP 5, 65, 68 and 237*	Report on Cultural Heritage Works Program arising from EA	Advice on Pit 3 clearance areas.
Kuskie	2013	*Wilpinjong Coal Mine - Pit 3 Clearance Areas: Additional Advice Regarding Aboriginal Heritage Management Strategies for Sites WCP 5, 65 and 237*	Report on Cultural Heritage Works Program arising from EA	Advice on Pit 3 clearance areas.
Kuskie	2013	*Wilpinjong Extension Project - Preliminary Report on Aboriginal Heritage Due Diligence Survey of Soil Test Pit and Drilling Areas*	Due diligence	Due diligence of soil test pits and drilling areas.
Apex Archaeology	2013	*Wilpinjong Coal EL Exploration Drilling - Exploration Lease 7091 Due Diligence*	Due diligence	Due diligence of drilling areas.
Apex Archaeology	2013	*Wilpinjong Coal Exploration Drilling - Mining Lease 1573 Due Diligence*	Due diligence	Due diligence of drilling areas.

Author	Date	Title	Investigation Type	Details
Apex Archaeology	2013	*Wilpinjong Coal Ancillary Works - Due Diligence*	Due diligence	Due diligence of piezometers, tree corridor, soil testing areas and water gauging station.
Apex Archaeology	2013	*Wilpinjong Pit 5 - Mining Lease 1573 Surface Collection*	Report on Cultural Heritage Works Program arising from EA	Surface collection of sites within Pit 5 under ACHMP.
Kuskie	2014	*Wilpinjong Coal Mine - Aboriginal Heritage Salvage of Sites WCP 1, 65 and 237: Interim Status Report, July 2014*	Report on Cultural Heritage Works Program arising from EA and Modification.	Salvage excavation of sites WCP 1, 65 and 237. Interim report.
Kuskie	2014	*Wilpinjong Coal Mine - Preliminary Report on Aboriginal Heritage Due Diligence Survey of Cumbo Creek Sediment Dams*	Due diligence	Due diligence of Cumbo Creek sediment dams.
Kuskie	2014	*Wilpinjong Extension Project - Report on Aboriginal Heritage Due Diligence Survey of Drilling Areas*	Due diligence	Due diligence of drilling areas.
Kuskie	2014	*Wilpinjong Mine - Preliminary Report on Aboriginal Heritage Due Diligence Survey of Proposed Piezometer Near Wollar*	Due diligence	Due diligence of piezometer.
Apex Archaeology	2014	*Wilpinjong Pit 7 SOW – Mining Lease 1573 Excavation Report*	Report on Cultural Heritage Works Program arising from EA	Report on excavations carried out at site WCP92 in the Pit 7 area, in compliance with the existing ACHMP.
Apex Archaeology	2014	*Wilpinjong Coal: Cumbo Creek Salvage Works and Surface Collection of WCP2 and WCP447 Salvage Report*	Report on Cultural Heritage Works Program arising from EA	Surface collection of sites WCP2 and WCP447 and test excavations at Cumbo Creek under ACHMP.
Apex Archaeology	2014	*Wilpinjong Coal: Removal of Modified Tree WCP 122 Salvage Report*	Report on Cultural Heritage Works Program arising from EA	Salvage of modified tree WCP122 under ACHMP.
Navin Officer	2015	*Wilpinjong Coal Aboriginal Rock Art Monitoring and Assessment Program: Report on December 2014 Site Inspection.*	Report on Rock Art Monitoring	Report on three rock art sites beyond the area of direct mine impact; carried out as part of the monitoring program undertaken under the approved ACHMP (WCPL 2008).
Kuskie	2015	*Wilpinjong coal Mine, central tablelands of New South Wales- extension project Aboriginal Cultural Heritage Assessment*	Survey for the Extension EIA	Resulted in the identification of 293 heritage sites and PADs.

*Table data slightly modified from Kuskie 2015, Table 3; p. 24-26.

Table 5 : Summary of known Aboriginal sites within the Wilpinjong Coal Mine and adjacent land based on WCPL Aboriginal Site Database Revision 3, November 2013 (Kuskie 2015, Table 4; p. 19).

Aboriginal Site Type	Total
Bora/ceremonial site and carved tree	1
Grinding grooves	2
Grinding grooves and open artefact site	1
Lithic quarry	1
Non-Aboriginal mounds	1
Open artefact site	283
PAD	2
Possible cultural value/association	2
Rock shelter with art	4
Rock shelter with art and PAD	2
Rock shelter with artefacts	25
Rock shelter with artefacts and art	1
Rock shelter with artefacts and waterhole/well	1
Rock shelter with PAD	80
Scarred tree	8
Scarred tree (possible Aboriginal)	45
Scarred tree (possible European)	4
Uncertain	2
Waterhole (possible)	3
Waterhole/well	7
Total	**475**

In 2015 Kuskie surveyed 1,275 ha area for the proposed extension of the Wilpinjong Coal Mine. A total of 293 Aboriginal sites including PADs were identified within the assessment area. A total of 156 previously recorded sites were relocated and re-recorded in the assessment area with an additional 137 new sites recorded by Kuskie. The new sites identified included 73 rockshelters with PADs, 60 open artefact scatters, two waterhole/wells, one rockshelter with artefacts and art and one rockshelter with artefacts and an ochre quarry. Three sites (the Slate Gully rocky hill site complex, the rock shelter with artefacts and art, WCP578, and rock shelter with artefacts and ochre quarry, WCP579,) were assessed as being of significance. A total of 294 artefacts were recorded during the survey, the dominant lithology was quartz followed by tuff, with lesser number of volcanic, basalt, chert, crystal quartz, jasper and quartzite. The dominate typologies recorded were flakes, lithic fragments and broken flakes with lesser numbers of backed artefacts, blades, cores, ground edge axes, retouched flake and pieces and core fragments.

Moolarben and Ulan coal mines

Since the 1980's a number of surveys have also been conducted for the Moolarben and Ulan coal mines near Ulan, between 20 and 30 km north-west of the current assessment area. The following are summaries of those archaeological survey reports that have been completed.

The Moorlarben coal mine is located 25 km east of Gulgong and is adjacent to the Wilpinjong and Ulan mines. A number of surveys for the project have been conducted from 2006 till 2013 (Hamm 2006, 2008, Kuskie 2015 and Niche 2015). Hamm's 2006 assessment of the proposed mine area noted that concentrations of Aboriginal sites occurred on the alluvial flats associated with water courses. A number of sites have been recorded in the subsequent surveys including isolated artefacts, artefact scatters, rock shelters, rock shelters with art, modified trees, grinding grooves and PADs. Quartz generally dominates the artefact assemblages with lesser numbers of tuff, silcrete, quartzite, chert, mudstone, chalcedony and volcanics. Flakes and flaked pieces dominated the assemblage with cores, hammer stones and backed artefacts also recorded (Kuskie 2015).

A series of test excavations and salvage programs have also been undertaken for the Moorlarben coal mine Stage 1 Main infrastructure area and Open Cut 1 area with approximately 13,700m^2 subject to controlled mechanical exposure and 271 m^2 excavated by hand. The salvage and excavation programs for the Stage 1 Main infrastructure area and Open Cut 1 area resulted in the recovery of 2,643 artefacts and the identification of 35 new artefact sites (Hamm and Foley 2010).

A number of surveys for the Ulan Coal Mine have been conducted from 1980 till 2015 (as summarised in Kuskie 2013 and Niche 2015). The surveys resulted in the identification of a number of sites including isolated finds, artefact scatters, rock shelters, PADs, quarry, grinding grooves, rock shelters with art and modified trees being recorded. Quartz is the dominate lithology recorded. Kuskie (2009) noted that the archaeological evidence collected in the Ulan Coal Mine area indicates that the Aboriginal utilisation of the study area was generally of a low intensity and most likely relates to the limited presence of higher order watercourse within the analysis area.

A series of test excavations and salvage programs have been undertaken over the course of the Ulan Coal Mine project including Haglund's salvage excavation of the rock shelter site AHIMS# 36-3-177 that resulted in the recovery of 765 artefacts from 20m^2 of excavated deposit. The artefact density of the objects recovered was very high at 139 artefacts/m^3. The rock shelter site Spring Gully 5 has also been subject to extensive salvage excavation and has returned a radiocarbon date of 4,147 ±60 years before present. A total of 10,002 artefacts were recovered from 37m^2 of excavated deposit. Kuskie also conducted the test excavation of three rock shelters (IS# 104, 105 and 1420) recovering a total of 2,896 artefacts from 3 m^3 of excavated deposit. An Aboriginal fire place was also identified within the rock shelter #105 that has been radiocarbon dated to 3,200 to 3,500 year ago (Kuskie 2015:34-35).

3.2.4 Summary of Aboriginal land use

The results of previous archaeological surveys in the Wollar region show that there are sites and artefacts present throughout the landscape. There is a dominance of artefacts either as isolated finds or in clusters as artefact scatters. Scarred trees are also prevalent in the region.

There appears to be a pattern of site location that relates to the presence of potential resources for Aboriginal use. The Aboriginal site modelling for the region to date suggests that while Aboriginal sites may be expected throughout all landscapes the most archaeologically sensitive areas occur in close proximity to water. The most likely site type to be encountered within the Wollar Solar Farm proposal area would be stone artefacts and scarred trees where old growth native trees remain.

While a detailed understanding of the Aboriginal land use of the region is lacking 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 but the current archaeological record of that activity is currently limited.

3.2.5 Archaeological Site Location Model

Based on the results of the previous archaeological investigations in the local Wollar area and for the Wilpingjong coal mine, and through extrapolation of Wiradjuri sites from the region it is possible to provide the following model of site location in relation to the proposed Wollar Solar Farm area.

Stone artefact scatters – representing camp sites can occur across the landscape, usually in association with some form of resource or landscape unit such as spur and ridge crests and creeklines. Within the proposal site there are several tributaries that are an obvious resource. Artefact scatters are therefore likely to occur within the proposal site.

Burials – are generally found in elevated sandy contexts or in association with rivers and major creeks. No such features exist with the proposal site 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 around swamps areas. There are patches of remnant vegetation across the proposal site, therefore, it is possible that this feature could occur.

Hearths/Ovens – are identified by burnt clay and stone 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 site and this feature is therefore unlikely to occur.

Stone resources – are areas where people used natural stone outcrops as a source material for flaking. This requires geologically suitable material outcropping so as to be accessible. The proposal site contains natural outcropping therefore such sites could occur.

Grinding Grooves- are typically elongated narrow depressions in rocks, particularly sedimentary bedrock, that are generally associated with watercourses. The depressions are created by repeated activities at the same location to shape and sharpen stone objects (generally axes) and/or during the grinding of food sources. The proposal area contains sandstone outcroppings and it is possible that this feature could occur.

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. The proposal site contains no significant waterways, swamps and billabongs and this feature is therefore unlikely to occur.

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 topography and landscape features within the proposed Wollar Solar Farm proposal area indicate that this area would likely have been part of the Wiradjuri landscape, particularly with several tributaries within the proposal area. Therefore, the proposal area could potentially be attractive to Aboriginal people to concentrate activity and therefore has a higher possibility of providing an archaeological signature. Subsequently, given that Aboriginal people have lived in the region for tens of thousands of years, there is potential for archaeological evidence to occur throughout the area, this is most likely to be in the form of stone artefacts or as scarred trees.

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 wider Wollar area there have been few archaeological investigations with most surveys in the areas focusing on the Wilpingjong coal mine and its expansion. The information relating to site patterns, their age and geomorphic context is therefore still being 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 although the scale of farming and development has altered the natural landscape in some places. This activity has also greatly disturbed the archaeological record and there are unlikely to be many places that retain *in situ* archaeological material due to the scale of agricultural, mining and pastoral activities and development.

Regarding 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 the project archaeologists have not been told of any such places within the proposal site. There is always the potential for such places to exist but insofar as the current proposal is concerned, no such places or values have been identified.

4 ARCHAEOLOGICAL INVESTIGATION RESULTS

4.1 SURVEY STRATEGY

The survey strategy was to cover as much of the ground surface as possible within the proposal site. Although the actual ground impact from the construction method for the proposed solar farm was likely to be low, the placement of solar arrays across the landscape has the potential to cover any cultural heritage sites.

The strategy therefore was to walk a series of transects across the landscape to achieve maximum coverage. Because the proposal site was generally cleared paddocks used for grazing livestock or recently ploughed fields, transects were spaced evenly with the survey team spread apart at 25 m intervals, walking in parallel lines. The cleared nature of the paddocks made this an ideal survey strategy. The team were able to walk in parallel lines, at a similar pace, allowing for maximum survey coverage and maximum opportunity to identify any heritage features. The survey team consisted of a minimum of five people and a maximum of six people which allowed a 125 m to 150 m wide tract of the proposal site to be surveyed with each transect depending the number of people present. At the end of each transect, the team would reposition along a new transect line at the same spacing and walk back on the same compass bearing.

While the proponent plans to retain existing viable native vegetation remnants where possible, the areas of remnant vegetation were deemed to have high archaeological potential for mature trees within the proposal site and were inspected for any evidence of Aboriginal scarring (Long 2005). Native paddock trees were also inspected for any evidence of Aboriginal scarring (Long 2005).

NGH believes that the survey strategy was comprehensive and the most effective way to identify the presence of Aboriginal heritage sites. Discussions were held in the field during each day between the archaeologists and Aboriginal community representatives to ensure all were satisfied and agreed with the spacing and methodology.

The proposal site was divided into two landform divisions based on landscape maps and visual inspection during field survey. The landforms are listed below and was shown in Figure 8.

- Steep hills and sandstone escarpments with cliffs, rock outcrop and long debris slopes; and

- Broad open valleys and floodplain with creeks and drainage lines.

The survey was undertaken by the team over six days from the 23rd to the 28th of July 2018. Notes were made about visibility, photos taken and any possible Aboriginal features identified were inspected, assessed and recorded if deemed to be Aboriginal in origin.

4.2 SURVEY COVERAGE

The solar farm area comprised primarily of cleared paddocks boarded by steep hills sloping down long debris slopes to broad open valleys and floodplain with creeks and drainage lines. The hills generally had sandstone outcroppings with shallow soil deposits noted on the crests and associated slopes. Some slopes within the proposal area had been subject to contour banking. The entire proposal area had been subject to clearing and ploughing activities with a recent fire significantly abolishing the vegetation of the surrounding hills. Consequently, the area has been subjected to significant erosion and flooding events in the last 12 months.

Survey transects were undertaken on foot and traversed the proposal area. Visibility within the proposal area was variable however as a whole it generally had good visibility averaging 20% overall. The effective visibility in the paddocks ranged from 95% in exposures to less than 5% in areas with a dense low grass cover. Between the survey participants, over the course of the field survey, approximately, 400 km of transects were walked across the proposal area.

Table 6 below shows the calculations of effective survey coverage and Plates 5- 10, show examples of the transects and landforms within the proposal area.

Allowing for an effective view width of 5 m for each person and given the variability in the ground visibility across the proposal site overall the survey effectively examined 12.5% of the proposal area. It is considered that the survey of the Wollar Solar Farm proposal area had sufficient and effective survey coverage.

The discovery of a number of Aboriginal sites indicates that the survey technique was effective enough to identify the presence of Aboriginal occupation in the area. Therefore, the results identified are considered a true reflection of the nature of the Aboriginal archaeological record present within the proposal area.

Plate 5 View south up slope to hills in the southern portion of the proposal area.

Plate 6 View south across valley floodplain, note exposure with good visibility in foreground.

	
Plate 7 View west down slope with contour banks, note exposure with good visibility in foreground.	Plate 8 View south up slope in ploughed field along the north-eastern boundary of the proposal area .
	
Plate 9 View south across the valley from the northern boundary.	Plate 10 View east from a sandstone outcropping steam down to the valley and flats associated with Wollar creek.

Table 6. Transect information.

