APPENDIX G ABORIGINAL CULTURAL HERITAGE ASSESSMENT (ACHA)

Aboriginal Cultural Heritage Assessment Report Cover Sheet

This form should be used to accompany an Aboriginal cultural heritage assessment report provided as part of an Aboriginal Heritage Impact Permit (AHIP) application.

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Aboriginal Cultural Heritage Assessment Report Cover Sheet

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22/02/2021

ABORIGINAL CULTURAL HERITAGE ASSESSMENT

Oxley Solar Farm

February 2021

Project Number: 19-489

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ACRONYMS AND ABBREVIATIONS

AC	Alternate current
ACHA	Aboriginal cultural heritage assessment
ACHCRP	Aboriginal Cultural Heritage Consultation Requirements for Proponents
AHIP	Aboriginal heritage impact permit
AHIMS	Aboriginal heritage information management system
CHMP	Cultural Heritage Management Plan
cm	centimetres
DC	direct current
DECCW	Department of Environment, Climate Change and Water
EIS	Environmental impact statement
EP&A Act	(NSW) *Environmental Planning and Assessment Act 1979*
ESD	Ecologically Sustainable Development
ha	hectares
Km	kilometres
kv	kilovolt
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
MW	Megawatts
NGH	NGH Pty Ltd
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NSW	New South Wales
PAD	Potential Archaeological Deposit
PCU	Power Conversion Units
PW	photovoltaic
RAP	Registered Aboriginal Party

SEARS	Secretary's Environmental Assessment Requirements
SSD	State Significant Development

EXECUTIVE SUMMARY

INTRODUCTION

NGH Pty Ltd (NGH) has been engaged by Oxley Solar Development Pty Ltd to undertake an Aboriginal Cultural Heritage Assessment (ACHA) to support an Environmental Impact Statement (EIS) addressing the proposed Oxley Solar Farm on Gara Road (Figure 1-1). The proposed solar farm would be located on previously agricultural land encompassing an area of approximately 895 hectares (ha) of the 1,048 ha site. The relevant lots for the proposed solar farm include Lot 2 DP1206469; Lot 5 DP253346, Lot 6, DP625427 and Lots 7003 and 7004 DP106020. The solar farm proposal would involve ground disturbance that has the potential to impact on Aboriginal heritage sites and objects.

All Aboriginal heritage sites and objects are protected under the *NSW National Parks and Wildlife Act 1974* (NPW Act). The purpose of this ACHA survey was therefore to investigate the presence of any Aboriginal objects within proposed work areas, assess their values and impacts, and provide management strategies that may mitigate any impacts.

PROJECT PROPOSAL

The Oxley Solar Farm proposal would involve the construction, operation and decommission of a photovoltaic (PV) solar array farm with a capacity of up to 225 megawatt (MW) alternate current (AC) that would supply electricity to the national electricity grid. The proposed site is a maximum of about 895 ha with the area of PV panels and associated infrastructure likely to occupy around half of this area. This would include a battery storage facility with a proposed storage capacity of 30 MWh (i.e., 30 MW power output for one hour). The proposed layout is shown in Figure 6-1.

A 132 kV substation would be constructed in the vicinity of the existing 132 kilovolt (kV) transmission lines. The exact connection method will be subject to further feasibility assessment.

The proposed solar farm would include the development of the following infrastructure:

- Approximately 715,000 PV solar panels mounted on either fixed or tracking systems, both of which are considered feasible;
- Fixed-tilted structures in a north orientation; or
- East-west horizontal tracking systems.
- Approximately 45 Power Conversion Units (PCU) composed of two inverters, a transformer and associated control equipment to convert direct current (DC) energy generated by the solar panels to 33kV AC energy.
- Steel mounting frames with driven or screwed pile foundations.
- An onsite 132kV substation containing two transformers and associated switchgear to facilitate connection to the national electricity grid via the existing 132 kV transmission line onsite.
- Underground power cabling to connect solar panels, combiner boxes and PCUs.
- Underground auxiliary cabling for power supplies, data services and communications.
- Buildings to accommodate a site office, indoor 33 kV switchgear, protection and control facilities, maintenance facilities and staff amenities.
- About 1 km of access track off Waterfall Way to the site which would require construction to the proposed onsite substation.
- Internal access tracks for construction and maintenance activities.
- An energy storage facility with a capacity of up to 30 MWh (i.e., 30 MW power output for one hour) and comprising of lithium-ion batteries with inverters.
- Perimeter security fencing up to 2.3 m high.
- Native vegetation planting to provide visual screening onsite and for specific receivers.

ABORIGINAL CONSULTATION

Consultation with Aboriginal stakeholders was undertaken in accordance with clause 60 (formerly 80C) of the *National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2019* following the consultation steps outlined in the ACHCRP guide.

A comprehensive account of the consultation steps undertaken to comply with the guide, as well as a summary of the actions completed by NGH and responses received from Registered Aboriginal Parties (RAPs) are provided in Section 2 of this report. A full consultation log and relevant documentary evidence are available in Appendix A.

As a result of this process, five 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 Aboriginal community representatives.

ARCHAEOLOGICAL CONTEXT

This assessment includes a review of relevant background information relating to the proposed solar farm location, a review of previous archaeological studies undertaken in the local and regional area and presents an overview of the existing environmental context and studies undertaken within the Proposal site. A search of the AHIMS database also formed part of the background analysis.

The results of previous archaeological surveys in the region show that sites and artefacts are present throughout the landscape, albeit concentrated closer to watercourses. Additionally, there appears to be a pattern of site location relating to the presence of potential resources for Aboriginal use, with high-density sites generally located in elevated flat areas adjacent to waterways. Lower density background scatters also occur on crests, spurs, slopes, and flats in proximity to water. Modified trees are recorded in the area where old-growth trees remain.

Based on previous archaeological investigations in the region it was determined that the Proposal site has a possibility of containing archaeological sites, 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 artefact scatters, isolated artefacts, and scarred trees either in remnant old-growth vegetation areas or as isolated paddock trees. Furthermore, modelling based on the environmental context and archaeological studies undertaken within the local area indicates that there is an increased likelihood for evidence of Aboriginal occupation to be located within the Proposal site, specifically in association with Gara River and Commissioners Waters.

ARCHAEOLOGICAL INVESTIGATION RESULTS

An archaeological survey was undertaken of the Proposal site in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010a). The survey conducted for the purposes of this assessment was undertaken on the 12th to the 21st of May 2020.

It should be noted that a small number of sites were identified and recorded outside the boundary of the Proposal site along its southern perimeter. These have been incorporated into the results as part of the nearest survey unit. In general, the majority of the Proposal site comprised grey-brown sandy silt.

The field survey of the proposed Oxley Solar Farm Proposal site, in conjunction with an assessment of contour data, archaeological modelling and consideration of the comments from the RAPs resulted in the identification of several locations within the overall Proposal site which were considered to have some potential to contain subsurface material. In total, there were 21 areas of Potential Archaeological Deposit (PAD) identified (Figure 4-5, sites Oxley Solar Farm PAD 1-21), the depth of which would determine whether *in situ* material would be present or not. Additionally, owing to the extremely low visibility due to dense vegetation cover, effective coverage ascertained through the survey was considered very low and therefore test excavation will also

facilitate better characterisation of the archaeological nature of the area. As such, these areas required further assessment.

Discussions regarding the technological characteristics, manufacture, and type of toolkit of the artefacts as well as indications of occupation distribution and frequency across the sites require further data. Survey coverage was hindered by low visibility and, without subsurface testing, the nature and extent of archaeological deposits is not known. These factors limit the broader understanding of Aboriginal past use of the Proposal site.

POTENTIAL HARM

Of the 24 isolated finds, 18 artefact scatters, one scarred tree and 7 cultural trees recorded within the Proposal site, nine isolated finds and seven artefact scatters and three cultural trees are situated within or adjacent to the area of the proposed solar arrays, tracks, fencing and associated infrastructure. These 19 sites would be impacted directly or indirectly by the proposed development.

Additionally, 13 PAD locations have been identified within this area. The table below provides a summary of site types that will be impacted and avoided by the proposed layout.

Site Type	Type of Harm	Degree of Harm	Consequence of harm	No. of Sites
Isolated Finds	Indirect	Partial	Partial loss of value	8
	Direct	Complete	Total loss of value	1
	Nil	Nil	Not Applicable	15
Artefact Scatters	Indirect	Partial	Partial loss of value	6
	Direct	Complete	Total loss of value	1
	Nil	Nil	Not Applicable	11
Scarred Trees	Nil	Nil	Not Applicable	1
Cultural Trees	Indirect	Partial	Partial loss of value	2
	Direct	Complete	Total loss of value	1
	Nil	Nil	Not Applicable	5
PADs	Direct	Partial	Unknown/ yet to be established loss of value	13
	Nil	Nil	Not Applicable	8

The remaining 29 sites with stone artefacts within the Proposal site, the one scarred tree, the five cultural trees and eight PAD locations will not be impacted by the proposed development.

The Aboriginal sites recorded during archaeological investigations for the Oxley Solar Farm which will be impacted by the development area listed below.

Sites impacted	Sites avoided
• AS2 • AS4 • AS10 • AS13 • AS14 • AS16 • AS18 • IF7 • IF13 • IF14 • IF15 • IF16 • IF17 • PAD 3, 5, 6, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 • CT1 • CT6 and CT7	• ST1 • CT2 to CT5 and CT8 • AS1 • AS3 • AS5 to AS9 • AS11 to AS12 • AS15 • AS17 • IF1 to IF6 • IF8 to 12 • IF18 to 24 • PAD 1, 2, 4, 7, 8, 9, 10, 11

RECOMMENDATIONS

It is recommended that:

1. The proposed layout of the solar farm must be amended to avoid CT1 plus a 20m buffer surrounding the site.
2. A small heavily vegetated area to the north of the Proposal area near Waterfall Way has not been subject to archaeological survey. As part of subsequent management measures, this area must be surveyed to locate Aboriginal cultural heritage and management and mitigation measures determined through further archaeological assessment.
3. The subsurface testing of the PADs (3, 5, 6, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21) which will be impacted by the development must be undertaken prior to any works and/or the issuing of any approvals for the Oxley Solar Farm.
4. An archaeological test excavation of those sections of PAD that intersects with the proposed design is required in order to establish the nature and extent of the deposits and therefore inform, significance, impact and proposed mitigation measures. This subsurface excavation will be undertaken following the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010a). An addendum ACHA report must be prepared to address the findings of the test excavation, significance assessment, impact assessment and proposed management of these PAD areas and any additional sites identified during the subsurface testing programme of works.
5. During construction works, high visibility fencing must be erected around CT6 and CT7 to ensure indirect impacts through the use of Silverton Road as a transport corridor do not occur and the designated “no go zones” surrounding these areas must be included in the CHMP for the project. The development avoids the scarred tree (Oxley Solar Farm ST1) as well as the five cultural trees (Oxley Solar Farm CT1-5 and CT8) within the Proposal site. A minimum of a 20-m buffer should be established around each of these sites by placing high visibility bunting (or similar) to avoid any inadvertent impacts to the root system and canopy during construction, preconstruction and decommission works.
6. If complete avoidance to any of the isolated finds and/or artefact scatters recorded within the Proposal site is not possible the surface stone artefacts within the development footprint must be salvaged. The surface collection salvage of these stone artefacts must occur prior to the proposed construction works commencing for the Oxley Solar Farm. Until surface collection salvage has occurred a minimum 5 m buffer must be observed around all stone artefact sites.
7. The collection and relocation of the surface artefacts should be undertaken by an archaeologist with representatives of the registered Aboriginal parties, as selected by the Proponent and be consistent with

Requirement 26 of the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales. The salvage of Aboriginal objects can only occur following development consent that is issued for State Significant Developments and must occur prior to any construction works commencing.

8. Salvaged artefacts may be temporarily stored at an NGH office for further analysis if this cannot be undertaken onsite at the time of salvage. Permanent storage of artefacts will be at the Armidale and Region Aboriginal Cultural Centre & Keeping Place. Formal tools will likely be displayed at the Cultural Centre. If storage there is not possible, it is proposed that artefacts be buried on-site within a “no go zone”. All objects salvaged and buried within the Proposal site must have their burial location submitted to the AHIMS database.
9. A care agreement with Heritage NSW in accordance with the NPW Act must be undertaken for the artefacts to be stored at Armidale and Region Aboriginal Cultural Centre & Keeping Place.
10. In accordance with the development consent for this SSD, an Aboriginal Site Impact Recording Form must be completed and submitted to AHIMS for each site collected or destroyed through salvage and/or construction works.
11. A minimum 5 m buffer should be observed around all stone artefact sites that are being avoided by the proposed development. The implantation of heritage “no go zones” within the Proposal site should be implemented to ensure that sites which are being avoided by the proposed development are not inadvertently impacted.
12. For any impacts to those sites and PADs currently being avoided by this project or areas outside those assessed as part of the survey for the Oxley Solar Farm, as assessed in this report, further assessment and consideration of impacts on Aboriginal Heritage as determined by an archaeologist should occur. Additional Aboriginal consultation and further assessment which may include survey and/or subsurface testing may be required.
13. The Proponent should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal artefacts during the construction of the Oxley Solar Farm and for the management of known sites, artefacts and PADs within the Proposal site. The Plan should include the unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties. A draft unexpended finds procedure is provided in Appendix F.
14. In the unlikely event that human remains are discovered during the construction of the Oxley Solar Farm, all work must cease in the immediate vicinity. Heritage NSW and the local police should be notified. A 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.
15. A 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.

1. INTRODUCTION

NGH Pty Ltd (NGH) has been engaged by Oxley Solar Development Pty Ltd to undertake an Aboriginal Cultural Heritage Assessment (ACHA) to support an Environmental Impact Statement (EIS) addressing the proposed Oxley Solar Farm located approximately 14 kilometres (km) south-east of Armidale (Figure 1-1 and Figure 1-2). The proposed solar farm would be located within the Armidale Regional Local Government Area (LGA) on previously agricultural land encompassing an area of approximately 895hectares (ha) of the 1,048 ha site. The relevant lots for the proposed solar farm include Lot 2 DP1206469; Lot 5 DP253346, Lot 6, DP625427 and Lots 7003 and 7004 DP106020.

It should be noted that during the course of this assessment, the assessment area and subsequently the project design has undergone several iterations of minor redesigns. As such, the Silverton Road corridor, which was surveyed as part of the heritage assessment, is no longer part of the Proposal site. Additionally, while the desktop assessment of this report encapsulates the entirety of the Proposal site, the heritage survey did not encompass the top north section. Recommendations of this report accommodate the requirement for the field assessment of this additional area. The difference between the original assessment area and the Proposal site is demonstrated in Figure 1-3. Moreover, the extent of the proposed development footprint considered is also demonstrated in Figure 1-3 but impact assessment and subsequent mitigation measures relate only to those sites impacted by the proposed layout identified in Figure 6-1.

The solar farm proposal would involve ground disturbance that has the potential to impact on Aboriginal heritage sites and objects which are protected under the *NSW National Parks and Wildlife Act 1974* (NPW Act). The purpose of the ACHA is therefore to investigate the presence of any Aboriginal sites and their values; and to assess the potential impacts to these values, providing recommendations for management measures which may prevent, reduce, or mitigate the impact.

The proposed Oxley Solar Farm is a State Significant Development (SSD) and the Secretary's Environmental Assessment Requirements (SEARs) for the project identify that Aboriginal heritage must be addressed by the EIS. The SEARs identify that the following codes and guides should be followed in relation to Aboriginal heritage assessment.

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*
- *Code of Practice for Archaeological Investigations of Objects in NSW*
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*

The above codes and guidelines are issued by Heritage NSW and are followed for most Aboriginal heritage assessments in NSW. The approach undertaken by NGH will therefore be consistent with other heritage assessments undertaken in NSW and the requirements of the SEARs.

The proposed access to the solar farm via Silverton Road was inspected and assessed for Aboriginal heritage in the original scope of this report. As this access area is no longer part of the EIS Proposal site it is excluded from mapping for the Proposal site.

1.1. DEVELOPMENT CONTEXT

The development of renewable energy projects is one of the most effective ways to achieve the commitments of Australia and a large number of other nations under the Paris Agreement to reduce greenhouse gas emissions. The Oxley 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 Oxley Solar Farm would therefore have both local, national, and international benefits.

