

Appendix G Aboriginal Cultural Heritage Assessment (ACHA)



NGH

ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT

FOREST GLEN SOLAR FARM

July 2021

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ACRONYMS AND ABBREVIATIONS

ACHA	Aboriginal Cultural Heritage Assessment
AHIMS	Aboriginal heritage information management system
AHIP	Aboriginal Heritage Impact Permit
C-Dt	Carboniferous – Devonian Tangaratta Formation and Mandowa Mudstone
Ctw	Wombramurra Formation
DECCW	Department of Environment, Climate Change and Water
DPIE	(NSW) Department of Planning, Infrastructure and Environment
DLALC	Dubbo Local Aboriginal Land Council
EIS	Environmental impact statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
ha	Hectares
Heritage Act	<i>Heritage Act 1977 (NSW)</i>
IBRA	Interim Biogeographic Regionalisation for Australia
km	Kilometres
LALC	Local Aboriginal Land Council
LGA	Local Government Area
m	Metres
MW	Mega Watts
NGH	NGH Pty Ltd
NPW Act	<i>National Parks And Wildlife Act 1974 (NSW)</i>
NSW	New South Wales
OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water currently referred to as DPIE
PAD	Potential archaeological deposit
RAPs	Registered Aboriginal Parties
SEARs	Secretary's Environmental Assessment Requirements
SHI	State Heritage Inventory
SSD	State Significant Development
X-Elio	X-Elio Australia Pty Ltd

EXECUTIVE SUMMARY

INTRODUCTION

X-Elio Australia Pty Ltd (X-Elio) proposes the development of a commercial scale solar farm, referred to within this report as Forest Glen Solar Farm (the proposal site), approximately 16 kilometres (km) west of Dubbo, NSW, within the locality of Minore in New South Wales (NSW) (see Figure 1-1 and Figure 1-2 below). The proposed solar farm would be located on Lot 6 DP 755102 and Lot 1 DP 1198911 in the Dubbo Regional Local Government Area (LGA). Road upgrades and watercourse crossings may also be required to facilitate the proposed development.

Given that the proposed Forest Glen Solar Farm 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), NGH Pty Ltd (NGH) has been contracted by X-Elio to prepare an Aboriginal Cultural Heritage Assessment (ACHA) report. The purpose of this assessment is to investigate the presence of any Aboriginal objects within the proposal site, assess any harm to Aboriginal objects within the proposal site and provide management strategies that may mitigate any harm.

The proposed Forest Glen Solar Farm is a State Significant Development (SSD) and the Secretary's Environmental Assessment Requirements (SEARs) for the project also identified Aboriginal heritage as a specific issue to be addressed in the Environmental Impact Statement (EIS).

Throughout the assessment, the following codes and guides were followed in relation to Aboriginal heritage assessment:

- Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011);
- Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (DECCW 2010a); and
- Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (ACHCRP) (DECCW 2010b).

PROJECT PROPOSAL

The Forest Glen Solar Farm proposal site is approximately 16km west of Dubbo. Within a rural environment, the proposal site covers approximately 789 hectares (ha), with the proposed development footprint covering 444 ha. The proposed solar farm would comprise the installation of solar panels and its associated infrastructure. The proposed solar farm would produce up to 110 MW DC of renewable energy that would be exported to the national electricity grid.

ABORIGINAL CONSULTATION

The consultation with Aboriginal stakeholders (Registered Aboriginal Parties) was undertaken in accordance with Section 60 of the *National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2019* following the consultation steps outlined in the ACHCRP guide.

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

As a result of this process, two (2) Aboriginal groups registered their interest in the proposal. No other party registered their interest, including the entities and individuals recommended by statutory bodies and government heritage departments. The fieldwork components of this assessment included the participation of two representatives from a RAP group.

A copy of the draft report was provided to all the registered parties for comment. No comments were received on the report.

ARCHAEOLOGICAL CONTEXT

The assessment included a review of relevant information relating to the culturally sensitive landscapes within the proposal site. Included in this was a search of the AHIMS database. No Aboriginal sites have previously been recorded within the proposal site.

The results of previous archaeological surveys in the region show that sites and artefacts are present throughout the landscape, albeit concentrated closer to water courses. However, there does appear to be a pattern of site location that relates to the presence of potential resources for Aboriginal use with high density sites generally located in elevated flat areas adjacent to waterways and grinding grooves evident where there is raw material conducive to this use, generally near waterways. Lower density background artefact scatters and isolated finds also occur on undulating landforms in proximity to water. The artefact lithology within the area appears to be variable and related to the locally available and suitable rock types. Modified trees are recorded in the area not associated with any particular landforms, in areas where old growth trees remain. There is a high proportion (44.6%; n=33) of scarred trees recorded in the area especially where there are remnant stands of native trees. Scarred trees provide a tangible link to the past and provide evidence of Aboriginal subsistence activities through the deliberate removal of bark or wood. It is likely that the high proportion of scarred trees in the area surrounding the proposal site is related to the more obtrusive nature of scarred trees when compared to small artefact scatters and isolated stone artefacts (44.6%; n=33).

Based on previous archaeological investigations in the region, it was determined that the proposal site has potential to contain Aboriginal objects, especially given that Aboriginal people have lived in the region for tens of thousands of years. This would most likely be in the form of low to moderate density artefact scatters, isolated artefacts and scarred trees in remnant old growth vegetation areas or as isolated native paddock trees.

SURVEY RESULTS

The solar farm area consisted primarily of cleared and cropped paddocks that had been subject to farming and grazing activities. Survey transects were undertaken on foot and traversed the entire development footprint. The survey was noted to be impeded at times by dense grass with under cropping of clover and knee to waist height grasses, however a number of exposures were present across the proposal site and all landforms. Areas of increased visibility consisted of disturbed exposures on tracks, fence lines, contour banks, dam banks, areas along the creek banks, and patches of bare ground. On average, visibility within the surveyed area was low to moderate, ranging between 1% and 65% at an average of 15%, with visibility in exposures averaging between 50 and 95%. Small exposures were present across all landforms, allowing an accurate view into the archaeological record, present within the project area.

Between the four team members, a total of approximately 1,186 km was walked across the proposal site. 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 3.92% of the proposal site. It is considered by NGH that the survey of the development footprint within the proposal site had sufficient and effective survey coverage.

There were no Aboriginal objects or areas of cultural sensitivity identified during the field survey.

POTENTIAL IMPACTS

There were no Aboriginal objects or areas of potential archaeological deposits (PADs) identified during the archaeological investigations for the Forest Glen Solar Farm, therefore there are no potential impacts as a result of the proposed works.

RECOMMENDATIONS

It has been assessed that the proposed works as described in this report can proceed with caution, following the recommendations set out below.

1. Further archaeological assessment would be required if the proposal activity extends beyond the proposal site assessed in this report. This would include consultation with the registered Aboriginal parties and may involve further field survey.
2. No ground disturbing activities or removal of remnant vegetation is to occur outside the survey area as outlined in Figure 4-1.
3. During construction and ongoing use of the Forest Glen Solar Farm, the unexpected finds procedure outlined in Appendix B must be followed.
4. In the unlikely event that human remains are discovered during the construction of the Forest Glen Solar Farm, all work must cease in the immediate vicinity. Heritage NSW and the local police should be notified. Further assessment would be undertaken to determine if the remains are Aboriginal or non-Aboriginal. If the remains are deemed to be Aboriginal in origin the Registered Aboriginal Parties should be advised of the find as directed by Heritage NSW.

1. INTRODUCTION

X-Elio Australia Pty Ltd (X-Elio) proposes the development of a commercial scale solar farm, referred to within this report as Forest Glen Solar Farm (the project area), approximately 16 kilometres (km) west of Dubbo, NSW, within the locality of Minore in New South Wales (NSW) (see Figure 1-1 and Figure 1-2 below). The project area is located on Lot 6 DP 755102 and Lot 1 DP 1198911 in the Dubbo Regional Local Government Area (LGA), Parish of Dungary, County of Narromine, within the Dubbo Local Aboriginal Land Council (LALC) area.

The proposed solar farm will produce up to 110 Mega Watts (MW) of electricity, with battery storage capacity of up to 25 MW hours. Road upgrades and watercourse crossings may also be required to facilitate the proposed development.

Given that the proposed Forest Glen Solar Farm will 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), NGH Pty Ltd (NGH) has been contracted by X-Elio to prepare an Aboriginal Cultural Heritage Assessment (ACHA) report. The purpose of this assessment is to investigate the presence of any Aboriginal sites within the proposal site, assess the impacts to Aboriginal sites within the proposal site and provide management strategies that may mitigate any impacts.

The proposed Forest Glen Solar Farm is a State Significant Development (SSD) and the Secretary's Environmental Assessment Requirements (SEARs) for the project also identified Aboriginal heritage as a specific issue to be addressed in the Environmental Impact Statement (EIS).

Throughout the assessment, the following codes and guides were followed in relation to Aboriginal heritage assessment.

- Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011)
- Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (DECCW 2010a)
- Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (ACHCRP) (DECCW 2010b)

The above codes and guides are followed for most Aboriginal heritage assessments in NSW. The approach being undertaken by NGH will therefore be consistent with other heritage assessments undertaken in the state.

The Forest Glen Solar Farm represents an important contribution to renewable energy generation in NSW and is subject to approval by the NSW Minister for Planning.

Under the NSW Planning legislation an Aboriginal Heritage Impact Permit (AHIP) would not be required for the Forest Glen Solar Farm project because under the SSD regime the NSW Minister for Planning provides the approval. However, it is a requirement that Aboriginal heritage be considered in the EIS as part of an SSD application, including conducting consultation with the Aboriginal community.

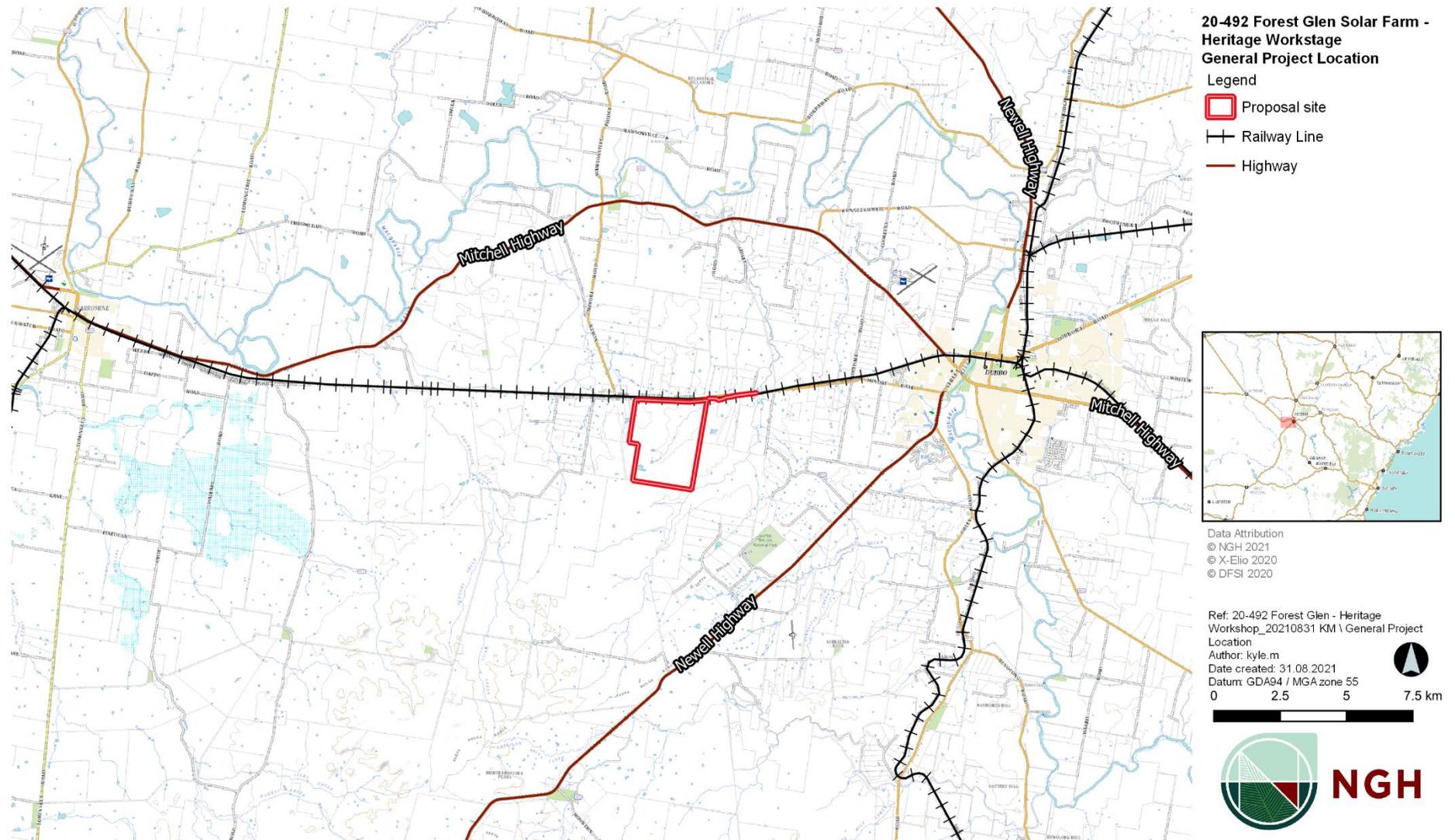


Figure 1-1 General Project Location.

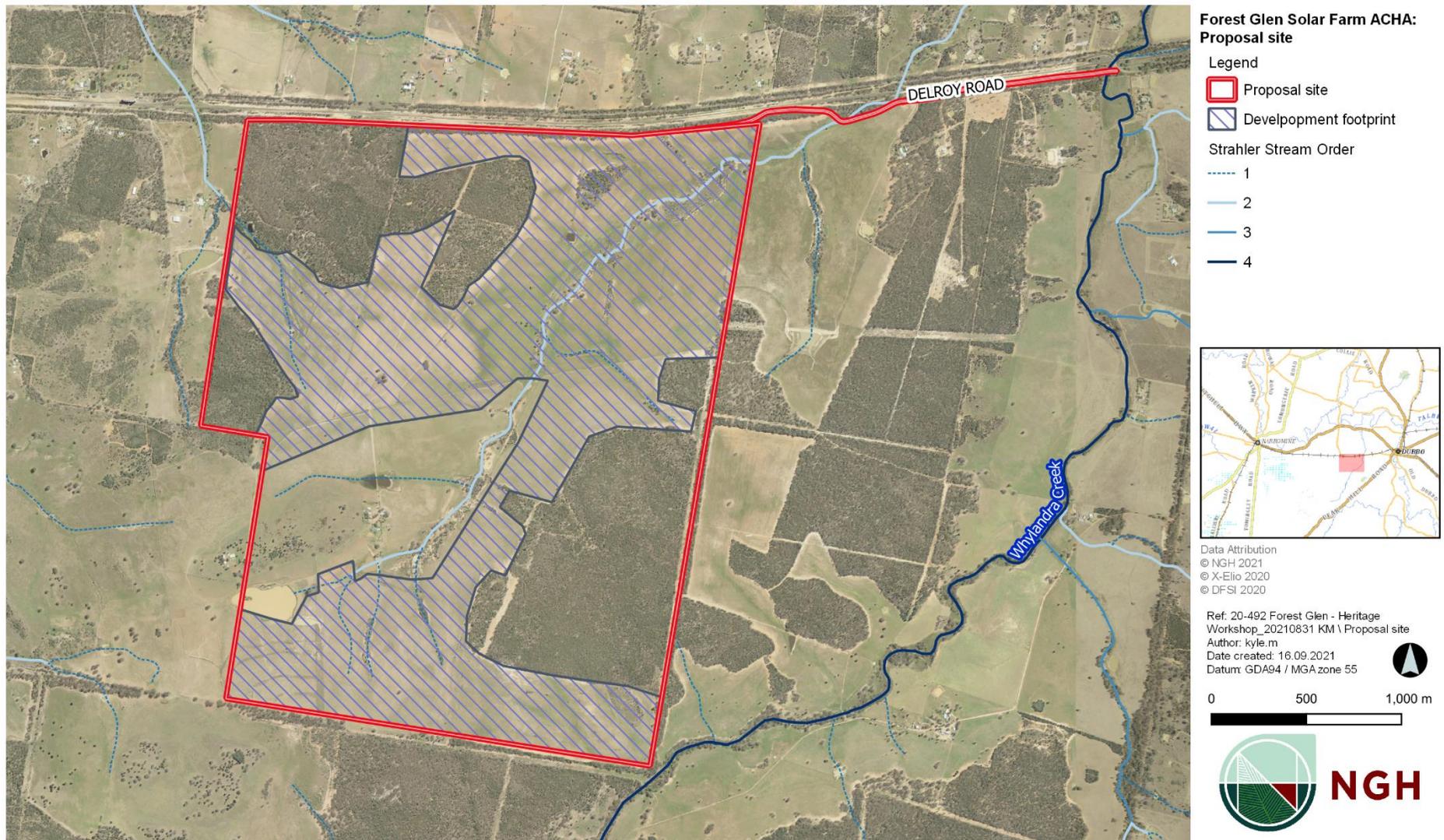


Figure 1-2 The proposal site and proposed development footprint.