Landform	Number of Survey Transects	Exposure type	Project area (ha)	Surveyed area (length m x width m)	Survey area (m2)	Visibility %	Effective coverage (area x visibility) m2	Project area surveyed (ha)	Percentage of Project area effectively surveyed	Archaeological result
Steep hills and sandstone escarpments with cliffs, rock outcrop and long debris slopes	48	Bare ground, gate entrances, fence lines, vehicle tracks, cattle tracks, dam walls, eroding deposits.	332	19,000 x 30 12,000 X 25	570,000 300,000	20	174,000	17.4	5.2	1 cultural site 1 grinding groove 1 possible modified tree 3 artefact scatters 14 isolated finds
Broad open valleys and floodplain with creeks and drainage lines	58	Bare ground, gate entrances, fence lines, vehicle tracks, cattle tracks, dam walls, eroding deposits, creek banks.	358	33,500 x 30 12,000 X25	1,005,000 300,000	20	261,000	26.1	7.3	1 modified tree 2 previously recorded AHIMS sites 9 artefact scatters 11 isolated finds

4.3 SURVEY RESULTS

4.3.1 Previously recorded sites in the Proposal area

Two previously recorded AHIMS sites with artefacts (Wollar Creek 1/AHIMS #36-3-0335 and Wollar Creek 2/AHIMS #36-3-0336) are located within the proposal area along the proposed access track near the substation.

AHIMS site #36-3-0335 referred to as Wollar Creek 1 was recorded in 2005 as an artefact scatter with quartz, volcanic and fine-grained siliceous artefacts eroding out of an exposure on the north-eastern creek bed and terrace of Wollar Creek. Despite intensive survey around the coordinate location during the current assessment no Aboriginal objects could be relocated. This is not however, unsurprising as visibility was very low <5% at the time of survey and given that the initial location of the objects was noted to be eroding out of the creek bed it is possible water flows and flooding events have moved the objects.

AHIMS site # 36-3-0336 referred to as Wollar Creek 2 was recorded in 2005 as an artefact scatter with quartz, volcanic and fine-grained siliceous artefacts eroding out of an expose on the south-western bank of Wollar Creek. A total of three artefacts were relocated eroding out of the south-western bank of Wollar Creek within 20-30 m of the GPS coordinates for the original AHIMS site. The artefacts were located in an exposure on the creek bank between a fence and the substation access track. The artefacts recorded during the current assessment were manufactured from quartz (n=2; 66.7%) and tuff (n=1;33.3%) and typologies included flakes (n=2; 66.7%) and a core (n=1; 33.3%). No other Aboriginal objects were located during the current survey within this area.

Plate 11 View north-east at the location of AHIMS site # 36-3-0335

Plate 12 View north-west across eroding creek bank at AHIMS site # 36-3-0336.

4.3.2 Field survey results

Despite the variable visibility encountered during the survey there were a number of stone artefacts found across the proposal site that were recorded as 37 site occurrences. These archaeological features have been recorded as 12 artefact scatters and 25 isolated finds. One grinding groove, one scarred tree, one possible scarred tree and a culturally significant site were also recorded. The details of these sites are outlined below, and their locations shown in Figure 10. The artefact data is provided in Appendix C.

Artefact scatters

Wollar SF AFT 1

The site is a low-density artefact scatter measuring 270 m (north-east/south-west) by 170 m (east/west). A total of 35 artefacts were recorded scattered across a hill crest that extended down the eroding track towards a dam. It was noted that there is likely to be a minimum of 50 artefacts within the site. Due to the number of artefacts in the site only a sample was recorded. The artefact lithologies recorded were chert (n=11; 31.4%), quartz (n=9; 25.7%), tuff (n=5; 14.3%), silcrete (n= 3; 8.6%), quartzite (n=3; 8.6%), basalt (n=2; 5.7%), volcanic (n=1; 2.85%) and crystal quartz (n=1; 2.85%). The typologies recorded included complete flakes (n=21; 60.0%), proximal fragment (n=5; 14.3%), distal fragment (n=4; 11.4%), a flaked piece (n=3; 8.6%), a core (n=1; 2.85%) and a hammerstone (n=1; 2.85%). Field observations suggest that artefacts were from the tertiary and secondary stages of reduction with one artefact noted to have terrestrial cortex. A volcanic hammerstone was recorded to have pitting for 22 mm. A number of the artefacts were broken, this may be the result of machinery during the construction of the adjacent dam. The artefacts were located on an eroding reddish-brown loam deposit and visibility within the area ranged from 90% in exposures to 10% in grassed areas.

Plate 13. View west of exposure with dam in the background at AFT 1.

Plate 14. Close up of chert flake from AFT 1.

Wollar SF AFT 2

The site is a low-density artefact scatter measuring 250 m (north-west/south-east) by 60 m (east/west). A total of 10 artefacts were recorded scattered across an eroding exposed slope. The artefact lithologies are tuff (n=3; 30%), chert (n=3; 30%), quartz (n=2; 20%), silcrete (n= 1; 10%) and quartzite (n=1; 10%). The typologies recorded included complete flakes (n=6; 60.0%), cores (n=3; 30%) and a broken flake (n=1; 10%). Field observations suggest that artefacts were from the tertiary and secondary stages of reduction with one artefact noted to have terrestrial cortex. The artefacts were located on an eroding reddish-brown loam deposit and visibility within the area ranged from 90% in exposures to 10% in grassed areas. This site has been heavily eroded by water.

	
Plate 15. View south-east down slope of exposure at AFT 2.	Plate 16. Close up of chert flake from AFT 2.

Wollar SF AFT 3

The site is a low-density artefact scatter measuring 160 m (north /south) by 40 m (east/west). A total of 28 artefacts were recorded scattered across a slight raised eastern bank and associated slope of the ephemeral water source Spring Flat Creek. The artefact lithologies are quartz (n=13; 46.4%), quartzite (n=7; 25%), tuff (n=7; 25%) and chert (n=1; 3.6%). The typologies recorded included complete flakes (n=14; 50%), distal fragments (n= 5; 17.9%), flaked piece (n= 4; 14.3%), proximal fragment (n=3; 10.7%) and cores (n=2; 7.1%). Field observations suggest that artefacts were from the tertiary and secondary stages of reduction with two artefacts noted to have terrestrial cortex. The artefacts were located on a reddish-brown loam deposit and visibility within the area averaged 20%.

	
Plate 17. View south down bank and slope at AFT 3.	Plate 18. Close up of chert flake from AFT 3.

Wollar SF AFT 4

The site is a low-density artefact scatter measuring 200 m (north /south) by 40 m (east/west). A total of 12 artefacts were recorded scattered across a slight raised eastern bank and associated slope of the ephemeral water source Spring Flat Creek. The artefact lithologies are quartz (n=6; 50%), tuff (n=4; 33.4%), chert (n=1; 8.3%), quartzite (n=1; 8.3%) and basalt (n=1; 8.3%). The typologies recorded included complete flakes (n=5; 41.7%), flaked piece (n=4; 33.4%), a core (n=1; 8.3%) and an axe blank (n=1; 8.3%). Field observations suggest

that artefacts were from the tertiary and secondary stages of reduction with three artefacts noted to have terrestrial cortex. The artefacts were located on a reddish-brown loam deposit and visibility within the area averaged 20%. The basalt axe blank was recorded to have some plough damage and a ground edge.

	
Plate 19. View north down bank at AFT 4.	Plate 20. Close up of basalt axe from AFT 4.

Wollar SF AFT 5

The site is a low-density artefact scatter measuring 5 m (north /south) by 5 m (east/west). A total of two artefacts were recorded on the crest of a low hill approximately 150 m south-east of Spring Flat Creek. The artefact lithologies are quartzite (n=1; 50%) and silcrete (n=1; 50%). The typologies recorded included a complete flake (n=1; 50%) and a core (n=1; 50%). Field observations suggest that artefacts were from the tertiary stage of reduction. The artefacts were located on a reddish-brown loam deposit and visibility within the area averaged 20%.

	
Plate 21. View south-east of low hill crest at AFT 5.	Plate 22. Close up of quartzite flake from AFT 5.

Wollar SF AFT 6

The site is a low-density artefact scatter measuring 12 m (north /south) by 5 m (east/west). A total of two artefacts were recorded either side of a track on the spur of a hill with that slopes down towards a valley and associated drainage lines approximately 60 m west and north of the site. The artefact lithologies are chert (n=1; 50%) and tuff (n=1; 50%). The typologies recorded included complete flakes (n=2; 100%) and a core (n=1; 50%). Field observations suggest that artefacts were from the tertiary stage of reduction with the tuff

flake noted to be highly weathered. The artefacts were located on a reddish-brown loam deposit and visibility within the area averaged 5%.

	
Plate 23. View north across spur at AFT 6.	Plate 24. Close up of chert flake from AFT 6.

Wollar SF AFT 7

The site is a low-density artefact scatter measuring 10 m (north /south) by 20 m (east/west). A total of five artefacts were recorded with four artefacts recorded on an exposure adjacent to a dam and one near an ephemeral drainage line. The artefact lithologies are chert (n=4; 80%) and quartz (n=1; 20%). The typologies recorded included complete flakes (n=2; 40%) and cores (n=3; 60%). Macroscopic observations of grain, colour and material suggest that the four chert artefacts are derive from the same parent source and have also been subject to heat damage. Field observations suggest that artefacts were from the tertiary and secondary stages of reduction with a single core noted to have terrestrial cortex. The artefacts were located on a reddish-brown loam deposit and visibility in the exposures averaged 70%

	
Plate 25. View north across exposure near dam at AFT 7.	Plate 26. Close up of chert flake from AFT 7.

Wollar SF AFT 8

The site is a low-density artefact scatter measuring 50 m (north /south) by 50 m (east/west). A total of four artefacts were recorded across a disturbed exposure associated with the construction of a dam approximately 500 m west of Wollar Creek. The artefact lithologies are quartz (n=1; 25%), chert (n=1; 25%),

crystal quartz (n=1; 25%) and tuff (n=1; 25%). The typologies recorded included complete flakes (n=2; 50%), a flaked piece (n=1; 25%) and a core (n=1; 25%). Field observations suggest that artefacts were from the tertiary stage of reduction. The artefacts were located on a reddish-brown loam deposit and visibility within the area ranged from 90% in the exposure to 5% in grassed areas surrounding the exposure.

Plate 27. View south along exposure near fence line at AFT 8.

Plate 28. Close up of chert flake from AFT 8.

Wollar SF AFT 9

The site is a low-density artefact scatter measuring 30 m (north /south) by 5 m (east/west). A total of three artefacts were recorded eroding out of draining line and associated exposure approximately 40 m west of Wollar Creek. The artefact lithologies are quartz (n=2; 66.7%) and chert (n=1; 33.3%). The typologies recorded included complete flakes (n=2; 66.7%) and a flaked piece (n=1; 33.3%). Field observations suggest that artefacts were from the tertiary stage of reduction. The artefacts were located on a reddish-brown loam deposit and visibility within the area ranged from 90% in the exposure to 5% in grassed areas surrounding the exposure.

Plate 29. View north along exposure and drainage line at AFT 9.

Plate 30. Close up of quartz flake from AFT 9.

Wollar SF AFT 10

The site is a low-density artefact scatter measuring 6 m (north /south) by 5 m (east/west). A total of two artefacts were recorded approximately 180 m west of Wollar Creek and 10 m north of a vehicle track. The artefact lithologies are quartz (n=1; 50%) and tuff (n=1; 50%). The typologies recorded included a complete flake (n=1; 50%) and a distal fragment (n=1; 50%). Field observations suggest that the quartz flake was from the tertiary stage of reduction while the distal fragment of tuff was from the secondary stage of reduction with 20% riverine cortex noted. The artefacts were located on a reddish-brown loam deposit that had been ploughed. Visibility within the area averaged 40%.

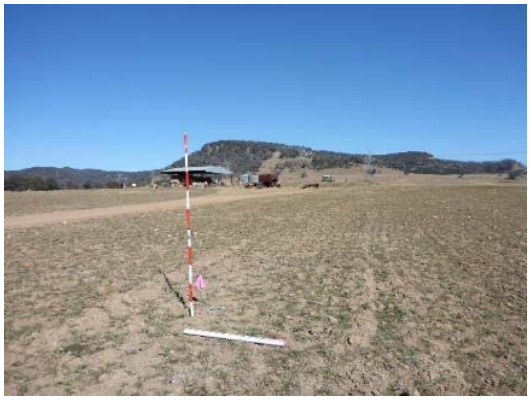

Plate 31. View west along ploughed field and track at AFT 10.

Plate 32. Close up of quartz flake from AFT 10.

Wollar SF AFT 11

The site is a moderate to high density artefact scatter measuring 70 m (north /south) by 100 m (east/west). A total of 141 artefacts were recorded along the north-western bank of Wollar Creek and it was noted that the site likely has a minimum of 250 artefacts. Due to the number of artefacts only a sample was recorded. Consequently, not all artefacts at this location were recorded in detail with only the typology, lithology and size class recorded at this site. The northern- eastern boundary of the site is open as the site continues along the bank beyond the limits of the current proposal area. Artefacts were also recorded to be eroding out of the bank towards to vehicle track that crosses Wollar Creek. It is likely that the site has been disturbed by the track with few artefacts recorded south of the vehicle track. The artefact lithologies were mostly quartz, chert and tuff with lesser numbers of quartzite, volcanic and crystals quartz recorded. The typologies recorded were mostly complete flakes with lesser number of distal fragments, proximal fragments, flaked pieces, cores, broken flakes, medial flakes and a hammerstone. Field observations suggest that the artefacts were from the tertiary and secondary stages of reduction. Several artefacts were noted to have retouch and a possible burin was observed. The artefacts were located on a reddish-brown sandy loam deposit. Visibility within the area averaged 30% and it was noted that the sandy bank portion of the site (approximately 80m north-east /south-west and 20 m (east/ west) has some potential for intact subsurface deposits. The Aboriginal community representatives onsite during the survey requested that should this portion of the site be impacted by the proposed development that a limited program of salvage testing/excavation is undertaken prior to construction.

	
Plate 33. View north- east along AFT 11.	Plate 34. View south-west along AFT 11.
	
Plate 35. Close up of chert flake from AFT 11, note sandy deposit.	Plate 36. Close up of chert flake from AFT 11, note sandy deposit.

Wollar SF AFT 12

The site is a low-density artefact scatter measuring 20 m (north /south) by 20 m (east/west). A total of eight artefacts were recorded scattered across a large exposure approximately 20 m north of Maree Road. The artefact lithologies are chert (n=3; 37.5%), tuff (n=3; 37.5%) and quartzite (n=2, 25%). The typologies recorded included complete flakes (n=7; 87.5%) and a core (n=1; 12.5%). Field observations suggest that the artefacts were from the tertiary and secondary stages of reduction with one artefact recorded to have riverine cortex and one to have terrestrial cortex. The artefacts were located on a reddish-brown loam deposit that had been significantly eroded and disturbed. A large amount of water was noted to also have gone through the area. Visibility within the exposure averaged 80%.

	
Plate 37. View west along exposure at AFT 12.	Plate 38. Close up of quartzite flake from AFT 12.

Isolated finds

A total of 25 isolated stone artefacts were recorded across the proposal area. The details of the isolated finds are provided in Appendix C.

The isolated find artefact lithologies are quartz (n=16; 64%), chert (n= 5; 20%), tuff (n=3; 12%) and quartzite (n=1, 4%). The typologies recorded included complete flakes (n=16; 64%), cores (n=4; 16%), proximal fragments (n=3; 12%) and distal fragments (n=2; 8%). Field observations suggest that the artefacts were from the tertiary and secondary stages of reduction with one of the isolated find artefacts recorded to have riverine cortex and two to have terrestrial cortex. The cores included three single platform cores and a multiple platform core. It is clear that the majority of the isolated finds were flakes or flake portions with a lesser number of cores. The retouched artefacts (n=2; 8%) showed evidence of secondary working, either through the deliberate flaking to resharpen blunt objects or to shape an edge.

The isolated finds were generally found in areas of increased visibility due to stock tracks, vehicle tracks and in exposures subject to erosion from significant water movement in the proposal area. The isolated finds tend to be more prevalent in the southern portion of the proposal area and may be indicative of traveling routes used to move from the ridgelines down to the valleys. Overall, the isolated find sites suggest a wide range use of the landscape by small groups of people and or individuals.