As part of the development impact assessment process, the proposed development application will be assessed under part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposed solar farm is classified as "state significant development" (SSD 10346) under Part 4 of the EP&A Act. SSDs are major projects which require approval from the Minister for Planning and Environment. The EIS has been prepared in accordance with the requirements of the SEARs.

The SEARs EIS requirements relating to Aboriginal heritage are as follows:

> "including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, including consultation with the local Aboriginal community in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents*."

1.2. PROJECT PROPOSAL

The Oxley Solar Farm is located on the southern side of Waterfall Way, approximately 14 kilometres (km) south-east of Armidale (Figure 1-2) in the Armidale Regional LGA. The Oxley Solar Farm would be located on a 1,048-ha site (henceforth the 'Proposal site') with the relevant lots for the proposed solar farm and this assessment including Lot 2 DP1206469; Lot 5 DP253346, Lot 6, DP625427 and Lots 7003 and 7004 DP106020. The proposed development footprint covering approximately 895 ha, which will be refined during the EIS process.

The proposed Oxley Solar Farm would comprise the construction, operation and decommission of a ground-mounted solar PV energy generation facility with an estimated capacity of 225 MW. The power generated would be exported to the national electricity grid via two existing TransGrid 132 kV transmission lines that run in parallel within the northern section of the Proposal site. The proposed solar farm would include solar arrays, associated infrastructure, including a grid connection and battery storage. It will include approximately 1,000,000 solar panels mounted on either a fixed or single-axis tracking system.

The Oxley Solar Farm is likely to include the following infrastructure:

- Approximately 715,000 PV solar panels mounted on either fixed or tracking systems, both of which are considered feasible:
- Fixed-tilted structures in a north orientation; or
- East-west horizontal tracking systems.
- Approximately 45 PCU composed of two inverters, a transformer and associated control equipment to convert DC energy generated by the solar panels to 33 kV AC energy.
- Steel mounting frames with driven or screwed pile foundations.
- An onsite 132 kV substation containing two transformers and associated switchgear to facilitate connection to the national electricity grid via the existing 132 kV transmission line onsite.
- Underground power cabling to connect solar panels, combiner boxes and PCUs.
- Underground auxiliary cabling for power supplies, data services and communications.
- Buildings to accommodate a site office, indoor 33 kV switchgear, protection and control facilities, maintenance facilities and staff amenities.
- About 1 km of access track off Waterfall Way to the site which would require construction to the proposed onsite substation.
- Internal access tracks for construction and maintenance activities.
- An energy storage facility with a capacity of up to 30 MWh (i.e., 30 MW power output for one hour) and comprising of lithium ion batteries with inverters.
- Perimeter security fencing up to 2.3 m high.
- Native vegetation planting to provide visual screening onsite and for specific receivers.

The construction phase of the proposal is expected to take about 12 – 18 months. The peak construction period would be a shorter period of about 6 months. After the initial 30-year operating period, the life of the solar farm may be extended, or the proposal decommissioned, removing all above-ground infrastructure, with the possible exception of the onsite substation, returning the site to its existing land use. Any cabling more than 500 mm underground may also be left in place as it would not impact future agricultural activities following rehabilitation of the site. Similarly, access tracks may be left in place, depending on the future use of the site.

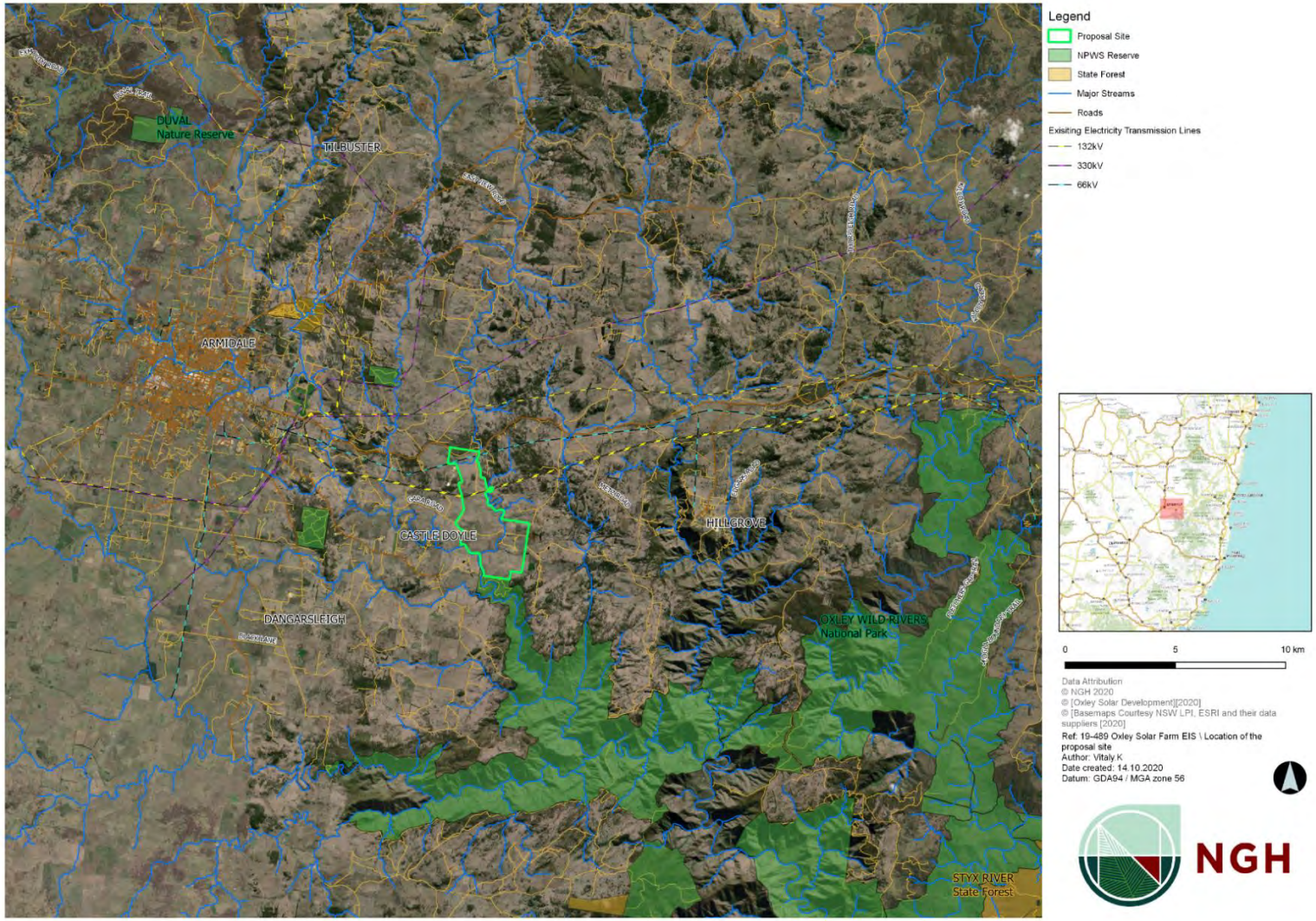

Figure 1-1 Oxley Solar Farm Project General Location.

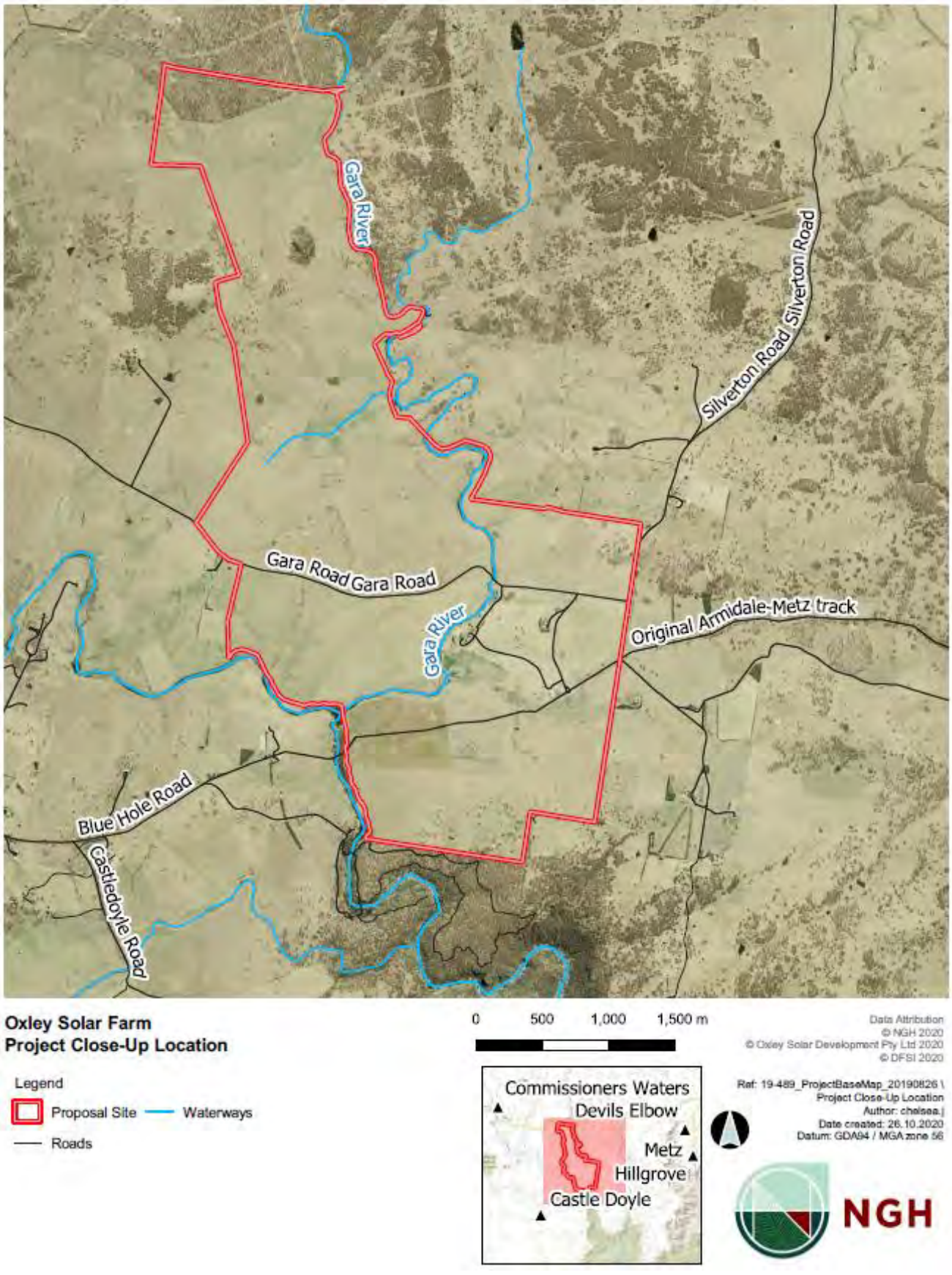

Figure 1-2 Oxley Solar Farm Project Close-Up Location.

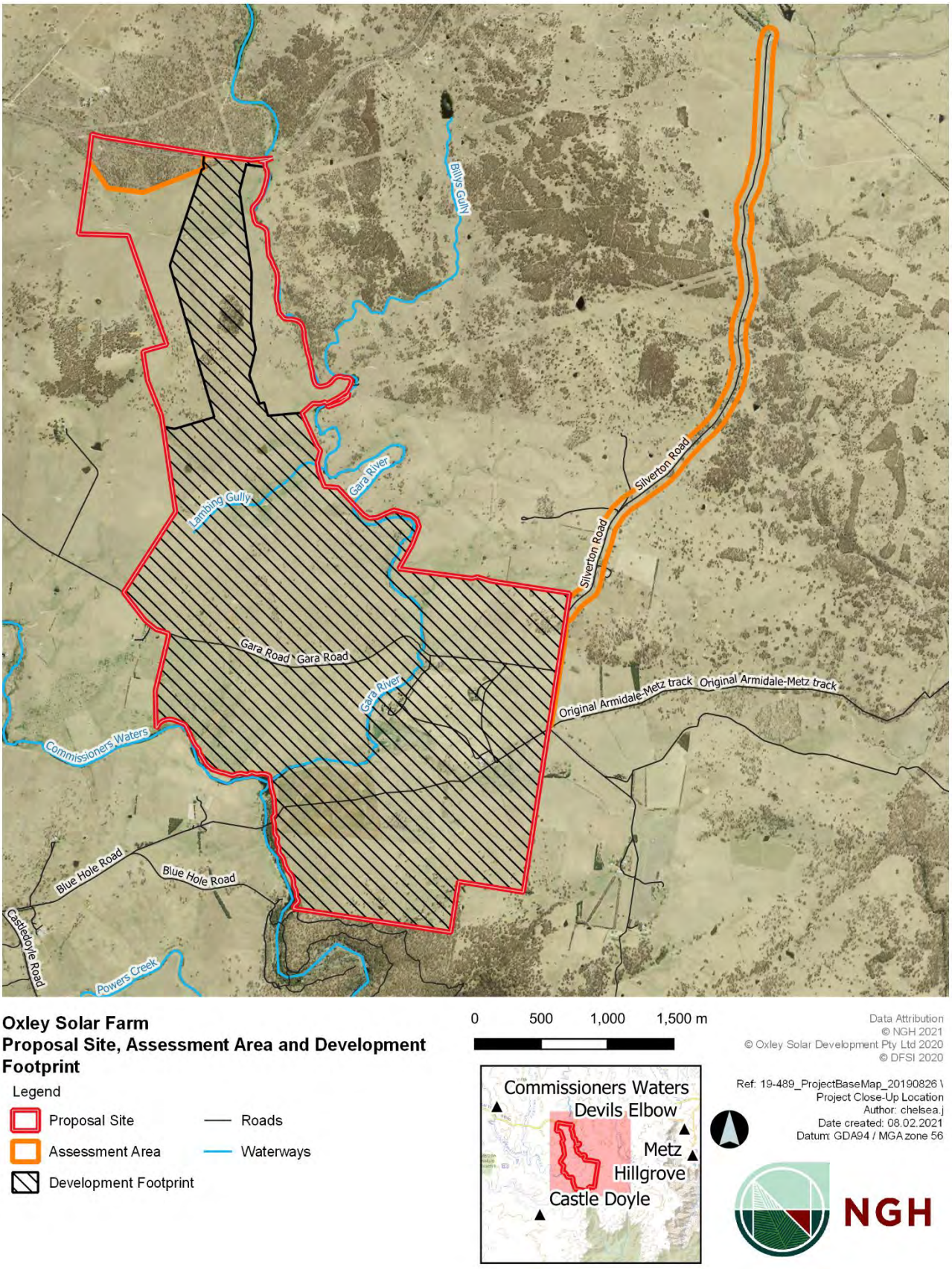

Figure 1-3 Proposal Site, Assessment Area and Development Footprint.

1.3. PROJECT PERSONNEL

The assessment was undertaken by archaeologists Chelsea Jones and Shoshanna Grounds, including research, Aboriginal community consultation, field survey and report preparation. Shoshanna Grounds, Tony Miscamble and Kirsten Bradley of NGH also 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*. Eight Aboriginal groups registered their interest in the proposal.

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

- Armidale Local Aboriginal Land Council (LALC);
- Nunnawanna;
- Anaiwan Traditional Owners Aboriginal Corporation;
- Larissa Ahoy;
- Iwatta Aboriginal Corporation;
- Armidale NE Gumbaynggir Descendants;
- Nyakka Aboriginal Cultural Heritage Corporation; and
- DFTV Enterprises.

In line with the *Aboriginal cultural heritage consultation requirements for proponents 2010*, the Proponent selected the Aboriginal representatives to participate in the fieldwork.

The representatives from the RAPs who participated in the survey fieldwork in May 2020 were:

- Armidale LALC;
- Nunnawanna;
- Iwatta Aboriginal Corporation;
- Armidale NE Gumbaynggir Descendants; and
- Nyakka Aboriginal Cultural Heritage Corporation.

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

1.4. 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*;
- *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales*, and
- *Aboriginal cultural heritage consultation requirements for proponents 2010* (ACHCRP).

The purpose of this ACHA report is therefore 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. This conforms to the intention of the SEARs.