1.1. DEVELOPMENT CONTEXT

The development of renewable energy projects is one of the most effective ways to achieve the commitments of Australia and many other nations under the Paris Agreement to reduce greenhouse gas emissions. The Forest Glen 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.
- Provision of social and economic benefits through the provision of direct employment opportunities.

The establishment of the Forest Glen 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 section 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposed solar farm is classified as an SSD project under Part 4 of the EP&A Act. SSDs are major projects that require approval from the Minister for Planning. The EIS has been prepared in accordance with the requirements of the Secretary of the Department of Planning, Industry and Environment (DPIE). The SEARs relating to Aboriginal heritage for the project are as follows:

Include an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development and consultation with the local Aboriginal community in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (SEARs for the Forest Glen Solar Farm 30/10/2020).

1.2. PROJECT PROPOSAL

The proposal site is located in the Dubbo Regional LGA within Lot 6 DP 755102 and Lot 1 DP 1198911 in the locality of Minore. The proposal site is approximately 789 ha, with the proposed development footprint covering approximately 444 ha. The Main Western Railway line is north of the proposal site and the site access is proposed via Delroy Road.

The proposed solar farm would involve the construction of a solar photovoltaic (PV) energy generation facility, with the power generated exported to the national electricity grid. The facility would include solar arrays, an on-site sub-station, associated infrastructure, and site facilities such as a control centre. A battery energy storage system is proposed with a storage capacity of approximately 25 MW hours. The sub-station location, storage technology, rated capacity (MW) and storage (MWh) will be determined during detailed design.

The Forest Glen Solar Farm is likely to include the following infrastructure, which may vary during detailed design:

- 20-25 power station (including 4.4 MVA inverters)
- 150,000-200,000 PV modules
- Energy storage facility would be centralised and consisting of lithium-ion batteries with a storage capacity up to 25 MWh.
- Internal access tracks 4 m wide minimum
- 1 watercourse crossings for internal access roads

The grid connection for the proposal would either be via:

- The existing Essential Energy 132 kV transmission line that traverses the proposal site, which is the preferred option and is currently being investigated, or

- The existing Essential Energy 132 kV located approximately 116 m north of the proposal site along Minore Road (second option).

The grid connection would be via an onsite substation and the project is unlikely to require any substation work offsite.

The construction phase is expected to take approximately 12-18 months, with peak construction taking around 10 months. It is anticipated that the Forest Glen Solar Farm would operate for 35 years. After this the solar farm would be decommissioned or upgraded. If the decision to upgrade the solar farm is made, this would be subject to relevant government approvals and consents before the upgrade is undertaken at the end of the initial solar farm's life.

When the site is to be decommissioned, it would involve removal of all above ground infrastructure and return of the site to its existing land capability.

1.1. PROJECT PERSONAL

This ACHA report was completed by archaeologists Jasmine Tearle and Bronwyn Partell of NGH, including research, Aboriginal community consultation and report preparation. Archaeologists Bronwyn Partell and Ingrid Cook also conducted the survey fieldwork over 3 days from the 4th to the 6th of May 2021.

Senior Heritage Consultant Ingrid Cook and Principal archaeologist Jakob Ruhl reviewed the report for quality assurance purposes.

Consultation with the Aboriginal community was undertaken following the process outlined in the *Aboriginal cultural heritage consultation requirements for proponents 2010*. Two (2) Aboriginal groups registered their interest in the proposal.

The Aboriginal community groups who registered an interest in the project were:

- Dubbo Local Aboriginal Land Council (DLALC); and
- Peter Chatfield (Tubbagah Aboriginal Co-op).

In line with the ACHCRP, the DLALC were engaged by X-Elio for fieldwork participation.

The Aboriginal community representatives who participated in the survey fieldwork from the 4th May to the 6th May 2021) were:

- Gregory Kennedy; and
- Dean Kennedy

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

1.2. REPORT FORMAT

This ACHA Report was prepared in line with the following guides:

- 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 (DECCW 2010a); and
- Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW 2010b).

The purpose of this ACHA report is to provide an assessment of the Aboriginal cultural values associated with the proposal site and to assess the cultural and scientific significance of any Aboriginal heritage sites identified. This conforms to the intention of the SEARs.

The objectives of the assessment are to:

- Conduct Aboriginal consultation as specified in Section 60 of the *National Parks and Wildlife Regulation 2019*, using the consultation process outlined in the ACHCRP;
- Undertake a field survey of the proposal site to identify and record any Aboriginal heritage objects and/or areas of potential significant archaeological deposits;
- Undertake subsurface testing of any areas with potential archaeological deposits to identify the nature of archaeological material if determined to be required;
- Undertake an assessment of the archaeological and cultural values of the proposal site and any Aboriginal sites therein;
- Assess the cultural and scientific significance of any archaeological material, and
- Provide management recommendations for any objects found.

2. ABORIGINAL CONSULTATION PROCESS

The consultation with Aboriginal stakeholders was undertaken in accordance with Section 60 of the *National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2019* following the consultation steps outlined in the ACHCRP guide. 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 who were contacted, and a consultation log is provided in Appendix A. A summary of actions carried out in following these stages is as follows.

Stage 1. Letters outlining the development proposal and the need to carry out an ACHA were sent to the Dubbo LALC and various statutory authorities including the Biodiversity and Conservation Division within DPIE (formally OEH, now integrated to Heritage NSW), as identified under the ACHCRP. An advertisement was placed in the local newspaper, the *Dubbo Daily Liberal*, on the 23 January 2021 seeking registrations of interest from Aboriginal people and organisations. A further series of letters was sent to other organisations identified by the Biodiversity and Conservation Division within DPIE in correspondence with NGH. In each instance, the closing date for submission was 14 days from receipt of the letter.

As a result of this process, two (2) Aboriginal groups registered their interest in the proposal.

These were:

- Dubbo Local Aboriginal Land Council (DLALC); and
- Peter Chatfield (Tubbagah Aboriginal Co-op).

No other party registered their interest.

As a courtesy to all the registered parties we have only included brief summaries of correspondence for this project. However, detailed information and correspondence logs can be provided on request to DPIE and/or Heritage NSW. The Consultation Log in Appendix A will be redacted in all public versions of this report.

Stage 2. On the 22 March 2021, an *Assessment Methodology* document for the Forest Glen Solar Farm was sent to the two (2) Registered Aboriginal Parties (RAPs) listed above. 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 proposal site and/or any Aboriginal objects contained therein. A minimum of 28 days was allowed for a response to the document.

None of the registered parties raised any objections to the methodology. NGH also contacted both groups to discuss participation in the fieldwork aspect of the project.

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 in response to the methodology.

The survey fieldwork was organised, and DLALC were selected for fieldwork participation by the Proponent. The survey fieldwork was carried out from 4th May – 6th May 2021 by two (2) archaeologists from NGH and two (2) local Aboriginal representatives from the LALC. The Aboriginal community representatives who participated in the fieldwork were:

- Gregory Kennedy; and
- Dean Kennedy.

Due to weather conditions on the 4th May 2021, the two (2) local Aboriginal representatives from the DLALC attended site, but determined that they would not like to undertake survey whilst there was potential for rain. NGH communicated that they would be welcome back to site at any time during the day if they would like, and that we would continue with the survey in their absence. When the DLALC representatives returned to site the following day, NGH staff informed the representatives what had occurred on site whilst they were not present, what areas had been surveyed, and discussed the conclusions of the day.

NGH also identified the sensitive landforms across the site that had been surveyed the previous day and as a group these sites were attended to ensure that the representatives agreed with NGH's assessment of the area.

Stage 4 On the 7th of June 2021, a draft version of this *Aboriginal Cultural Heritage Assessment Report* for the proposal (this document) was forwarded to the RAPs 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

No comments were received from any of the RAP groups on the draft ACHA report.

3. BACKGROUND INFORMATION

3.1. REVIEW OF LANDSCAPE CONTEXT

Understanding the landscape context of the proposal site may assist us to better understand the archaeological modelling of the area and assist in identifying local resources which may have been used by Aboriginal people in the past. This information can then potentially be used to predict the nature of Aboriginal occupation across the landscapes within the proposal site.

Factors that are typically used to inform the archaeological potential of landscapes include the presence or absence of resources that would have been used by Aboriginal people including water, animal and plant foods, stone, and other resources. The landscape context assessment for the proposal site is based on a number of classifications that have been made at national, regional and local levels to help us better understand the archaeological modelling of the area based on the geology, topography, hydrology, flora and fauna and past land disturbances within and adjacent to the proposal site.

3.1.1. Geology and Topography

The landscape context of the proposal site is based on a number of classifications that include the National Interim Biogeographic Regionalisation for Australia (IBRA) system, Mitchell landscapes, NSW soil landscapes and geological maps. The combination of these differing resolutions of landform data provides a comprehensive and multi scaled understanding of the landscape within the proposal site and its immediate surroundings.

Located within the Central West and Orana region, Dubbo and the surrounding area lies within the Murray-Darling Basin and is characterised by wide valleys and floodplains. The area experiences distinct seasonal and regional variations in temperature with summer ranges of 20-34 degrees and winter minimums of -2 to 0 degrees (Office of Environment and Heritage 2014).

Narromine 1:250, 000 Geological Sheet Map

Narromine 1:250K simplified surface geology shows the proposal site contains predominantly Tertiary rocks of the Turtle Rock Volcanics type (J), which comprises friable, poorly exposed off white fine sandstone and mudstone (Planning Industry & Environment 2019a). Portions of the northern and eastern edges of the proposal site extend into a Turtle Rock Volcanics type comprising Olivine basalts (Tob) and Silurian-Devonian St Andrews Beds (S-Da), which contain fine to medium grained sandy and calc-silicate hornfels. A corridor of Quaternary rocks runs from the north-east corner to approximately the middle of the proposal site, comprising alluvium with dominant red silts and some pebble bands, quartz grit and relict erosional meanders (Cza) (Planning Industry & Environment 2019a).

Dubbo 1:100, 000 Geological Sheet Map

The Delroy Road access track extends into the Dubbo 1:100K simplified surface geology map sheet, and comprises Jurassic sandstones of the Pilliga Sandstone unit (Jp), which contains Massive to cross-bedded coarse pebbly lithic-quartz sandstone, minor fine grained sandstone and siltstone (Planning Industry & Environment 2019b).

Where volcanic and siliceous stone is exposed in outcrops or as surficial pebble beds, the stone may have been utilised as a source for the manufacture of stone tools. Sandstone geology also has the potential to contain rock shelter formations, and slabs for use in grinding or petroglyphs.

The simplified geology can be seen in Figure 3-1 below.

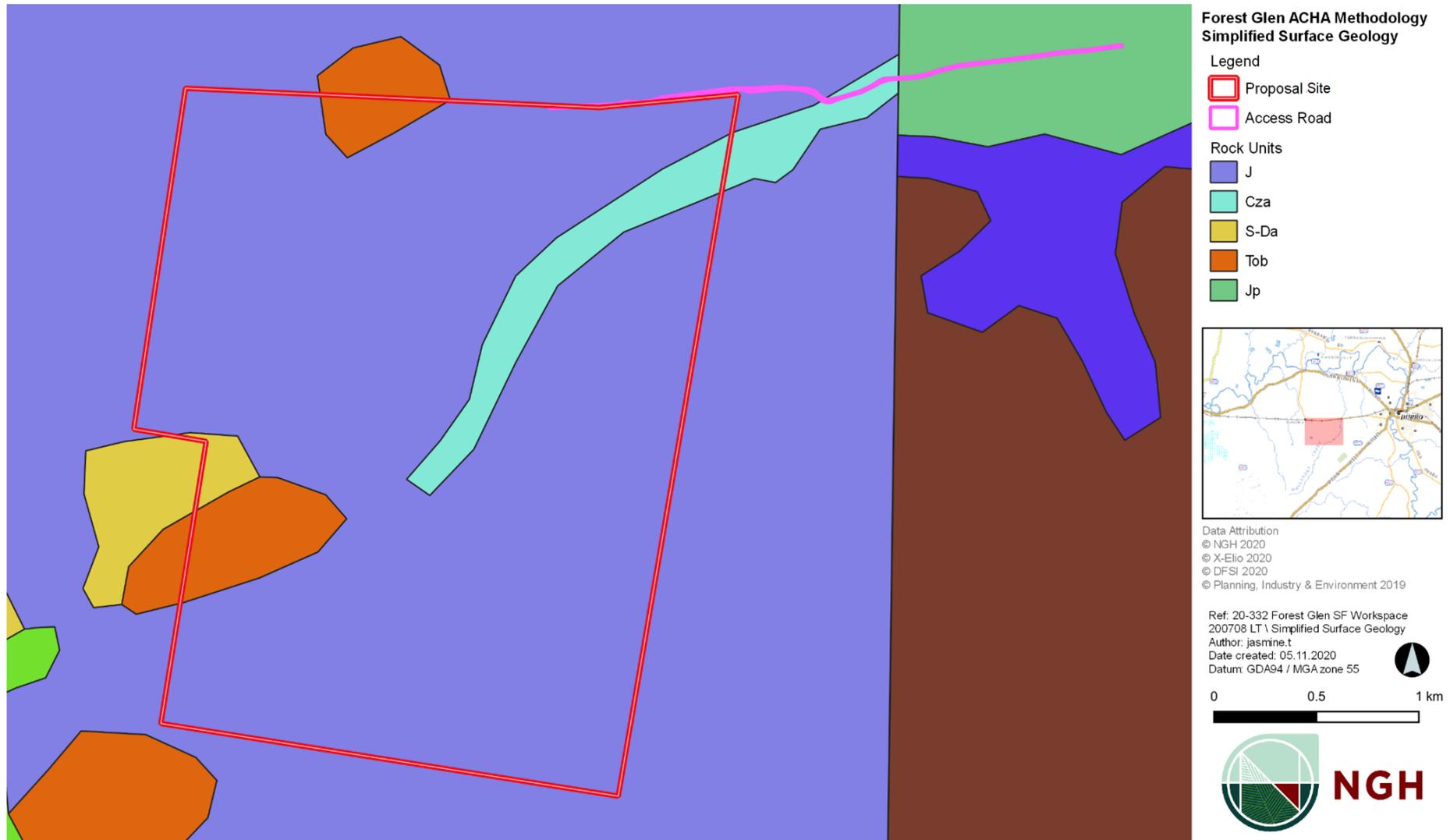


Figure 3-1 Simplified Surface Geology

Interim Biogeographic Regionalisation for Australia

The national IBRA system identifies the proposal site as being located predominantly in the Brigalow Belt South Bioregion (BBSB), with the western edge extending slightly into the NSW South Western Slopes Bioregion (SWSB) (NSW National Parks and Wildlife Service 2003).