Culturally Modified Trees

Wollar SF ST 1

This site consists of a single scarred tree considered to be Aboriginal in origin. The tree is located along the course of Spring Flat Creek. The tree is a single paddock adjacent to a dam. The Eucalyptus tree is alive, standing and in good condition with a single oval shaped scar assessed as to be Aboriginal in origin given it conforms to the standard scarring morphology accepted for Aboriginal modification (cf. Long, 2005). The scar is east facing, and the base of the scar is approximately 116 cm above the ground. The scar measures 104 cm in length by 24 cm in width and has a depth of 9 cm. The circumference of the trunk is 5.6 m and the height of the tree is approximately 35-40 m. The tree has some recent fire damage from the base of the tree that has also scorched the scar however the scar and tree as a whole appears to be in good health. As the scar was determined to be Aboriginal in nature, the Aboriginal representatives onsite during the field survey of the proposal area requested that the tree be avoided by the development.

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Plate 39. View west of Wollar Solar ST 1 note adjacent dam.	Plate 40. Close up of scar at Wollar Solar ST 1.

Wollar SF ST 2 (possible modified tree)

This site consists of a single scarred tree considered possibly Aboriginal in origin located on a hill slope as a single paddock tree approximately 40m south of a fence line. The Black Box tree is alive, standing and in good condition with a single scar on the base of the trunk. The scar is oval like in shape and has had significant regrowth. The possible scar is facing south-east and the base of the scar is approximately 23 cm above the ground. The scar measures 82 cm in length by 20 cm in width and has a depth of 28 cm. The circumference of the trunk is 5.2 m. The trunk of the tree was noted to be hollow. As the scar was determined to possibly be Aboriginal in nature, the Aboriginal representatives onsite during the field survey of the proposal area requested that the tree be avoided by the development. No AHIMS site cards has been submitted for this site given its ambiguous origin.

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Plate 41. View north-west of possible scarred tree Wollar Solar ST 2.	Plate 42. Close up of possible scar at Wollar Solar ST 2.

Grinding Grooves

Wollar SF GDG 1

This site consists of a single grinding groove located on a sandstone outcrop. The outcrop forms a part of a seam of sandstone that runs roughly north/south for approximately 1 km through the south-eastern section of the proposal area. The grinding grove is orientated north-west/south-east and measures 32 cm in length, 8cm wide with a depth of 2cm. The grinding groove was noted to be in relatively good condition and had no evidence of polishing. The remainder of the outcropping was inspected however no additional grinding grooves were noted. There is some spalling of the rock surface adjacent to the grinding groove which has been attributed to natural weathering processes and was not deemed to be Aboriginal in origin. The Aboriginal representatives onsite during the field survey of the proposal area requested that the grinding groove be avoided by the development.

Plate 43. View north-west of Wollar Solar GDG 1

Plate 44. Close up of grinding groove at Wollar Solar GDG 1.

Culturally significant site

Wollar SF Cultural Site 1

A single site with cultural significance to Aboriginal people was recorded within the proposal area. The site was a tree that was identified by the Aboriginal representatives onsite as a possible “Birthing Tree”.

The box tree was located on a raised spur in close association with an ephemeral creek that flows south-west into Spring Flat Creek. The tree had a single triangular shaped fire scar and the lower section of the tree trunk was hollowed out. The tree was living but has been partially subject to fire damage during a fire that went through the proposal area in 2017 with evidence of the trunk and lower branches being burnt. While the tree was standing and alive at the time of the survey the fire damage has affected the overall health of the tree with leaves only on the upper portion of the branches not affected by the fire. The circumference at the base of the trunk was 5.59 m while the circumference of the trunk at the top of the fire scar was 4.67 m. The fire scar measurements are 1.22 m wide and 2.1m high.

As the tree was determined by the Aboriginal representatives onsite during the field survey to have cultural significance, they requested that the tree be avoided by the development. Feedback from the Aboriginal community during the ACHA draft reviewing process has confirmed that the tree is recognised as a “Birthing Tree” by Elders of the Aboriginal community. The site was requested to be submitted to the AHIMS database as a gender restricted site. NGH has complied with this request from the Aboriginal community.

Figure 10. Overview of sites.

4.3.3 Consideration of potential for subsurface material

Discussions were held in the field with the representatives present to assess the potential for subsurface deposits across the proposal area. Based on the land use history, an appraisal of the landscape, soil, level of disturbance and the results from the field survey, it was concluded that there was negligible potential for the presence of intact subsurface deposits with high densities of objects or cultural material within the proposal area with the exception of the site Wollar SF AFT 11.

Wollar SF AFT 11 was noted to have a moderate to high concentration of artefacts on the bank of Wollar Creek. Given the density of surface artefacts and that Aboriginal objects were noted to be eroding from a sandy deposit within the site it is possible that high density intact subsurface deposits may occur within Wollar SF AFT 11. The remainder of the proposal area however was determined to have negligible potential for intact subsurface deposits with high densities of objects.

If the raised sandy deposits of Wollar SF AFT 11 are to be impacted a subsurface salvage testing/excavation program would be warranted.

4.4 DISCUSSION

The results of previous archaeological surveys in the Wollar region show that there are sites and artefacts present across the landscape. The predictions based on the modelling for the proposal site were that stone artefacts and scarred trees were the most likely manifestation of Aboriginal occupation of the area. It was noted that while Aboriginal sites may be expected throughout all landscapes the most archaeologically sensitive areas occur in proximity to water. The survey results have confirmed this prediction with stone artefacts recorded as isolated finds and artefact scatters across the proposal site, even in areas highly disturbed by farming activities. The sites were identified across a range of landforms including slopes, flats, spurs, hill crests and along creeks/drainage lines.

Given the level of clearing within the proposal site the presence of one scarred tree and one possible scarred tree is not surprising with few mature native trees remaining within the assessment area. Scarred trees provide a tangible link to the past and provide evidence of Aboriginal activities through the deliberate removal of bark or wood. It is likely that the number of scarred trees as a site type in the area to date is related to their more obtrusive nature.

The artefacts recorded were manufactured primarily quartz (n=147; 53.27%), chert (n=48; 17.4%) and tuff (n=48; 17.4%) which is common for the area. The presence of flakes, broken flakes, flake pieces, cores, hammerstones and an axe blank indicates that tool manufacture likely occurred onsite. Over half of the artefacts recorded (n=140; 50.7%) during the survey were located within Wollar SF AFT 11, an artefact scatter situated on a bank adjacent to Wollar Creek. The other artefact scatters within the proposal area were noted to primarily be located on hill crests or raised areas adjacent to a water source, often heavily eroded. The isolated finds tend to be more prevalent in the southern portion of the proposal area and may be indicative of traveling routes used to move from the ridgelines down to the valleys. The remainder of the isolated stone artefacts are scattered across the proposal site and are likely to represent the opportunistic use and movement of people through the landscape. The area was likely used intermittently over a period of time for camping, hunting and gathering resources. Based on this assumption, there is every chance that there are similar site types across similar landscapes in the Wollar area.

A single grinding groove was recorded on a long sandstone outcrop seam that extends into the proposal area. The presence of the grinding groove is not surprising given the landscape and that grinding grooves

have also been found within the Wilpinjong Coal Mine area. The implications for this relate to significance assessments and the related appraisal of site representativeness. We would argue that there are likely to be other such sites in the local area and that the lack of grinding groove sites recorded in AHIMS search area for this project was merely an indication that few surveys have been undertaken in the immediate area and therefore they are yet to be found. The AHIMS search area for this project was also restricted due to the number of sites recorded in the Wilpinjong Coal Mine area and the search area only encompassed the outer limits of the Wilpinjong Coal Mine area which excluded two other known recorded grinding groove sites. Although it is likely that additional grinding grooves are in the area it is believed that they would be in similar low number and not as numerous as other site types such as stone artefacts.

A single axe blank with possible grinding was recorded on a raised area adjacent to Spring Flat Creek. The presence of the axe and the grinding groove site suggests that edge-grounded axes in the immediate Wollar area may have been shaped and sharpened within the proposal area and used locally.

The distribution of cultural material across the landscape including the presence of artefact scatters provide an indication that the area was revisited may times. The site types, artefacts and raw materials are common for the general region. It should also be noted that the results of this investigation have increased the number of sites recorded in the local area significantly. The dominance of artefacts as a common site type within the area is further supported by the results of this survey. The implications for this relate to significance assessments and the related appraisal of site representativeness. We would argue that there are also likely to be many hundreds of such sites in the local area, and that the number of sites recorded in AHIMS to date is merely an indication that few surveys have been undertaken in the immediate area, outside mining impact surveys, and therefore they are yet to be found.

In terms of the current proposal therefore, extrapolating from the results of this survey, it is possible that additional stone artefacts could occur within the proposed development footprint. However, consideration must also be given to the level of disturbance of any such sites. Based on the land use history of the proposal site, and an appraisal of the results from the field survey, there is negligible potential for the presence of intact subsurface deposits with high densities of objects or cultural material within the Wollar Solar Farm proposal area beyond sandy deposit identified within the site Wollar SF AFT 11.

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 and 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.

Feedback about the cultural value of the sites from the Aboriginal representatives during the field survey indicated that all sites hold cultural value to the local Aboriginal community. It was clear from the conversations held in the field that the community view the stone artefacts as important and would like to see them collected before any damage or development occurs. It was noted during the conversations that there was importance placed on collecting the artefacts and placing them in a safe location to avoid future disturbance.

It was also clear that scarred trees and grinding groove were viewed as important and particular site types that should be avoided by development.

The identified cultural tree was also viewed as important and a particular site type that should be avoided by development.

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

Scientific (archaeological) value

The research potential of the sites located during this assessment are considered to be low to moderate. While the presence of the sites can be used to assist in the development of site modelling for the local landscape, their scientific value for further research is limited.

While the artefacts identified themselves are intrinsically interesting in terms of their base technical information their current lack of temporal context and the absence of information about local resources makes further conclusions about land use difficult. Their scientific value for further research is also limited

due to the sparse distribution of the artefacts, disturbed nature of the landscape and the subsequent movement of objects by clearing and ploughing activities. The stone axe blank in Wollar SF AFT 4 is considered of higher value due to its relative rarity compared to common flaking material of cores and flakes. Axes are an indicator of a different tool use and activity, being mostly for the removal of wood from trees that could have been used for a variety of purposes such as carrying dishes, shields, spears and shelter as well as extraction of food such as possums and honey from tree hollows. The presence of a single axe blank within the proposal site would indicate that woodworking activities occurred in the area.

The scarred trees most likely represent the opportunistic use of the landscape, but any further observations are restricted especially given that the scar on one of the trees was unable to be unequivocally determined to be Aboriginal in origin. The fact that the surrounding landscape has been cleared and modified means that as a representative example of this site type they have high value. While scarred trees are a common site type in the district, they are relativity rare within a 5 km buffer of the proposal site. The fact that survival of scarred trees is subject to natural factors such as death and decay and bushfires, as well as man-made threats such as land clearing, their long-term survival prospects are diminished. This leads to the conclusion that the remaining scarred tree and possible scarred tree in the landscape have high value as examples of an ever-reducing Aboriginal cultural feature. The trees therefore are assessed overall as having high conservation value even though one was unable to be unequivocally determined to be Aboriginal in origin.

The only other potential area of research would be to analyse the grinding groove identified within the proposed area to see if there are any residues present that could indicate what materials were ground. However, this is likely to be difficult as the area has been subject to the elements, weathering and pastoral activity and may have been compromised through contact with crops and livestock. The presence of the grinding groove in the same general locality as an axe blank and scarred tree provides uncommon contextual information about Aboriginal use of the landscape and its resources.

The findings of this project have substantially increased the number of sites listed in the AHIMS database for the area with 40 new archaeological sites and a single cultural site recorded. In terms of rarity the grinding groove is the only listed site type in the area however given that grinding grooves are known to be recorded in the Wilpinjong Coal Mine area we would argue that there are likely to other such sites also in the local area and that the lack of grinding groove sites in AHIMS in the area is merely an indication that few surveys have been undertaken in close proximity to the proposal area.

Aesthetic value

There are no aesthetic values associated with the archaeological sites *per se*, apart from the presence of Aboriginal artefacts, a grinding groove and modified trees in the landscape. The modified and heavily disturbed landscape within the solar farm development footprint however detracts from this aesthetic setting.

Historic value

There are no known historic values associated with the proposal site.

Other values

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 in Section 3.1.3 that historically the solar farm proposal site has been impacted through land use practices specifically clearing, ploughing and grazing. The implications for these activities 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 where they were discarded by Aboriginal people.

Despite these impacts, a number of Aboriginal artefacts, a possible scarred tree, a grinding groove, a modified tree and a cultural site remain in the area, indicating the presence of past 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. The development will result in the disturbance of up to 461 ha as shown in the development footprint on Figure 3. Disturbances will largely be in the preparation of the ground for the solar farm. Piles would be driven or screwed into the ground to support the solar array's mounting system, which limits the potential overall level of ground disturbance.

PV modules would be installed on single axis tracking or fixed mounting structures across the site. Some ancillary facilities would also be required including parking facilities, staff amenities and offices. Trenches would be dug for the installation of a series of underground cables linking the arrays across the proposal site. Some internal access tracks would also be required. A perimeter fence and a vegetation buffer would also be constructed around the solar farm. An overhead power line would be installed to connect the solar farm to the existing substation. During the construction period some additional temporary facilities may be constructed, and a laydown area used.

The Wollar Solar Farm would be expected to operate for 30 years. The construction phase of the proposal would take 12-18 months. After the initial 30-year operating period, the solar farm would either be decommissioned, removing all above ground infrastructure and returning the site to its existing land capability, or repowered with new PV equipment subject to landowner and planning consents.

The development activity will therefore involve disturbance of the ground during the construction of the solar farm and transmission line to the existing substation. 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 2019.

6.3 ASSESSMENT OF HARM

As described in this report, 12 artefact scatters, 25 isolated finds, a possible scarred tree, a modified tree, a grinding groove, a cultural site and two previously recorded AHIMS sites were located within the proposal site. Table 7 provide a summary of site types to be impacted. It should be noted that design changes to the original layout have been made have avoided the modified/cultural trees and the grinding groove sites. The development footprint has also been further reduced to ensure the protection of the cultural site which was confirmed during the ACHA draft process to be a cultural site important to members of the

Aboriginal community. Appendix D details the degree of harm and the consequence of that harm upon the heritage value of each site resulting from the proposed works. Figure 11 also shows the location of the sites and the proposed development footprint.

Table 7. Summary of the degree of harm and the consequence of that harm

Site Type	Type of Harm	Degree of Harm	Consequence of harm	No. of Sites	% of site type
Isolated Finds	Direct	Complete	Total loss of value	15	60
	Nil	Nil	Not Applicable	10	40
Artefact Scatters	Direct	Complete	Total loss of value	11	92
	Nil	Nil	Not Applicable	1	8
Grinding Groove	Nil	Nil	Not Applicable	1	100
Modified tree	Nil	Nil	Not Applicable	2	100
Cultural site	Nil	Nil	Not Applicable	1	100
Previously recorded AHIMS sites	Nil	Nil	Not Applicable	2	100

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

A total of 26 sites with stone artefacts (Wollar SF AFT 1 to Wollar SF AFT 5, Wollar SF AFT 7 to Wollar SF AFT 12, Wollar SF IF 3 to Wollar SF IF 7, Wollar SF IF 13, Wollar SF IF 15 to Wollar SF IF20 and Wollar SF IF 22 to Wollar SF IF 24) are situated within the area of the proposed solar arrays, tracks, trenches and fencing that would be impacted by the proposed development. `

The impact is likely to be most extensive where earthworks occur such as the installation of cabling and the transmission line poles, which may involve the removal, breakage or displacement of artefacts and cultural material. This is considered a direct impact on the sites and the Aboriginal objects by the development in its present form.

The proposed construction methodology for the project will however result in only small areas of disturbance. The construction of access and maintenance tracks may involve some grading but given the nature of the majority of the terrain, this is likely to be minimal. The installation of the solar arrays involves drilling or screwing the piles into the ground and no widespread ground disturbance work such as grading required to accomplish this. The major ground disturbance will be the trenching for cables and vehicle movement during construction.

The assessment of harm overall for the project is therefore assessed as moderate.

6.4 IMPACTS TO VALUES

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

The impact to scientific values for this development are summarised in Section 5 and detailed in the table in Appendix D. While the majority of the stone artefact sites are rated as having total loss of scientific value it is argued that there are likely to be a number of similar sites in the local area and therefore the impact to the overall local archaeological record is considered to be low.