The objectives of the assessment were to:

- Conduct consultation with relevant Aboriginal stakeholders in accordance with Clause 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 potentially significant archaeological deposits;
- Determine if the subsurface testing of any areas with potential archaeological deposits is required to identify the nature of archaeological material in the Proposal site;
- Undertake an assessment of the archaeological and cultural heritage values of the Proposal site and any Aboriginal objects, sites or places therein;
- Assess the cultural and scientific significance of any archaeological material;

- Assess the impacts of the development proposal on cultural heritage sites; and
- Provide management and mitigation recommendations for any objects identified.

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2. ABORIGINAL CONSULTATION PROCESS

The consultation with Aboriginal stakeholders was undertaken in accordance with Clause 60 of the *National Parks and Wildlife 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 the cultural significance
- Stage 4 – Review of the draft cultural heritage assessment report

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

Stage 1. Letters outlining the proposed works and the need to undertake survey were sent to the Armidale LALC, and various statutory authorities including the Biodiversity and Conservation Division within DPIE (formally the Office of Environment and Heritage, now Heritage NSW), as identified under the ACHCRP. An advertisement was placed in the local newspaper, the *Armidale Express* on the 28th of August 2019 seeking registrations of interest from Aboriginal people and organisations. A further series of letters were 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, seven groups and one individual actively registered their interest in the proposal, as listed below.

- Armidale Local Aboriginal Land Council (Armidale LALC);
- Nunnawanna;
- Anaiwan Traditional Owners Aboriginal Corporation;
- Larissa Ahoy;
- Iwatta Aboriginal Corporation;
- Armidale NE Gumbaynggir Descendants;
- Nyakka Aboriginal Cultural Heritage Corporation; and
- DFTV Enterprises.

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 27th of March 2020, an Assessment Methodology document was sent to the RAPs as listed above for review and comment. This document provided details of the background to the project, a summary of previous archaeological surveys and the proposed heritage assessment methodology for the project. The document invited comments regarding the proposed methodology and also sought any information regarding known Aboriginal cultural significance values associated with the subject area and/or any Aboriginal objects contained therein. A minimum of 28 days was allowed for a response to the document.

None of the registered parties raised any objections to the methodology and all registered parties expressed interest in participating in fieldwork.

Stage 3. The Assessment Methodology 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 particular cultural information was received. Iwatta advised there was an Aboriginal Ceremony route that may run through or near the Oxley Solar Farm alignment and therefore the prevalence of lithic artefacts throughout the area was anticipated to be high.

At this stage, the survey fieldwork was organised, and five of the RAPs were invited to participate in the survey fieldwork as selected by the Proponent. The survey fieldwork was carried out in May 2020 by two archaeologists from NGH accompanied by representatives from the following groups:

- Armidale Local Aboriginal Land Council - Colin Ahoy;
- Nunnawanna - Tyson Ahoy;
- Iwatta AC - Steven Ahoy and Jocelyn Blair (rotated personnel throughout the survey works);
- Armidale NE Gumbaynggir Descendants – Bruce Cohen and David Green (David participated as an unpaid trainee for some of the days); and
- Nyakka Aboriginal Cultural Heritage Corporation - Rhonda Kitchener and Robert Kitchener (Robert participated as an unpaid trainee on one of the days).

Stage 4. In October 2020, a draft version of this Aboriginal Cultural Heritage Assessment report for the proposal (this document) was forwarded to the registered parties inviting comment on the results, the significance assessment and the recommendations. A minimum of 28 days was allowed for responses to the document.

2.1. ABORIGINAL COMMUNITY FEEDBACK

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

No comments on the draft ACHA report were received from the RAPs for the project. The report has since been updated based on the revised project design and a copy of the revised report will be sent to all RAPs for comment and review. Owing to the restricted timeline of the EIS, while all review of the revised report will be subject to another 28-day review period, comments received will be incorporated in the subsurface testing ACHA report.

Owing to the proposed layout undergoing modification since this review of the draft report, NGH has redistributed the updated draft version of the report to each of the RAPs for review and comment. A minimum of 28 days will be allowed for review and comment on this draft by the RAPs. However, owing to EIS submission timeline being concurrent with this secondary review period, it should be noted that any amendments or comments on this report will be addressed in the test excavation report and these recommendations herein are contingent on the findings and recommendations discussed in the test excavation report.

3. BACKGROUND INFORMATION

3.1. REVIEW OF ENVIRONMENTAL 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 assessment is based on a number of classifications that have been made at the national and regional level for Australia that include the National Interim Biogeographic Regionalisation for Australia (IBRA) system, Mitchell landscapes, NSW soil landscapes and geological maps. The combination of these different resolutions of landform data provides a comprehensive and multi-scale understanding of the landscape within the Proposal site and its immediate surroundings.

Interim Biogeographic Regionalisation for Australia

The National Interim Biogeographic Regionalisation for Australia (IBRA) system identifies the Proposal site as located within the NSW New England Tableland Bioregion (DE&E 2016). The dominant IBRA subregion affected by the proposal is the Armidale Plateau subregion.

The bioregion comprises part of the north-eastern section of the New England Fold Belt consisting of extensively faulted Carboniferous and Permian age sedimentary rocks. The majority of bedrock is superimposed by Tertiary basalt underlain by gravels, sands and lake sediments. Within the sands, beneath the basalt, inclusions of gold, diamond, tin ore and sapphires have been mined.

The Armidale Plateau subregion is characterised by an undulating plateau at around 1100 m with broad valleys, stepped landscape across basalt flows with valleys steepening towards the Great Escarpment Gorges. Geology of the plateau is characterised by fine-grained permo-carboniferous sedimentary rocks, multiple tertiary basalt flows and granites. A contrast in soils of the subregion is evident through the friable well-drained soils on the upper slopes and compact poorly drained soils of the lower slopes. Soil types vary between black earth along the valley floors, inconstant stony loams and dark loamy alluvium in swampy valleys (DE&E 2016).

New England 1:500,000 Geological Sheet Map

The New England Geological Map 1:500,000 (Offenburg and Pogson 1973) indicates the geology underlying the proposal site consists of Permian and Carboniferous Geological sequences as detailed below.

- **Pl:** comprising greywacke, slate, siliceous claystone and pebbly mudstone.
- **Phj:** Gara adamellites - Intrusive Rocks of the Hillgrove Plutonic Suite.
- **Ts:** comprising gravels, sand and clay, largely overlain by basalt.

Mitchell Landscapes

Further landscape mapping as part of the Mitchell Landscapes system (Mitchell 2002) shows the proposal site comprises three main Mitchell Landscapes. These include the Dingo Spur Meta-sediments (Dsm) covering the northern section of the Proposal site; the Moonbi-Walcha Granites (Mnb) covering the southern section of the Proposal site and the Uralla Basalt and Sand (Urs) covering the south-east section of the Proposal site. The descriptions of each of these landscapes are included in Table 3-1.

Table 3-1 Description of the Mitchell Landscape relevant to the proposal (Mitchell 2002).

Mitchell Landscape	Description (Mitchell 2002)
Dingo Spur Meta-sediments	"Steep ranges and hills intersected by a dendritic drainage pattern leading into deep gorges with high waterfalls on the Great Escarpment extends west onto the tablelands. Gorges incised into faulted, steep dipping Devonian quartzose sandstone, greywacke, massive argillite and slate. Tablelands area on Permo-Carboniferous mudstone, lithic sandstone, tuff, slate, hornfels and some schist. General elevation 300 to 1400 m, local relief 600 m. Shallow stony loam on steep scree slopes with moderate organic content. Shallow gradational loam and sandy loam elsewhere with deeper uniform profiles in low valleys. A very complex vegetation environment encompassing coastal closed forests, dry hardwood forests and cold high plateau components. Open forest of New England blackbutt (*Eucalyptus andrewsii ssp. campanulata*), messmate (*Eucalyptus obliqua*), silvertop stringybark (*Eucalyptus laevopinea*) with New England peppermint (*Eucalyptus cinerea*), snow gum (*Eucalyptus pauciflora*) and black sallee (Eucalyptus stellulata) in high cool environments. Dry closed forest species such as; shatterwood (*Backhousia sciadophora*), giant stinging tree (*Dendrocnide excelsa*), shiny-leaved stinging tree (*Dendrocnide photinophylla*), and yellow tulip (*Drypetes australasica*) in lower moister environments and in patches on scree slopes were protected from fire. Riveroak (*Casuarina cunninghamiana*) along all streams and dry hardwood forests of; yellow box (*Eucalyptus melliodora*), Blakely's red gum (*Eucalyptus blakelyii*), broad-leaved stringybark (*Eucalyptus caliginosa*) and cabbage gum (*Eucalyptus amplifolia*) on valley floors."
Moonbi-Walcha Granites	"Complex of steep ranges, plateau and rounded peaks with abundant large tors and rock domes on Permian granite, granodiorite and porphyry, general elevation 500 to 1320 m, local relief 100 to 300 m with the plateau at an average of 1000 to 1150 m. Soils vary with rock type, depth of alteration and topographic position. Thin gritty loams near rock outcrop on crests, uniform to gradational earths on gentle slopes and red and yellow texture-contrast profiles in valleys. Vegetation also varies and includes open forest and woodland of; white cypress pine (*Callitris glaucophylla*), white box (*Eucalyptus albens*), Caley's ironbark (*Eucalyptus caleyi*), tumbledown red gum (*Eucalyptus dealbata*), silver-leaved ironbark (*Eucalyptus melanophloia*), yellow box (*Eucalyptus melliodora*), orange gum (*Eucalyptus prava*), silvertop stringybark (*Eucalyptus laevopinea*), western golden wattle (*Acacia decora*), lightwood (*Acacia implexa*), kangaroo thorn (*Acacia paradoxa*), and hickory wattle (*Acacia obliquinervia*) on lower western slopes. *Prostanthera nivea - Acacia viscidula* shrubland".
Uralla Basalts and Sands	"Undulating stepped high plateau on Tertiary basalt with underlying fluvial sand and gravel resting on an exhumed landscape of Permian granites. General elevation 950 to 1250 m, local relief 150 m. Red structured loams on ridges, brown structured gradational clay loams on slopes, dark self-mulching clays in valleys and red or yellow earth on sands and exposed granite. Open forest or woodland of manna gum (*Eucalyptus viminalis*) with

Mitchell Landscape	Description (Mitchell 2002)
	some rough-barked apple (*Angophora floribunda*). Snow gum (*Eucalyptus pauciflora*) and black sallee (*Eucalyptus stellulata*) on cold valley floors and exposed peaks. Silvertop stringybark (*Eucalyptus laevopinea*), yellow box (*Eucalyptus melliodora*) and Blakely's red gum (*Eucalyptus blakelyii*) on lower elevations in the west."

Soil Landscapes

Soil landscape mapping shows that the proposal site falls into seven different landscapes, described in Table 3-2. below, which can broadly be categorised into undulating plains, foot slopes, hills, with very minor floodplains and creek lines. The predominant landscapes are Castledoyle, Middle Earth, and Ironstone. Ironstone comprises variable terrain, including some crests, rises, low hills, and long foot slopes while Middle Earth comprises undulating plains, rises, and foot slopes; Castledoyle comprises gently undulating to undulating plains with rises and occasional low hills (State of NSW and Department of Planning, Industry and Environment 2020).

Table 3-2 Descriptions of soil landscapes in the Proposal site (State of NSW and Department of Planning, Industry and Environment 2020).

Soil Landscape	Landscape	Soils	Geology and Regolith
Ironstone	"Variable terrain, including some crests, rises, low hills and long foot slopes characterised by ferricrete/ironstone outcrop and surface rock. Slopes are generally in the range 1–10%. Elevation 900–1210 m. Mostly extensively cleared open woodland especially on the broad foot slopes."	"Shallow to very shallow (<50 cm), well-drained Rudosols (Lithosols/Structured Loams) and other shallow soils (Red Podzolic Soils) occur on crests and upper slopes. Mid to lower slopes and foot slopes have moderately deep to deep (>60 cm), moderately well-drained Bleached-Sodic and Manganic Eutrophic Yellow and Brown Dermosols (Yellow and Brown Podzolic Soils) and Manganic Eutrophic Grey and Yellow Chromosols (Lateritic Podzolic Soils). Some broader foot slopes and basalt-influenced footslopes have deep (>100 cm), moderately well drained Vertosols (affinity with Black Earths) and Black Chromosols (Chocolate Soils). Some Eutrophic Yellow Dermosols (Structured Yellow Earths) and Mesonatric Eutrophic Brown Sodosols (Soloths) also occur."	"Tertiary ferricrete/ironstone or sometimes referred to as laterite. The deposits are suggested by Connolly (1983) to be either post-basaltic or contemporaneous, formed from the mobilisation and concentration of iron minerals in Tertiary basaltic soil profiles. Outcrops (10–20%) comprise scattered surface strewn or surface lag deposits with a distinctly nodular or vesicular appearance that distinguish them from the adjoining basalt/chert/greywacke terrain with more massive rock outcrop (where present). The deposits are orange, red, brown or black in colour. Lithology is largely iron/manganese globules or nodules with various fragments of quartz and other surrounding rocks, such as basalt, silcrete, chert, greywacke and jasper incorporated in the matrix. Soils formed on this unit are largely formed from the ferricrete/ironstone parent materials, but their properties may also be affected by the basalt and other surrounding country rock (Sandon Beds),

Soil Landscape	Landscape	Soils	Geology and Regolith
			which are occasionally included. Some minor areas of silcrete, which have not been otherwise differentiated into the sz landscape, are included."
Argyle	"Rolling low hills and occasional hills on greywacke/chert and related sediments. Local relief 30–80 m, slopes mostly 10–30%, elevation 910–1170 m. Minor rock outcrop (<10%) Partially cleared Eucalyptus caliginosa (broad-leaved stringybark) open woodland."	"Very shallow to shallow (<50 cm), well-drained Basic Lithic Leptic Rudosols (Lithosols) and other shallow soils on crests, ridges and upper slopes. Shallow to moderately deep (40–80 cm) moderately well-drained Haplic Eutrophic Yellow Kandosols/Tenosols (Yellow Earths) on midslopes and occasionally extending onto crests. Shallow to moderately deep (<80 cm) moderately well-drained Yellow/Red and Grey Chromosols (Yellow and Red Podzolic Soils) on midslopes, footslopes and drainage lines. Mottled-Subnatric Eutrophic Brown and Yellow Sodosols (Soloths) occur along some drainage depressions."	"The geology of the unit includes the Permian to Late Carboniferous Coffs Harbour Association (the Girrakool Beds) and some Devono-Carboniferous Sandon Association metasediments. Lithology is mostly lithofeldspathic wacke (greywacke), with slate, shale, mudstone, siltstone, chert and rare mafic and felsic volcanics (Gilligan *et al*. 1992). In the vicinity of Argyle, greywacke is the most commonly occurring rock type with numerous outcrops, especially at Argyle trig station and adjacent hillslopes. At Trequean and Riverton, chert and sandstone are the common rock types, e.g., SALIS profile sites 100, 101 Survey No. 1001020 (Armidale). The greywacke/chert and related rocks are seldom deeply weathered, forming resistant outcrops which rise above the surrounding less resistant countryside. Some metamorphosed rocks, e.g., slates, phyllites, schists, were also encountered. The setting is often locally referred to as trap or traprock country. Along the Armidale-Grafton Road on what has been previously mapped largely as Sandon Association are also small areas largely on crests/upper slopes of possible Tertiary materials (sometimes mapped as Ts on geological maps). Red Ferrosols and Dermosols are typically developed in these areas and can be seen in numerous road cuttings in the vicinity of Commissioners Waters and back towards Armidale."