The BBSB covers an area in northern NSW and southern Qld, extending from south of Dubbo to the mid-Qld coast. The bioregion is traversed by several major rivers including the MacIntyre, Gwydir, Namoi, Castlereagh, Goulburn, Talbragar and Macquarie rivers. Additionally, the headwaters of the Hunter and Namoi Rivers are fed by the Liverpool Range in the south eastern corner of the BBSB. The climate varies across the region, with the north-west being dry and subtropical, the far west hot and semi-arid, and the south-east characteristically having no dry season and a hot summer.

The BBSB is the southern extremity of the Qld Brigalow belt and has landscapes created from basalt flows and quartz sandstones, resulting in variable vegetation and soils. The landscape is dominated by Quaternary sediments in alluvial fans and outwash slopes.

The BBSB contains nine subregions: Inglewood Sandstones, Moonie-Barwon Interfluve, Northern Basalts, Northern Outwash, Pilliga Outwash, Pilliga, Liverpool Plains, Liverpool Range, and Talbragar Valley. The proposal site is within the Pilliga subregion. A description of the Pilliga subregion is provided in Table 3-1 below and the regions relevant to the proposal site are shown in Figure 3-2.

Table 3-1 Pilliga subregion (NSW Department of Planning, Industry and Environment 2015).

Geology	Landforms	Soils	Vegetation
<p>Horizontal Jurassic quartz sandstones, limited shales, Tertiary basalt caps and plugs plus the sediments derived from these rocks.</p>	<p>Stepped sandstone ridges with low cliff faces and high proportion of rock outcrop. Long gentle outwash slopes intersected by sandy stream beds and prior stream channels. A few patches of heavy clay. Includes the spectacular mountain landscape of volcanic domes, plugs and dykes in the Warrumbungles.</p>	<p>Shallow black earths and red loams on basalts. Extensive harsh texture contrast soils, linear patterns of deep yellow sand, stony red brown earths.</p>	<p>White box with white cypress pine and kurrajong on the basalt hills. Blue-leaved ironbark, white gum, black cypress pine, whitewood, and rough-barked apple on stony sandstone plateau and streams.</p> <p>Narrow-leaved ironbark, white cypress pine, red stringy bark, patches of mallee and broom heath on gentler sandstone slopes. Pilliga box with grey box, poplar box, fuzzy box, bull oak, rosewood, wilga and budda on heavier soils in the west and north. River red gum lines all streams.</p>

Mitchell Landscapes

Further landscape mapping as part of the Mitchell landscapes system shows the proposal site is located in the *BBS (Brigalow Belt South Bioregion) Pilliga - Goonoo Slopes*, with a small portion of the western edge extending into the *NSS (NSW South west Slopes Bioregion) Upper Slopes Granites - Geurie Granites* (DECC 2002). The Mitchell Landscape descriptions relevant to the proposal site are provided in Table 3-2 and shown in Figure 3-3.

Table 3-2 Description of the Mitchell Landscapes relevant to the proposal site (DECC 2002).

Mitchell Landscape	Description (DECC 2002)
Goonoo Slopes	Extensive undulating to stepped low hills with long slopes on sub-horizontal Triassic/Jurassic quartz sandstone, conglomerates, siltstone, shale and some coal. General elevation 300 to 500m with overall westerly slope, poorly defined drainage network, local relief to 30m. Stony yellow earths with sandstone outcrop on ridgelines to yellow harsh texture-contrast soils in shallow valleys. Broad-leaved ironbark (<i>Eucalyptus fibrosa</i> ssp. <i>fibrosa</i>) and black cypress pine (<i>Callitris endlicheri</i>) on ridges, broad-leaved ironbark, narrow-leaved ironbark (<i>Eucalyptus crebra</i>), red ironbark (<i>Eucalyptus sideroxylon</i>), fringe myrtle (<i>Calytrix tetragona</i>), spur-wing wattle (<i>Acacia triptera</i>), dainty phebalium (<i>Phebalium obcordatum</i>), daphne heath (<i>Brachyloma daphnoides</i>) on slopes with patches of green mallee (<i>Eucalyptus viridis</i>), Dwyer's mallee gum (<i>Eucalyptus dwyeri</i>) and broombush (<i>Melaleuca uncinata</i>). Grey box (<i>Eucalyptus microcarpa</i>), red ironbark (<i>Eucalyptus sideroxylon</i>), red stringybark (<i>Eucalyptus macrorhyncha</i>), fuzzy box (<i>Eucalyptus conica</i>) and Blakely's red gum (<i>Eucalyptus blakelyi</i>) with knob sedge (<i>Carex inversa</i>), and tall sedge (<i>Carex appressa</i>) along streams.
Geurie Granites	Low ranges and rounded hills with common rock outcrop and tors on massive Devonian granite, general elevation 400 to 610m, local relief 180m. Gritty gradational red earth on the crests, red texture-contrast soil on upper slopes grading to yellow harsh texture-contrast soil along valley floors. Open forest of; red ironbark (<i>Eucalyptus sideroxylon</i>), white cypress pine (<i>Callitris glaucophylla</i>), red stringybark (<i>Eucalyptus macrorhyncha</i>), yellow box (<i>Eucalyptus melliodora</i>), Blakely's red gum (<i>Eucalyptus blakelyi</i>), and a shrubby understorey.

Soil Landscapes

There is no soil landscape mapping available for the proposal site. However, two Soil Profile Reports completed in 1994 are relevant.

The first site, Profile 124 is located within the northern edge of the proposal site, with soil type of mottled brown chromosols and yellow podzolic soils. The second site is located on a roadside tree line approximately 1.6 km west of the current proposal site. The soil type is eutrophic red sodosol and solodic soil. All soil layers in the second site contained less than 2% rounded fine gravel coarse fragment inclusions of parent material. Descriptions of the Soil profiles are provided in Table 3-3.

Table 3-3 Soil Layer Descriptions (State of NSW and Department of Planning, Industry and Environment 2020)

Soil Profile Location	Soil Layer	Description	Depth m
Profile 124	1	Massive brown moist coarse loamy sand with no recorded mottles	0-0.28
	2	Brown moist coarse light medium sandy clays with moderate red mottles and moderate pedality	0.28-0.6

Soil Profile Location	Soil Layer	Description	Depth m
Profile 124	3	Brown moist coarse light medium sandy clay with moderate prominent grey mottles	0.6-0.8
In Roadside Tree Line	1	Massive dark brown moist silty loam with no mottles	0-0.2
	2	Massive brown moist coarse sandy clay loam with no mottles	0.2-0.48
	3	Yellowish red coarse light sandy clay with moderate pedality	0.48-0.67
	4	Reddish brown moist coarse light medium sandy clay with moderate pedality	0.67-0.90
	5	Brown moist coarse light sandy clay with no mottles and moderate pedality	0.90-1.08

3.1.2. Hydrology

The Macquarie River runs to the north and east of the proposal site, coming to within 7.1 kms of the proposal site's north edge. A number of tributary creeks of the Macquarie River surround the proposal site, with Lagoon Creek approximately 2.3 km to the west and Whylandra Creek approximately 60 m from the south-east corner. A total of two unnamed, perennial tributaries traverse portions of the proposal site from these two creeks, with the tributary from Whylandra Creek dividing into six 1st order drainage lines. Six dams occur wholly within the proposal site. Figure 3-4 shows the hydrology of the proposal site.

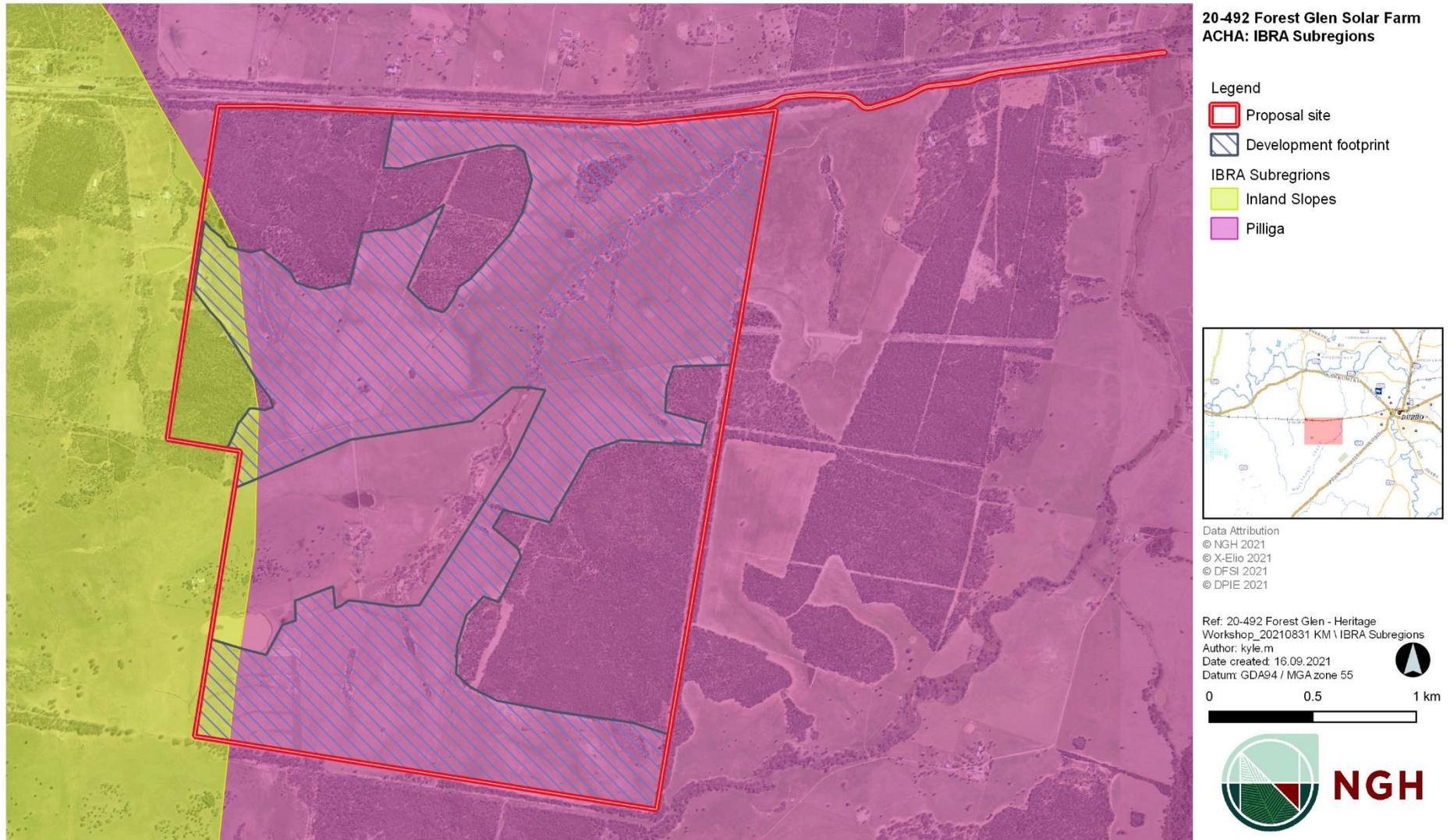


Figure 3-2 IBRA Regions

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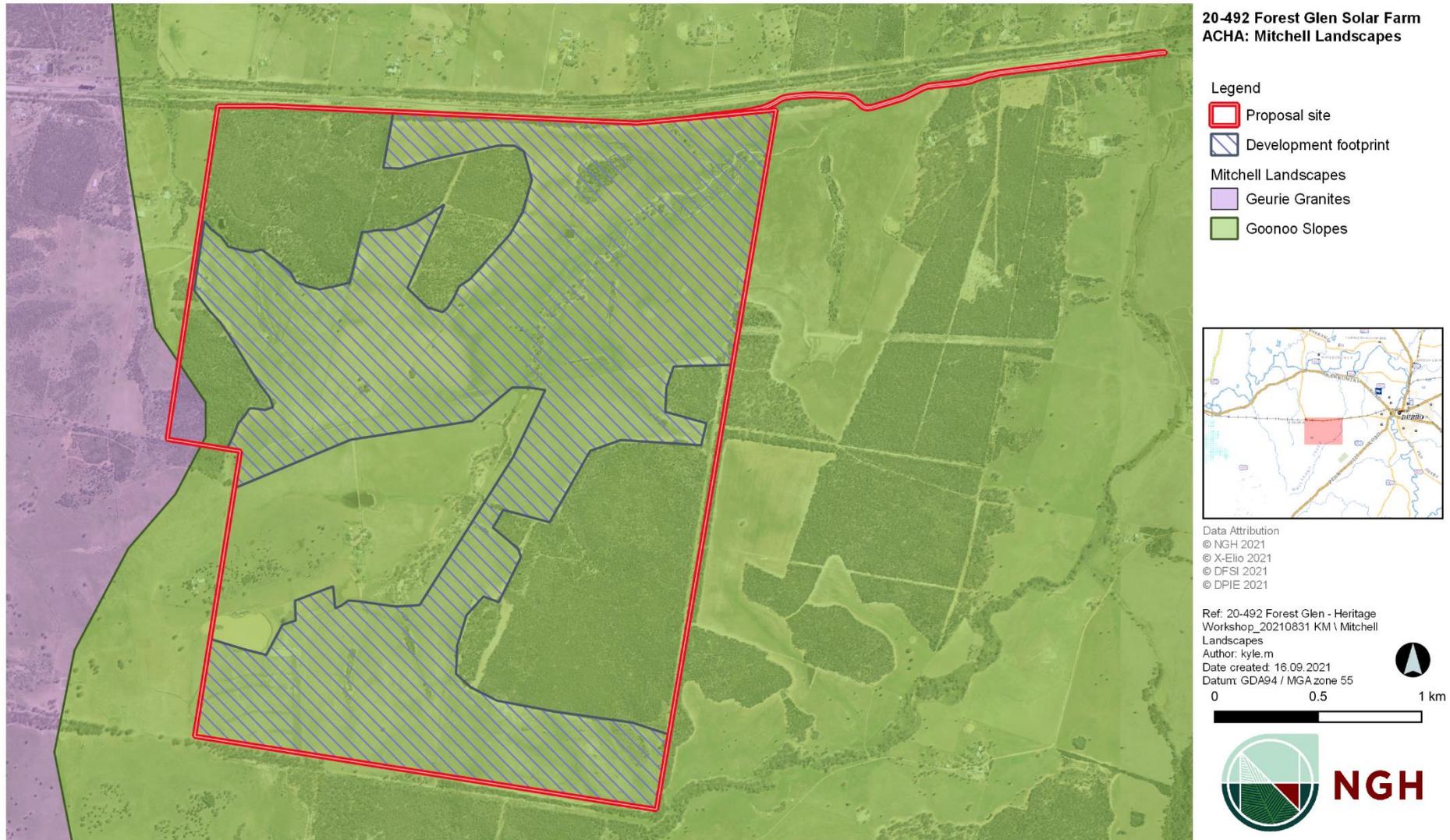