The stone 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.

The intrinsic values of the artefacts themselves may be affected by the development of the proposal area. Any removal of the artefacts, or their breakage would reduce the low scientific value they retain. The impact to the axe blank artefact at Wollar SF AFT 4 is considered to have low to moderate loss of scientific value given it is more uncommon artefact type. The impact to the site Wollar SF AFT 11 is considered to have moderate loss of scientific value given the density of artefacts and the possibility for subsurface deposits.

The cultural site (Wollar SF Cultural Site 1), grinding groove (Wollar SF GDG 1), modified tree (Wollar SF ST1) and possible modified tree (Wollar SF ST2) will not be impacted by the proposal as per the proposed design changes as agreed by Wollar Development.

The proposed development design and the locations of the sites assessed in this report are shown in Figure 11.

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

7 AVOIDING OR MITIGATING HARM

7.1 CONSIDERATION OF ECOLOGICALLY SUSTAINABLE DEVELOPMENT (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 sites and the potential for mitigating impacts to the sites recorded within the Wollar Solar Farm proposal area. The main consideration was the cumulative effect of the proposed impact to the sites 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 Wollar region. Currently there is no clear regional synthesis of the nature, number, extent and content for archaeological sites within the Mid-Western Regional LGA. Nevertheless, given the size of the geographical area, it is certain that there would be similar artefacts present within the region.

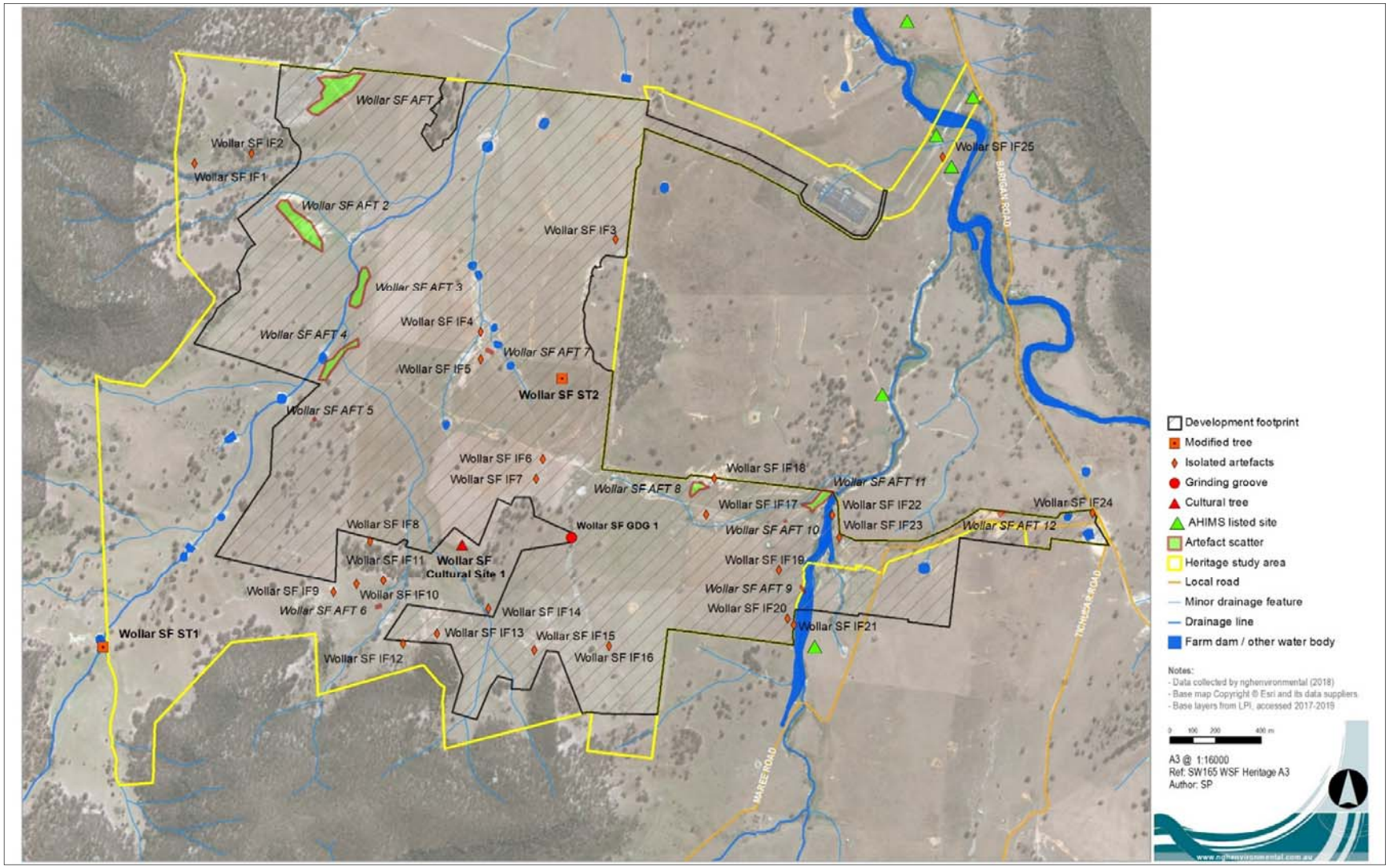

Figure 11. Overview of recorded sites and development footprint.

The result of this Aboriginal heritage assessment has confirmed the proposed model of site location and site distribution, whereby sites could be expected to occur across the landscape and in particular in proximity to a water source, even in ploughed areas. The results of this Aboriginal heritage assessment suggest that more sites could be expected to occur in the area than was previously envisaged.

The implications for ESD principles are that in fact more sites are likely to be present in the region than previously thought, which reduces the individual value of the particular sites within the proposal site, as they are likely to be represented elsewhere. It must be recognised that large parts of the region have been heavily cleared, mined, farmed and developed through the construction and maintenance of roads and residential structures and therefore other sites are also likely to have been disturbed. The conclusion that similar sites exist reduces the representative values of the sites within the proposal area. It should also be noted that not all sites recorded during this survey fall within the proposed development footprint and that the sites outside the development footprint will not be impacted by the proposed solar farm development.

As noted above, the archaeological values of the sites within the development footprint, considering the scientific, representative and rarity values was deemed to be low. It is believed therefore that the proposed impacts to the sites 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 sites 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 estimate, that while the current development proposal will impact the majority of sites identified with stone artefacts, the overall cumulative impact on the archaeological record for the region is likely to be minimal, assuming a similar density of artefact sites remain across the wider region. Additionally, the cultural site (Wollar SF Cultural Site 1), grinding groove (Wollar SF GDG 1), modified tree (Wollar SF ST1) and possible modified tree (Wollar SF ST2) will not be impacted by the proposal. Therefore, 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 all the sites is technically possible through avoidance. However, given the scattered position of sites across the landscape avoiding all the sites would pose serious design and operational constraints on the solar farm proposal.

Given the avoidance of the cultural site, the grinding groove, the modified tree and the possible modified tree, 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.

The sites with stone artefacts 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.

Eleven of the 12 artefact scatter sites and 15 of the 25 isolated finds are situated within the development footprint area of the proposed transmission line, solar arrays, tracks, cables, office parking and temporary facilities. The most likely cause of harm to the artefacts will be through ground preparation activities such as vegetation clearance, installation of the posts and solar arrays, tracks and underground cabling and general construction vehicle traffic.

However, the question remains about possible occurrence of artefacts and cultural material within the balance of the solar farm site. It is possible, and considered likely that additional artefacts will be present, most likely in the form of isolated artefacts or very small, low density scatters. 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 sites and Aboriginal objects.

It is argued here that further mitigation in the form of alteration is not feasible or warranted within the solar farm development footprint for the artefact scatters and isolated find sites in this situation. However, all these sites are conducive to salvage as a mitigation strategy as requested by the Aboriginal community representatives onsite during the field survey.

Mitigation in the form of a limited program of subsurface salvage testing/excavation is recommended if the sandy deposits at Wollar SF AFT 11 is unable to be avoided by the development. A limited program of subsurface salvage testing/excavation for the sandy deposits at Wollar SF AFT 11 may increase knowledge of the Aboriginal use of the area through a study of the stone artefacts and possible dating of cultural deposits. However, this would be dependent upon a number of factors including the number of subsurface artefacts retrieved, the type of artefacts and raw materials; the integrity of the deposit and identification of dateable material.

As identified above, it is recommended that the sites recorded within the proposed Wollar Solar Farm development footprint are salvaged by an archaeologist with representatives of the registered Aboriginal parties prior to the proposed development commencing. The artefacts should be collected and moved to a safe area within the property that will not be subject to any ground disturbance.

The Aboriginal community representatives onsite during the field survey noted their preference for the surface artefacts to be relocated and buried outside the development footprint prior to development commencing. The Aboriginal community representatives onsite during the field survey also requested that a Cultural Smoking Ceremony take place to cleanse any artefacts salvaged and the reburial location.

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 proposals. 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 (DP&E) is required to ensure that Aboriginal heritage is considered in the environmental impact assessment process. The Department of Planning and Environment DP&E will consult with other departments, including OEH prior to development consent being approved.

The Wollar Solar Farm proposal is a State Significant Development and will therefore be assessed via this pathway. This 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:

1. The development avoids the cultural site (Wollar SF Cultural Site 1). A minimum 20 m buffer should be in place around this tree to prevent any inadvertent impacts to the tree canopy and root system.
2. The development avoids the grinding groove (Wollar SF GDG 1). A minimum 15 m buffer should be placed around this site to prevent any inadvertent impacts.
3. The development avoids the modified tree (Wollar SF ST 1) and possible modified tree (Wollar SF ST 2). A minimum 15 m buffer should be in place around these trees to prevent any inadvertent impacts to the trees canopy and root systems.
4. If complete avoidance of the 12 artefacts scatters, 25 isolated finds and the two previously identified AHIMS sites (#36-3-0335 and #36-3-0336) recorded within the proposal site is not possible, the artefacts within the development footprint must be salvaged prior to the proposed work commencing and moved to a safe area within the property that will not be subject to any ground disturbance.
5. The collection and relocation of the artefacts should be undertaken by an archaeologist with representatives of the registered Aboriginal parties and be consistent with Requirement 26 of the *Code of practice for Archaeological Investigation of Aboriginal Objects in New South Wales.* A new site card/s will need to be completed once the artefacts are moved to record their new location on the AHIMS database.
6. The Aboriginal community requests that a Cultural Smoking Ceremony take place to cleanse any artefacts salvaged and the reburial location.
7. If the raised sandy deposits of Wollar SF AFT 11 are to be impacted a subsurface salvage testing/excavation program must be conducted. Excavated material may need to be analysed off site and this is most likely to be undertaken in NGH offices, where the material will be analysed and then subsequently returned to site for reburial.
8. A minimum 5 m buffer should be observed around all artefact scatters and isolated find sites that can be avoided, including those outside the development footprint.
9. Wollar Solar Development Pty Ltd should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal artefacts during the construction of the Solar Farm and management of known sites and artefacts. The Plan should include the unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties.
10. 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 the registered Aboriginal parties should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal.
11. Further archaeological assessment would be required if the proposal activity extends beyond the Heritage study area as detailed in this report, including the whole of Lot 24 DP 755430 and an additional portion of Lot 91 DP 755430. This would include consultation with the registered Aboriginal parties and may include further field survey.

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APPENDIX A ABORIGINAL COMMUNITY CONSULTATION

Consultation Log of the Proposed Wollar Solar Farm

Organisation	Action	Date Sent	Reply Date	Replied by	Response
OEH	letter to OEH via email	27/04/2018	7/05/2018	letter via email	supplies list of additional possible stakeholders and postal contacts
NTScorp	Letter to NTSCorp via email	27/04/2018			
National Native Title Tribunal	online search	27/04/2018			No determinations on land
Office of Registrar Aboriginal Land Rights Act	Letter to Office of the Registrar via email	27/04/2018	30/04/2018	letter via email	I have searched the Register of Aboriginal Owners and the project area described does not have Registered Aboriginal Owners pursuant to Division 3 of the Aboriginal Land Rights Act 1983. I suggest that you contact the Mudgee Local Aboriginal Land Council
Mudgee LALC	Letter to LALC via email	27/04/2018	14/05/2018	email	registered via email, KB acknowledge registration for project on 14/05/2018
Central Table lands Local Land Services	Letter to LLS via email	27/04/2018			
Mid-Western Regional Council	Letter sent via email	27/04/2018			
Local Newspapers	Mudgee Guardian	1/05/2018			
Registered after advert					
Murong Gialinga Aboriginal & Torres Strait Islander		2/05/2018	7/05/2018	NGH acknowledged registration	registered via email from seeing local advert
Buudang		2/05/2018	7/05/2018	NGH acknowledged registration	registered via email from seeing local advert
Wellington Valley Wiradjuri Aboriginal Corporation		8/05/2018	8/05/2018	NGH acknowledged registration	registered via email from seeing local advert
Gallaggabang Aboriginal Corporation		8/05/2018	8/05/2018	NGH acknowledged registration	registered via email from seeing local advert
OEH list of possible stakeholders					**Due 29th May**
Bill Allen	letter sent via post	15/05/2018			

Organisation	Action	Date Sent	Reply Date	Replied by	Response
Binjang Wellington Wiradjuri heritage Survey	letter sent via post	15/05/2018	29/05/2018	registered via email	KB sent acknowledgement of interest email on 29/05/2018
Darlina Verrills	letter sent via post	15/05/2018			
David Maynard	letter sent via post	15/05/2018			
Deborah Foley	already registered from newspaper ad				
Dhuuluu-Yala Aboriginal corporation	letter sent via post	15/05/2018	29/05/2018	returned to sender	
Jean Thornton	letter sent via post	15/05/2018			
Jodie Mckinnon	letter sent via post	15/05/2018	29/05/2018	returned to sender	
Katrina Mckinnon	letter sent via post	15/05/2018			
Larry Foley	already registered from newspaper ad				
Lyn Syme	letter sent via post	15/05/2018	28/05/2018	registered via email letter	KB sent acknowledgement of interest email on 29/05/2018
Mingaan Aboriginal Corporation	letter sent via post	15/05/2018			
Mooka	letter sent via post	15/05/2018			
Mudgee LALC	already written to	15/05/2018			
Murong Gialinga Aboriginal & Torres Strait Islander corporation	letter sent via post	15/05/2018			
Natasha Rodgers	letter sent via post	15/05/2018			
North- Eastern Wiradjuri	letter sent via post	15/05/2018			
Paul (midnight) Brydon	letter sent via post	15/05/2018	21/05/2018	registered via email	KB sent acknowledgement of interest email on 22/05/2018
Trevor Robinson	letter sent via post	15/05/2018	10/07/2018	returned to sender	

Organisation	Action	Date Sent	Reply Date	Replied by	Response
Wamarr Cutural Consultants	letter sent via post	15/05/2018			
Warrabinga Native Tittle Claimants Aboriginal	letter sent via post	15/05/2018	10/07/2018	returned to sender	
Wellington Valley Wiradjuri Aboriginal Corporation	already registered from newspaper ad				
Wiradjuri Council of Elders	letter sent via post	15/05/2018	10/07/2018	returned to sender	
Wiradjuri Interim Working Party	letter sent via post	15/05/2018	22/05/2018	returned to sender	
Wiradjuri traditional Owners Central West Aboriginal	letter sent via post	15/05/2018			
Wurrumay Consultants	letter sent via post	15/05/2018	22/05/2018	returned to sender noted that box is closed	
OEH emailed re restricted sites and change is site numbers during AHIMS search	via email	24/05/2018	25/05/2018	via email	I can confirm that Restricted Aboriginal Sites are nowhere the Wollar Windfarm Study Area and will not be impacted by any works within the proposed Works Boundary.
Barraby Cultural Services	letter via email registering for project	30/05/2018	30/05/2018	via email	KB sent acknowledgement of interest
Yulay Cultural Services	letter via email registering for project	30/05/2018	30/05/2018	via email	KB sent acknowledgement of interest
Yurrandaali Cultural Services	letter via email registering for project	30/05/2018	30/05/2018	via email	KB sent acknowledgement of interest
Methodology					
North West Wiradjuri Company LTD	via email	7/06/2018			
Paul (midnight) Brydon	via email	7/06/2018			
Murong Gialinga Aboriginal & Torres Strait Islander	via email	7/06/2018	7/06/2018	via email	provided rates, insurances and work history
Buudang	via email	7/06/2018	12/06/2018	via email	we would like to ask that the survey transect be reduced to 10m to 15m apart as it being 20m to 30m a lot of the area will not be covered properly we agree with everything else