Soil Landscape	Landscape	Soils	Geology and Regolith
Castledoyle	"Gently undulating to undulating plains, rises and occasional low hills on the Gara Adamellite. Local relief <40 m, slopes 0–10%, elevation 890–1050 m. Mostly cleared open woodland. Rock outcrop (tors) occurs on most crests and upper slopes and some lower slopes."	"Moderately deep (60–100 cm), moderately well-drained Haplic and Mottled Eutrophic Yellow Chromosols (Yellow Podzolic Soils) are the main soils on most slopes. Some crests, upper slopes and areas with rock outcrop have shallow, well-drained soils (<60 cm), such as Orthic Paralithic Basic Tenosols (Siliceous Sands/Earthy Sands) and Rudosols (Lithosols). Exposed gullied drainage depressions and some lower slopes have deep (>120 cm), moderately well-drained Mottled-Subnatric Eutrophic Brown and Yellow Sodosols/Haplic, Bleached-Mottled Sodic and Bleached-Mottled Eutrophic Brown and Yellow Chromosols. (Soloth/Yellow Podzolic Soil intergrades). Some minor loose river sands, Rudosols, occur on some drainage lines."	"Gara Adamellite comprised of biotite monzogranite (Gilligan *et al*. 1992)."
Commissioners Waters	"Narrow streams, swamps and occasional small floodplains/terraces on Quaternary alluvium. Includes Commissioners Waters and the Gara River. Local relief 0–10 m, slopes 0–3%, elevation 900–1070 m. Extensively cleared open woodland."	"Variable soils showing a relationship with the source rocks from which they are derived. Shallow to moderately deep (40–100 cm), well-drained Alluvial Sands and Alluvial Loams (Yellow/Brown and Grey Earths) occur in areas derived from coarse-grained parent materials. Moderately deep to deep (>80 cm), moderately well-drained Mottled Eutrophic Grey Chromosols/Grey Sodosols (Gleyed Podzolic Soils/Grey Brown Podzolic Soils/Lateritic Podzolic Soils) are fairly common. Some Haplic Eutrophic Brown Dermosols/Kandosols (Prairie Soils) are encountered along parts of Burying Ground Creek."	"Quaternary alluvium derived primarily from metasediments (the Sandon Beds). Also, some granite source rock, the Gara Adamellite and Hillgrove Adamellite, and more rarely basalt source rock (giving rise to slightly darker coloured soils)."
Long Point	"Residual caps on basaltic parent material. Local relief 0–50 m, slopes 0–3% on flat crests up to 25% on side slopes, elevation	"Moderately deep (50–100 cm), moderately well-drained Ferrosols/Dermosols (Krasnozems/Prairie Soils/Red Podzolic Soils) on crests and side slopes. Some Black and Brown Dermosols (Chocolate Soils) near Metz/Silverton. Minor shallow (<40	"Remnant basalt cappings/flows of Tertiary age. Some minor associated ferruginous sandstone/ferricrete occurs in places, e.g. Silverton and Glenross."

Soil Landscape	Landscape	Soils	Geology and Regolith
	920–1030 m. Extensively cleared open woodland/forest."	cm) well-drained Rudosols (Structured Loams/Lithosols) in association with rock outcrop. Moderately deep (>70 cm), moderately well-drained Haplic, Epipedal, Black Vertosols (Chernozems/Black Earths) on some lower slopes and drainage lines (variant lpb)"	
Middle Earth	"Undulating plains, rises and foot slopes on Sandon Beds. Local relief 0–30 m, slopes 0–10%, elevation 910–1120 m. Extensively cleared open woodland to partially cleared."	"Moderately deep to deep (>70 cm), moderately well-drained Bleached-Mottled Haplic Eutrophic Yellow Kurosols and Chromosols (Yellow Podzolic Soils) are widespread. Deep (>100 cm), poorly drained Yellow Chromosols and Mottled-Mesonatric and Mottled-Subnatric Eutrophic Yellow Sodosols (Soloths) and Bleached-Manganic and Bleached-Ferric Eutrophic Yellow Chromosols (Lateritic Podzolic Soils/Grey Brown Podzolic Soils) occupy drainage depressions and poorly drained areas. Occasional shallow (<40 cm), well-drained Bleached Eutrophic Yellow Kandosols (Yellow Earths) on slopes with bedrock close to the surface"	"Sandon Beds. Greywacke is the main rock type with chert, slate and ferricrete. Some Girrakool Beds (Coffs Harbour Association) with a similar lithology underlie parts of this landscape. Traise (1973) noted the soil colour at any given site reflected the bedrock from which the soil was derived, with rusty brown coloured soils associated with chert and a dusty yellow colour associated with the greywacke lithologies."
Silverton	"Rolling to steep hills on the Gara Adamellite with many granite tors. Local relief 30–100m, slopes >15%, elevation 840–1100 m. Partially cleared open forest."	"Shallow (<40 cm), well-drained Rudosols (Lithosols/Siliceous Sands) adjacent to granite tors and on some upper to mid slopes. Shallow to moderately deep (20–60 cm), well-drained Haplic Eutrophic Yellow and Brown Kandosols (Yellow and Brown Earths) on steep slopes. Lower slopes and narrow drainage lines have moderately deep to deep (>80 cm), imperfectly drained Subnatric Eutrophic and Mesotrophic Yellow Kurosols/Chromosols/Sodosols (Yellow Podzolic Soils/Yellow Solodic Soils/Soloths)."	"Gara Adamellite comprised of biotite monzogranite. (Gilligan *et al*. 1992)."

The basalt, greywacke and chert geology would have provided suitable material for stone tool manufacture and the high elevated crests and ridge landforms in proximity to water sources likely supported campsites. Alluvial sands and soils along the sloped landforms may contribute to the erosion of topsoil and therefore translocation of artefactual material and potential exposure of organic material. However, organic deep well-drained soils in other areas may better retain archaeological material. Species such as yellow box (*Eucalyptus melliodora*), Blakely's red gum (*Eucalyptus blakelyii*), broad-leaved stringybark (*Eucalyptus caliginosa*) likely provided sufficiently sized procurement areas for the extraction of bark for shield and/or coolamon manufacture.

3.1.2. Hydrology

The Proposal site is located directly east of Commissioners Waters and is traversed by the Gara River. A total of 36 1st and 2nd order tributaries of Commissioners Waters and the Gara River also traverse the Proposal site. The Gara River borders the north-eastern perimeter of the Proposal site and then transects the southern half of the area. The confluence of the river and Billy's Gully is evident to the northeast of the Proposal site, with Lambing Gully transecting the middle of the Proposal site and Commissioners Waters joining the Gara River towards the south-west. There are also twenty-four dams which occur within the Proposal site. The abundance of and proximity to these water sources likely facilitated reliable terrestrial resources and, at minimum, semi-permanent utilisation of the area.

3.1.3. Climate

The continent has been subject to a number of sea-level changes as a result of changes in the climate. Approximately 70,000 years ago, oceans dropped to more than 60 metres below the current sea level, exposing the landmass of 'Sahul' which included Tasmania, Australia, and Papua New Guinea (Hiscock 2008:21). From this time, through the last glacial maximum, or ice age, until the ice caps commenced melting approximately 18,000 years ago, significantly more land was exposed and accessible for Aboriginal people. From the start of the Holocene approximately 11,700 years before present, sea levels began to rise significantly, forming new coastlines. By 6,500 years before present, sea levels had risen by 120 m (Connell 2000). The climate continued to warm to present temperatures until approximately 1,000 years ago, from which time it stabilised to present conditions.

The climate of the New England Tableland in the present day is temperate to cool-temperate comprising warm summers with uniform rainfall. The mean annual temperature is between 9 and 17 degrees Celsius, with a mean annual rainfall between 653-1765 millimetres. This would have provided a year-round habitable environment for past Aboriginal people and the resources they relied on.

3.1.4. Flora and Fauna

Vegetation mapping of NSW has been undertaken on a broad-scale by Keith (2004) including a compilation of vegetation as per present day, as well as reconstructed vegetation mapping prior to land-clearing. Relevant information from the vegetation mapping study has been provided in this section, not as an ecological study but for reference to Aboriginal cultural context only.

The Proposal site is located within the New England Grassy Woodlands as classified and reconstructed by Keith (2004) and is near related communities such as the Tableland Clay Grassy Woodlands and the Northern Tableland Dry Sclerophyll Forests.

Prior to extensive land clearing, New England Grassy Woodlands are characterised by a number of species including rough-barked apple (*Angophora floribunda*), Blakely's red gum (*Eucalyptus blakelyi*), a variety of box species including E. *bridgesiana*, E. *melliodora* and E. *moluccana* and stringybarks including E. *caliginosa*, E. *laevopinea* and E. *youmanii*. In deeper soils the canopy may reach as tall as 25 metres, however on hills, and areas with drier less fertile soils, the shorter stringybarks were the

dominant species. On flats and open valleys, the New England peppermint (E. *nova-anglifolia*) dominates the vegetation community. Understorey species would have been sparse but included wattles (*Acacia filicifolia* and A. *implexa*), blackthorn (*Bursaria spinosa*), dogwood (*Cassinia quinquefaria, Hibbertia obtusifolia, Jacksonia scoparia*) and others. A variety of grasses and herbs were also present within this vegetation community, including kangaroo grass (*Themeda australis*), though the grassy ground cover is generally less continuous in this community when compared with the Tableland Clay Grassy Woodlands (Keith 2004: 90-91).

The south-east of the Proposal site also partially encompasses New England Dry Sclerophyll and Northern Gorge Dry Sclerophyll. One of the trees characteristic of the New England Dry Schelorpyll Forests is the *Banskai integrifolia* var. *monticola*. These small trees often occur as isolated examples of native vegetation across paddocks. Other common species include wattle-leaved peppermint (Eucalyptus *acacifarnis*) broad-leaved stringybark (E. *caliginosa*) and mountain gum (E. *dalrympiena* subsp. *heptantha*). Species characteristic of the gorge slopes includes the broad-leaved apple (*Angophora subvelutina*), pink bloodwood (*Corymbia intermideia*), grey gum (*Eucalyptus biturbinata)* and narrow-leaved stringybark (E. *eugenioides*).

Animals for which the New England Grassy Woodlands may have provided habitat would have included varieties of kangaroos and wallabies, as well as smaller marsupials such as bettongs and quolls, and the now-extinct placental mammal, the white-footed tree rat. A huge variety of birds and reptiles were also present, as well as fish and frogs within the rivers and creeks (Keith 2004: 83).

Such plant and animal species would have provided very important resources for food, shelter, medicine, implements, clothing and other day-to-day items. Eucalyptus trees provide a number of resources including bark for the manufacture of tools and weapons, as well as other useful items such as coolamons, shields and construction materials for shelters. Eucalyptus oil was used for medicine such as the treatment of sinus congestion and headaches. Animal species would have been hunted or trapped for food, and evidence from other parts of NSW indicate that the bones and skins of animals were also put to use as tools, ornaments and clothing (Attenbrow 2006).

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.

3.1.5. Land Disturbances and Historic Land-Use

John Oxley's expedition reached the southern part of the plateau in 1818, however, European movement into the New England region did not commence in earnest until the 1830s and 1840s during the expansion of squatters west into the interior of what is now NSW. As such the main activity during the early development of the area related to farming and pastoralism. Through the second half of the nineteenth century, mining of gold, diamonds, asbestos, antimony and tin commenced across parts of the New England region, however, farming remained the primary economy in Armidale and surrounds. Wheat, maize, oats and potatoes were grown in the area (RPS 2010).

Livestock grazing and agriculture are still major economic activities for the region, with the Proposal site having been extensively cleared of native vegetation in order to make way for grazing livestock and the planting of crops. A number of other land modifications associated with farming practices have occurred including terracing on slopes, dam construction and drainage modification.

As a result of these disturbances, the landscape has been significantly altered since European arrival and such disturbances may have resulted in the removal or disturbance of sites. As a result of vegetation clearance and broad-scale pastoral activity, a chain reaction of topsoil erosion has been set in motion leading to the deflation of the soil profile in the Proposal site, particularly on slopes and gullies.

In particular, the influx of occupation to the Hillgrove area (east of the proposal site) was attributed to the gold mining which began in 1877 (Neale *et al* 1981; Mainwaring 1986a, 1986b; Baker 1971 as cited in Gojak 1988). Resource deficiencies associated with the powering of the mine and steam engines led

to the discussions and the eventual development of the Gara River Hydro-Electric Scheme (Gojak 1988).

Much of the proposal site encompasses the lands referred to as 'Gara'. Gara Station and its associated lands have been utilised for agricultural pastoral and grazing for generations. The establishment of the Hillgrove and Gara Station is attributed to Major General Sir Maurice O'Connell the commander in chief of the colony. The property of Gara later being sold to Edward Allingham who ran a store and mill in Armidale (Walker 1966). In 1901 the property encompassed 527 acres of freehold and 3,542 acres of pastoral and agricultural land (The Sydney Wool and Stock Journal 1901). Some accounts reference the running of sheep during the 1860s (The Maitland Mercury and Hunter River General Advertiser 1864). Today several of the paddocks run sheep and cows while select few are maintained for cropping of foods such as radishes.

The Proposal site encompasses the Parish of Gara to the North and the Parish Metz to the south.

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 objects. The proposal site is situated within undulating simple slopes, ridgelines, creek lines and terraces. Gara River is considered likely to have been a major focus for Aboriginal people within the Proposal site. Prior to European land modifications, this area as a whole would have provided resources, shelter, water, and food for Aboriginal people.

Landforms were determined based on topographic identification during the visual inspection of the Proposal site in the course of the field survey and from the review of detailed contour mapping. Four landforms were identified within the Proposal site which is shown in Figure 4-1 and listed below:

1. Disturbed Road Corridor;
2. Simple Slopes;
3. Ridgelines and spurs; and
4. Creek lines, and their associated terraces and banks.

3.2. REVIEW OF ABORIGINAL ARCHAEOLOGICAL CONTEXT

3.2.1. Ethnographic 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 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 *et al*. 2005:8). Depending on the culture-defining criteria chosen - i.e. which cultural traits and the temporal context (historical or contemporary) - the definition of the spatial boundary may vary. In Australia, Aboriginal "marriage networks, ceremonial interaction and language have been central to the constitution of regional cultural groupings" with the distribution of language speakers being the main determinate of groupings larger than a foraging band (Egloff *et al.* 2005:8 & 16).

The Armidale area was originally inhabited by the Anaiwan, Gumbaynggirr and Dhunghatti people. Early mapping of Aboriginal tribal boundaries by Tindale (1974) identify the Proposal site as being within the Nganyaywana language group. However today the study area is generally noted as being within the traditional lands of the Anaiwan language group. The Anaiwan group are part of the Nganyaywana language group according to Horton (1994). In 1898 Mathews noted that the "Anaywan" tribe was "scattered over the table-land of New South Wales, bound the Thangatty and Koombanggary people on the west".

The New England Tablelands Bioregion encompasses the traditional lands of the following three language groups: the Anaiwan for the area around Armidale, the Kwaimbul to the north and the Banbai around the middle of the region near Ben Lomond and Mt Mitchell. Additionally, the Bunjalung people inhabited the north-eastern side. The Ngarrabul people inhabit the area around Kingplains, Wellingrove and Strathbogie stations.

The tribal boundaries noted by early linguists were partially the product of a European system of determining land ownership, a system that did not reflect Aboriginal social constructs or their relationship with country. Early mapping of Aboriginal language implies that the language groups identified, and their defined borders/boundaries should be considered as territorial units. It is important however to remember that the boundaries between all the language groups mapped 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. Borders were most likely not static but fluid, expanding and contracting over time with the movements of smaller family or clan groups. These boundaries ebbed and flowed through contact with neighbours, the seasons and periods of drought and abundance. The close proximity to each other also meant that people likely spoke multiple languages and dialects (Howitt 1904; Tindale 1974; Horton 1994).

Social Structures and Colonisation

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

With the advancement of European colonisation into New England in the early 1800s, Armidale saw settlement from the mid-1820s, which increased significantly through the 1830s and 1840s, altering the landscape and impacting the traditionally available resources and pathways through the introduction of farming and its associated activities. Aboriginal traditional lifestyles were heavily disrupted by the spread of European settlement, with disease and violence by early settlers leading to a decline in the local population. The Myall Creek Massacre in 1836 and the Bluff Rock Massacre of 1842 were two examples of the extreme violence towards the local Aboriginal people which ran almost unchecked in the region. Some remaining families found employment on the large pastoral stations that had become established in the region (NSW Government 2016). Aboriginal men also found employment shearing wool or within the timber industry.

Aboriginal reserves were established at Armidale, Guyra, Ashford, Ingelba and Tingha. Many families congregated at these centres and ceased traditional lifeways as a result of the pressure from the European invaders. Through all the hardships endured, the Anaiwan people continue to have a strong connection to their land.