Figure 3-3 Mitchell Landscapes

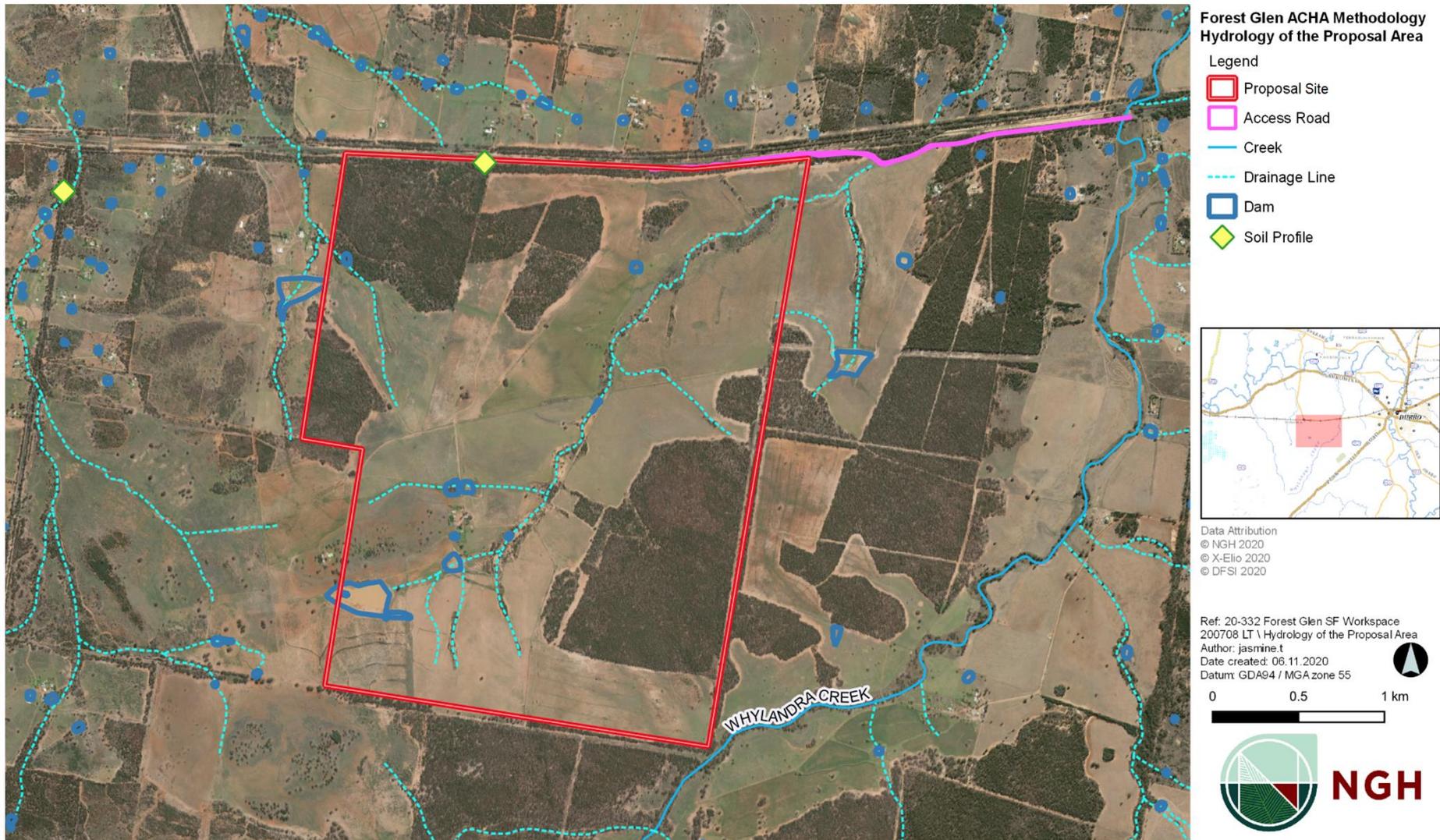


Figure 3-4 Hydrology Across the proposal site

3.1.3. Flora and Fauna

The proposal site has been extensively cleared of trees, although remnant trees exist along the road reserves, creek lines, in paddocks and on higher ground where there are forested vegetation remnants. Extant trees include White Box (*E. albens*), White Cypress (*Callitris glaucophylla*), Narrow-leaved Grey Box (*E. pilligaensis*), Fuzzy Box (*E. conica*), Bimble Box (*E. populnea subsp. bimbil*), Bulloak (*Allocasuarina luehmannii*), Mugga Ironbark (*E. sideroxylon*), and Kurrajong (*Brachychiton populneus*). Shrubs and ground cover include *Acacia mollifolia*, *Daviesia ulicifolia subsp. pilligensis*, Cough Bush (*Cassinia laevis*), *Prostranthera nivea var. induta*, Gorse Bitter Pea (*Daviesia ulicifolia*), Rock Fern (*Cheilanthes sieberi subsp. sieberi*), and Purple Wiregrass (*Aristida ramosa*). Some parts of the proposal site contain riparian vegetation in the form of treed woodland, providing important breeding and roosting habitat for hollow dependent species

As such, there is potential for old growth native trees to be located within or adjacent to the proposal site that may contain evidence of Aboriginal cultural modification. Areas of vegetation are clustered in small groupings across paddocked areas, with some larger clumps within the project area and wider areas of vegetation outside the proposed development footprint. .

Given that the proposal site is located near to the confluence of a variety of resources, the area may have been targeted for the exploitation of aquatic and terrestrial resources by Aboriginal people.

3.1.4. Land Disturbance

Land disturbances within the proposal site are largely those commonly associated with farming practices. There is a history of both low and high intensity farming practices across the landscape with soils at the site extensively disturbed by repeated cultivation and stock grazing. High intensity farming practices include the ploughing of fields and the initial creation of dams and paddocked areas, while lower intensity practices include pastoral activities and the grazing of stock.

The proposal site is currently used for cropping and grazing including oats and sheep and has been historically disturbed by the construction and maintenance of roads, housing, dams, fencing, and use for grazing and agriculture.

3.1.5. Historic Land Use

The proposal site is located within the County of Narromine, in the Parish of Dungary.

The Brigalow Belt South bioregion was first visited by Oxley in 1817 and again in 1818, when he reached the junction of the Macquarie and Talbragar Rivers near current day Dubbo. Oxley noted that the land would be suitable for agricultural use, and in 1823 pastoral occupation began when Governor Brisbane led the first European community to the west of Bathurst in an Agricultural Convict Establishment. Around Dubbo, pastoral occupation quickly escalated, with squatters arriving in the area from 1824 and squatting licences being issued from 1826. Squatters runs began to be setup from the early 1830s, including 'Dubbo' run, and by the 1840s most of the Macquarie and Talbragar river frontages had been occupied.

From the 1840s to 1880s working relationships between the Europeans and local Aboriginals were established. European station owners allowed Aboriginals to live on their stations in 'station camps', which made for readily available workers and enabled Aboriginal people to stay on their country. Aboriginal labour was essential for pastoral functioning between the late 19th and mid-20th century, and the gold rushes saw this reliance increase.

In 1881 the Main Western railway line that runs along the north edge of the proposal site reached Dubbo. This line was extended to the site that would become Narromine in 1883 with the railway station being the first building constructed in the town. The railway line allowed for the carrying of passengers and increased the ability to send goods, with wool and livestock being transported along the line. From 1901

the railway beyond Dubbo began to make a loss, until decades later, in 1974, passenger transport beyond Dubbo ceased.

While it is considered likely that Aboriginal people worked within or near the current proposal site on stations and runs, there are currently no known historical accounts of Aboriginal people working or moving through the area.

3.1.6. 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. Previous studies in the region have identified that banks, elevated banks, and terraces in proximity to drainage lines have potential for low to moderate artefact densities. Sites are generally noted to be associated with more permanent watercourses. Given that Whylandra Creek, a tributary of Macquarie River is within 60 m of the proposal site and that there are two low order tributaries of Whylandra Creek and Lagoon Creek extending across the proposal site, the areas within 200 m of water are noted to have high archaeological sensitivity when compared to the surrounds. Additionally, any old growth mature native trees within the proposal site have potential to have been culturally modified. It is considered that prior to European land modifications, this area as a whole may have provided resources, shelter, water and food for Aboriginal people.

3.2. REVIEW OF ABORIGINAL ARCHAEOLOGICAL CONTEXT

3.2.1. Ethnohistoric Setting

There are several ethnographic recordings of Aboriginal life in the region that notably focus on the prevalence of Aboriginal people around waterways. It is important to consider that the Aboriginal people alive at the time of such observations were survivors of serious epidemics of infectious diseases, such as smallpox, brought by Europeans, as well as acts of violence and murder which greatly affected the population sizes and distribution of people within the landscape. Consequently, European records may not necessarily reflect pre-contact population distributions and traditional ways of life (Dowling 1997; Littleton & Allen 2007).

The dispossession from traditional lands caused great social upheaval meaning that access to traditional resource gathering and hunting areas, religious life, marriage links and sacred ceremonial sites were disrupted or destroyed. Despite this Aboriginal people continued to maintain their connections to sites and the landscape in a variety of ways. The Aboriginal people of the region continue to have a strong connection to their land.

Tribal Boundaries

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, Peterson & Wesson 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, Peterson & Wesson 2005, pp.8 & 16).

Early mapping of Aboriginal tribal boundaries by Tindale (1940; 1974) identify the proposal site as being within the Wongaibon language group, also referred to as Waangaypuwan. Whereas Horton (1996) identifies the proposal site as being within the Wiradjuri language group. Tindale and Horton’s tribal boundaries were partially the product of a European system of determining landownership, a system that did not reflect Aboriginal social constructs or their relationship with country. Tindale’s maps imply that the language groups identified, and their defined borders/boundaries should be considered as territorial units. It is important to remember that the boundaries between all the language groups mapped by Tindale are suggestive only and would most likely have changed through time due to changing availability and distribution of edible and raw material resources. It should also be noted that today not all Aboriginal groups agree with the mapped boundaries presented in Tindale and other publications.

The proposal site is located within what today is regarded as Wiradjuri country. The Wiradjuri language group was the largest in NSW prior to European settlement and comprises a number of different nations. 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 should be noted, however, those tribal boundaries within Australia are based largely on linguistic evidence and it is probable that boundaries, clan estates and band ranges were fluid and varied over time. Consequently ‘tribal boundaries’ as delineated today must be regarded as approximations only, and relative to the period of, or immediately before, European contact. Social interaction across these language boundaries appears to have been a common occurrence. The Wiradjuri territory extended into three general physiographic regions: the highlands (central tablelands) in the east, the riverine plains in the west and the transitional western slopes zone in-between (White 1986:39).

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

Terrestrial animals such as the possum were 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. 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).

It was the small family group 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.

The small family units were parts of larger bands that 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 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 grinding implements and larger ranges 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 who camped in an area over a shorter period.

The early days of European settlement saw violence, disease, sexual exploitation and diminished resources, which resulted in declines in the Aboriginal population. In 1882, the Aboriginal population in Dubbo was recorded at 741 (DE&E 2016).

- Early days of European settlement saw violence, disease, sexual exploitation, diminished resources, and the population declined (NSW Department of Planning, Industry and Environment 2015).
- Aboriginal people resisted covertly to hold onto traditional practices, languages, stories and sacred sites.
- Corroborees were performed for European audiences, and sometimes Europeans saw funerals and burial ceremonies.
- Last recorded corroboree was in 1881, any after this were held in secret.
- In 1882, Aboriginal population around Dubbo recorded at 741.
- 1860s wheat farming began around Dubbo, and 880s cropping was extensive, which meant widescale clearing.

- 1880s-1920s saw transition from pastoralism to agriculturalism, which shut out Aboriginal people from their lands.
- 1890s land enclosure and decreasing property size increased and dual occupation ceased, with Aboriginal communities driven from homelands.
 - Aboriginal people lost access to lands and the land ecology was changing through agricultural use.
- Became more dependent on European landholders, without access to traditional lands, and with the lands being ruined. Obtained work in timber cutting, feral animal shooting, shearing, domestic labour, farm hands and stock hands. Always trying to remain on their lands and becoming involved in local economies to support selves.
- Those living on fringes or reserves or camps increasingly under govt control, Aboriginal protection board established in 1990s.
- By 1915, board had power to remove children.
- Closest reserve to Dubbo was Talbragar Reserve, which was large, established 1898 junction of Macquarie and Talbragar Rivers.
- Additionally, local Aboriginals lives in camps along Macquarie River, with Talbragar Reserve home to core of the local community.
 - Families oft chose to stay close or in the reserves so their children could get an education, but in early- mid 1900s were unofficially excluded from public schools.
- Areas such as Goonoo Forest became more important to Aboriginal community during these times, and it was dedicated as a formal public reserve in 1917, which enabled its protection and use by Aboriginals for resource use and social and spiritual purposes away from Europeans.

3.2.2. AHIMS Search

The Aboriginal Heritage Information Management System (AHIMS) provides a database of previously recorded Aboriginal heritage sites in NSW. 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 the register to be added. As a starting point, the search will indicate whether any sites are known within or adjacent to the proposal site.

A search of the AHIMS database was conducted over an area approximately 22 km east-west x 22 km north-south centred on the proposal site on the 4th of November 2020. The AHIMS Client Service ID was: 547406. The search area extended from Lat, Long From: -32.3478, 148.3499 - Lat, Long To: -32.2037, 148.5785 with a Buffer of 50 meters. There were 74 Aboriginal sites and no declared Aboriginal Places recorded in the search area. No previously recorded sites are within 1.5 km of the proposal site.

The results of the AHIMS search are shown in Figure 3-5 and in Table 3-4 below.

Table 3-4 Breakdown of previously recorded Aboriginal sites in the region.

Site Type	Number
Artefact	33
Modified Tree	33
Artefact and Potential Archaeological Deposit (PAD)	3
Potential Archaeological Deposit (PAD)	2
Ochre Quarry	2
Hearth , Artefact and Modified Tree (Carved or Scarred)	1
TOTAL	74

There is a high proportion (44.6%; n=33) of scarred trees recorded in the area especially where there are remnant stands of native trees. Scarred trees provide a tangible link to the past and provide evidence of Aboriginal subsistence activities through the deliberate removal of bark or wood. It is likely that the high proportion of scarred trees in the area surrounding the proposal site is related to the more obtrusive nature of scarred trees when compared to small artefact scatters and isolated stone artefacts (44.6%; n=33) which are recorded as having the same number of sites in the area.

3.2.3. Additional Searches

Other heritage register searches were also undertaken to identify any items or places in proximity to the proposal site, with a focus on the proposal site and surrounding landscape. The following resources were used as part of this assessment:

- The NSW State Heritage Inventory (SHI), this includes items on the State Heritage Register and items listed by state agencies and local Government, to identify any items currently listed within or adjacent to the proposal site.
- The Australian Heritage Database, this includes items on the National and Commonwealth Heritage Lists, to identify any items that are currently listed within or adjacent to the proposal site.

The results of the NSW SHI database search indicated there is one previously recorded Aboriginal Place listed under the *National Parks and Wildlife Act* within the Dubbo Regional LGA. This site is the Terramungamine Aboriginal Place, which is approximately 13 km north-east of the proposal site.

Terramungamine is an Aboriginal burial ground that is part of a wider complex of sites that are culturally important to local Aboriginal people. In addition to burials, the site includes scarred trees, grinding grooves and other Aboriginal objects. Today, Terramungamine and the surrounding areas continue to be visited and used by Aboriginal people, and tours are given by traditional owners.