Organisation	Action	Date Sent	Reply Date	Replied by	Response
					in the Methodology. Also provided rates, insurances and work history
Wellington Valley Wiradjuri Aboriginal Corporation	via email	7/06/2018	13/06/2018	via email	Agree in principle to methodology, would like spacing no greater then 30m with 20m being optimal. Request to be involved in enviro surveys
Gallaggabang Aboriginal Corporation	via email	7/06/2018	13/06/2018	via email	Agree in principle to methodology, would like spacing no greater then 30m with 20m being optimal. Request to be involved in enviro surveys
Mudgee LALC	via email	7/06/2018			
Binjang Wellington Wiradjuri heritage Survey	via email	7/06/2018			
Barraby Cultural Services	via email	7/06/2018	8/06/2018	via email	supports the methodology for this project, supplied rates and insurances
Yulay Cultural Services	via email	7/06/2018			
Yurrandaali Cultural Services	via email	7/06/2018	7/06/2018	via email	supports the methodology for this project, supplied rates and insurances
OEH informed on RAPS	via email	7/06/2018			Please note for OEH records that there are 11 registered Aboriginal parties for the proposed Wollar Solar Farm as listed below. • North West Wiradjuri Company LTD • Paul Brydon • Murong Gialinga Aboriginal & Torres Strait Islander • Buudang • Wellington Valley Wiradjuri Aboriginal Corporation • Gallaggabang Aboriginal Corporation • Mudgee LALC • Binjang Wellington Wiradjuri heritage Survey • Barraby Cultural Services • YULAY CULTURAL SERVICES • Yurrandaali Cultural Services No other party registered their interest, including the entities and individuals recommended by OEH.
Murong Gialinga Aboriginal & Torres Strait Islander	via email	12/06/2018			we would like to ask that the survey transect be reduced to 10m to 15m apart as it being 20m to 30m a lot of the area will not be covered properly we agree with everything else in the Methodology
Reminder emails sent re comments due next week					

Organisation	Action	Date Sent	Reply Date	Replied by	Response
North West Wiradjuri Company LTD	via email	27/06/2018			
Paul (midnight) Brydon	via email	27/06/2018	27/06/2018	via email	Noted that "All appears to be in order, no bad comments from this end. “and that he won't be able to participate in any field work at this time but would still like to be kept in the loop.
Mudgee LALC	via email	27/06/2018	3/07/2018	via email	supplies rates and insurances, no comments on the methodology noted.
Binjang Wellington Wiradjuri heritage Survey	via email	27/06/2018			
Yulay Cultural Services	via email	27/06/2018			
reminder emails as comments due COB today					
North West Wiradjuri Company LTD	remainder comments due COB today sent via email	5/07/2018			No response received
Binjang Wellington Wiradjuri heritage Survey	remainder comments due COB today sent via email	5/07/2018			No response received
Yulay Cultural Services	remainder comments due COB today sent via email	5/07/2018			No response received
NGH response to methodology re spacing					
Murong Gialinga Aboriginal & Torres Strait Islander	letter via email	6/07/2018			NGH responded that spacing will be reduced to 20-25m
Buudang	letter via email	6/07/2018			NGH responded that spacing will be reduced to 20-25m
Wellington Valley Wiradjuri Aboriginal Corporation	letter via email	6/07/2018	6/07/2018	via email- happy with NGH response	NGH responded that spacing will be reduced to 20-25m
Gallaggabang Aboriginal Corporation	letter via email	6/07/2018	6/07/2018	via email- happy with NGH response	NGH responded that spacing will be reduced to 20-25m
Draft ACHA					**comments due 15 Nov**
Mudgee LALC	sent via email	18/10/2018			

Organisation	Action	Date Sent	Reply Date	Replied by	Response
Murong Gialinga Aboriginal & Torres Strait Islander	sent via email	18/10/2018			
Buudang	sent via email	18/10/2018			
Wellington Valley Wiradjuri Aboriginal Corporation	sent via email	18/10/2018	23/10/2018	via email	provided informal response -still reading draft but so far looks ok, will provide formal response after comms from Elders and field officers.
Gallaggabang Aboriginal Corporation	sent via email	18/10/2018			
North West Wiradjuri Company LTD	sent via email	18/10/2018			
Paul (midnight) Brydon	sent via email	18/10/2018	22/10/2018	via email	issue downloading document requested resent
Binjang Wellington Wiradjuri heritage Survey	sent via email	18/10/2018			
Barraby Cultural Services	sent via email	18/10/2018			
Yulay Cultural Services	sent via email	18/10/2018			
Yurrandaali Cultural Services	sent via email	18/10/2018			
Paul (midnight) Brydon	KB sent via email reduced PDF version as requested	24/10/2018			
Project updated re reduction in development footprint					
Mudgee LALC	NGH sent update via email	14/11/2018			
Murong Gialinga Aboriginal & Torres Strait Islander	NGH sent update via email	14/11/2018	15/11/2018	Debbie called KB	provided over phone comments -noted happy with report and recommendations and updated to footprint, no additional comments provided
Buudang	NGH sent update via email	14/11/2018	15/11/2018	Debbie called KB	provided over phone comments -noted happy with report and recommendations and updated to footprint, no additional comments provided
Wellington Valley Wiradjuri Aboriginal Corporation	NGH sent update via email	14/11/2018	14/11/2018	Brad replied via email	We agreed with the recommendations in the report and asked for the birthing tree to be recorded. No changes.
Gallaggabang Aboriginal Corporation	NGH sent update via email	14/11/2018	14/11/2018	Brad replied via email	Thank you for the update project advice. Yes WVWAC response comments is also that of Gallanggabang as a RAP.
North West Wiradjuri Company LTD	NGH sent update via email	14/11/2018			

Organisation	Action	Date Sent	Reply Date	Replied by	Response
Paul (midnight) Brydon	NGH sent update via email	14/11/2018	14/11/2018	Midnight replied via email	I have no problems with this but would still like to be kept in the loop and Happy to go cheers midnight
Binjang Wellington Wiradjuri heritage Survey	NGH sent update via email	14/11/2018			
Barraby Cultural Services	NGH sent update via email	14/11/2018			
Yulay Cultural Services	NGH sent update via email	14/11/2018			
Yurrandaali Cultural Services	NGH sent update via email	14/11/2018			
Reminder sent re comments as timeframe now lapsed					
North West Wiradjuri Company LTD	Via email	20/11/2018			NGH sent reminder re comments as timeframe now lapsed
Binjang Wellington Wiradjuri heritage Survey	Via email	20/11/2018			NGH sent reminder re comments as timeframe now lapsed
Barraby Cultural Services	Via email	20/11/2018			NGH sent reminder re comments as timeframe now lapsed
Yulay Cultural Services	Via email	20/11/2018			NGH sent reminder re comments as timeframe now lapsed
Yurrandaali Cultural Services	Via email	20/11/2018			NGH sent reminder re comments as timeframe now lapsed
Mudgee LALC	Via email	20/11/2018			NGH sent reminder re comments as timeframe now lapsed
Final Reminder sent re comments as timeframe now lapsed and finalising report					
North West Wiradjuri Company LTD	Via email	23/11/2018			NGH sent reminder re comments as timeframe now lapsed
Binjang Wellington Wiradjuri heritage Survey	Via email	23/11/2018			NGH sent reminder re comments as timeframe now lapsed
Barraby Cultural Services	Via email	23/11/2018			NGH sent reminder re comments as timeframe now lapsed
Yulay Cultural Services	Via email	23/11/2018			NGH sent reminder re comments as timeframe now lapsed
Yurrandaali Cultural Services	Via email	23/11/2018			NGH sent reminder re comments as timeframe now lapsed
Mudgee LALC	Via email	23/11/2018			NGH sent reminder re comments as timeframe now lapsed

Public Notice placed in the Mudgee Guardian on the 1st of May 2018.

Mudgee Guardian

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Fairfax Media

Deaths & Funerals

MACMAHON
Norman David

28th April 2018, late of Cope Road, Cope. Beloved husband of Sandy. Much loved father and father-in-law to David & Andy, Dennis (dec.), Tracey & Warren, Anthony, Ben & Vicky, Tammy, Trisha & Wayne. Cherished foster dad to Tyler, Ivy and Pop to so many.

Aged 73 years
So dearly loved, So sadly missed

Relatives and friends are kindly invited to attend a Service to Celebrate the Life of Norm. The service will take place at the Graveside on Thursday 3rd May 2018 at Gulgong Lawn Cemetery, and is appointed to commence at 11:00am.

By special request, donations in lieu of floral tributes may be made, at the Service, to Gulgong MPS.

MACQUARIE VALLEY FUNERALS & MONUMENTS
Mudgee (02) 6372 2331
www.mvfunerals.com.au
N.F.D.A. F.D.A. of NSW

Engagements

Rayner - Merrick

David & Jan Rayner, "Woodgrove" Mudgee are thrilled to announce the engagement of their daughter Melinda to Guy Merrick, son of Jenny Taylor, Dubbo & Jeff Merrick, Bathurst.

We wish you both a lifetime of love & happiness together.

Hallie Rose, Mum, Dad, Mark, Lynn. xx

Caravans and Motor Homes

Beautifully built EVERNEW Caravan
Purchased new June 2010
Rego til June 2018. Y79129
18ft. Tandem wheels. Sleeps 2
$27,000 negotiable
Call to inspect in Mudgee 0456 788 426

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Kitchen / Bistro
FOR LEASE in a Country Hotel
For information please call
0427 741 590

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PHYSICS
CHEMISTRY
MATHS
Coaching for students from well qualified tutor. 30 years experience.
Phone John:
0408-640-508

ALL OUR CLASSIFIEDS APPEAR ONLINE

Public Notices

Forestry Corporation

PESTICIDE USE NOTICE

Forestry Corporation of NSW advises that the following pesticide use is proposed for a prescribed public place.

The pesticide 1080 will be used for the control of feral dogs in Kandos, Gerloudgy, Clandulla and Nullo Mountain State Forests during the period

1 - 31 May, 2018

Areas undergoing treatment will be clearly signposted and all directions regarding entry should be followed.

For further information regarding this notice, contact the Forestry Corporation of NSW District Manager on 0428 636 578.

Ulan Community Information Line

If you have a question, to obtain blasting information, provide us with your feedback or to register a complaint, please call us on:
1800 647 630
or please email:
Ulancommunity@glencore.com.au

ULAN COAL

Public Notices

Notification for registration of interest for Aboriginal stakeholders, Wollar Solar Farm

NGH Environmental has been contracted by Wollar Solar Development Pty Limited (the proponent), to undertake an Aboriginal Cultural Heritage Assessment (ACHA) for a proposed solar farm that will be identified as Wollar Solar Farm located approximately 7 km south of Wollar, NSW.

The assessment area for the proposed Wollar Solar Farm comprises of Lots 22-25, 27, 30, 45, 49-51, 60-63, 69-80, 92, 105-107, 119 and 152-154 of DP 755430, and Lot 1 of DP 650653 in the Mid-Western Regional Local Government Area.

The proponent (Wollar Solar Development Pty Limited, 52 Dalton Rd, St Ives Chase NSW 2075) is proposing to construct a utility scale solar farm including panels, electrical conduits, transformers, internal access tracks, a site office and perimeter fencing.

The purpose of this consultation, particularly with Aboriginal people, is to assist the proponent in the preparation of an ACHA for the proposed site and to be involved in consultation as part of the lodgement of a State Significant Development application.

In order to fulfil the requirements set out in the OEH Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, NGH Environmental is seeking interested Aboriginal parties who hold cultural knowledge of the assessment areas to register their interest in the consultation process for the projects and to assist in the determination of cultural significance of any Aboriginal objects or places located within the proposed Wollar Solar Farm area.

Registrations should be provided in writing to:
NGH Environmental
PO Box 62
FYSHWICK ACT 2609

Or via email to:
Kirsten.b@nghenvironmental.com.au
All registrations must be received by close of business 14th May 2018
Those registering an interest will be contacted to discuss the project further.
Those who do register are advised that their details will be provided to OEH and the Local Aboriginal Land Council, unless they specifically advise in writing that their details are not to be forwarded.

Public Notices

myDENTURE CLINIC MUDGEE
LEON DOBRINSKI
1300 134 408
Denture Clinic is now in attendance Mudgee Medical Centre, 145 Church Street, 8.30am to 12pm Wednesday

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To be the successful candidate, you will have excellent communication and administrative skills with a clear focus on delivering exceptional customer service. Demonstrated organisational, time management and problem solving skills are essential. Ideally, you will have some experience in a previous sales related environment and be proficient in Microsoft Office and Excel applications.

You will be expected to meet KPI's daily, weekly and monthly along with the ability to liaise with key decision makers within small, medium and corporate businesses. In return you will receive a generous salary package including commissions. Full training will be provided and you must hold a driver's licence. If you thrive in the deadline driven advertising world, we can offer you the chance to be part of our successful advertising team.

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Own vehicle required.
Immediate start.
Mob: 0419 009 517
Mob: 0418 004 096

Casual Station Hand

Small wool growing property located 17 kms from Gulgong require a casual station hand 2-3 days per week. Duties include stock work tractor work fencing and general station jobs. Must be reliable with own working dog and able to work unsupervised.
Area: Gulgong NSW
Ph: 02 63 759 252
Email: kmclaren5@bigpond.com

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Underground Fitter

Do you have a heavy or light Mechanical trade?
Looking to enter into UG LW mining?

Looking to expand your skills into Hydraulics or have post trade hydraulic certification?

Local Hydraulics company is seeking to expand our workforce.
Weekend and shift work will be required.

Damstra Underground, CABA inductions and medical an advantage but not necessary

Pay rate negotiable according to experience and skills.
Must reside in Mudgee area or be willing to relocate.

We are a small local company priding ourselves on looking after our personnel.
If you are genuinely interested in earning a fair days pay for a fair days work, please;
Email resume to: muha@outlook.com.au

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SPECIALIST HOMELESSNESS SERVICE (SHS) CASEWORKER
BARNARDOS MUDGEE

Permanent part time - 21 hours per week. Above award wages with salary packaging option.

Contact Kate Cormie on (02) 5319 8100 or email: kcormie@barnardos.org.au for information and position description
Closing date: 11/5/2018

A Working with Children Check Clearance and National Police Check is required.

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ZERO TURNS
Hustler Raptor SD $6,599
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Member of A.F.R.A.
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Accredited staff.
Cartons /Self-storage-units.
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Patrick Ginns
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0412-790-122.

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Personal Notices

LOST
Cowgirl from Gulgong at Hill End Folk Festival.
Tried The Guardian.
Last resort - call Lee 0429 406 262

Adult Services

Feminine Touch
Very Satisfying Body Rub
Tues-Sun / 9am-8pm
0424 458 064
no private numbers

JASMINE
Hot Asian, Busty, Sexy, Friendly. $27.
Ph 0439 026 239

Anna
Stunning Asian
Simply The Best
Come be my guest,
Busty size 8, Friendly, fetishes & fantasies.
no private numbers
0475 072 533
Tues-Fri
from 9am to 9pm

NGH response to Wellington Valley Wiradjuri Aboriginal Corporation and Gallanggabang Aboriginal Corporation methodology comments sent on the 6th July 2018

ngh environmental

canberra
unit 8, 27 yallourn st
(po box 62)
fyshwick act 2609
t 61 2 6280 5053
f 61 2 6280 9387

bathurst
35 morrisset st
po box 434
bathurst nsw 2795
t 0448 820 748

bega
suite 1, 216 carp st
(po box 470)
bega nsw 2550
t 61 2 6492 8333

newcastle
153 tudor st
hamilton nsw 2303
t 61 2 4969 4910

sydney
unit 18, level 3
21 mary st
surry hills nsw 2010
t 61 2 8202 8333

wagga wagga
suite 1, 39 fitzmaurice st
(po box 5464)
wagga wagga nsw 2650
t 61 2 6971 9696
f 61 2 6971 9693

ngh@nghenvironmental.com.au
www.nghenvironmental.com.au

6 July 2018

Brad Bliss
Director
Wellington Valley Wiradjuri Aboriginal Corporation
[redacted]

via email: [redacted]

Dear Brad,

RE – Wollar Solar Farm Methodology

I refer to your response dated the 13th of June 2018 for the proposed methodology for the cultural heritage assessment of the proposed Wollar Solar Farm. Thank you for your response and noting the Wellington Valley Wiradjuri Aboriginal Corporation (WVWAC) and Gallanggabang Aboriginal Corporation (GAC) agree in principle to the Methodology as previously supplied.