Ceremonies

Early accounts of ceremonies conducted by the Anaywan and surrounding people by Mathews (1898) provides descriptions of ceremonies including the “Burbung” ceremony in which a number of tribes would gather for the initiation of boys into tribesman. He also describes the encampment set up by the hosting tribe which includes a meeting place for initiated men (to which women and uninitiated men may not go) and a separate space for the single women and girls. The description provided by Mathews (1898) indicates that the traditions of groups from Kempsey up to the Clarence River and west to New England were interlinked with one another.

Previous anthropological studies were also undertaken by Paton (1998, as cited in Burke *et al* 2000) for the preliminary assessment of the Armidale to Queensland Transmission Line project. The Armidale LALC and NSW ALC (Northern Tablelands Branch) stressed the importance of the Black Mountain (Mt Boral) ceremonial site and indicated that there were additional potential areas of sensitivity/significance associated with the ceremonial ground. The ceremonial ground was recorded by McBryde in the 1960s as a locally known traditional meeting place and Bora Ground – when recorded an extensive stone arrangement was still present *in situ* but all traces of carved trees (recorded in 1871) were gone (McBryde 1974: 41-42, in Burke *et al* 2000: 38). Additionally, information regarding a potential massacre which occurred on or near Burying Ground Creek (3 km west of the proposal site) was also recorded (though other sources indicate this is not the reason for the naming of the creek).

Material Culture, Food and Resources

The Tablelands are posited to have been occupied seasonally - predominantly in summer and autumn with communities moving towards the west river systems and coast into the winter months. Items such as boomerangs, waddies and spears as well as stone materials and hardwood from the Tableland groups were traded among the Western Slopes populations (HO and DUAP 1996).

The Anaiwan people are thought to have utilised the majority of the area north of the Macintyre River, making use of a broad range of natural resources. Although occupation seems to have been focused on the riverine margins, it is believed that their occupation was not restricted to these areas but traversed a variety of landform units away from the major water sources for the gathering of resources, hunting and transport (McIntyre 1998).

Prior to European settlement, the Armidale region supported open to dense woodlands, which provided habitat for a broad range of plant and animal species that formed the core of Aboriginal dietary items

prior to contact with early European explorers and settlers. Groups are documented as having utilised a broad range of plant species as both food and material resources, including bracken fern, orchids, tubers and lilies, kurrajong trees and the daisy yam, to mention just a few (Morris, 1999:4-6 as cited in NGH 2020).

Water has been identified as a crucial element of the traditional way of life with a wide variety of animal and plant resources seasonally available in the river systems. Terrestrial animals such as the possum were noted by many early observers as a prime food source for Aboriginal people and the skins were often made into fine cloaks that evidently were very warm. Kangaroos were eaten, and their skins made into cloaks as well (Evans 1815; Oxley 1820; Mitchell 1839). A range of reptiles and other mammals were also 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, ants, and ant eggs (Pearson 1981; Fraser 1892). Birds, including emus, were common as a food source, being caught in nets made from fibres of various plants. Bird hunts were undertaken as group activities, with emus, ducks and other species of birds targeted via groups of people flushing them out and driving them into pre-arranged nets (Ramson 1983 as cited in NGH 2020). Plant foods were equally as important and mostly consisted of grasses seeds, roots, tubers, yams, berries and fruits (Gott 1982).

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

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

3.2.2. AHIMS Search

The Aboriginal Heritage Information Management System (AHIMS) 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 for addition to the register. As a starting point, the search will indicate whether any sites are known within or adjacent to the investigation area.

A search of the AHIMS database was conducted using a polygon search. The parameters for this search were as follows:

- Client Service ID: 447475
- Date: 6 September 2019
- Lat, Long From -30.6521, 151.6927
- Lat, Long To -30.508, 151.9213
- Buffer: 0 metres
- Aboriginal sites: 114
- Aboriginal Places: 0

This area completely contained the Proposal site, and at least 4 km in all directions (sometimes up to 10 km). There are 114 Aboriginal sites recorded in the search area within open and closed contexts. No declared Aboriginal Places are held for the search area in the AHIMS database.

Table 3-3 shows the site types previously recorded in the region. Figure 3-1 shows the location of AHIMS sites in relation to the Proposal site.

Table 3-3 AHIMS Site Types recorded within Oxley region.

Site Type	Number
Artefacts (Isolated Find or Artefact Scatters)	71
Modified Tree (Carved or Scarred)	2
Restricted Site	1
TOTAL	**74**

One (1) site was identified as a restricted site. This means that the details of the site, including the locations of the site, are not provided at the time of the AHIMS search. As per the instruction provided in the AHIMS extensive search result, AHIMS was sent the AHIMS ID for the restricted site (21-4-0081) and provided a map of the Proposal site to determine if any of these restricted sites were within or adjacent to the Proposal site (sent 19th September 2019). David Gordon of AHIMS advised on 24th September 2019 that the restricted recorded site "will not be impacted by any works conducted in your study area as it is found outside the boundary". Given that AHIMS has confirmed this site is not within the Proposal site it will not be further assessed as part of this project. Additionally, as no location data will be provided by AHIMS this site has not been included as part of the NGH mapping.

While there are no registered sites within the Proposal site there are six sites located within 500 m of the Proposal site. These are detailed in Table 3-4 and shown in Figure 3-2.

Table 3-4 AHIMS within 500 m of the Oxley SF Proposal site.

AHIMS ID	Site Name	Site Type	Distance from the proposal site	Status of site
21-4-0059	TH-JA2	Artefact	360 m east	Valid
21-4-0014	Blue Hole; Armidale	Open Camp Site	350 m west	Valid
21-4-0051	Gara Open Camp Site	Open Camp Site	178 m west	Valid
21-4-0072	Gara Artefact 1	Artefact	100 m south-west	Valid
21-4-0018	Gara Falls Reserve	Open Camp Site	290 m south-west	Valid

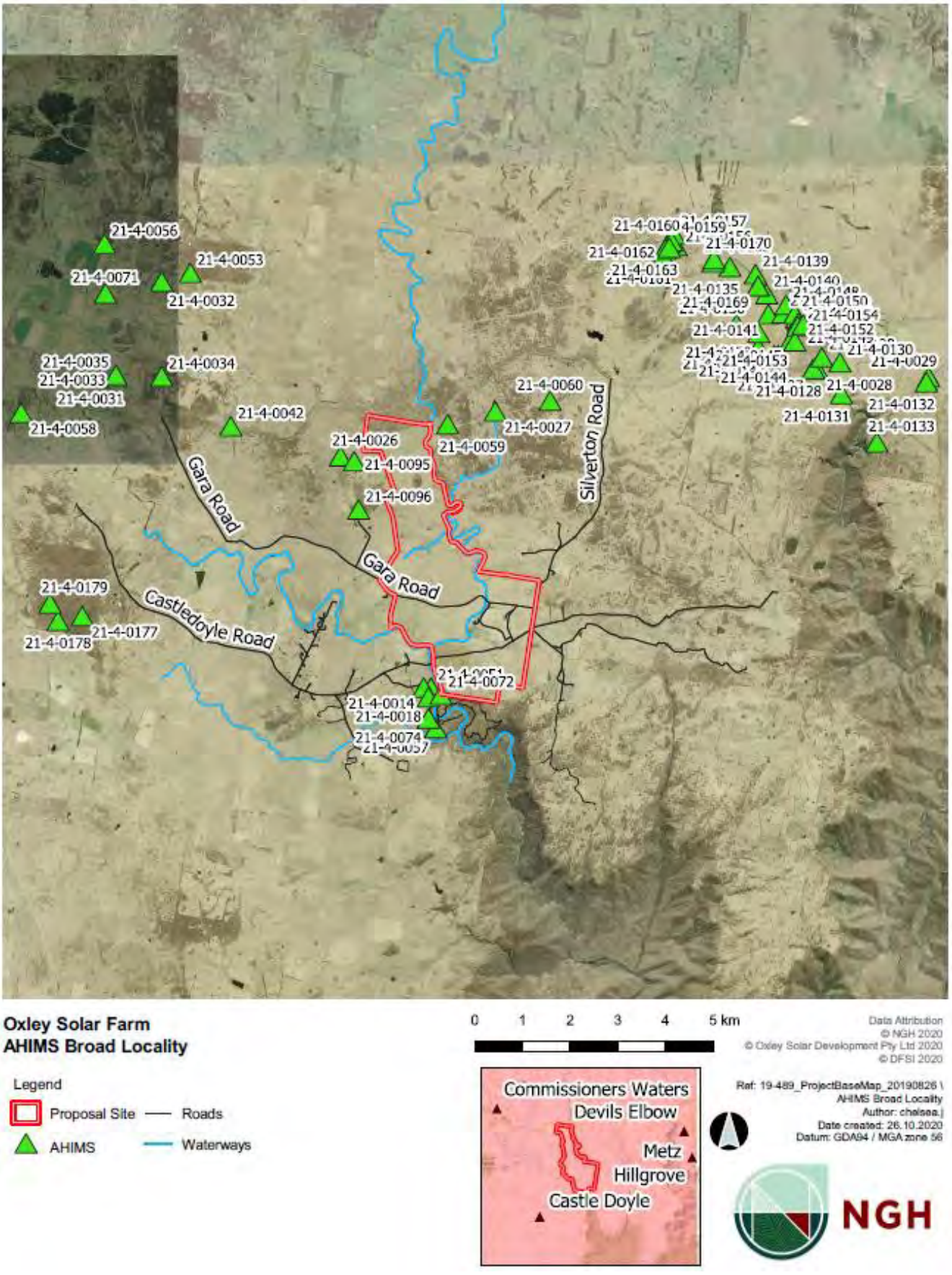

Figure 3-1 AHIMS Broad Locality Map.

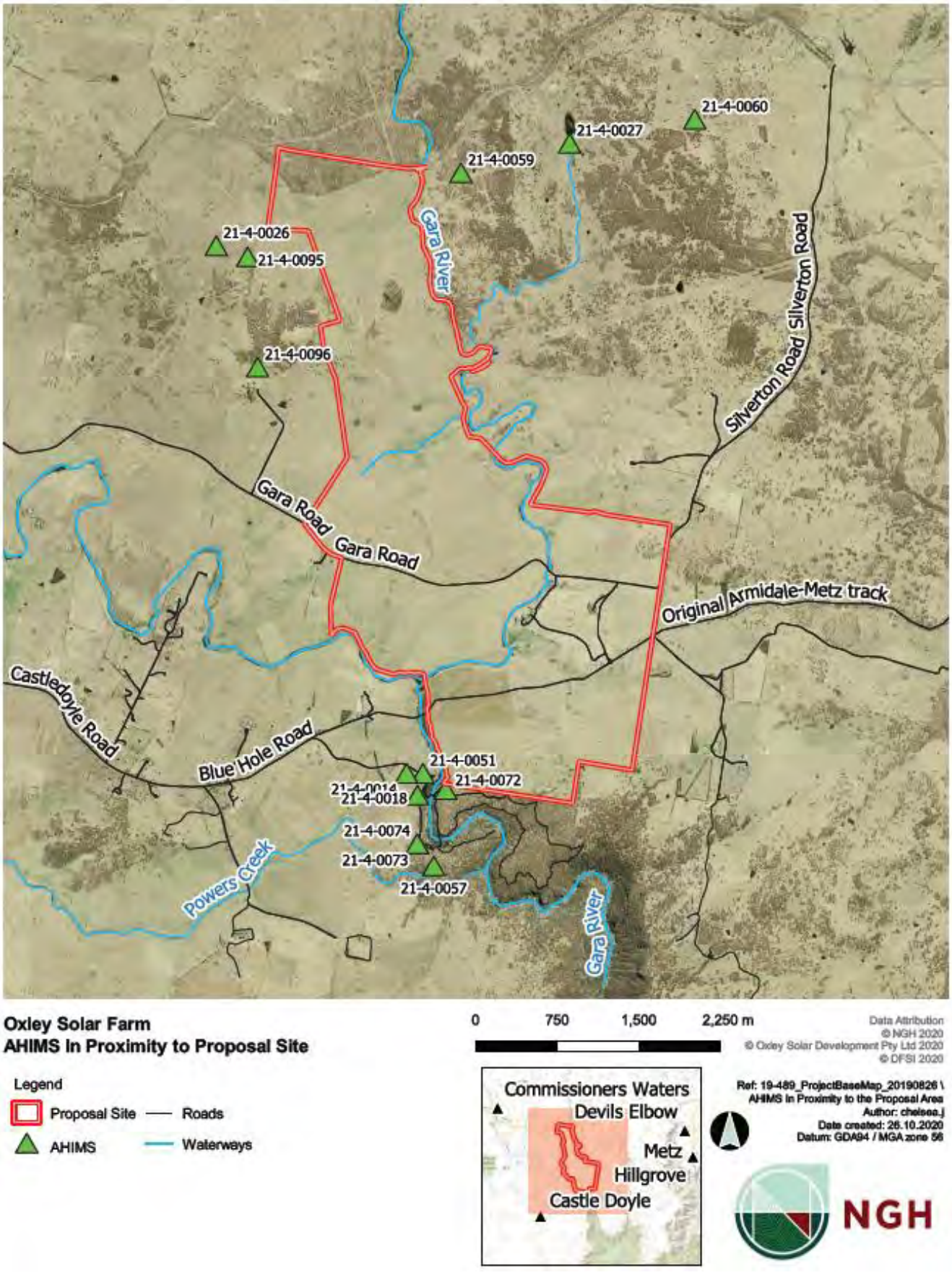

Figure 3-2 AHIMS In Proximity to the Proposal site.

3.2.3. Other Heritage Register Searches

Other heritage register searches were also undertaken to identify any items or places in proximity to the Proposal site. The following resources were used as part of this assessment:

- The World and National Heritage Database.
- 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.

World and National Heritage Database

It should be noted that the curtilage of the Gondwana Rainforests of Australia is directly adjacent to the south of the Proposal site. This is listed both on the National Heritage List of Australia as well as the world heritage list.

Australian Heritage Database

No items from the Australian Heritage Database were identified within the Proposal site. The closest listed item is Metz Goldmining Area (313) which is approximately 7 km east and listed on the Register of National Estate, a non-statutory archive.

State Heritage Inventory

The State Heritage Inventory includes a database of heritage items in New South Wales which include:

- declared Aboriginal Places;
- items listed on the State Heritage Register;
- listed Interim Heritage Orders;
- items on State Agency Heritage Registers; and
- items listed of local heritage significance on a local council's Local Environmental Plan.

No items from the State Heritage Inventory were identified within the Proposal site. However, the Gara River Hydro-Electric Scheme curtilage is directly adjacent to the southern border of the Proposal site. This item is listed on the NSW State Heritage Register (00986), Armidale Regional Council Local Heritage Register and s.170 NSW State agency heritage register.

This report does not address non-Aboriginal heritage, however, NGH notes that the proponent may be obligated to consider potential impacts of any proposal on listed non-Aboriginal historic heritage items.

Armidale Dumaresq Local Environmental Plan (LEP)

There are 10 LEP listed items within the general Hillgrove and Metz areas. However, none of these are located within 4km of the proposed Proposal site (Table 3-5).

Table 3-5 Heritage items on LEP in proximity to the surrounding of the proposal site.

Number	Suburb	Site Name	Site Type	LEP ID
1	Hillgrove	Baker's Creek Mine Chimney	132B Brackin Street	I200
2	Hillgrove	Baker's Creek Mine Surface Buildings	132B Brackin Street	I202

Number	Suburb	Site Name	Site Type	LEP ID
3	Hillgrove	Baker's Creek Winding Engine House	132B and 132F Brackin Street	I201
4	Hillgrove	Cemetery	55 Hillgrove Cemetery Road	I227
5	Hillgrove	Eleanora Mine - Chimney	130 Brackin Street	I199
6	Hillgrove	Garibaldi Mine Chimney	132B Brackin Street	I203
7	Hillgrove	Homestead 'St Helena'	3138 Grafton Road	I209
8	Hillgrove	Shearing Shed 'Hillgrove Station'	2457 Grafton Road	I204
9	Metz	Cottage	372 Metz Road	I207
10	Metz	Tattersalls Hotel Brick Outbuildings	372 Metz Road	I001

3.2.4. Previous Archaeological Studies

Regional Modelling

Early research into the Aboriginal occupation of the Tableland carried out by the University of New England in Armidale and Bowdler (1981) noted that occupation of the Tablelands was a transitory area that people came to for specific purposes only and did not occupy above 1000 m for any extended periods of time (as cited in Remnant Archaeology 2017). This model was supported at the time by the number of ceremonial and intangible sites in the area.