Additionally, there are two recorded Aboriginal Places located in the Narromine LGA. These sites comprise the Bridge Reserve and Mack Reserve, approximately 21 km west to north-west of the proposal site and approximately 22 km north-west of the proposal site, respectively. These two Aboriginal Places were fringe camps where Aboriginal people lived between the 1860s and 1960s. The camps were established by Aboriginal people independently of government control as they were driven off their traditional lands in central NSW after settlers moved into the area in the 1850s. As a result of this, resource access was restricted, and Aboriginal people moved closer to towns.

The results of the NSW SHI database search indicated there are 15 previously recorded heritage sites listed under the *NSW Heritage Act* within the Dubbo Regional LGA. None of the sites are located within 2km of the proposal site.

The results of the NSW SHI database search indicated there are 455 previously recorded heritage sites listed by the Local and State Agencies within the Dubbo Regional LGA. None are located within 2km of the proposal site.

The results of the Australian Heritage Database search indicated there are 24 sites located within the Dubbo LGA. None are located within 2km of the proposal site.

No other known previously recorded heritage sites are located within or adjacent to the proposal site.

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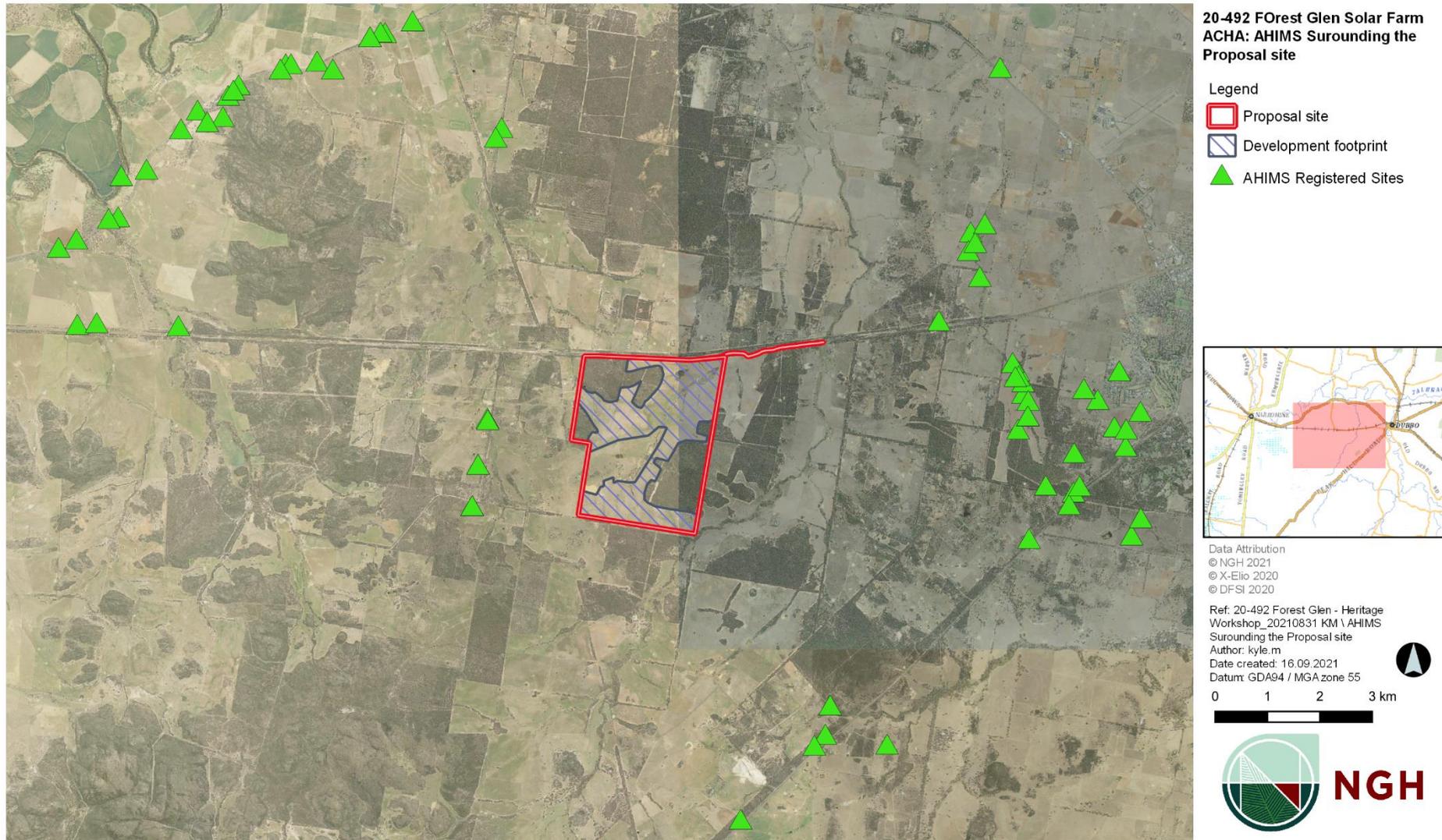


Figure 3-5. AHIMS Sites in proximity to the proposal site.

3.2.4. Previous archaeological studies

Regional 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 & Kamminga 1999; Hiscock 2007). A number of regional and local studies have contributed to understandings of Aboriginal archaeology throughout the Dubbo area. In addition, a number of archaeological assessments have been undertaken largely in relation to infrastructure projects. A summary of studies relevant to the proposal site is provided below.

In 1985, Koettig built on the archaeological understanding of the region by conducting a wide-ranging, comprehensive and systematic archaeological study of the Dubbo area, with the closest portion of the study located 3 km south-east of the current proposal site (Koettig 1985). Koettig investigated all topographic landform units and creek orders through sample survey to clarify locations and site types. The study had the following conclusions:

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

Koettig (1985) suggested that larger and longer occupied sites are likely to occur along permanent watercourses, while more sporadic occupation would have occurred along ridge tops or in association with temporary water courses.

In 1986, Balme completed the North-Central River archaeological study, approximately 7 km north-west of the proposal site. The study looked at site location with reference to preservation regarding natural and incursive processes. A number of sites previously recorded through ethnographic accounts were not able to be relocated during the study. The study concluded that, aside from historic impacts, the distribution of sites was predominantly influenced by geomorphic processes that impact site exposure and preservation (as cited in OzArk Environmental and Heritage Management Pty Ltd 2013, pp.8–50).

From 1997 to 2003 a number of assessments have been undertaken for road realignments of Obley Bluff Road, approximately 8.5 km east of the current proposal site, including Kelton in 1997, Nolan 2000, Ozark Environmental and Heritage Management Pty Ltd (OzArk) 2003 and Warren Buff (as cited in OzArk Environmental and Heritage Management Pty Ltd 2013, pp.8–51). The Obley Road assessments have resulted in the identification of 33 Aboriginal sites, with the majority of these sites comprising scarred trees (OzArk Environmental and Heritage Management Pty Ltd 2013, pp.8–52).

In 1995, Kelton (1995 as cited in OzArk Environmental and Heritage Management Pty Ltd 2018, p.22) completed an archaeological survey for the proposed housing subdivision of 'Keswick', approximately 11 km east of the current proposal site. A total of seven sites were located, comprising four artefact scatters, two isolated finds and one scarred tree. The artefacts identified included flakes manufactured from chert, mudstone, quartz, quartzite and basalt and grinding stone fragments of sandstone and mudstone (as cited in OzArk Environmental and Heritage Management Pty Ltd 2018, p.22). The sites were all located on the banks and elevated banks of Eulomogo Creek and on elevated floodplains within several hundred metres of Eulomogo Creek and Macquarie River.

In 2000, Nolan completed an Aboriginal/archaeological site investigation survey for the proposed resource drilling area at Toongi, south of Dubbo, approximately 23 km south-east of the current proposal site (as cited in R. W. Corkery & Co. Pty. Limited & OzArk Environmental and Heritage Management 2017, p.11). A total of two Aboriginal sites were identified, comprising an isolated chert flake and a grinding groove site. The grinding groove site contains five grinding grooves of differing sizes with four

grouped on a sandstone slab and one isolated approximately 12 m away. The grinding grooves were all located along a creek bed (as cited in R. W. Corkery & Co. Pty. Limited & OzArk Environmental and Heritage Management 2017, p.11)

In 2002, Nolan completed an assessment of the proposed Dubbo Zirconia Project, extending on the work completed in 2000, approximately 18 km south-east of the current proposal site (as cited in R. W. Corkery & Co. Pty. Limited & OzArk Environmental and Heritage Management 2017, p.11). A total of 22 new sites were located during the survey, comprising 11 scarred trees, six artefact scatters, three grinding groove sites and two isolated finds (as cited in R. W. Corkery & Co. Pty. Limited & OzArk Environmental and Heritage Management 2017, p.11). Nolan identified that sites tend to increase in size with proximity to reliable water sources, and that grinding groove sites occur where there is appropriate sandstone material for use. Scarred trees had no relationship to specific features, occurring in all landforms. Further, it was noted that five of the artefact scatters were located on vehicle tracks that had been highly disturbed (as cited in R. W. Corkery & Co. Pty. Limited & OzArk Environmental and Heritage Management 2017, p.11).

In 2006, OzArk undertook a broad scale Aboriginal heritage study for the Dubbo City Council aiming to consolidate previous assessments in the area (as cited in OzArk Environmental and Heritage Management Pty Ltd 2013, pp.8–51). During the study a total of approximately 1, 120 ha portions of land around the township of Dubbo were surveyed, with the closest portion located approximately 5.5 km east of the current proposal site. A total of 26 new Aboriginal sites were identified, eight previously recorded sites were relocated, and four previously recorded sites were unable to be relocated. OzArk determined that the site types adhered to previous studies with scarred tree distribution exclusively along fence-lines and at waterways. Fewer scarred trees were located than expected, which was noted to be likely due to intensive agricultural and tree-clearance in the study area than the average for the Dubbo LGA. Artefact scatters and isolated finds were predominantly located on watercourse edges and elevated terraces within 500 m of permanent or semi-permanent water sources. No grinding grooves were encountered, which was considered to conform to previous studies in which grinding grooves comprise 3.61% of previously identified sites in the Dubbo LGA (as cited in OzArk Environmental and Heritage Management Pty Ltd 2013, pp.8–51). The main findings from the study were:

- Lower/intermediate terraces, floodplains, and hill crests were not represented well enough in terms of Estimated Survey Coverage (ESC) to make a good assessment of archaeological potential.
- Despite poor ESC, elevated terraces provided relatively high site numbers. This landform only occurred in areas that included a segment of the Macquarie River.
- Creek/riverbanks and edges ranked high as well. This is consistent with the predictive models.
- All sites were located within 500 m of a permanent water source or 100 m of an ephemeral water source. However, around 25% of the study area falls within this zone, and generally has a much higher ESC than portions of land further away from water. Nonetheless, water sources seem to be the primary influence behind site location.
- Despite good ESC, hill slopes/sloping plain and flat plain yielded low artefact numbers.

The majority of all site types recorded (63.2%) were on Quaternary alluvium, the soils once supported the more complex ecological communities in the region. This geological unit in the region occurs near major waterways such as Macquarie and Castlereagh Rivers and the major creek lines and as such water is found close proximity and consequently, the likelihood of associated Aboriginal sites increases.

In 2009, OzArk completed an Aboriginal heritage assessment for proposed works on Lagoon Creek Road, approximately 1.5 km west of the current proposal site (OzArk Environmental & Heritage Management Pty Ltd 2009). OzArk noted the most relevant factor in predictive modelling was proximity to a permanent water supply. Additionally, pen camp sites are more likely on elevated landforms close to permanent water, isolated finds and scarred trees may occur in any landforms; however scarred trees are commonly found close to watercourses, and quarries are possible where there is appropriate outcropping stone. A

total of two Aboriginal sites were identified during the survey comprising a scarred tree and a tree that was a possible resource gathering site. It was determined that creek lines within the area of study have been highly disturbed, which reduced the potential for Aboriginal objects to remain, and for subsurface *in situ* deposits.

In 2013, OzArk undertook an Aboriginal heritage assessment for the proposed Dubbo Zirconia Project, including rail, road and water pipeline additions and upgrades, with the closest portion approximately 10 km east to south-east of the current proposal site. The assessment comprised survey and test excavation. During the survey, 34 new Aboriginal sites were identified, comprising 15 artefact scatters, three with associated areas of PAD and one with associated possible grinding grooves, 13 isolated finds, three scarred trees, one ochre processing site and one area of PAD (OzArk Environmental and Heritage Management Pty Ltd 2013). The artefacts included flakes, flaked pebbles and cobbles, flaked pieces, flake shatter, cores, hammerstones, a scraper, and an axe head manufactured from cobbles, quartz, quartzite, sandstone, fine-grained silica, chalcedony, chert, mudstone, rhyolite, basalt, silcrete and an unknown material. Test excavation was undertaken over two areas of PAD that were in the impact zone of the proposed development. A total of five artefacts were identified subsurface at one area of PAD, and no artefacts in the second (OzArk Environmental and Heritage Management Pty Ltd 2013, p.105). It was determined by OzArk that the low level of subsurface artefacts as compared to high level of surface artefacts is likely due to landform degradation resulting in artefacts remaining of the surface of soils rather than being buried. The subsurface artefacts located were likely due to disturbances such as ploughing, flooding and stock movement, and were likely out of context. The assessment results were consistent with site location modelling of the Dubbo area, where:

- Grinding groove sites occur predominantly along creek lines and can occur on floodplain landforms;
- Artefact scatters and isolated finds predominantly occur on elevated terraces and can occur on undulating landforms;
- Scarred trees can occur across landforms; and
- Site occurrence decreases with increased distance from water sources (OzArk Environmental and Heritage Management Pty Ltd 2013, pp.105–6).

In 2018, OzArk undertook an Aboriginal heritage assessment for the proposed Regional Rail Maintenance Facility at Dubbo, approximately 11.5 km east of the current proposal site (OzArk Environmental and Heritage Management Pty Ltd 2018). The majority of the assessment area was highly disturbed, and no sites or areas of PAD were identified.

In 2018, OzArk also undertook a due diligence assessment for the proposed Obley Road to Rifle Range Road Water Pipeline Project, approximately 5.5 km east of the current proposal site (OzArk Environmental & Heritage Management Pty Ltd 2018). Predictive modelling noted that the majority of sites are likely to be found next to water courses, with the most common sites being scarred trees, followed by artefact scatters, isolated finds, and open camp sites. A total of three previously recorded sites were relocated, and one new site was identified. The relocated sites consisted of two scarred trees and one artefact scatter, and the newly identified site was a single quartz core on a dirt track on a fence line. The artefact scatter site was originally recorded as a basalt stone procurement site, but the four originally identified artefacts were unable to be relocated and no evidence of quarrying was extant on the basalt outcrop. Instead, four new artefacts were located, manufactured from basalt.

3.2.5. Summary of Aboriginal land use

The results of previous archaeological surveys in the region show there are sites and artefacts present throughout the landscape, albeit concentrated closer to water courses. There does appear to be a pattern of site location that relates to the presence of potential resources for Aboriginal use with high density sites generally located in elevated flat areas adjacent to waterways and grinding grooves evident where there

is raw material conducive to this use, generally near waterways. Lower density background scatters also occur on undulating landforms in proximity to water. The lithology within the area appears to be variable and related to the locally available and suitable rock types. Modified trees are recorded in the area not associated with any particular landforms, in areas where old growth trees remain.

A detailed understanding of Aboriginal land use of the region is lacking, as few in depth studies have been completed in close proximity to the proposal site. 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 limited.