We believe that your request for a maximum spacing of 30m between survey participants is appropriate. While we note your suggestion that 20m spacing is optimal we propose a compromise of 20-25m spacing which is consistent with the successful surveys of the solar farms recently undertaken with WVWAC and GAC at Wellington, Dunedoo and Beryl. The spacing for survey transects is not mandated by OEH but is generally determined in the field by the survey team, based on nature of the likely finds, the terrain, visibility and other factors such as level of previous disturbance. The spacing will continue to be evaluated in the field and discussed with the RAP participants as the survey progresses. It may be adjusted as determined in the field by the survey team however it is unlikely that spacing would exceed 30m.

Some environmental studies, such as flora and fauna have already been completed. If you have any advice or information that may be relevant to these studies, we would be happy to receive that information.

NGH Environmental and Wollar Solar Development Pty Ltd acknowledge your rates, insurances and conditions of engagement in terms of prior notice. Once again thank you for your interest in the project and we will be in touch to clarify potential fieldwork dates.

If you have any questions, please do not hesitate to contact me on [redacted]

Yours Sincerely,

Kirsten Bradley
Heritage Consultant
NGH Environmental

NGH Environmental Pty Ltd (ACN: 124 444 622. ABN: 31 124 444 622)

NGH response to Murong Gialinga Aboriginal & Torres Strait Islander methodology comments sent on the 6th July 2018

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ngh@nghenvironmental.com.au
www.nghenvironmental.com.au

6 July 2018

Debbie Foley
Murong Gialinga Aboriginal & Torres Strait Islander Corporation

via email: [redacted]

Dear Debbie,

RE – Wollar Solar Farm Methodology

I refer to your email response dated the 12th of June 2018 for the proposed methodology for the cultural heritage assessment of the proposed Wollar Solar Farm. Thank you for your response and noting that your only concern is in regard to the proposed methodology is in regard to the spacing between survey participants.

While we note your suggestion that the spacing is reduced to 10-15 m we don't think this is an appropriate spacing for the survey and propose a compromise of 20-25m spacing which is consistent with the successful surveys of the solar farms recently undertaken with Murong Gialinga Aboriginal & Torres Strait Islander Corporation at Dunedoo and Beryl. The spacing for survey transects is not mandated by OEH but is generally determined in the field by the survey team, based on the nature of the likely finds, the terrain, visibility and other factors such as level of previous disturbance. The spacing will continue to be evaluated in the field and discussed with the RAP participants as the survey progresses. It may be adjusted as determined in the field by the survey team.

NGH Environmental and Wollar Solar Development Pty Ltd acknowledge your rates and insurances. Once again thank you for your interest in the project and we will be in touch to clarify potential fieldwork dates.

If you have any questions, please do not hesitate to contact me on [redacted]

Yours Sincerely,

Kirsten Bradley
Heritage Consultant
NGH Environmental

NGH Environmental Pty Ltd (ACN: 124 444 622. ABN: 31 124 444 622)

NGH response to Buudang methodology comments sent on the 6th July 2018

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t 61 2 6971 9696
f 61 2 6971 9693

ngh@nghenvironmental.com.au
www.nghenvironmental.com.au

6 July 2018

Larry Foley
Buudang

via email: [redacted]

Dear Larry,

RE – Wollar Solar Farm Methodology

I refer to your response email dated the 12th of June 2018 for the proposed methodology for the cultural heritage assessment of the proposed Wollar Solar Farm. Thank you for your response and noting that your only concern is in regard to the proposed methodology is in regards to the spacing between survey participants.

While we note your suggestion that the spacing is reduced to 10-15 m we don't think this is an appropriate spacing for the survey and propose a compromise of 20-25m spacing which is consistent with the successful surveys of the solar farms recently undertaken with Buudang at Dunedoo and Beryl. The spacing for survey transects is not mandated by OEH but is generally determined in the field by the survey team, based on nature of the likely finds, the terrain, visibility and other factors such as level of previous disturbance. The spacing will continue to be evaluated in the field and discussed with the RAP participants as the survey progresses. It may be adjusted as determined in the field by the survey team.

NGH Environmental and Wollar Solar Development Pty Ltd acknowledge your rates and insurances. Once again thank you for your interest in the project and we will be in touch to clarify potential fieldwork dates.

If you have any questions, please do not hesitate to contact me on [redacted]

Yours Sincerely,

Kirsten Bradley
Heritage Consultant
NGH Environmental

NGH Environmental Pty Ltd (ACN: 124 444 622. ABN: 31 124 444 622)

NGH letter to all RAPs regarding a project update with the reduction in the development footprint sent out on the 14th November 2018

ngh environmental

14 November 2018

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unit 8, 27 yallourn st
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(po box 5464)
wagga wagga nsw 2650
t 02 6971 9696
f 02 6971 9693

ngh@nghenvironmental.com.au
www.nghenvironmental.com.au

To whom it may concern,

RE – Wollar Solar Farm Notice of reduction in the development footprint Update

Recently NGH Environmental was informed that Wollar Solar Development Pty Ltd have updated the Wollar Solar Farm development footprint to reduce the impact area from 582 ha to 458 ha. This reduction in the size of the development footprint will results in avoidance of five additional isolated find sites (Wollar Solar IF 8, Wollar Solar IF 9, Wollar Solar IF 10, Wollar Solar IF 11 and Wollar Solar IF 14) and an artefact scatter (Wollar Solar AFT 6) by the proposed development works.

Please note that the cultural site (Wollar SF Cultural Site 1), grinding groove (Wollar SF GDG 1), modified tree (Wollar SF ST1) and possible modified tree (Wollar SF ST2) will still be avoided and will not be impacted by the proposed works. This reduction in the development footprint will instead increase the buffer between the possible cultural site (Wollar SF Cultural Site 1) and the development footprint.

NGH would therefore like to inform you that given the reduction in the development footprint some minor changes are required to update the project description, impact assessment (Section 6) and Appendix D in the ACHA. These minor updates in no way alter or affect any of the recommendations provided to you for review in the draft report.

Given that this update is only a minor change with a better outcome for heritage and there is no requirement to change the report conclusions or recommendations the comments on the draft ACHA by the Registered Aboriginal Parties are still due by close of business on the 16th of November 2018.

If you have already provided comments and would like to alter them in light of this minor change with the reduction in the development footprint, please send through any alterations on your comments by the 16th of November 2018.

If you have any questions or concerns about this reduction in the development footprint, please do not hesitate to contact me on 6153 6324.

Yours Sincerely,

Kirsten Bradley
Heritage Consultant
NGH Environmental

NGH Environmental Pty Ltd (ACN: 124 444 622. ABN: 31 124 444 622) ABN: 62 603 938 549)

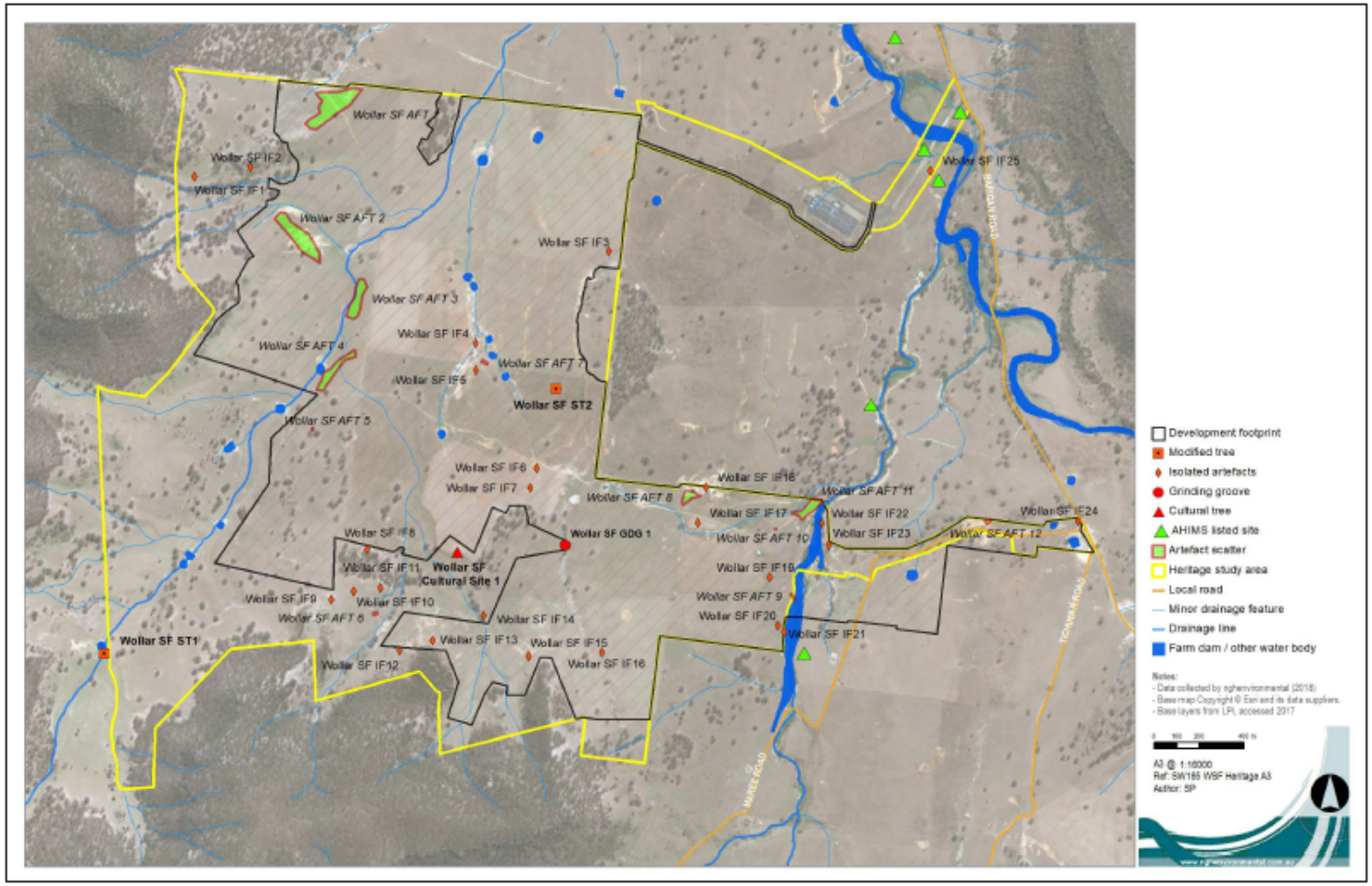


Figure 1. Reduced Wollar Solar Farm development footprint.

Correspondence received from Bradley Bliss on the Draft ACHA, 5th November 2018

From: WVWAC Contact Officer [redacted]
Sent: Monday, 5 November 2018 11:17 AM
To: Kirsten Bradley [redacted]
Subject: RE: Wollar Solar Farm ACHA Draft_ for review and comment

Hi Kirsten,

I have discussed the report with community. WVWAC are in agreeance with the findings and recommendations.

Our Elders have requested that the Birthing tree be recorded and restricted to a women's site. They also request copies of all site cards including the birthing tree site be supplied to WVWAC CEO to ensure the information is held by our organisation and is accessible to our female sites officers and Elders.

Regards,

Bradley R. Bliss J.P.
WVWAC CEO and Contact Officer
Gallanggabang Aboriginal Corporation Director
Wiradjuri Council of Elders Member
Senior Aboriginal Cultural Heritage Field Officer
Senior Aboriginal Cultural Mentor and Educator

Traditional Owner Clan Descendant
Mobile: [redacted]

Sent from Mail for Windows 10

Correspondence received from Bradley Bliss on the Draft ACHA, 14th November 2018

From: WVWAC Contact Officer [redacted]
Sent: Wednesday, 14 November 2018 8:01 PM
To: Kirsten Bradley [redacted]
Cc: pcampion@well-com.net.au
Subject: Re: Wollar Solar Farm ACHA Draft_ for review and comment

Hi Kirsten,

Thank you for the update project advice. Yes WVWAC response comments is also that of Gallanggabang as a RAP.

Regards,

Bradley R. Bliss J.P.
WVWAC CEO and Contact Officer
Gallanggabang Aboriginal Corporation Director
Wiradjuri Council of Elders Member
Senior Aboriginal Cultural Heritage Field Officer
Senior Aboriginal Cultural Mentor and Educator
Traditional Owner Clan Descendant
Mobile: [redacted]

Correspondence received from Bradley Bliss following development footprint reduction, 14th November 2018

From: WVWAC Contact Officer [redacted]
Sent: Wednesday, 14 November 2018 8:10 PM
To: Kirsten Bradley [redacted]
Cc: [redacted]
Subject: Re: Wollar Solar Farm ACHA Draft_ for review and comment

Hi Kirsten,

We agreed with the recommendations in the report and asked for the birthing tree to be recorded. No changes.

Regards,

Bradley R. Bliss J.P.
WVWAC CEO and Contact Officer
Gallanggabang Aboriginal Corporation Director
Wiradjuri Council of Elders Member
Senior Aboriginal Cultural Heritage Field Officer
Senior Aboriginal Cultural Mentor and Educator
Mobile: 0427321016

Correspondence received from Paul Brydon (Midnight) following development footprint reduction and Draft ACHA, 14th November 2018

From: Paul Brydon [redacted]
Sent: Wednesday, 14 November 2018 10:40 PM
To: Kirsten Bradley [redacted]
Subject: Re: Wollar Solar Farm ACHA Draft_ for review and comment

Happy to go cheers midnight

Sent from my iPhone

On 14 Nov 2018, at 10:38 pm, Kirsten Bradley [redacted] wrote:

Thanks midnight,

if you have any additional comments on the draft acha report please send them through to me before cob Friday the 16th November. If you are happy with the report please let me know so I can also document this.

As always if you have any questions or concerns feel free to call me.

Cheers,

Kirsten

Sent from my iPhone

On 14 Nov 2018, at 10:34 pm, Paul Brydon [redacted] wrote:

Kirsten

I have no problems with this but would still like to be kept in the loop

Cheers Midnight

Sent from my iPhone

On 14 Nov 2018, at 7:35 pm, Kirsten Bradley [redacted] wrote:

Hi Midnight,
Please see the attached letter regarding the reduction of the development footprint for the proposed Wollar Solar Farm. Please note that comments on the ACHA Draft are due COB the 16th of November 2018 .

Cheers,

Kirsten Bradley | Heritage Consultant

APPENDIX B AHIMS SEARCH

Information withheld due to cultural sensitivity.

.