Later research by Hall and Lomax (1991, in Davies 2002), suggested that the separation of technologies may not have been as distinct in the north-eastern parts of the tablelands. McBryde's research also indicated that there were no recorded artefacts, stratified archaeological deposits or surface Bondaian technological phase sites above 1,000 m above sea level. However, research by Godwin resulted in the identification of sites above 1,000 m, citing bias in McBryde's survey methodology (1983, in Davies). Godwin's results indicated that while there was some interaction between the people of the tablelands and the people of the western slopes, there was little evidence to suggest that the people of the tablelands interacted much with the coastal people, which had been theorised by Belshaw (1978) and Bowdler (1981) (Goodwin 1993, in Davies 2002:33).

It has been noted by Appleton (1990) that a number of predictive models, specifically those of McBryde (1974;1977) and Bowdler (1981), for the New England region, formulated in the 1970s and 1980s, was based on discussions with local knowledge holders during fieldwork, and not necessarily on the results of a systematic survey. Appleton suggests that Godwin's research was the first to include intensive surveys which provided suitable data for the preparation of an accurate model for the region (Appleton 1990 7). Godwin's observations included that many relatively dense artefact scatters are located on

woodland (or formerly wooded) ridges, parallel to and at a short distance from watercourses. He also observed that the two site types, near water or in woodland settings, exhibited differing characteristics, both in the density of artefacts and in distinctive characteristics of the stone tools.

Regional Archaeological Dating

Limited dating information regarding the occupation of the New England region by Aboriginal people is available. Excavations undertaken in the Hunter Valley and Nepean region further to the south-east have indicated dates at least as far back as 20,000 years and up to 40,000 years before present (McDonald 2005; Nanson *et al*. 1987). Dates retrieved from New England are detailed in Table 3-6.

Table 3-6 Dated sites in greater New England region (Source: McBryde 1977 as cited in RPS 2010).

Site	Date	Laboratory Reference
Seelands (near Grafton)	6444 ±74 BP	V-27
Graman Shelter B1 (near Inverell)	5450 ±100 BP	Gak-806
Moore Creek (near Tamworth)	3820 ±110 BP	Gak-1631

This is consistent with the majority of dates retrieved from other sites throughout southeastern NSW, with a number of theories posited to explain this. One such theory suggests that an increase in occupation density during the last 3,000 to 5,000 years is responsible for the higher number of sites identified which date to this period, while another theory suggests that sites which were concentrated along the coast were inundated during the sea-level rise and therefore lost from the archaeological record (Kohen 1986; McDonald 1994 as cited in NGH 2020).

Analysis from excavations at Bendemeer Rockshelters 1 and 2 and Graman Rockshelters by McBryde (1974; 1977, as cited in Davies 2002), revealed occupation dates of 4,400 and 9,000 years before present, respectively. The Graman rock shelters are located on the western edges of the tablelands, where the underlying geological formations comprise basalt and sandstone. Of four sites excavated, two contained evidence of backed blade industries dating to 4,960 and 5,450 years before present. Grindstones were also present, suggesting some reliance on grass seeds as part of the diet. Faunal assemblages, which are likely the remains of food consumption, include brush-tailed possum, bandicoot, grey kangaroo, lizard, fish and shellfish. The upper layers of one of the shelters, GB4, contained a marked increase in the presence of bandicoot remains, coinciding with a decrease in kangaroo remains - a change which was accompanied by greater quantities of edge-ground axes.

The Bendemeer Rockshelters 1 and 2 were located west of Bendemeer and yielded sequences ranging from 3,000 to 300 years before present, and 4,350 to 950 years before present, respectively. Evidence from these sites, including the absence of grindstones, suggests that yam was a more common food source than grass seeds. Backed blades were also common (McBryde 1977 as cited in Davies 2002). As a result of the analysis of the excavated material, it was noted that stone tool assemblages on the Tablelands and the coast were distinct from one another after 3,000 years before present. McBryde indicated that determining whether this difference was representative of a cultural boundary or rather indicated assemblages specialised to the environments in which they were used and the associated resources available, was an important question for New England (1974, as cited in Davies 2002).

Local Archaeological Studies

Few archaeological surveys have been completed in close proximity to the Proposal site, although studies in the wider region have been undertaken. The following is a summary of archaeological survey reports completed in the area, which have primarily been driven by development and infrastructure requirements.

In the Armidale area and surrounds, Sutton (1988, in Appleton 1990a) recorded a number of artefact sites at locations around the township. These sites included three surface scatters and five isolated surface artefacts. The material was primarily silcrete, with porcellanite and mudstone also present at one site. Davidson and Appleton (1990) recorded a number of artefact locations along Cluny Road to the north of Armidale, more than 15 kilometres (km) to the north of the current Proposal site. These were also surface sites dominated by artefacts manufactured from silcrete materials. A silcrete quarry was identified by Piper (nd, in Appleton 1990), containing upwards of 100 artefacts per square metre. Appleton and Davidson also identified a chert/silcrete quarry and a sandstone boulder with grinding grooves was recorded to the northeast of Armidale Airport. Appleton states that with the exception of the two quarries, and two other sites, the artefacts were all recorded on erosion features in a secondary context (Appleton 1990a:11).

In 1990 Appleton (1990a) undertook an archaeological salvage program for the New England Traffic Education centre Armidale, NSW following a previous survey and 'consent and permit to salvage', approximately 10 km north-west of the current Proposal site. A total of 22 artefacts were recorded and collected during the salvage program, though this included only 12 of a total 18 artefacts which had been identified as part of the original survey, with the remaining four being newly identified artefacts. The typology and material types were not specified in the salvage report. However, the survey report for this assessment details that the original 18 artefacts comprised 12 cores and six flakes predominantly composed of silcrete, chert and quartzite material (Appleton 1990b).

In 1990 Appleton (1990b) also conducted an archaeological investigation of the proposed cable route for the Armidale to Hillgrove Telephone exchange, approximately nine km east of the current Proposal site. Eight artefact locations were recorded during the survey including three isolated artefacts and an artefact scatter along either ridge or mid to upper slopes. A knapping floor or campsite was located along a ridge spur and comprised approximately 500 artefacts of mostly silcrete material. A knapping floor including many pieces of debitage was located along a creek bank. Also along a creek bank, a campsite estimated to include approximately 2000 artefacts composed of a variety of different materials, contained examples of pot lidding. An area along a gully bank with subsurface archaeological potential contained 56 flakes, 29 flaked pieces and 9 cores, predominantly basalt and silcrete with some greywacke artefacts.

In 1992 Ahoy conducted an archaeological investigation of the proposed subdivision of the 'Woodlands' property in Armidale, NSW, approximately 2.6 km north-west of the current Proposal site. The survey identified four artefact scatters and one campsite. The artefact scatters included flakes and backed blades and were comprised mostly of silcrete material with small numbers of quartz, greywacke and basalt artefacts also present. included flakes and backed blades. The campsite included 13 silcrete artefacts.

In 2010 Umwelt conducted an archaeological survey of the Gara Gorge Visitor Facility (locally known as the Blue Hole) upgrade within the Oxley Wild River National Park, which is located immediately adjacent to the southern boundary of the current Proposal site. As part of the survey, two previously identified sites were ground-truthed. Six stone flakes were identified at one of the previously recorded sites, however, the second site could not be identified. Agricultural clearing and recreational use of the site was indicated as the cause of disturbance of the site and hence the cause of unsuccessful attempts to identify the site. One previously unidentified open artefact scatter, located near Threlfall Rest Area

along a minor vehicle track, comprised approximately 30 artefacts. Artefact density was approximated at 11 artefacts per m^2 including chert and silcrete materials.

In 2010 RPS undertook an Aboriginal Heritage Impact Assessment for Camron's Dairy located within Lots 661-663 and Lot 699-703 DP755808 Kurrawatha Lane, Armidale, NSW, approximately 15 km north-west of the current Proposal site. The survey for this assessment comprised five main survey units. No new archaeological material was identified within survey units 1-4, however, a Potential Archaeological Deposit (PAD) was identified in survey unit 5. Survey unit 5 was bordered by Kurrawatha Lane to the north and located along an elevated hillcrest over the gully within close proximity to the Martin's Gully drainage waterway. Archaeological integrity of the PAD was considered low owing to past farming practices undertaken across most of the area.

In 2017, Remnant Archaeology conducted a cultural heritage assessment for the Metz Solar Farm on "Bayley Park", Waterfall Way via Armidale. The fieldwork inspection undertaken as part of this assessment identified three low-density artefact concentrations as well as thirty-eight isolated finds, two scarred trees and a stone arrangement. Bayley Park Artefact Concentration 1 was identified along an undulating plain located toward Limerick Creek and characterised by silcrete flakes, a chert flake and a quartz amorphous piece. Bayley Park Artefact Concentration 2 was also located on an undulating plain but closer to the road and comprised a larger flaked basalt piece and quartz flaked piece. Bayley Park Artefact Concentration 3 consisted of a mudstone flaked piece and silcrete assayed piece located along an undulating plain. The two scarred trees were identified as likely stringybark species with a scar on each in varying condition. The stone arrangement consisted of five granite stones in a patterned arrangement located along a gentle slope grading towards the east.

In 2018, Apex Archaeology conducted an Aboriginal archaeological assessment, in the form of a due diligence report, to inform the proposed upgrade of Armidale Secondary College, approximately 13 km north-west of the current Proposal site. The desktop assessment and subsequent field inspection identified no previously recorded or new Aboriginal sites. The site inspection described the area as highly disturbed due to previous construction works associated with existing school and playing fields (Apex Archaeology 2018).

In 2020 NGH conducted an Aboriginal Cultural Heritage Assessment for the proposed Tilbuster Solar Farm located approximately 17 km northeast of the current Proposal site. The survey resulted in 49 isolated finds, 28 artefact scatters, six scarred trees and three cultural trees being identified and recorded. In general, the majority of the Proposal site comprised very shallow redeposited A horizon silty topsoils laying over very compacted B horizon silty clay. Significant erosion had occurred due to the presence of large quantities of sheep on the property, which in combination with the extreme drought conditions have resulted in the near-complete absence of ground covering vegetation. Although erosion and landform deflation increased the identification of surface artefacts, in most locations it was clear that no subsurface deposits would be present within the heavily disturbed landforms. However, it was determined that subsurface testing would be required in order to adequately assess the subsurface potential identified on a lower slope landform near artefact scatters AS24 and AS25. From the 16 test pits, a total of 1.2125m^3 was excavated and dry sieved. Test pit depths ranged from 20 centimetres (cm) to 40 cm, with the majority of test pits excavated to a depth of 30 cm below the surface. The technological characteristics of the surface and subsurface artefact assemblage suggest that the artefacts recorded during the survey and testing program may have been made as a part of a 'general-purpose' toolkit and manufactured as required. The pattern and density of the stone artefacts recorded and recovered during the survey along with those recovered from a subsurface context suggest that the area was likely to have been frequently visited by Aboriginal people in the past. The low-moderate density of artefacts identified during the survey and testing program conducted across the Tilbuster Proposal site demonstrates that the area was likely repeatedly used on multiple occasions by small to medium groups of people as they moved through New England region (NGH 2020).

3.2.5. Summary of Aboriginal Land Use

The results of previous archaeological surveys in the region show that sites and artefacts are present throughout the landscape, albeit concentrated closer to watercourses. Additionally, there appears to be a pattern of site location relating to the presence of potential resources for Aboriginal use, with high-density sites generally located in elevated flat areas adjacent to waterways. Lower density background scatters also occur on crests, spurs, slopes, and flats in proximity to water. The dominant raw materials utilised in the area appear to be silcrete, chert, tuff, greywacke/basalt, chalcedony, quartz and other unidentified volcanic types. Modified trees are recorded in the area where old-growth trees remain. The most common site type in the region is surface artefact sites, with closed sites such as shelters occurring only on the scarps and slopes of upper slope landforms.

Site densities in close proximity to the Proposal site are low. This may be indicative of seasonal occupation by Aboriginal people, although it is more likely due to a lack of surveys delineating sites or that land clearing and farming activities have disturbed or removed cultural material evidence of Aboriginal occupation.

A detailed understanding of Aboriginal land use of the local area is lacking, a few in-depth studies have been completed in close proximity to the Proposal site. Despite this, it is possible to ascertain that proximity to water sources and raw materials were key factors 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 these previous archaeological investigations in the general area, it is possible to provide the following model of site location in relation to the proposal site.

Stone artefact scatters – representing campsites, these sites can occur across the landscape, usually in association with some form of resource or landscape unit such as broad ridgelines which were used for travel through the mountainous landscape. Creek lines and small water-holding bodies can also be a focus of Aboriginal occupation. Boundaries between changes in vegetation can also be a focus for occupation. Within the solar farm proposal site, gently sloping simple slopes and low ridgelines, with high order streams such as the Gara River and associated tributaries are present throughout. As such, there is a high potential for this site type to be present and this feature is likely to occur.

Isolated Artefacts – are present across the entire landscape, in varying densities. As Aboriginal people traversed the entire landscape for thousands of years, such finds can occur anywhere and indicate the presence of isolated activity, dropped or discarded artefacts from hunting or gathering expeditions or the ephemeral presence of short-term camps. Discarded single artefacts are most likely to be present in the vicinity of creeks. This feature is likely to occur.

Scarred Trees – these require the presence of mature trees and are likely to be concentrated along major ridgelines, flat level open areas in the landscape or in association with watercourses. Much of the proposal site has been cleared for use as agricultural land, however, there are some wooded areas still extant. If mature trees exist in the area, there is moderate potential for scarred trees to occur in the study area. This feature is therefore likely to occur.

Stone resources – are areas where people used natural stone outcrops as source material for flaking stone tools. This requires geologically suitable material outcropping to be accessible. The solar farm proposal site may contain some natural outcropping stone including silcrete. There is, therefore, the potential for this site type to occur.

Burials – are generally found in sandy contexts or in association with rivers and major creeks. No such sand bodies exist with the solar farm proposal site and therefore such sites are unlikely to occur.

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. The occurrence of this feature is possible.

In summary, the topography and landscape features within the Proposal site would likely have been foci of Aboriginal occupation, in particular the banks surrounding Gara River and its tributaries and any spurs and ridgelines within 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 and 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 Aboriginal heritage sites that have been identified and had site cards submitted to Heritage NSW. It is not a comprehensive list of all places in NSW as site identification relies on an area being surveyed and on the submission of site forms to AHIMS. There are likely to be many areas within NSW that have yet to be surveyed and therefore have no sites recorded. However, this does not mean that sites are not present.

Within the general vicinity of the current proposal site, there has been limited previous archaeological assessment The information relating to site patterns, their age and geomorphic context is not well understood and is generally based on larger regional studies. The robustness of the AHIMS survey results is therefore considered to be only moderate for the present investigation. There are likely to be many existing sites that have yet to be identified. However, past land-use activities have also greatly disturbed the archaeological record and there are unlikely to be many places that retain *in situ* archaeological material.

With regard to the limitations of the information available, archaeologists rely on Aboriginal parties to impart information about places with cultural or spiritual significance in situations where non-archaeological sites may be threatened by development.

4. ARCHAEOLOGICAL INVESTIGATION RESULTS

4.1. SURVEY STRATEGY

The pedestrian survey strategy was to cover as much of the ground surface as possible within the Proposal site. The survey conducted for the purposes of this assessment was undertaken over 10 days from the 12th – 21st of May 2020. The survey team comprised two NGH archaeologists, one representative from Nunnawunna Aboriginal Corporation, one representative from Iwatta Aboriginal Corporation (plus trainee on select days), one representative from Nyakka Aboriginal Cultural Heritage Corporation Archaeological (plus trainee on select days), one representative from Armidale NE Gumbaynggir Descendants (plus trainee) and Cultural Heritage Consultants and one representative from Armidale LALC.

Although the actual ground impact from the construction method for the proposed solar farm is likely to be low, the placement of solar arrays across the landscape has the potential to cover any cultural heritage sites. 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 20-30 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 an opportunity to identify any heritage objects.

The survey strategy was amended in response to the shape of paddocks and the effects of dense vegetation and high grass on surface visibility. Targeted landform analysis of those areas with greater exposures was also implemented to facilitate more comprehensive characterisation of the archaeological context of the area. Despite the severely restricted visibility, systematic coverage of the Proposal site was largely maintained.