3.2.6. Archaeological Site Location Model

Based on the results of the previous archaeological investigations in the general area, and through extrapolation of site data from area, it is possible to provide the following model of site location in relation to the proposal site.

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. This feature is likely to occur.

Stone artefact scatters – representing camp sites or flaking and maintenance activity can occur across the landscape, usually in association with some form of resource or landscape. Water bodies, such as rivers, ephemeral creeks or clay pans can also be a focus of Aboriginal occupation. Given the proximity of the proposal site to Whylandra Creek and two tributaries that traverse the proposal site, low density artefact scatters are likely 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 within and adjacent to the proposal site particularly along road reserves, creek lines, in paddocks and on higher ground where forested vegetation remnants are extant. This feature is therefore likely to 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 site may contain sandstone outcroppings; however, no grinding grooves have been identified in the region, and therefore this feature is unlikely to occur.

Ochre Quarries – area areas where people used natural ochre resources as sources of pigment material. This requires geologically suitable material outcropping to be accessible. Two such sites have been identified in the broader region and therefore this feature is likely to occur in any areas where there is suitable outcropping material.

Stone resources – are areas where people used natural stone resources as a source material for flaking. This requires geologically suitable material outcropping to be accessible. Any outcroppings in the proposal site of suitable material have the potential to have been utilised; however, no such sites have been recorded in the area and therefore such sites are less likely to occur.

Burials – are generally found in elevated Spring contexts or in association with rivers and major creeks. Given the proximity to Whylandra Creek, it is possible that this feature could occur. However, no such sites have been recorded in the area and therefore such sites are less likely to 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. No such sites have been recorded in the area and therefore such sites are less likely to occur.

Hearths/Ovens – are identified by burnt clay used for heat retainers. They could occur either independently or in association with other Aboriginal cultural features such as artefact scatters. Hearths are generally considered to be limited, one-off use or reused but few times and are smaller concentrations. Ovens are considered to represent larger features, often extending over a larger area and can include other material such as bone. No such sites have been recorded in the area and therefore such sites are less likely to occur.

Rock Art and Engravings – human-made markings placed on natural stone by painting on a surface or making engravings into stone. Such places are found along rock platforms, stone outcroppings or in rock shelters. The proposal site contains no rock platforms or overhangs and therefore this feature is unlikely to occur.

Stone arrangement – human-made arrangement or deliberate placement of stones typically, laid out in a pattern extending over several metres or arranged to form shapes or patterns. Stone arrangements are usually large, measuring many metres and include stones in a range of sizes. No such sites have been recorded in the area and therefore such sites are less likely to occur in the proposal site especially given the majority of the area has been historically disturbed by farming and land clearing practices.

Potential Archaeological Deposit (PAD) - Areas assessed as having the potential to contain Aboriginal objects. PADs are commonly identified on the basis of landform types, surface expressions of Aboriginal objects, surrounding archaeological material, disturbance, and a range of other factors. This feature has potential to occur.

In summary, the topography and landscape features within the proposal site would likely have been foci of Aboriginal occupation, in particular the flats and ridge tops surrounding the Creek lines that intersect the proposal site. As Aboriginal people have lived in the region for 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 and modified trees.

3.2.7. Comment on Existing Information

The AHIMS database is a record of those places that have been identified and had site cards submitted. It is not a comprehensive list of all Aboriginal cultural objects 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 in those areas. Within the general vicinity of the proposal site there has been little in the way of archaeological investigations. The information relating to site patterns, their age and geomorphic context is little understood. Therefore, the robustness of the AHIMS survey results are considered to be only moderate for the present investigation. There are likely to be many sites that exist that have yet to be identified. Past land use activity has also greatly disturbed the archaeological record and there are unlikely to be many places that retain *in situ* archaeological material.

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, we 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 proposed works area, no such places or values have been identified.

4. ARCHAEOLOGICAL INVESTIGATION RESULTS

4.1. SURVEY STRATEGY

The survey strategy objective was to cover the development footprint and as much of the ground surface within the proposal site as possible. Although the actual ground impact from the construction method for

the proposed solar farm is generally likely to be low, the placement of solar arrays across the landscape has the potential to cover any cultural heritage sites and the area of disturbance surrounding the substation will be considerably higher. Consequently, the survey strategy was devised to walk a series of transects across the landscape to achieve maximum coverage. Because the proposal site was generally disturbed and cleared, transects were spaced evenly with the survey team spread apart at 30 m intervals, walking in parallel lines. 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. The nature of the proposal site made this an ideal survey strategy allowing for maximum survey coverage and opportunity to identify any heritage objects.

The survey strategy was amended for one paddock area during the fieldwork due to its having knee to waist high crops and nil visibility. At the request of the RAPs, the survey team walked the paddock with transects spaced at 50 m intervals. Similar considerations were made in survey area 8, where the visibility was significantly higher due to cropping so spacing was reduced to 20m intervals.

While the proponent plans to retain existing viable native vegetation remnants where possible, there are isolated trees within the paddocks that may be cleared to cater for the proposal. There are large areas of remnant vegetation around the fringes outside of the development footprint that are within the project area, but not subject to any potential harm as a result of this proposal. Remnant vegetation within the survey area was inspected for any evidence of Aboriginal scarring (Long 2005).

Due to the low to moderate visibility across the proposal site any exposures or areas of visibility were also targeted during the survey. The areas of increased invisibility within the proposal site including along the creek lines, the creek banks, and the two proposed areas for creek crossings over Spring Creek were also targeted for intensive survey.

The survey team consisted of a minimum of two people to a maximum of four people, which allowed a 60 m to 200 m wide tract of the proposal site to be surveyed with each transect depending the number of people present. In general, the majority of the survey transects were undertaken by all four people.

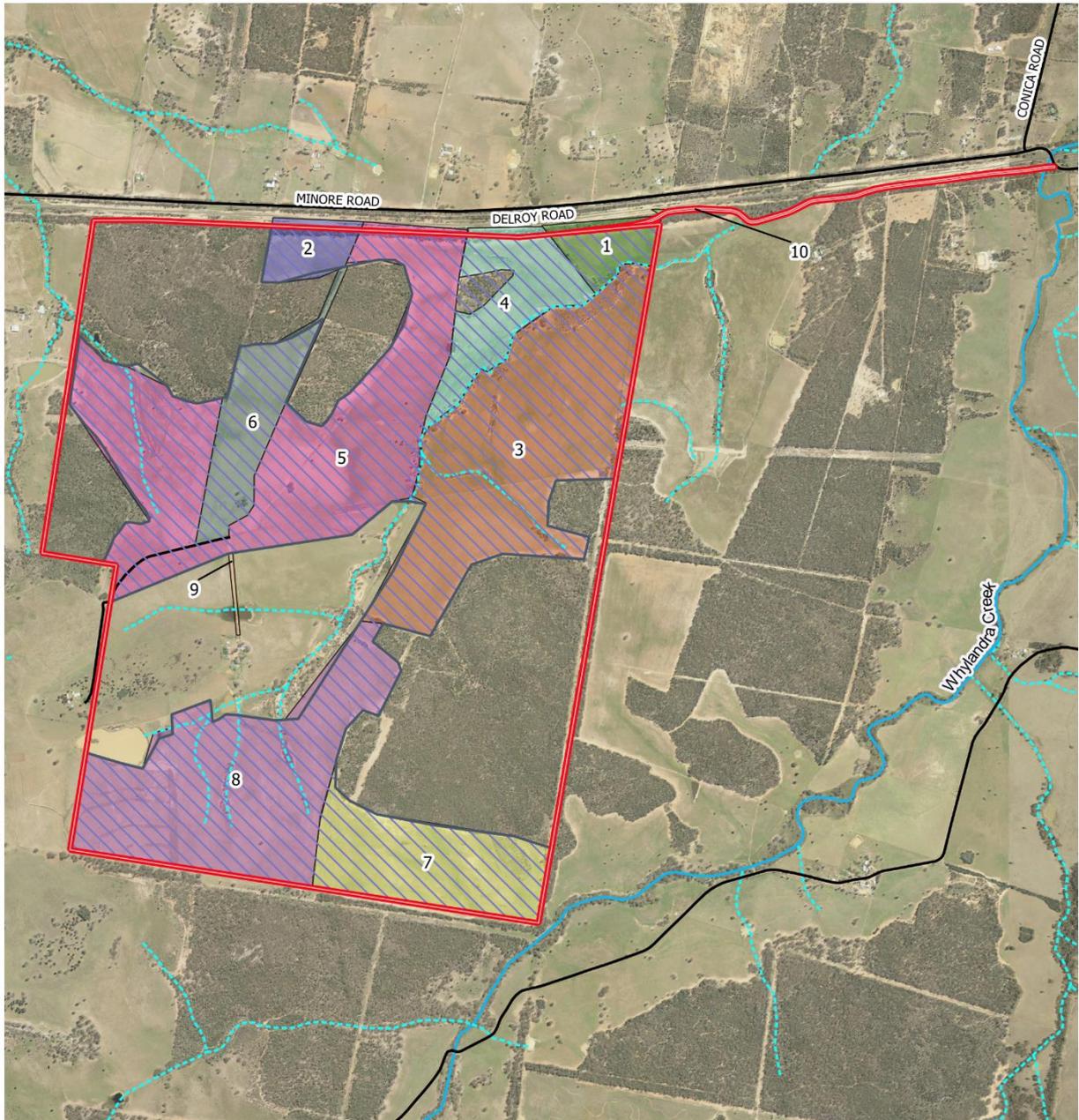
NGH believe that the survey strategy was comprehensive and the most effective way to identify the presence of Aboriginal objects within the proposal site. Discussions were held in the field each day between the archaeologists and the Aboriginal community representatives to ensure all were satisfied and agreed with the spacing, coverage and methodology.

The proposal site was divided into ten survey areas based on the landscape, paddock layouts and visibility during the field survey. The landforms are listed in Table 4-1 below and shown in Figure 4-1.

Table 4-1. Forest Glen Solar Farm ACHA survey areas.

Survey Area	Landforms	Visibility
1	Undulating plain, Creek banks	10%
2	Undulating Plain	10%
3	Undulating Plain, Creek banks, Drainage Lines	1%
4	Undulating Plain	5%
5	Undulating Plain, Drainage Line, Slope	2%
6	Undulating Plain	5%
7	Undulating Plain, Spur, Gully, Crest	10%
8	Undulating Plain, Drainage Lines, Cropped Paddocks	65%
9	Undulating Plain, Drainage Line (driveway)	35%
10	Road Corridor	15%

The survey fieldwork was undertaken from the 4th to the 6th of May 2021. During the survey notes were made about visibility, photographs were taken, and any possible Aboriginal objects or features identified were inspected, assessed, and recorded if deemed to be Aboriginal in origin.

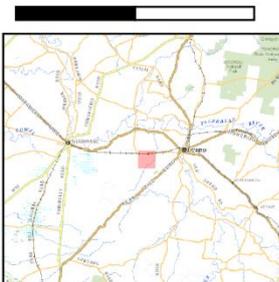


**20-492 Forest Glen Solar Farm
ACHA Survey Results**

Legend

Proposal site	Survey Area 1	Survey Area 6
Development footprint	Survey Area 2	Survey Area 7
Roads	Survey Area 3	Survey Area 8
Creek	Survey Area 4	Survey Area 9
Drainage Line	Survey Area 5	Survey Area 10

0 0.5 1 km



Data Attribution
© NGH 2021
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© DSFI 2021

Ref: 20-492 Forest Glen - Heritage
Workshop_20210831 KM \ ACHA Survey
Results
Author: kyle.m
Date created: 22.05.2021
Datum: GDA94 / MGA zone 55



Figure 4-1. ACHA survey areas.

4.2. SURVEY COVERAGE

The solar farm area consisted primarily of cleared and cropped paddocks that had been subject to farming and grazing activities. Survey transects were undertaken on foot and traversed the entire development footprint. The survey was noted to be impeded at times by a low dense grass with under cropping of clover and knee to waist height grasses, however a number of exposures were present across the proposal site and all landforms. Areas of increased visibility consisted of disturbed exposures on tracks, fence lines, contour banks, dam banks, areas along the creek banks, and patches of bare ground. On average, visibility within the surveyed area was low to moderate, averaging between 5 to 30%, with visibility in exposures averaging between 50 to 95%.

Table 4-2 below shows the calculations of effective survey coverage and Plate 4-1 to Plate 4-22 below, show examples of the transect landforms and visibility within the proposal site.

Between the four team members, a total of approximately 264 km was walked across the proposal site. 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 3.92% of the proposal site. It is considered by NGH that the survey of the development footprint within the proposal site had sufficient and effective survey coverage.

For the purposes of this assessment, some areas within the proposal site were not subject to field survey as the terrain had been identified by the Proponent as not being suitable for development works. Consequently, the area covering a total of 453.808 ha as shown in Figure 4-1 as the survey area was inspected and assessed as part of this report. The area was split into ten survey units, as shown in Figure 4-1. Although there were no Aboriginal sites recorded during the survey, discussions with RAPs in the field confirmed that the survey technique used within the area assessed was effective enough to identify the presence of Aboriginal objects had they been present. Therefore, the results identified are considered a true reflection of the nature of the Aboriginal archaeological record present within the area surveyed.





Plate 4-3 Survey Area 2, view facing south.



Plate 4-4 Survey Area 2, view facing east.



Plate 4-5 Survey Area 3, view facing INSERT.



Plate 4-6 Survey Area 3, view facing north showing electricity easement.



Plate 4-7 Survey Area 4, view facing south.



Plate 4-8 Survey Area 4, view facing south east.



Plate 4-9 Survey Area 5, view facing west.



Plate 4-10 Survey Area 5, view facing east.



Plate 4-11 Survey Area 6, view facing east.



Plate 4-12 Survey Area 6, view facing south.



Plate 4-13 Survey Area 7, view facing east.



Plate 4-14 Survey Area 7, view facing west.



Plate 4-15 Survey Area 8, view facing west.



Plate 4-16 Survey Area 8, view facing south.



Plate 4-17 Survey Area 8, drainage line facing north.



Plate 4-18 Survey Area 8, drainage line facing north east.



Plate 4-19 Survey Area 9, view facing south.



Plate 4-20 Survey Area 9, view facing north.



Plate 4-21 Survey Area 10, view facing east.



Plate 4-22 Survey Area 10, view facing east, showing bitumen section of the Delroy Road.

Table 4-2 Transect information.