APPENDIX C ARTEFACT DATA

Artefact Scatters- Aboriginal object characteristics

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
1	Wollar Solar ATF1	Proximal Fragment	Silcrete	<20mm	14	12	1	Flake scar	Focal		Tertiary	
2	Wollar Solar ATF1	Flaked Piece	Quartz	<10mm							Tertiary	
3	Wollar Solar ATF1	Proximal Fragment	Quartz	<30mm	21	15	7	Flake scar	Broad		Tertiary	
4	Wollar Solar ATF1	Flake	Chert	<30mm	24	19	3	Flake scar	Focal	Step	Tertiary	
5	Wollar Solar ATF1	Proximal Fragment	Basalt	<50mm	44	31	14	Flake scar	Focal		Tertiary	
6	Wollar Solar ATF1	Distal Fragment	Basalt	<30mm	26	21	8			Feather	Tertiary	
7	Wollar Solar ATF1	Flake	Quartz	<10mm	8	3	2	Flake scar	Focal	Feather	Tertiary	
8	Wollar Solar ATF1	Flake	Quartz	<10mm	6	9	2	Flake scar	Broad	Feather	Tertiary	
9	Wollar Solar ATF1	Proximal Fragment	Chert	<30mm	22	14	4	Flake scar	Focal		Tertiary	
10	Wollar Solar ATF1	Proximal Fragment	Silcrete	<30mm	22	27	7	Crushed	Broad		Secondary	20% Terrestrial Cortex
11	Wollar Solar ATF1	Flake	Tuff	<20mm	14	21	3	Flake scar	Broad	Feather	Tertiary	
12	Wollar Solar ATF1	Flake	Chert	<30mm	21	7	1	Flake scar	Broad	Feather	Tertiary	

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
13	Wollar Solar ATF1	Flake	Quartz	<30mm	25	10	5	Flake scar	Broad	Feather	Tertiary	
14	Wollar Solar ATF1	Flake	Chert	<30mm	26	20	2	Crushed	Focal	Feather	Tertiary	
15	Wollar Solar ATF1	flake	quartzite	<40mm	31	16	8	flake scar	focal	feather	Tertiary	
16	Wollar Solar ATF1	distal fragment	quartzite	<40mm								
17	Wollar Solar ATF1	flake	quartz	<20mm								
18	Wollar Solar ATF1	flake	quartz	<30mm	26	21	6	flake scar	focal	feather	Tertiary	
19	Wollar Solar ATF1	flake	chert	<20mm	18	18	5	flake scar	broad	feather	Tertiary	
20	Wollar Solar ATF1	flake	chert	<30mm	26	20	8	flake scar	focal	feather	Tertiary	
21	Wollar Solar ATF1	flake	tuff	<30mm	23	12	4	flake scar	focal	feather	Tertiary	
22	Wollar Solar ATF1	flake	tuff	<50mm	42	26	15	flake scar	focal	feather	Tertiary	
23	Wollar Solar ATF1	flaked piece	tuff	<40mm								
24	Wollar Solar ATF1	core	quartz	<40mm	18	32	36					single platform core 1 scar
25	Wollar Solar ATF1	flake	quartz	<30mm	30	30	11	flake scar	focal	feather	Tertiary	

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
26	Wollar Solar ATF1	hammerstone	volcanic	<60mm	56	54	38					pitted for 22, broken
26	Wollar Solar ATF1	distal fragment	chert	<20mm	10	8	12			feather		
28	Wollar Solar ATF1	flaked piece	crystals quartz	<20mm								
29	Wollar Solar ATF1	flake	chert	<20mm	18	28	8	flake scar	broad	feather	Tertiary	
30	Wollar Solar ATF1	flake	chert	<20mm	18	12	4	flake scar	focal	feather	Tertiary	
31	Wollar Solar ATF1	flake	chert	<30mm								
32	Wollar Solar ATF1	flake	quartzite	<20mm								
33	Wollar Solar ATF1	flake	tuff	<40mm	42	30	8	flake scar	broad	feather	Tertiary	
34	Wollar Solar ATF1	flake	silcrete	<50mm	45	33	15	flake scar	broad	feather	Tertiary	
35	Wollar Solar ATF1	distal fragment	chert	<20mm								
36	Wollar Solar ATF2	flake	chert	<30mm	32	25	8	flake scar	focal	feather	tertiary	
37	Wollar Solar ATF2	flake	tuff	<30mm	22	28	8	flake scar	broad	feather	tertiary	
38	Wollar Solar ATF2	flake	quartz	<20mm	9	18	6	flake scar	broad	feather	tertiary	

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
39	Wollar Solar ATF2	flake	tuff	<30mm	27	27	8	flake scar	broad	feather	tertiary	
40	Wollar Solar ATF2	broken flake	tuff	<30mm	29	18	6	flake scar	focal	feather	tertiary	
41	Wollar Solar ATF2	flake	quartz	<30mm	25	24	6	flake scar	broad	feather	tertiary	
42	Wollar Solar ATF2	Core	Chert	<50mm	44	32	13				tertiary	1 Platform, 2 Scars
43	Wollar Solar ATF2	Core	Quartzite	<40mm	32	25	17				tertiary	4 Scars, 2 Platforms
44	Wollar Solar ATF2	Core	Silcrete	<40mm	40	37	22				Secondary	20% Terrestrial Cortex 4 Scars 1 Platform
45	Wollar Solar ATF2	Flake	Chert	<30mm	27	25	2	Flake scar	Focal	Step	tertiary	
46	Wollar Solar ATF2	flake	chert	<30mm	32	25	8	flake scar	focal	feather	tertiary	
47	Wollar Solar ATF3	flake	tuff	<40mm	32	29	18	flake scar	broad	feather	secondary	70 percent terrestrial cortex
47	Wollar Solar ATF3	flake	chert	<30mm	24	28	6	flake scar	broad	feather	tertiary	
48	Wollar Solar ATF3	proximal fragment	quartz	<30mm	20	20	8	flake scar	broad	feather	tertiary	

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
49	Wollar Solar ATF3	distal fragment	tuff	<20mm	15	22	8			feather		
50	Wollar Solar ATF3	distal fragment	quartz	<30mm	21	22	8			feather	tertiary	
51	Wollar Solar ATF3	proximal fragment	quartzite	<30mm	22	18	5	flake scar	broad	feather	tertiary	
52	Wollar Solar ATF3	flake	tuff	<50mm	43	24	10	flake scar	broad	feather	tertiary	
53	Wollar Solar ATF3	flake	quartzite	<30mm	26	22	8	flake scar	broad	feather	tertiary	
54	Wollar Solar ATF3	distal fragment	quartzite	<50mm	34	28	10			feather		
55	Wollar Solar ATF3	flaked piece	quartzite	<20mm	0	0	0					
56	Wollar Solar ATF3	flake	quartz	<20mm	14	14	5	flake scar	broad	feather	tertiary	
57	Wollar Solar ATF3	flake	tuff	<30mm	24	32	8	flake scar	broad	feather	tertiary	
58	Wollar Solar ATF3	core	quartzite	<90mm	43	85	55					single platform core 5 scars, 40 percent terrestrial cortex
59	Wollar Solar ATF3	core	quartzite	<70mm	66	67	83					single platform core

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
60	Wollar Solar ATF3	flake	quartz	<30mm	26	24	12	flake scar	broad	feather	tertiary	
61	Wollar Solar ATF3	flaked piece	quartz	<20mm								
62	Wollar Solar ATF3	distal fragment	quartz	<30mm	14	24	5			feather		
63	Wollar Solar ATF3	flake	quartz	<40mm	40	36	18	flake scar	broad	feather	tertiary	
64	Wollar Solar ATF3	flake	quartz	<40mm	32	21	15	flake scar	broad	feather	tertiary	
65	Wollar Solar ATF3	distal fragment	tuff	<30mm	32	32	8			feather	secondary	
66	Wollar Solar ATF3	flake	tuff	<40mm	40	36	12	flake scar	broad	feather	tertiary	
67	Wollar Solar ATF3	flaked piece	quartz	<20mm								
68	Wollar Solar ATF3	flaked piece	quartz	<30mm								
69	Wollar Solar ATF3	flake	quartz	<40mm	25	15	8	flake scar	broad	feather	tertiary	
70	Wollar Solar ATF3	Flake	Tuff	<50mm	43	20	8	Flake scar	Focal	Feather	tertiary	
71	Wollar Solar ATF3	Proximal Fragment	Quartz	<20mm	9	18	3	Flake scar	Broad	N/A	tertiary	
72	Wollar Solar ATF3	Flake	Quartzite	<30mm	28	27	3	Flake scar	Broad	Feather	secondary	10% Terrestrial Cortex
73	Wollar Solar ATF3	Flake	Quartz	<20mm	11	7	1	Flake scar	Focal	Feather	tertiary	

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
74	Wollar Solar ATF4	flaked piece	quartz	<40mm								
75	Wollar Solar ATF4	flaked piece	quartz	<20mm								
76	Wollar Solar ATF4	flake	tuff	<40mm	42	24	14	flake scar	broad	feather	secondary	
77	Wollar Solar ATF4	core	tuff	<40mm	33	42	28					single platform core 2 scars, 20 percent terrestrial cortex
78	Wollar Solar ATF4	flake	chert	<30mm	23	15	3	flake scar	broad	feather	tertiary	
79	Wollar Solar ATF4	Flake	Quartzite	<50mm	44	32	9	Flake scar	Broad	Hinge	secondary	50% Terrestrial Cortex
80	Wollar Solar ATF4	Axe	Basalt	<130mm	128	92	17					Ground Edge, Plough Damage
81	Wollar Solar ATF4	Flaked Piece	Quartz	<10mm							tertiary	
82	Wollar Solar ATF4	Flake	Quartz	<40mm	32	14	14	Flake scar	Focal	Step	tertiary	
83	Wollar Solar ATF4	Flaked Piece	Quartz	<10mm							tertiary	
84	Wollar Solar ATF4	Flake	Tuff	<60mm	51	43	10	Flake scar	Broad	Feather	tertiary	

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
85	Wollar Solar ATF4	Flake	Tuff	<50mm	41	31	7	Flake scar	Focal	Feather	secondary	30% Terrestrial Cortex
86	Wollar Solar ATF5	core	silcrete	<60mm	50	61	49					single platform core 4 scars
87	Wollar Solar ATF5	flake	quartzite	<40mm	36	18	11	flake scar	broad	feather	tertiary	
88	Wollar Solar ATF6	Flake	Chert	<30mm	23	20	1	Flake scar	Focal	Feather	tertiary	
89	Wollar Solar ATF6	flake	tuff	<60mm	58	42	16	flake scar	broad	feather	tertiary	weathered
90	Wollar Solar ATF7	Core	Quartz	<20mm	11	12	9					1 Platform 1 Scar
91	Wollar Solar ATF7	Core	Chert	<40mm	44	33	18				secondary	20% Terrestrial Cortex, 1 Platform, 4 Scars
92	Wollar Solar ATF7	Flake	Chert	<40mm	32	20	4	Flake scar	Broad	Step	tertiary	
93	Wollar Solar ATF7	Flake	Chert	<20mm	14	17	4	Crushed	Focal	Step	tertiary	
94	Wollar Solar ATF7	Core	Chert	<30mm	23	20	11				tertiary	1 Platform, 2 Scars
95	Wollar Solar ATF8	flake	quartz	<30mm	25	22	18	flake scar	broad	feather	tertiary	

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
96	Wollar Solar ATF8	flaked piece	crystals quartz	<30mm	26	5	12					
97	Wollar Solar ATF8	flake	chert	<30mm	27	30	10	flake scar	broad	feather	tertiary	
98	Wollar Solar ATF8	core	tuff	<50mm	47	56	60					1 platform 1 scar
99	Wollar Solar ATF9	Flake	Chert	<60mm	54	32	10	Flake scar	Broad	Feather	tertiary	Waterworn
100	Wollar Solar ATF9	Flaked Piece	Quartz	<30mm							tertiary	
101	Wollar Solar ATF9	Flake	Quartz	<20mm	18	12	5	Flake scar	Focal	Feather	tertiary	
102	Wollar Solar ATF10	flake	quartz	<30mm	26	11	5	flake scar	focal	feather	tertiary	
103	Wollar Solar ATF10	distal fragment	tuff	<50mm	43	16	6					20 percent riverine cortex
104	Wollar Solar ATF11	flake tool	quartz	<20mm								
105	Wollar Solar ATF11	distal fragment	quartz	<40mm								
106	Wollar Solar ATF11	distal fragment	quartz	<20mm								
107	Wollar Solar ATF11	flake	chert	<20mm								1 parallel axis
108	Wollar Solar ATF11	flaked piece	quartz	<20mm								
109	Wollar Solar ATF11	flaked piece	quartz	<20mm								
110	Wollar Solar ATF11	flake	quartz	<40mm								

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
111	Wollar Solar ATF11	flake	quartz	<20mm								
112	Wollar Solar ATF11	flake	quartz	<20mm								
113	Wollar Solar ATF11	flaked piece	quartz	<20mm								
114	Wollar Solar ATF11	flaked piece	quartz	<20mm								
115	Wollar Solar ATF11	flake	quartz	<20mm								
116	Wollar Solar ATF11	flake	tuff	<20mm								
117	Wollar Solar ATF11	flake	quartz	<20mm								
118	Wollar Solar ATF11	flaked piece	quartz	<30mm								
119	Wollar Solar ATF11	flake	quartz	<20mm								
120	Wollar Solar ATF11	flake	quartz	<20mm								
121	Wollar Solar ATF11	flake	quartz	<20mm								
122	Wollar Solar ATF11	flake	quartz	<20mm								
123	Wollar Solar ATF11	flake	quartz	<10mm								
124	Wollar Solar ATF11	flake	quartz	<20mm								
125	Wollar Solar ATF11	flake	quartz	<20mm								
126	Wollar Solar ATF11	flake	quartz	<30mm								
127	Wollar Solar ATF11	core	quartz	<40mm								
128	Wollar Solar ATF11	flake	quartzite	<40mm								
129	Wollar Solar ATF11	flake	quartz	<20mm								
130	Wollar Solar ATF11	flaked piece	quartz	<20mm								
131	Wollar Solar ATF11	broken flake	chert	<20mm								
132	Wollar Solar ATF11	core	quartz	<30mm								

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
133	Wollar Solar ATF11	flake	quartz	<30mm								
134	Wollar Solar ATF11	flake	quartz	<20mm								
135	Wollar Solar ATF11	flake	chert	<70mm								
136	Wollar Solar ATF11	flake	quartz	<20mm								retouched along left lateral margin12 mm
137	Wollar Solar ATF11	flaked piece	quartz	<10mm								
138	Wollar Solar ATF11	flake	quartz	<10mm								
139	Wollar Solar ATF11	flake	quartz	<20mm								
140	Wollar Solar ATF11	flake	quartz	<30mm								
141	Wollar Solar ATF11	flaked piece	chert	<20mm								
142	Wollar Solar ATF11	flaked piece	tuff	<50mm								
143	Wollar Solar ATF11	distal fragment	crystals quartz	<10mm								
144	Wollar Solar ATF11	flake	quartz	<20mm								
145	Wollar Solar ATF11	flake	quartz	<20mm								
146	Wollar Solar ATF11	flake	tuff	<40mm								
147	Wollar Solar ATF11	flake	tuff	<20mm								
148	Wollar Solar ATF11	distal fragment	quartzite	<20mm								
149	Wollar Solar ATF11	flake	quartz	<20mm								
150	Wollar Solar ATF11	flake	chert	<20mm								ohr

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
151	Wollar Solar ATF11	flake	quartz	<20mm								
152	Wollar Solar ATF11	flaked piece	quartz	<30mm								
153	Wollar Solar ATF11	flaked piece	tuff	<30mm								
154	Wollar Solar ATF11	flaked piece	quartz	<20mm								
155	Wollar Solar ATF11	flake	chert	<30mm								
156	Wollar Solar ATF11	flake	quartz	<20mm								
157	Wollar Solar ATF11	flake	tuff	<20mm								
158	Wollar Solar ATF11	flake	quartz	<20mm								
159	Wollar Solar ATF11	flake	quartz	<20mm								
160	Wollar Solar ATF11	flake	chert	<30mm								
161	Wollar Solar ATF11	flake	quartz	<20mm								
162	Wollar Solar ATF11	flake	quartz	<20mm								
163	Wollar Solar ATF11	flake	quartz	<10mm								
164	Wollar Solar ATF11	core	tuff	<20mm								
165	Wollar Solar ATF11	flake	quartz	<20mm								
166	Wollar Solar ATF11	flake	crystals quartz	<10mm								
167	Wollar Solar ATF11	flake	quartz	<20mm								
168	Wollar Solar ATF11	flake	chert	<40mm								
169	Wollar Solar ATF11	flake	chert	<20mm								
170	Wollar Solar ATF11	flake	tuff	<20mm								
171	Wollar Solar ATF11	flake	quartz	<30mm								