The survey team consisted of eight persons, which, depending on the spacing, allowed a 160 m to 240 m wide tract of the Proposal site to be surveyed with each transect.

Notes and photos regarding ground surface visibility were taken. Mature trees within the Proposal site were also inspected for evidence of Aboriginal scarring (Long 2005). Objects or features identified as having potential Aboriginal origins or significance were inspected and assessed. Where objects or features satisfied appropriate criteria they were recorded as Aboriginal in origin.

The survey strategy was systematic and comprehensive but largely hindered by very low visibility. Discussions were held in the field 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 four landforms based on the landscape maps and visual inspection of the area during the field survey. The landforms are listed below and shown in Figure 4-1.

- Disturbed Road Corridor;
- Simple Slopes;
- Ridgelines and spurs; and
- Creek lines, and their associated terraces and banks.

4.2. SURVEY COVERAGE

The solar farm area consisted primarily of cleared and cropped paddocks that had been subject to farming and grazing activities. Pedestrian survey transects traversed the entire Proposal Site. The survey was severely impeded by dense grass and knee-to-waist height crops and vegetation; however,

a number of exposures were present across the Proposal site. Areas of increased visibility consisted of disturbed exposures on tracks, fence lines, dam banks, areas along the riverbanks, and patches of bare ground along gullies and among small groves of trees. Visibility across the surveyed landforms was generally very low, averaging only 10%. Soils within the Proposal site consisted of grey-brown silty sand which overlies a sandy clay, atop compact clay.

Table 4-1 below shows the calculations of effective survey coverage and Plates 1-10 show examples of the transect landforms and visibility within the Proposal site.

Over the course of the field survey, approximately 136 km of transects were walked across the Proposal site by each team member. Allowing for an effective view width of approximately five m per person, with eight people present, this equates to a total surface area examined of approximately 546 ha. However, allowing for the visibility restrictions, the effective survey coverage overall is calculated to have been 77.3 ha or 6.9% of the total Proposal site (Table 4-1).

The discovery of a number of Aboriginal sites during the survey indicates that the survey technique effectively identified the presence and locations of Aboriginal occupation within the Proposal site despite being hindered by very low visibility.

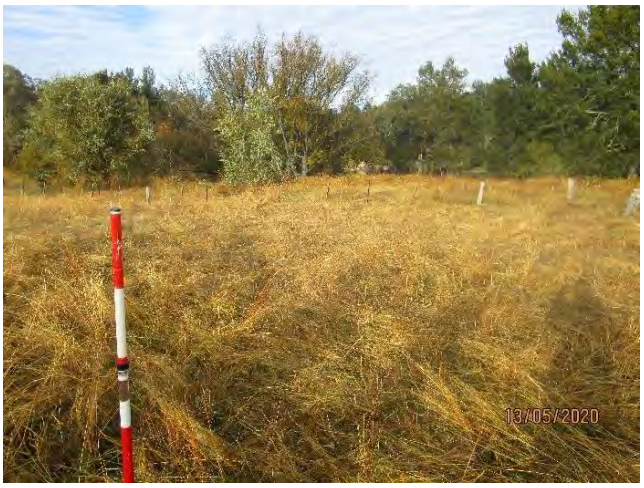

Plate 1. Low visibility owing to dense, high grass cover. Characteristic for the majority of the Proposal site.

Plate 2. Partially cleared access track demonstrating occasional area with increased visibility of approximately 70%.

Plate 3. Dam exposure demonstrates the highest level of visibility evident within the Proposal site (approximately 80%).	Plate 4. Decreased visibility to the north of the Proposal site where small groves of trees were apparent.
 Plate 5. Only cropped paddock evident within the entirety of the Proposal site. Turnip crops afforded visibility of around 40%.	 Plate 6. Ridgeline exposure with increased visibility (approximately 65%). Occasional tufts of grass interspersed among rocky outcrops impede cleared ground cover.

Plate 7 Disturbed road corridor.

Plate 8 Simple slopes.

Plate 9 Creeklines and banks.

Plate 10 Ridgelines and spurs.

Table 4-1 Transect information.

Landforms	Number of Survey Transects	Exposure type	Landform area ha	Surveyed area (length m x width m)	Surveyed area m^2	Visibility	Effective coverage (area x visibility) m^2	Landform area surveyed (ha)	% of proposal site effectively surveyed	Survey result
Disturbed Road Corridor	1	Bare ground, earth cutting, vehicle tracks, ground disturbance areas	57	4,928 x 40	197,120	70%	137,984	13.8	1.2	1 Isolated artefact 1 Artefact scatter 2 Cultural trees.
Simple Slopes	27	Bare ground, soil mounds, vehicle tracks, ground disturbance areas	535	68,000 x 40	2720,000	10%	272,000	27.2	2.5	8 Isolated artefacts 8 Artefact scatters 3 Cultural trees 1 Scarred tree.
Ridgelines and Spurs	15	Bare ground, soil mounds, eroded gullies, ground disturbance areas	298	39,000 x 40	1560,000	10%	156,000	15.6	1.4	6 Isolated artefacts 10 Artefact scatters 2 Cultural trees.
Creeklines, terraces and banks	12	Bare ground, soil mounds, eroded dams, vehicle tracks, ground disturbance areas	193	24,700 x 40	988,160	20%	197,632	19.7	1.8	6 Isolated artefacts 6 Artefact scatters 1 Scarred tree.
Total	NA	NA	1083	NA	5465280	NA	763616	77.3	6.9	21 Isolated artefacts 25 Artefact scatters 13 Cultural trees 2 Scarred trees.

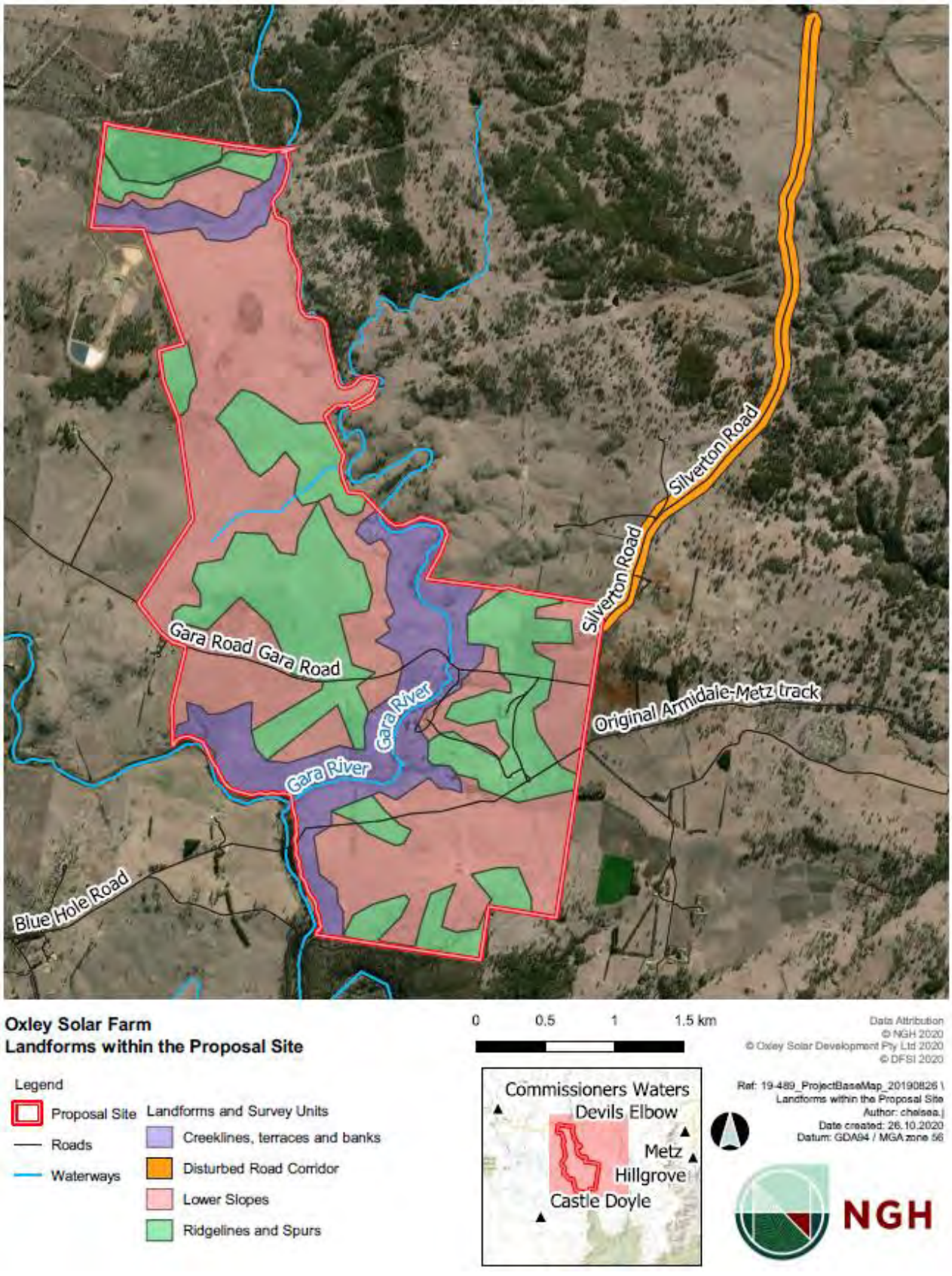

Figure 4-1 Landforms within the Proposal site.

4.3. SURVEY RESULTS

4.3.1. Field Survey Results

Despite the variable visibility encountered during the survey, 24 isolated finds, 18 artefact scatters, one scarred tree were identified and recorded within the Proposal site (Figure 4-2). A total of seven cultural trees were also recorded at the request of the Aboriginal community representative due to their cultural value which was noted by the Aboriginal community. The sites located during this assessment are listed in Table 4-2 below, and shown in Figure 4-2, Figure 4-3 and Figure 4-4. The surface artefact data is provided in Appendix B and C.

It should be noted that a small number of sites were identified and recorded outside the boundary of the Proposal site along the southern perimeter of the Proposal site. These have been recorded and included in this assessment.

In general, the majority of the Proposal site comprised grey-brown sandy silt. Significant erosion was noted to have occurred along some of the gullies, particularly along the Gara River section extending towards Commissioners Waters which may have resulted in the translocation of artefacts and as such the apparent concentrations of artefact densities within these areas.

Gara River which runs in a north-south direction through the Proposal site was flowing at the time of the survey, however, the Lambing Gully Creek was dry. This indicates that the Gara River and its tributaries form an important source of permanent and ephemeral water which supports flora and fauna and would have been an important resource for Aboriginal people.

It should also be noted that a couple of possible scarred trees were observed on the opposite side of the fence along the southern perimeter of the Proposal site, which is outside the current assessment area and located with the Gara River Hydro-Electric Scheme SHR curtilage. If works are subsequently proposed to extend from the Proposal site into this area, these possible scarred trees should be visually inspected.

Table 4-2 Summary of All Aboriginal objects recorded during the survey.

AHIMS	Name	Type	No. of Artefacts
21-4-0358	Oxley SF IF1	Isolated Find	1
21-4-0359	Oxley SF IF2	Isolated Find	1
21-4-0360	Oxley SF IF3	Isolated Find	1
21-4-0332	Oxley SF IF4	Isolated Find	1
21-4-0333	Oxley SF IF5	Isolated Find	1
21-4-0361	Oxley SF IF6	Isolated Find	1
21-4-0334	Oxley SF IF7	Isolated Find	1
21-4-0335	Oxley SF IF8	Isolated Find	1
21-4-0362	Oxley SF IF9	Isolated Find	1
21-4-0336	Oxley SF IF10	Isolated Find	1
21-4-0337	Oxley SF IF11	Isolated Find	1
21-4-0338	Oxley SF IF12	Isolated Find	1
21-4-0339	Oxley SF IF13	Isolated Find	1
21-4-0363	Oxley SF IF14	Isolated Find	1

AHIMS	Name	Type	No. of Artefacts
21-4-0340	Oxley SF IF15	Isolated Find	1
21-4-0318	Oxley SF IF16	Isolated Find	1
21-4-0364	Oxley SF IF17	Isolated Find	1
21-4-0319	Oxley SF IF18	Isolated Find	1
21-4-0320	Oxley SF IF19	Isolated Find	1
21-4-0321	Oxley SF IF20	Isolated Find	1
21-4-0366	Oxley SF IF21	Isolated Find	1
21-4-0365	Oxley SF IF22	Isolated Find	1
21-4-0354	Oxley SF IF23	Isolated Find	1
21-4-0353	Oxley SF IF24	Isolated Find	1
21-4-0367	Oxley SF AS1	Artefact Scatter	27
21-4-0342	Oxley SF AS2	Artefact Scatter	15
21-4-0343	Oxley SF AS3	Artefact Scatter	2
21-4-0344	Oxley SF AS4	Artefact Scatter	4
21-4-0345	Oxley SF AS5	Artefact Scatter	2
21-4-0346	Oxley SF AS6	Artefact Scatter	2
21-4-0347	Oxley SF AS7	Artefact Scatter	5
21-4-0348	Oxley SF AS8	Artefact Scatter	13
21-4-0352	Oxley SF AS9	Artefact Scatter	6
21-4-0351	Oxley SF AS10	Artefact Scatter	3
21-4-0349	Oxley SF AS11	Artefact Scatter	11
21-4-0350	Oxley SF AS12	Artefact Scatter	2
21-4-0322	Oxley SF AS13	Artefact Scatter	6
21-4-0355	Oxley SF AS14	Artefact Scatter	3
21-4-0356	Oxley SF AS15	Artefact Scatter	2
21-4-0323	Oxley SF AS16	Artefact Scatter	2
21-4-0324	Oxley SF AS17	Artefact Scatter	2
21-4-0357	Oxley SF AS18	Artefact Scatter	2
21-4-0325	Oxley SF ST1	Scarred Tree	1
21-4-0326	Oxley SF CT1	Cultural Tree	1
21-4-0327	Oxley SF CT2	Cultural Tree	1
21-4-0328	Oxley SF CT3	Cultural Tree	1
21-4-0329	Oxley SF CT4	Cultural Tree	1
21-4-0330	Oxley SF CT5	Cultural Tree	1
21-4-0341	Oxley SF CT6	Cultural Tree	1
21-4-0331	Oxley SF CT7	Cultural Tree	1

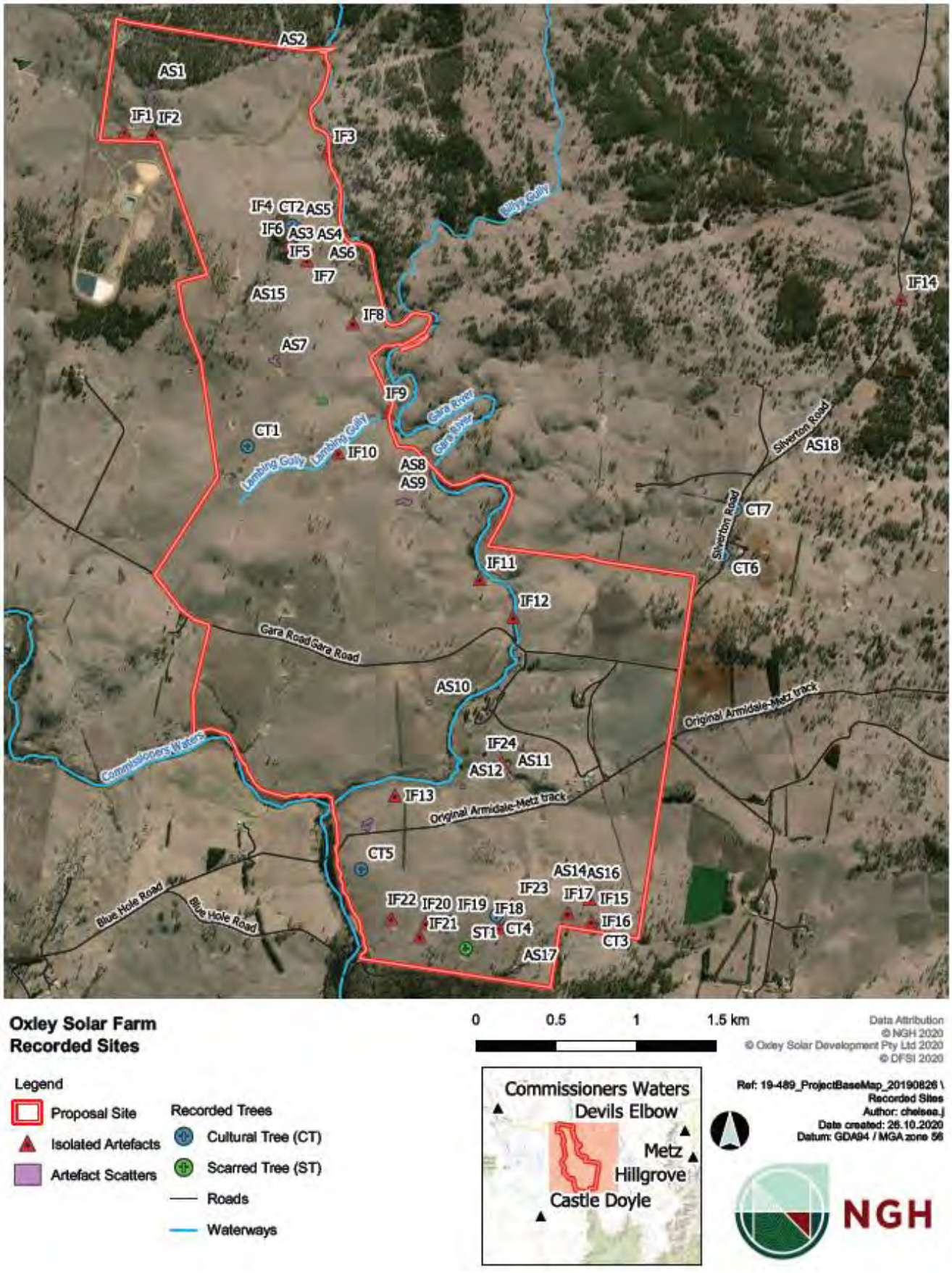

Figure 4-2 Recorded Sites.