Survey Area	Landforms	Number of Survey Transect	Exposure type	Area ha Assessed in report	Surveyed area (length m x width m)	Surveyed Area m ²	Visibility	Effective coverage (area x visibility) m ²	Area surveyed (ha)	% of proposal site effectively surveyed	Survey result
1	Undulating plain, Creek banks	8	Bare ground, gate entrances, fence lines, vehicle tracks, eroding deposits, creek banks, dry creek bed, animal tracks.	12.038	460 x 40	9,200	Average 10%	920	0.092	0.76	Nil
2	Undulating Plain	10	Bare ground, gate entrances, fence lines, vehicle tracks, animal tracks, eroding deposits.	11.435	404 x 50	20,200	Average 10%	2,020	0.202	1.76	Nil
3	Undulating Plain, Creek banks, Drainage Lines	24	Gate entrances, fence lines, vehicle tracks, animal tracks, dry creek bed, eroding deposits, creek banks, contour banks.	107.443	4,817 x 40	192,680	Average 1%	1,926.8	0.193	0.19	Nil

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4	Undulating Plain	46	Fence lines, vehicle tracks, eroding deposits, creek banks, dry creek bed, animal tracks.	29.6	2,462 x 40	98,480	Average 5%	4,924	0.492	3.37	Nil
5	Undulating Plain, Drainage Line, Slope		Fence lines, vehicle tracks, eroding deposits, creek banks, dry drainage lines, animal tracks.	124.445	7,562 x 40	302,480	Average 2%	6,049.6	0.605	0.48	Nil
6	Undulating Plain	8	Fence lines, vehicle tracks, eroding deposits, animal tracks.	27.004	4,302 x 20	86,040	Average 5%	4,302	0.43	1.59	Nil
7	Undulating Plain, Spur, Gully, Crest	9	Animal tracks, eroding deposits, windswept (on crests), vehicle tracks.	44.703	3,558 x 40	142,320	Average 10%	14,232	1.42	3.18	Nil
8	Undulating Plain, Drainage Lines, Cropped Paddocks	14	Cropped areas, dry drainage lines.	94.231	8,041 x 40	321,640	Average 65%	209,066	20.906	22.18	Nil

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9	Undulating Plain, Drainage Line (driveway)	2	Bare ground, contour banks, eroding deposit, dam walls.	0.732	394 x 10	3,940	Average 35%	1,379	0.138	18.8	Nil
10	Road Corridor	2	Bare ground, contour banks, eroding deposit.	2.177	987 x 10	9,870	Average 15%	1,480	0.148	6.79	Nil
	Total	213		453.808		1,186,850	Average 15.8%	178,027	17.803	3.92	Nil

4.3. SURVEY RESULTS

Despite the variable visibility encountered during the survey, no Aboriginal objects or areas of archaeological potential were identified. There was no evidence of naturally occurring stone material suitable for tool production within the project area. The entirety of the survey area was largely void of stone material, with small occurrences of gravels a heavily included quartz noted across elevated and undulating terrain.

It is considered likely that the unnamed creek and associated drainage lines bisecting the project area provided a permanent water source albeit low volume. The banks of the creek were very sandy and soft, void of stone material (bar some very small gravels), and heavily eroding. Whylandra Creek lies approximately 60 meters to the south east of the project area and is known to have been an important resource to the local Aboriginal community. As such, it is unlikely the resources present in a smaller unnamed creek and drainage lines would be comparable as a resource.

The landscape displayed signs of extensive modification to the waterways, with one paddock within Survey Area 8 being dropped below the water level and presumably filled at one point for water-based cropping. The network of drainage channels throughout the property has further modified the landscape and natural resource movement throughout the project area.

While sensitive landforms are present within the survey area, particularly areas five, six and seven, the levels of disturbance and erosion evident across these landforms saw bedrock exposed in all cases, highlighting nil subsurface potential. It must also be noted that there was a sparsity of stone material across the site, indicating the farming history of the project area included stone removal from the paddocks. In areas where stone material was present, it was in the form of small gravels and extremely included quartz pebbles. There were no deposits of stone identified that would be suitable for stone tool production.

The survey located no new Aboriginal objects or sites, potentially a result of the extensive historic farming across the area and limitations provided by the lack of visibility in some areas. However, taking into consideration the substantial site modification that has occurred to the natural landscape, the presence of in-situ surface archaeology is low-nil.

4.3.1. Consideration of potential for subsurface material

Discussions were held in the field with the Aboriginal community representatives present to assess the potential for subsurface deposits across the proposal site. The field survey results for the proposal site in consideration with archaeological modelling for the area and comments from the RAPs who participated in the field survey resulted in the identification of no areas with archaeological sensitivity throughout the proposal site.

The results of the background research and site visit suggest that the proposal site has been significantly historically modified and disturbed. During the site visit no areas of PAD were identified within the site. Whilst the predictive model for the project area outlines that surface artefacts (or lack thereof) will not necessarily reflect the potential for subsurface deposits, the model also highlights that previously recorded sites occurred primarily in areas that had been subject to minimal historical disturbance. Extensive ground disturbance evident throughout the project area is responsible for reducing the potential to locate *in-situ* archaeological material to low-nil. Based on the level of disturbance encountered across the site, NGH has determined that subsurface testing would be extremely unlikely to yield any further information about the presence, extent or nature of archaeological material or Aboriginal cultural heritage values within the project area. Archaeological test excavation is not recommended for the proposed Forest Glen Solar Farm.

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Based on the land use history, an appraisal of the landscape, soil, level of disturbance and observations from the field survey, it was concluded that there was negligible potential for the presence of intact subsurface deposits with high densities of cultural material within the project area.

4.4. DISCUSSION

The predictions, based on modelling for the proposal site, were that isolated artefacts and artefact scatters were the most likely manifestation of Aboriginal occupation. Modified trees were also noted to likely occur as isolated paddock trees or in areas of remnant vegetation. The results of the survey indicate a negligible potential for Aboriginal objects to remain within the project area, which is highly disturbed due to a long land use history for farming activities. There were no Aboriginal sites or areas of cultural sensitivity identified during the survey.

No direct evidence of Aboriginal land use was identified within the proposal site during the field survey. The proposal site was likely used intermittently over a period of time for camping; however, no evidence of past land use remains within the modified landscape. Given the level of clearing within the proposal site, the absence of any culturally modified trees within the survey area is not surprising, with few mature native trees remaining within the proposed development footprint area.

There was a notable lack of stone material encountered throughout the project area, and, while likely the result of the farming activities having involved the removing of most stone from the paddocks, it must be acknowledged that exposures identified a lack of any stone material (including gravels) throughout the survey area. This lack of stone material extended into the banks of the waterways, with the only stone formed banks occurring with a small sandstone drainage line in Survey Area 8. This, however, was highly eroded and would not have provided a constant source of water. It is also likely that the surrounding disturbance and modification to the landscape has resulted in a change to the natural drainage of water throughout the area.

In terms of the current proposal therefore, extrapolating from the results of this survey, it has been assessed that the project area has low to negligible archaeological potential.

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 (Australian ICOMOS 2013). 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 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 should be considered.

5.1. 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 all the registered Aboriginal stakeholders for this proposal through the draft reporting process. No comments were received on the draft ACHA report.

Feedback about the cultural value of the sites while in the field with the representatives was that all sites hold cultural value to the Aboriginal community. It is noted, however, that there were no Aboriginal sites or areas of cultural sensitivity identified during the field survey.

5.2. SCIENTIFIC (ARCHAEOLOGICAL) VALUE

There were no archaeological sites identified during the field survey and, as such, there are no scientific values associated with the project area.

5.3. AESTHETIC VALUE

There are no aesthetic values associated with the project area *per se*, apart from the presence of waterways and drainage lines within the project area. However, the modified and heavily disturbed landscape through ploughing and contour bank construction within the solar farm development area detracts from this aesthetic setting.

5.4. HISTORIC VALUE

There are no known historic values associated with the proposal site, the sites identified or links to known important historic events, phases or persons beyond those noted in Section 3.1.5.

5.5. 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 primarily within private property and there is little for the public to see.

6. PROPOSED ACTIVITY

6.1. HISTORY AND LANDUSE

It has been noted above that historically the proposal site has been impacted since European arrival in the region through land use practices, in particular clearing, ploughing, contour banks and grazing.

The project area has a long history of farming and resulting landscape modifications. The property has been owned by the Tink family since the first issued land grant in the 1920's. The property has been extensively cleared, with the only remaining patches of mature vegetation not being subject to the proposed development. The paddocks have been extensively ploughed and overturned, with the waterways modified to create dams and provide drainage around cropped areas.

The implications from these activities and disturbance are that the archaeological record within the proposal site has been compromised in terms of the potential for modified trees to remain outside the areas of remnant vegetation. The implication for stone artefacts is that they may have been damaged or moved but they do have the potential to be present and remain in the general area where they were discarded by Aboriginal people.

6.2. PROPOSED DEVELOPMENT ACTIVITY

As noted in Section 1.2, the proposal involves the construction of a solar farm. The power generated will be fed into the National Electricity Market (NEM) via a new substation to connect to the existing Trans Grid transmission line that runs through the proposal site.

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 reduces the potential overall level of ground disturbance. Flat plate PV modules would be installed and mounted across the site. Each of them would be linked to an inverter and a transformer. Trenches would be dug for the installation of a series of underground cables linking the arrays across the proposal site. Access and internal access tracks would also be required, and typically these would comprise compacted layers of gravel laid on stripped bare natural ground. Some ancillary facilities would also be required including parking facilities, operations and maintenance buildings, battery units and an electrical substation.

Electrical transmission infrastructure will be required to connect the solar arrays and substation to the existing transmission line that runs through the proposal site. The substation itself will require significant ground disturbances to clear and level the ground prior to construction, and also to facilitate connections to the solar network.

The Forest Glen Solar Farm is expected to operate for around 35 years. The construction phase of the proposal is expected to take approximately 12-24 months. After the initial 35-year operating period, the solar farm would either be reconditioned or decommissioned. If the decision to recondition the solar farm was made, this would be subject to relevant government approvals and consents before the reconditioning was undertaken at the end of the initial solar farm's life.

When the site is to be decommissioned, it would involve removal of all above ground infrastructure except the sub-station and return of the site to its existing land capability. The use of piles to support the solar arrays makes de-commissioning and land rehabilitation simple to complete.

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

6.3. ASSESSMENT OF HARM

There are no recorded Aboriginal heritage sites within the proposal site, and no new sites identified during the site survey. As the site has been identified as disturbed due to historical uses of the site, the proposed works are assessed as posing little harm to the site itself or its research potential.

The archaeological assessment has identified no Aboriginal sites within the proposal site. The assessment of significance has been undertaken with reference to the criteria outlined in the International Council on Monuments and Sites Burra Charter (Marquis-Kyle and Walker 1994).

NGH did not receive any comments on the draft ACHA report by the RAPs for the project, and therefore no specific values have been identified for the site by the Aboriginal community.

There were no specific scientific, aesthetic or historic values identified in association with the sites however the location in general has aesthetic properties as a natural place and there was also an opportunity for education of the general public regarding the use of the area by past Aboriginal people (with reference to archaeological resources) and by local Aboriginal people in the present.

Given that there is no identified Aboriginal archaeological material present within the proposal site, it is unlikely the proposed works will harm any Aboriginal objects. The proposed construction methodology for the Forest Glen Solar Farm will however result in only small areas of disturbance. The construction of access, creek crossing, and maintenance tracks may involve some grading but given the general cleared 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 is required to accomplish this. The major ground disturbance will likely be for the construction of the substation near the existing transmission line, trenching for cables and vehicle movement during construction.

The assessment of harm overall for the project is assessed as low to negligible.

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.

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

7. AVOIDING OR MITIGATING HARM

7.1. CONSIDERATION OF ESD PRINCIPLES

Consideration of the principles of Ecologically Sustainable Development (ESD) and the use of the precautionary principle was undertaken when assessing harm to the sites and the potential for mitigating impacts within the Forest Glen Solar Farm project area. The main consideration was the cumulative effect of the proposed impact to sites and the wider archaeological record. The precautionary principle in relation to Aboriginal heritage implies that proposed works should be carefully evaluated to identify possible impacts and assess the risk of potential consequences.

In broad terms, the absence of sites identified within the project area is in keeping with the predictive model for the region, which indicates that the land use of the area was focused more towards major waterways (Whybalga Creek and the Macquarie River).

There are no archaeological values associated with the project area due to the absence of Aboriginal sites upon visual inspection. The sustainability principle of inter-generational equity as applied to the archaeological resource requires that the present generation takes measures to ensure that the health and diversity of the archaeological record is maintained or enhanced for the benefit of future generations. There were no areas of identified subsurface potential within the project area, with the implications of the ESD principles being that the project area for the Forest Glen Solar Farm does not present a unique location in the regional landscape, or immediate area, with high levels of historic modification. There are similar locations and landforms within the region that have not been subject to such extensive modification and are positioned in closer proximity to major resource bearing waterways. These locations would be less disturbed and have higher potential for archaeological deposits.

7.2. CONSIDERATION AND MITIGATION OF HARM

There were no Aboriginal sites identified within the project area, therefore avoiding harm to all Aboriginal sites is possible. Mitigation of harm to Aboriginal sites generally involves some level of detailed recording to preserve the information contained within the site or setting aside areas as representative samples of the landform to preserve a portion of the sites. Mitigation can be in the form of minimising harm, through slight changes in the development plan or through direct management measures of the Aboriginal objects. As there were no Aboriginal objects, or areas of archaeological sensitivity, identified during the ACHA survey, there are no proposed mitigation measures for the proposed Forest Glen Solar Farm.

Based on the assessment of the Aboriginal sites and in consideration of discussions with the Aboriginal representatives during the field survey it is not considered necessary to prevent all development at the solar farm location. No Aboriginal sites or areas of cultural sensitivity were identified throughout the project area. Aboriginal cultural value has been determined by the local Aboriginal community to be generally low enough to not prevent the development proposal proceeding.

8. LEGISLATIVE CONTEXT

Aboriginal heritage is primarily protected under the NPW Act and as subsequently amended in 2019 with the introduction of the *National Parks and Wildlife Amendment Regulation 2019*. 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 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 Environmental Planning and Assessment Act 1979 (EP&A Act) is legislation for the management of development in NSW. It sets up a planning structure that requires developers (individuals or companies) to consider the environmental impacts of new projects. Under this Act, cultural heritage is considered to be a part of the environment. This Act requires that Aboriginal cultural heritage and the possible impacts to Aboriginal heritage that development may have are formally considered in land-use planning and development approval processes.

Proposals classified as State Significant Development (SSD) or State Significant Infrastructure (SSI) under the *Environmental Planning and Assessment Act 1979* (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, Infrastructure and Environment (DPIE) is required to ensure that Aboriginal heritage is considered in the environmental impact assessment process.

Aboriginal Cultural Heritage Assessment

Forest Glen Solar Farm

The Forest Glen Solar Farm proposal is an SSD project and will therefore be assessed via this pathway, which does not negate the need to carry out an appropriate level of Aboriginal heritage assessment or the need to conduct adequate consultation with the local Aboriginal community in accordance with the requirements outlined by the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW NSW 2010). The requirement for Aboriginal heritage assessment was also stipulated by the SEARs relating to Aboriginal heritage for the Forest Glen Solar Farm. Therefore, as part of the development impact assessment process, the proposed development application that includes this Aboriginal heritage assessment will be assessed by DPIE who will also consult with other departments, including Heritage NSW, prior to development consent being approved by the Minister for Planning.

9. RECOMMENDATIONS

The recommendations are based on the completed assessment of heritage risks and considerations:

- The results of the current archaeological survey of the proposal site;
- The consideration of results from other regional archaeological studies;
- The results of consultation with the registered Aboriginal parties;
- The assessed significance of the Aboriginal objects;
- The heritage risk appraisal of the proposed development; and
- The legislative context for the development proposal.

It has been assessed that the proposed works as described in this report can proceed with caution, following the recommendations set out below:

1. Further archaeological assessment would be required if the proposal activity extends beyond the area assessed in this report. This would include consultation with the registered Aboriginal parties and may involve further field survey.
2. No ground disturbing activities or removal of remnant vegetation is to occur outside the survey area as outlined in Figure 4-1.
3. During construction and ongoing use of the Forest Glen Solar Farm, the unexpected finds procedure outlined in Appendix B must be followed.
4. In the unlikely event that human remains are discovered during the construction of the Forest Glen Solar Farm, all work must cease in the immediate vicinity. Heritage NSW and the local police should be notified. Further assessment would be undertaken to determine if the remains are Aboriginal or non-Aboriginal. If the remains are deemed to be Aboriginal in origin the Registered Aboriginal Parties should be advised of the find as directed by Heritage NSW.