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
172	Wollar Solar ATF11	flake	quartz	<20mm								
173	Wollar Solar ATF11	flaked piece	quartz	<20mm								
174	Wollar Solar ATF11	hammerstone	volcanic	<90mm								
175	Wollar Solar ATF11	flaked piece	quartz	<10mm								
176	Wollar Solar ATF11	flake	tuff	<50mm								
177	Wollar Solar ATF11	flake	quartz	<10mm								
178	Wollar Solar ATF11	flake	tuff	<20mm								
179	Wollar Solar ATF11	flaked piece	quartz	<20mm								
180	Wollar Solar ATF11	flake	chert	<50mm								retouched along distal margin
181	Wollar Solar ATF11	core	tuff	<40mm								
182	Wollar Solar ATF11	flake	quartz	<20mm								
183	Wollar Solar ATF11	flake	chert	<60mm								ohr 10 percent terrestrial cortex
184	Wollar Solar ATF11	flake	chert	<20mm								
185	Wollar Solar ATF11	flake	tuff	<40mm								
186	Wollar Solar ATF11	flake	tuff	<40mm								
187	Wollar Solar ATF11	flake	tuff	<30mm								
188	Wollar Solar ATF11	flake	chert	<50mm								

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
189	Wollar Solar ATF11	Flake	Quartz	<40mm								50% Terrestrial Cortex
190	Wollar Solar ATF11	Flake	Quartz	<20mm								
191	Wollar Solar ATF11	Core	Quartz	<20mm								10% Terrestrial Cortex
192	Wollar Solar ATF11	Flake	Tuff	<40mm								
193	Wollar Solar ATF11	Flake	Quartz	<30mm								
194	Wollar Solar ATF11	Flake	Quartz	<10mm								
195	Wollar Solar ATF11	Proximal Fragment	Quartz	<20mm								
196	Wollar Solar ATF11	Proximal Fragment	Quartz	<10mm								
197	Wollar Solar ATF11	Proximal Fragment	Quartz	<20mm								
198	Wollar Solar ATF11	Flake	Quartz	<10mm								
199	Wollar Solar ATF11	Flake	Quartz	<20mm								
200	Wollar Solar ATF11	Flake	Quartzite	<40mm								
201	Wollar Solar ATF11	Flake	Quartz	<40mm								
202	Wollar Solar ATF11	Flake	Chert	<40mm								possible Burin
203	Wollar Solar ATF11	Distal Fragment	Quartz	<20mm								

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
204	Wollar Solar ATF11	Proximal Fragment	Quartz	<20mm								
205	Wollar Solar ATF11	Flake	Tuff	<30mm								
206	Wollar Solar ATF11	Flake	Quartz	<20mm								
207	Wollar Solar ATF11	Flake	Quartz	<10mm								
208	Wollar Solar ATF11	Core	Quartz	<30mm								
209	Wollar Solar ATF11	Flake	Quartz	<20mm								
210	Wollar Solar ATF11	Flake	Quartz	<30mm								
211	Wollar Solar ATF11	Flake	Quartz	<10mm								
212	Wollar Solar ATF11	Flake	Tuff	<50mm								
213	Wollar Solar ATF11	Flake	Quartz	<20mm								
214	Wollar Solar ATF11	Flake	Quartz	<20mm								
215	Wollar Solar ATF11	Flake	Quartz	<20mm								
216	Wollar Solar ATF11	Flake	Quartz	<20mm								
217	Wollar Solar ATF11	Flake	Quartz	<20mm								
218	Wollar Solar ATF11	Flake	Quartz	<20mm								
219	Wollar Solar ATF11	Proximal Fragment	Quartz	<10mm								
220	Wollar Solar ATF11	Flake	Quartz	<10mm								
221	Wollar Solar ATF11	Flake	Quartz	<20mm								
222	Wollar Solar ATF11	Flake	Quartz	<20mm								
223	Wollar Solar ATF11	Core	Quartz	<20mm								
224	Wollar Solar ATF11	Flake	Quartz	<20mm								

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
225	Wollar Solar ATF11	Flake	Quartz	<30mm								
226	Wollar Solar ATF11	Flake	Tuff	<30mm								
227	Wollar Solar ATF11	Distal Fragment	Quartz	<10mm								
228	Wollar Solar ATF11	Flake	Quartz	<20mm								
229	Wollar Solar ATF11	Flake	Chert	<20mm								
230	Wollar Solar ATF11	Proximal Fragment	Quartz	<10mm								
231	Wollar Solar ATF11	Flake	Quartz	<10mm								
232	Wollar Solar ATF11	Flake	Quartz	<10mm								
233	Wollar Solar ATF11	Flake	Tuff	<30mm								
234	Wollar Solar ATF11	Flake	Quartz	<20mm								
235	Wollar Solar ATF11	Flake	Quartz	<10mm								
236	Wollar Solar ATF11	Medial Fragment	Quartz	<10mm								
237	Wollar Solar ATF11	Flake	Chert	<30mm								
238	Wollar Solar ATF11	Core	Quartz	<30mm								
239	Wollar Solar ATF11	Flake	Quartz	<30mm								
240	Wollar Solar ATF11	Core	Tuff	<70mm								
241	Wollar Solar ATF11	Flake	Quartz	<20mm								
242	Wollar Solar ATF11	Flake	Quartz	<20mm								
243	Wollar Solar ATF11	Flake	Quartzite	<40mm								

Artefact #	Site Name	Artefact Type	Raw Material	Size class	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
					Length	Width	Thickness					
244	Wollar Solar ATF12	flake	chert	<30mm	23	33	9	flake scar	broad	feather	tertiary	
245	Wollar Solar ATF12	flake	chert	<40mm	36	34	8	flake scar	focal	feather	tertiary	
246	Wollar Solar ATF12	flake	tuff	<20mm	10	10	4	flake scar	broad	feather	tertiary	
247	Wollar Solar ATF12	flake	quartzite	<30mm	29	36	10	flake scar	broad	feather	secondary	80 percent riverine cortex
248	Wollar Solar ATF12	Core	Tuff	<40mm	38	42	33				secondary	5% Terrestrial Cortex, 4 Scars, 2 Platforms
249	Wollar Solar ATF12	Flake	Quartzite	<40mm	34	41	1	Flake scar	Broad	Feather	tertiary	Edge Damage
250	Wollar Solar ATF12	Flake	Tuff	<20mm	9	14	1	Flake scar	Focal	Step	tertiary	
251	Wollar Solar ATF12	Flake	Chert	<30mm	21	25	5	Ridge	Focal	Plunge	tertiary	

Isolated Finds- Aboriginal object characteristics

Site Name	Artefact Type	Raw Material	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
			Length	Width	Thickness					
Wollar Solar IF1	flake	quartz	21	22	8	flake scar	focal	feather	tertiary	on an animal track on the low slope of a hill in a cleared paddock.
Wollar Solar IF2	Flake	Quartz	30	14	6	Crushed	Focal	step	tertiary	
Wollar Solar IF3	Flake	Quartz	11	22	2	Flake scar	Broad	step	tertiary	in ploughed paddock 50m SE from ridgeline
Wollar Solar IF4	flake	quartz	18	15	5	flake scar	focal	feather	tertiary	in exposure near drainage
Wollar Solar IF5	flake	quartz	21	24	8	flake scar	focal	feather	tertiary	in exposure near creek 50 percent visibility
Wollar Solar IF6	Flake	Quartz	34	22	18	Flake scar	Broad	feather	tertiary	in exposure on hill slope
Wollar Solar IF7	Flake	Quartz	25	18	6	Flake scar	Broad	Step	tertiary	in exposure
Wollar Solar IF8	Flake	Quartz	9	3	3	Flake scar	Focal	feather	tertiary	in exposure
Wollar Solar IF9	Flake	chert	34	10	9	Flake scar	Focal	step	tertiary	in exposure on slope
Wollar Solar IF10	flake	quartzite	21	29	7	flake scar	broad	feather	tertiary	in exposure
Wollar Solar IF11	core	tuff	40	40	20				tertiary	single platform core 4 scars heat pop 40 percent weathered
Wollar Solar IF12	Proximal fragment	Quartz	12	6	1	Flake scar	Broad		tertiary	0m From Dam Edge, Retouch Along Lateral Margin For 6mm
Wollar Solar IF13	Core	Quartz	28	25	25				tertiary	On Hillslope, 1 Platform, 2 Neg Scars
Wollar Solar IF14	proximal fragment	chert	24	24	5	flake scar	broad	feather	tertiary	on edge of outcropping

Site Name	Artefact Type	Raw Material	Dimensions (mm)			Platform surface	Platform type	Termination	Reduction Stage	Comments
			Length	Width	Thickness					
Wollar Solar IF15	flake	quartz	25	18	8	flake scar	broad	feather	tertiary	in exposure on slope
Wollar Solar IF16	core	chert	25	47	35				tertiary	multiple platform core 4 platform 8 scars on slope 30m south of outcropping
Wollar Solar IF17	flake	chert	54	60	26	flake scar	focal	feather	tertiary	retouched along distal margin 45mm, RAPs noted possible men's tool, in ploughed field
Wollar Solar IF18	Flake	Quartz	8	5	6	Flake scar	Broad	feather	secondary	40% Pebble Cortex
Wollar Solar IF19	Flake	Tuff	53	74	20	Flake scar	Broad	feather	secondary	40% Terrestrial Cortex
Wollar Solar IF20	Flake	Quartz	45	38	10	Flake scar	Broad	feather	secondary	In Small Tributary That Flows into the Creek, Running E-w, Extremely Eroded Sides of Tributary
Wollar Solar IF21	Flake	Quartz	20	18	7	Flake scar	Broad	feather	tertiary	On 20deg Slope on Riverbank
Wollar Solar IF22	distal fragment	tuff	22	21	6			feather	tertiary	on creek bank
Wollar Solar IF23	core	chert	26	14	12				tertiary	2m west Of Access Track, 5m North of Cattle Grate, 4 Neg Flakes, 1 Platform, Flake Core
Wollar Solar IF24	Distal fragment	Quartz	11	6	1	N/A	N/A	Feather	tertiary	100m West of Gate in Exposure
Wollar Solar IF25	Proximal fragment	Quartz	8	6	2	Flake scar	Broad		tertiary	Eroded Washed Out Exposure 75m South from Wollar Creek

Isolated Find Sites-Images

Artefact at IF 1

View of site IF 1

Artefact at IF 2

View of site IF 2

Artefact at IF 3

View of site IF 3

	
Artefact at IF 4	View of site IF 4
	
Artefact at IF 5	View of site IF 5
	
Artefact at IF 6	View of site IF 6

	
Artefact at IF 7	View of site IF 7
	
Artefact at IF 8	View of site IF 8
	
Artefact at IF 9	View of site IF 9

Artefact at IF 10

View of site IF 10

Artefact at IF 11

View of site IF 11

Artefact at IF 12

View of site IF 12

Artefact at IF 13

View of site IF 13

Artefact at IF 14

View of site IF 14

Artefact at IF 15

View of site IF 15

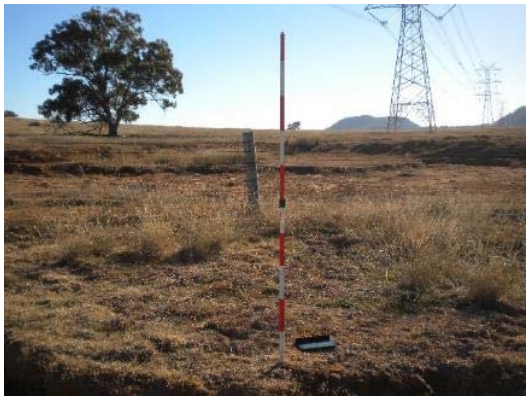
Artefact at IF 16

View of site IF 16

Artefact at IF 17

View of site IF 17

Artefact at IF 18



View of site IF 18

Artefact at IF 19

View of site IF 19

Artefact at IF 20

View of site IF 20

Artefact at IF 21

View of site IF 21

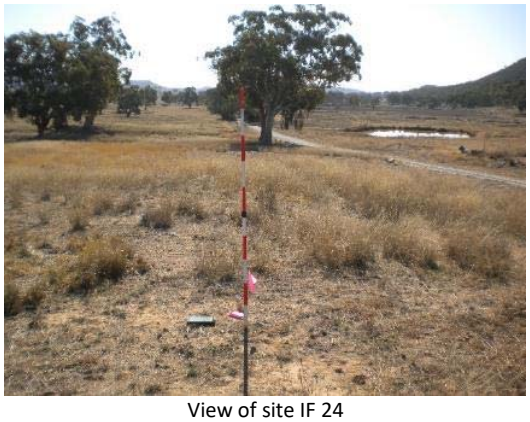
Artefact at IF 22

View of site IF 22

Artefact at IF 23

View of site IF 23

Artefact at IF 24



View of site IF 24

 Artefact at IF 25	 View of site IF 25

APPENDIX D ASSESSMENT OF HARM AND VALUES

Assessment of Harm

AHIMS	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
36-3-3379	Wollar SF ATF 1	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3380	Wollar SF ATF 2	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3381	Wollar SF ATF 3	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3382	Wollar SF ATF 4	Poor – 100+ year history of agricultural and pastoral use and erosion	Low to Moderate	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3383	Wollar SF ATF 5	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3384	Wollar SF ATF 6	Poor – 100+ year history of agricultural and pastoral use	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.
36-3-3385	Wollar SF ATF 7	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3386	Wollar SF ATF 8	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.

AHIMS	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
36-3-3387	Wollar SF ATF 9	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3388	Wollar SF ATF 10	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3389	Wollar SF ATF 11	Poor – 100+ year history of agricultural and pastoral use and erosion	Moderate	Direct	Total	Total loss of value	Salvage surface objects and undertake a limited program of subsurface testing/excavation in sandy deposit within site prior to development of proposal site.
36-3-3390	Wollar SF ATF 12	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3391	Wollar SF IF1	Poor – 100+ year history of agricultural and pastoral use	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.
36-3-3392	Wollar SF IF2	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.
36-3-3393	Wollar SF IF3	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3394	Wollar SF IF4	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.

AHIMS	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
36-3-3395	Wollar SF IF5	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3396	Wollar SF IF6	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3397	Wollar SF IF7	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3398	Wollar SF IF8	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.
36-3-3399	Wollar SF IF9	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.
36-3-3400	Wollar SF IF10	Poor – 100+ year history of agricultural and pastoral use	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.
36-3-3401	Wollar SF IF11	Poor – 100+ year history of agricultural and pastoral use	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.

AHIMS	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
36-3-3402	Wollar SF IF12	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.
36-3-3403	Wollar SF IF13	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3417	Wollar SF IF14	Poor – 100+ year history of agricultural and pastoral use	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.
36-3-3416	Wollar SF IF15	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3415	Wollar SF IF16	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3414	Wollar SF IF17	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3413	Wollar SF IF18	Poor – 100+ year history of agricultural and pastoral use agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3412	Wollar SF IF19	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.

AHIMS	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
36-3-3411	Wollar SF IF20	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3410	Wollar SF IF21	Poor – 100+ year history of agricultural and pastoral use	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.
36-3-3409	Wollar SF IF22	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3408	Wollar SF IF23	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3407	Wollar SF IF24	Poor – 100+ year history of agricultural and pastoral use	Low	Direct	Total	Total loss of value	Salvage object prior to development of proposal site.
36-3-3406	Wollar SF IF25	Poor – 100+ year history of agricultural and pastoral use and erosion	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site .
36-3-3405	Wollar SF GDG 1	Good - in situ	Moderate	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 15 m a buffer placed around site.
36-3-3404	Wollar SF ST 1	Good - in situ living tree with some recent fire damage	Moderate	Will not be harmed - outside	None- outside development footprint	No loss of value- outside	Outside of development footprint. Ensure avoided with

AHIMS	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
				development footprint		development footprint	a minimum 15 m buffer placed around site.
N/A	Wollar SF ST 2	Good - in situ living tree	Moderate	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 15 m a buffer placed around site.
36-3-3436	Wollar SF Cultural Site 1	Moderate - in situ living tree with some recent fire damage	N/A	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 20 m a buffer placed around site.
36-3-0335	Wollar Creek 1	Poor – in errored area adjacent to Wollar Creek	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.
36-3-0336	Wollar Creek 2	Poor – in errored area adjacent to Wollar Creek	Low	Will not be harmed - outside development footprint	None- outside development footprint	No loss of value- outside development footprint	Outside of development footprint. Ensure avoided with a minimum 5 m a buffer placed around site.

APPENDIX E SITE CARDS

Information withheld due to cultural sensitivity.