10. REFERENCES

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Forest Glen Solar Farm

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APPENDIX A ABORIGINAL CONSULTATION

To be redacted from public display.

Stage 1 – Notification of project proposal and registration of interest.

Organisation	Action	Date Sent	Reply Date	Replied By	Response
Heritage NSW	Letter sent via email	21.1.2021	5.2.2021	Paul Houston	RAP letter outlining potential stakeholders in the area.
NTS Corp	Letter sent via email	21.1.2021			
National Native Title Tribunal	Letter sent via email	21.1.2021			
Office of Registrar <i>Aboriginal Land Rights Act</i>	Letter sent via email	21.1.2021	4.2.2021	Rachel Rewiri	No Registered Aboriginal Owners in the project area.
Central West Local Land Services	Letter sent via email	21.1.2021			
Dubbo LALC	Letter sent via email	21.1.2021			
Dubbo Council	Letter sent via email	21.1.2021			
Local Newspapers					
Dubbo Daily	Ad posted 21.2.2021				
Heritage NSW list of potential stakeholders					
Binjang Wellington Wiradjuri heritage Survey	Sent via tracked post: 603 10814041 093	12.02.2021			
Brian Draper	Sent via tracked post: 603 10814034 095	12.02.2021			

Aboriginal Cultural Heritage Assessment
Forest Glen Solar Farm

Central West Catchment Management Authority	Sent via tracked post: 603 10814033 098	12.02.2021			No longer a valid address. Take off entirely
David Smith	Sent via tracked post: 603 10814040 096	12.02.2021			
Dubbo Aboriginal Community Working Party	Sent via tracked post: 603 10814039 090	12.02.2021			
Dubbo Aboriginal Community Working Party	Sent via tracked post: 603 10814038 093	12.02.2021			
DUBBO LALC	Sent via tracked post: 603 10814037 096	12.02.2021			
Gary Smith	Sent via tracked post: 603 10814035 092	12.02.2021			
Geoffrey Ryan	Sent via tracked post: 603 10814032 091	12.02.2021			
Katrina Mckinnon	Sent via tracked post: 603 10814036 099	12.02.2021			
Michael Smith	Sent via tracked post: 02 01001 97212 30060 40992	12.02.2021			
Mooka	Sent via tracked post: 02 01001 97212 20060 40995	12.02.2021			
Natasha Rodgers	Sent via tracked post: 02 01001 97212 10060 40998	12.02.2021			
Paul Brydon	Sent via tracked post: 02 01001 97212 00060 40991	12.02.2021			
Peter Chatfield	Sent via tracked post: 02 01001 97211 90060 40995	12.02.2021	15.2.2021	Peter	Called NGH to register their interest in the project. They asked to be considered for the fieldwork for the project.

Peter Peckham	Sent via tracked post: 02 01001 97211 80060 40998	12.02.2021			
Raymond Thomas Smith	Sent via tracked post: 02 01001 97211 70060 40991	12.02.2021			
Trevor Robinson	Sent via tracked post: 603 06209396 091	12.02.2021			
Wamarr Cultural Consultants	Sent via tracked post: 603 06209395 094	12.02.2021			
Wellington LALC	Sent via tracked post: 603 06209394 097	12.02.2021			
Wellington Valley Wiradjuri Aboriginal Corporation	Sent via tracked post: 02 01001 97211 50060 40997	12.02.2021			
William Smith	Sent via tracked post: 02 01001 97211 60060 40994	12.02.2021			
Wiradjuri Council of Elders	Sent via tracked post: 604 56386805 098	12.02.2021			
Wiradjuri Interim Working Party	Sent via tracked post: 604 56386804 091	12.02.2021			
Wirrimbah Direct Descendants	Sent via tracked post: 604 56386803 094	12.02.2021			

Stage 2 – Presentation of information about the proposed project.

Organisation	Action	Date Sent	Reply Date	Replied By	Response
Peter Chatfield	Methodology sent via registered post	4.3.2021			No response to methodology
Dubbo LALC	Methodology sent via email	4.3.2021			No response to methodology

Stage 3 – Gathering information about cultural significance.

Organisation	Action	Date Sent	Reply Date	Replied By	Response
Site inspection					
Dubbo LALC	Request for insurances and methodology send by email and #638000940011679	22.03.2021			
Tubbagah Aboriginal Co-OP	Methodology and insurance letter methodology sent via registered post 6380009400117912607 and #6380009400117911600	22.03.2022			
Dubbo LALC	Attempt to contact the LALC 3 times via phone to ask for site officers to attend fieldwork	8.4.2021	26.4.2021	William Robinson	Fieldwork organised to be undertaken 4 th -6 th May 2021

Stage 4 – Review of draft cultural heritage assessment report.

Organisation	Action	Date Sent	Reply Date	Replied By	Response
Peter Chatfield	Final report sent via registered post 8.6.2020	08.06.2021 (516026665012 + 516026666019)			No response provided to the final report.

Dubbo LALC	Final report sent via email 7.6.2020 and via registered post 8.6.2020	08.06.2021 (516026481018)			No response provided to the final report.
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Death Notices

Bede Francis Sheridan
Late of Dubbo, formerly of "Yeronga" Geurie
Passed away 17th January, 2021
Aged 79 years

Much loved husband of Margaret. Loved father & father in law of David & Kristine & Ian (dec) & Poppy Bede to Mae.

Bede's funeral service will be held on Monday 25th January, 2021 in St Brigid's Catholic Church Dubbo commencing at 2pm followed by interment in the Western Districts Memorial Park, Bootherba Road Dubbo.

Funeral arrangements are in the caring hands of

W. Lacombe & Son
Dubbo's Premier Funeral Home
FDA Approved
(02) 6882 3199



In Memoriam

In Loving Memory of
DAN ROBINSON
Passed away 24th January 2010
Aged 21 Years

No one knows how we miss you,
No one knows the pain.
Since we lost you,
Life has never been the same

**Although it's been 11 Years
Loved and Remembered
Everyday
The Robinson Family
& Friends**

Public Notices

Notification for registration of interest for Aboriginal stakeholders

NGH Pty Ltd has been contracted by X-Elio Australia Pty Ltd (LE50, 120 Collins Street, Melbourne, Vic, 3000) to undertake an Aboriginal Cultural Heritage Assessment (ACHA) for the proposed Forest Glen Solar Farm located on Lot 6 DP 6755102 and Lot 1 DP 1198911 at Minore, NSW in the Dubbo Regional Local Government Area. Road access works may also be required for the project, in particular along Delroy Road.

The purpose of the consultation with Aboriginal people is to assist the proponent (X-Elio Australia Pty Ltd) in the preparation of the ACHA and to be involved in consultation. The proposed solar farm is a State Significant Development (SSD) project and the ACHA will be used to form part of the Environmental Impact Statement (EIS) which will be submitted to the Department of Industry, Planning and Environment (DPIE) for assessment and determination of the project.

In order to fulfill the requirements set out in the *Aboriginal Cultural Heritage Requirements for Proponents 2010*, NGH is seeking interested Aboriginal parties who hold cultural knowledge of the assessment area to register their interest in the consultation process for the project and to assist in the determination of the cultural significance of any Aboriginal objects or places located there.

Registrations should be provided in writing to:
**NGH Pty Ltd
PO Box 62
Fyshwick ACT 2609**
Or via email to: ngb@nghconsulting.com.au

Closing date for registration is **8 February 2021**.

Those registering an interest will be contacted to discuss the project further. Those who do register are advised their details will be provided to Heritage NSW and the Local Aboriginal Land Council, unless they specifically advise in writing that their details are not to be forwarded.

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WANTED any pre 1990 cars, Toyota, Landcruisers, Volkswagens, Mazda, Holdens, Porsche, Fords, Landrover, Valiants, Commodores etc. Any cond. un-restored, parts & restored. Cash paid. Call on ☎ 0421 313 536.

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PROPOSAL TO UPGRADE TELSTRA MOBILE PHONE BASE STATION AT 44361 Kamillrol Highway Walgett 2832
www.frnsa.com.au/2832004

1. The proposed facility consists of replacing and installing 4 x Omni Antenna on existing tower. Proposed 2 x twin mounted amplifiers to be installed on existing mounts. Addition of ancillary equipment including radios, cabling and signage. There is no increase in facility height.
2. Telstra regards the proposed installation as a Low-impact Facility under the *Telecommunications (Low-impact Facilities) Determination 2018* ("The Determination") based on the description above.
3. In accordance with Section 7 of C564:2020 Mobile Phone Base Station Deployment Code, we invite you to provide feedback about the proposal. Further information and/or comments should be directed to: Navneet Dutt, Ventia, 1300 745 210, twp_qldplanning@visionstream.com.au by **08 February 2021**.

When words are not enough

There's **Emoji!**

APPENDIX B UNEXPECTED FINDS PROTOCOL

Introduction

This unexpected find protocol has been developed to provide a method for managing unexpected non-Aboriginal and Aboriginal heritage items identified during the construction and maintenance of the Project. The unexpected find protocol has been developed to ensure the successful delivery of the Project while adhering to the NSW *National Parks and Wildlife Act 1974* (NPW Act) and the *Heritage Act 1977* (Heritage Act).

All Aboriginal heritage objects are protected under the NPW Act Under Part 6 of the Act, though in a State Significant Development Conditions of Consent (CoC) may be issued that allows for conditional harm to Aboriginal objects. There are some circumstances where despite undertaking appropriate heritage assessment prior to the commencement of works Aboriginal cultural heritage items or places are encountered that were not anticipated which may be of scientific and/or cultural significance.

Therefore, it is possible that unexpected heritage items may be identified during construction, operation and maintenance works. If this happens the following unexpected find protocol should be implemented to avoid breaching obligations under the NPW Act. This unexpected find protocol provides guidance as to the circumstances under which finds may occur and the actions subsequently required.

What is a Heritage Unexpected Find?

An unexpected heritage find is defined as any possible Aboriginal or non-Aboriginal heritage object or place, that was not identified or predicted by the Project's heritage assessment and may not be covered by appropriate permits or development consent conditions. Such finds have potential to be culturally significant and may need to be assessed prior to development impact.

Unexpected heritage finds may include:

- Aboriginal stone artefacts, shell middens, modified trees, mounds, hearths, stone resources and rock art;
- Human skeletal remains; and
- Remains of historic infrastructure and relics.

Aboriginal Heritage Places or Objects

All Aboriginal objects are protected under the NSW *National Parks and Wildlife Act 1974* (NPW Act).

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.

All Aboriginal objects are protected and it is an offence to harm or desecrate an Aboriginal object or place.

Historic Heritage

The *Heritage Act 1977* protects relics which are defined as:

Any deposit, artefact, object or material evidence that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement; and is of State or local heritage significance.

Unexpected Find Management Procedure

In the event that any unexpected Aboriginal heritage places or objects or any substantial intact historic archaeological relics that may be of State or local significance are unexpectedly discovered during the Project, the following management protocols will be implemented. **Note: this process does not apply to human or suspected human remains. Follow the Section referring to *Human Skeletal Remains* below if human remains or suspected human remains are encountered.**

1. Works within the immediate identified heritage location will cease and no further harm to the object will occur. Personnel should notify their supervisor of the find, who will notify the project manager.
2. Establish whether the unexpected find is located within an area covered by approved Conditions of Consent or not.
3. If the find it is determined to be covered under approved CoC undertake the following steps
 - a. Establish an appropriate buffer zone of at least 20 metres to allow for the assessment and management of the find. All site personnel will be informed about the buffer zone with no further works to occur within the buffer zone. The area will be secured to avoid any further harm to the Aboriginal object.
 - b. A heritage specialist or the project archaeologist will be engaged to assess the Aboriginal place or object encountered and undertake appropriate salvage of the site in line with the mitigation methods and approval requirements of the CoC. An AHIMS site card will be completed on the discovery of the newly identified Aboriginal objects / Aboriginal heritage items. Should the object(s) / heritage items be salvaged under the Conditions of Consent, an Aboriginal Site Impact Recording Form (ASIRF) must be completed and submitted to AHIMS. Salvage of Aboriginal heritage items would not include scarred trees. If previously unidentified scarred trees are identified, further consultation with Heritage NSW, DPIE and Aboriginal stakeholders would need to be undertaken regarding management.
 - c. Following appropriate salvage of the unexpected find works may continue at this location
4. If the unexpected find is not covered under the existing approved CoC undertake the following steps.
 - a. All works at this location must cease and no further harm to the object will occur.
 - b. An appropriate buffer zone of at least 20 metres to allow for the assessment and management of the find must be established. All site personnel will be informed about the buffer zone with no further works to occur. The area will be secured to avoid any further harm to the Aboriginal object.
 - c. A heritage specialist or the project archaeologist will be engaged to assess the Aboriginal place or object encountered. The Registered Aboriginal Parties (RAPs) may also be engaged to assess the cultural significance of the place or object.
 - d. The discovery of an Aboriginal object will be reported to Heritage NSW and as soon as practical on 131 555 and works will not recommence at the heritage place or object until advised to do so in writing by Heritage NSW and/or DPIE. A site card will be completed and submitted to AHIMS for registration and the details of the site and its location will be provided to Heritage NSW and DPIE.
 - e. If the unexpected find can be managed *in situ*, works at the location will not recommence until appropriate heritage management controls have been implemented, such as protective fencing.
 - f. If the unexpected find cannot be managed *in situ*, works at the heritage location will not recommence until further assessment is undertaken and appropriate approvals to impact Aboriginal cultural heritage are confirmed and authorised in writing by Heritage NSW and/or DPIE.
5. For historic relics, work must cease in the affected area and the Heritage Council must be notified in writing. This is in accordance with section 146 of the *Heritage Act 1977*.
6. Depending on the nature of the discovery, additional assessment may be required prior to the recommencement of work in the area. At a minimum, any find should be recorded by an archaeologist.

Human Skeletal Remains

If any human remains or suspected human remains are discovered during any works, all activity in the immediate area must cease immediately. The following plan describes the actions that must be taken in instances where human remains, or suspected human remains are discovered. Any such discovery at the activity area must follow these steps.

Discovery:

- If any human remains or suspected human remains are found during any activity, works in the **immediate vicinity must** cease and the Project Manager must be contacted immediately.
- The remains must be left in place and protected from harm or damage.
- All personnel should then leave the immediate vicinity of the area.

Notification:

- The NSW Police must be notified immediately. Details of the location and nature of the human remains must be provided to the relevant authorities.
- If there are reasonable grounds to believe that the remains are Aboriginal, the following must also occur;
 - a. Heritage NSW must be contacted as soon as practicable and provide any available details of the remains and their location. The Environment Line can be contacted on 131 555;
 - b. The relevant project archaeologist may be contacted to facilitate communication between the police, Heritage NSW and Aboriginal community groups. Aboriginal community groups must be notified throughout the process once the remains are confirmed to be Aboriginal in origin.

Process:

- If the remains are considered to be Aboriginal by the Police and Heritage NSW no work can recommence at the particular location of the find unless authorised in writing by Heritage NSW.
- Recording of Aboriginal ancestral remains must be undertaken by, or be conducted under the direct supervision of, a specialist physical anthropologist or other suitably qualified person.
- Archaeological reporting of Aboriginal ancestral remains must be undertaken by, or reviewed by, a specialist physical anthropologist or other suitably qualified person, with the intent of using respectful and appropriate language and treating the ancestral remains as the remains of Aboriginal people rather than as scientific specimens.

If the remains are considered to be Aboriginal by the Police and Heritage NSW, an appropriate management and mitigation, or salvage strategy will be implemented following further consultation with the Aboriginal community and Heritage NSW.