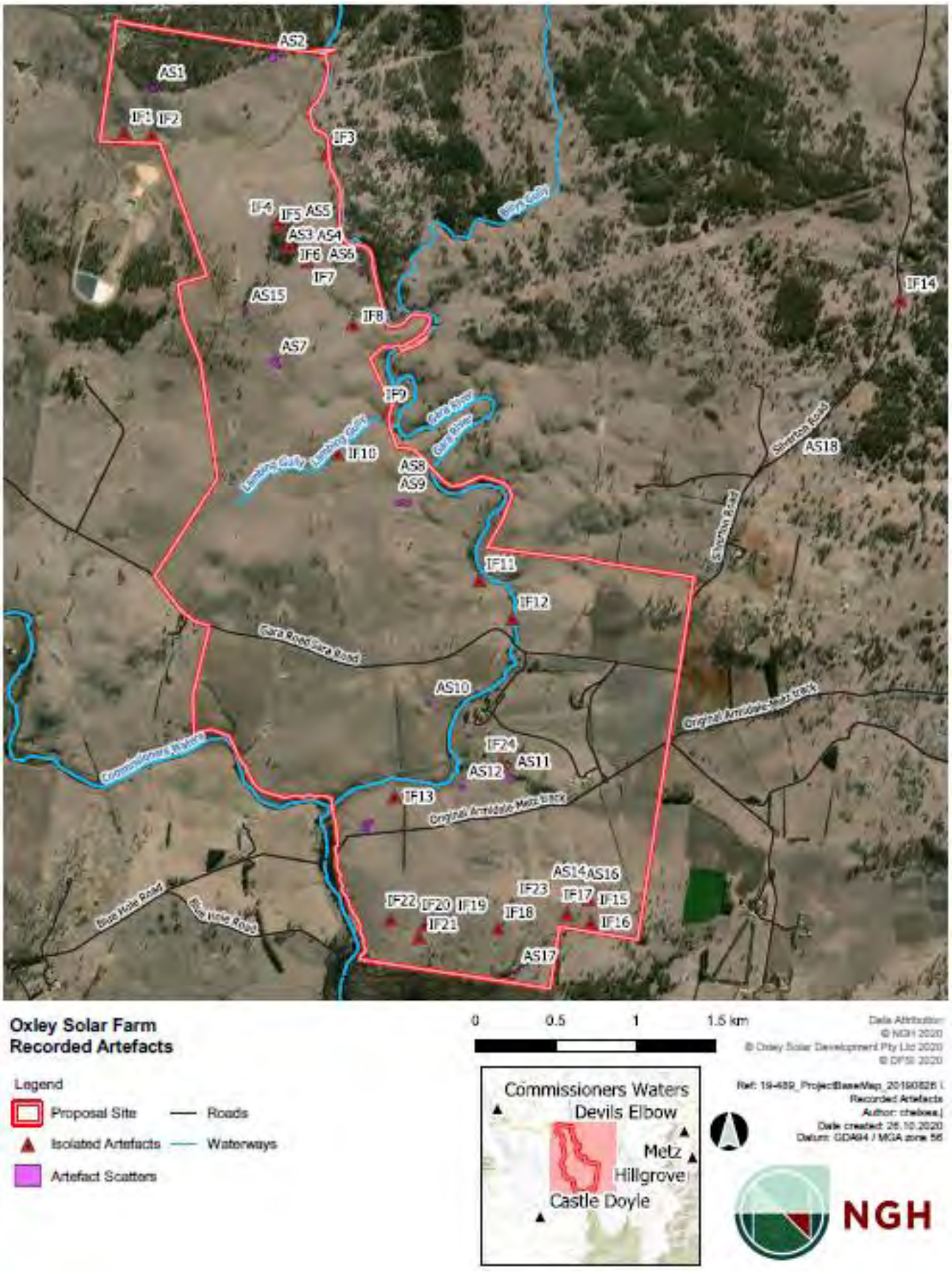

Figure 4-3 Recorded Artefacts.

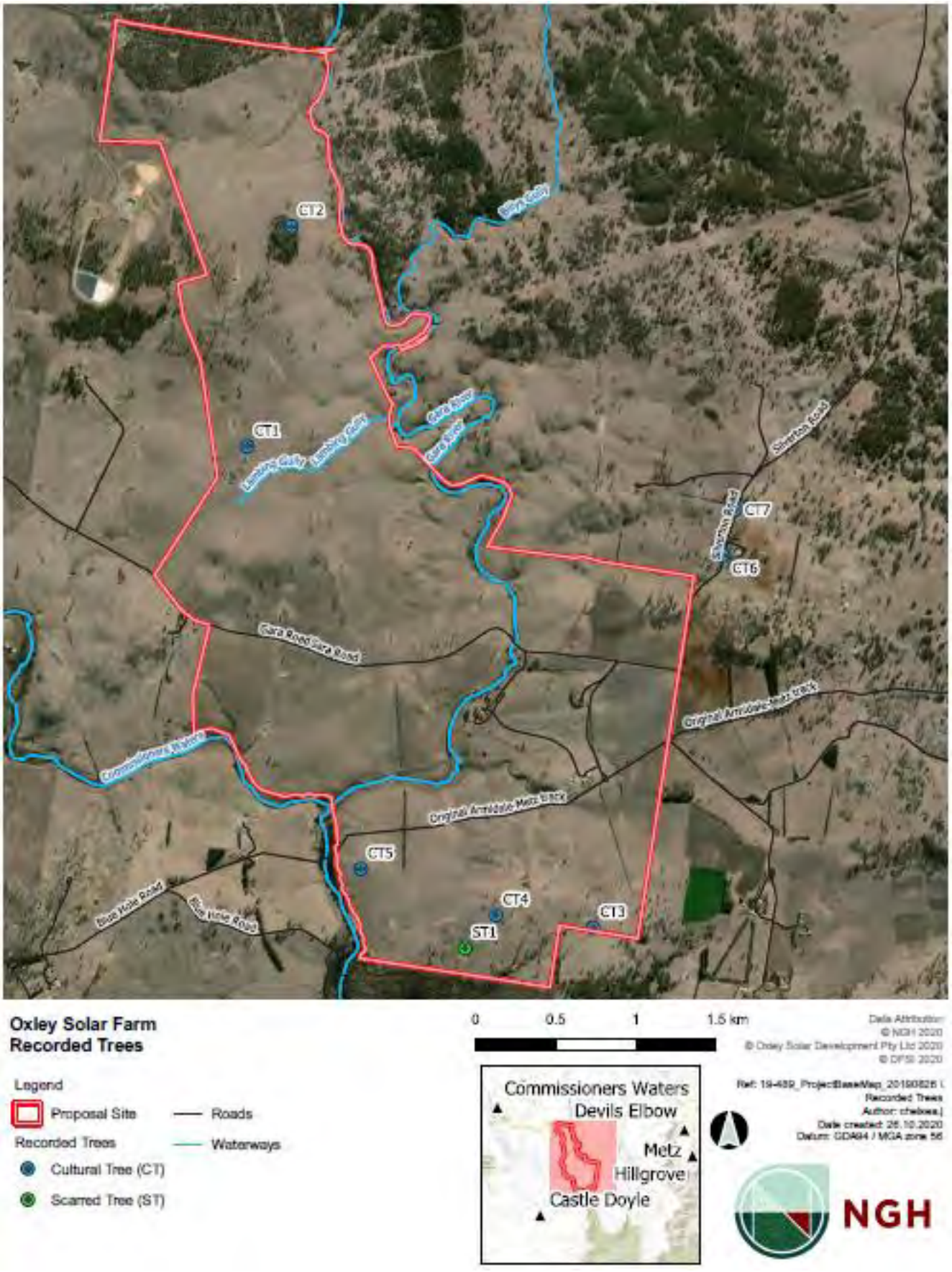

Figure 4-4 Recorded Trees.

4.3.2. Cultural Information Obtained During Survey

NGH was advised by Aboriginal community representatives during the survey that there are a number of significant cultural sites in proximity to the Proposal site, but two in particular within the boundaries of the Proposal site. These include the confluence of Commissioners Waters and the Gara River as well as the Blue Water Hole, which is located towards the south-west corner of the Proposal site. Further information on the cultural sites in the area is provided in Section 6.

4.3.3. Consideration of Potential for Subsurface Material

The field survey of the proposed Oxley Solar Farm, in conjunction with an assessment of contour data, archaeological modelling, and consideration of the comments from the RAPs resulted in the identification of several locations within the overall Proposal site which were considered to have some potential to contain subsurface material. In total, there were 21 areas of Potential Archaeological Deposit (PAD) identified (sites Oxley Solar Farm PAD 1-21. The depth of the deposits in these PADs will be used to determine whether *in situ* material may be present or not. Additionally, owing to the extremely low visibility due to dense vegetation cover, effective coverage attained during the survey was considered low. Therefore, test excavation will facilitate better characterisation of the archaeological nature of the area with a focus on landforms most likely to have higher potential for Aboriginal objects. As such, these areas require further assessment. The PADs identified during the survey are shown in Figure 4-5.

Each of the identified PAD areas were located towards the middle and southern sections of the Proposal site, with the exception of the northernmost PAD associated with AS2. The PADs were also generally associated with identified artefact scatters or isolated finds. Many PAD areas were noted in relation to their proximity to a water source and/or along the creek banks, spurs and ridgeline landforms. The proposed PAD areas located further to the south of the Proposal site occurred on spurs and creek banks associated with the confluence of Commissioners Waters and Gara River (AS13, IF22 and IF19). Some of the artefacts found in association with these areas were partially eroded from the topsoil exposures, particularly those in the creek lines and gullies or dam depression areas, which further supports the likelihood for subsurface material. Those areas located close to the Gara homestead, to the south-east of the Proposal site (near AS11 and AS12), were selected owing firstly to the eroded nature of the finds identified in the gully, and secondly to Aboriginal cultural and European indications that the outcropping near this gully may have been an area where the Aboriginal farmhands/workmen were situated.

Avoidance of some of these PAD areas was not considered a viable option for the solar farm proposal as some of these locations were intended for the placement of solar panel arrays. Therefore, further archaeological assessment in the form of test excavations will be required. Additionally, subsurface testing will address the low effective coverage of the survey through better characterisation of the nature, extent and significance of the archaeology for these areas and determine the subsurface extent of the possible deposits, particularly around those areas adjacent to watercourses.

Those PAD areas that intersect the detailed design that require sub-surface testing are shown in Figure 4-6.

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 remainder of the Proposal site, outside the PADs identified.

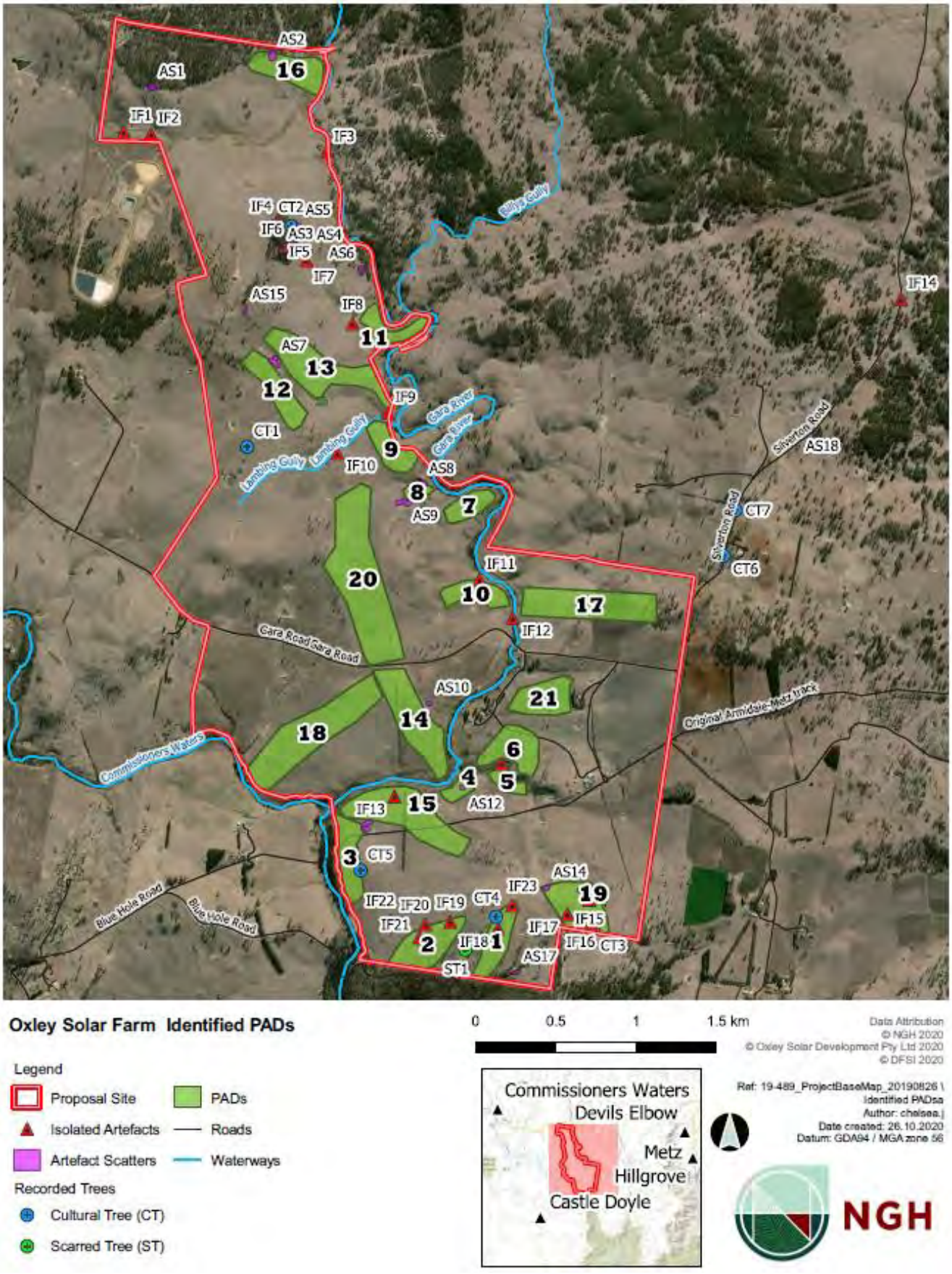

Figure 4-5 Identified PADs.

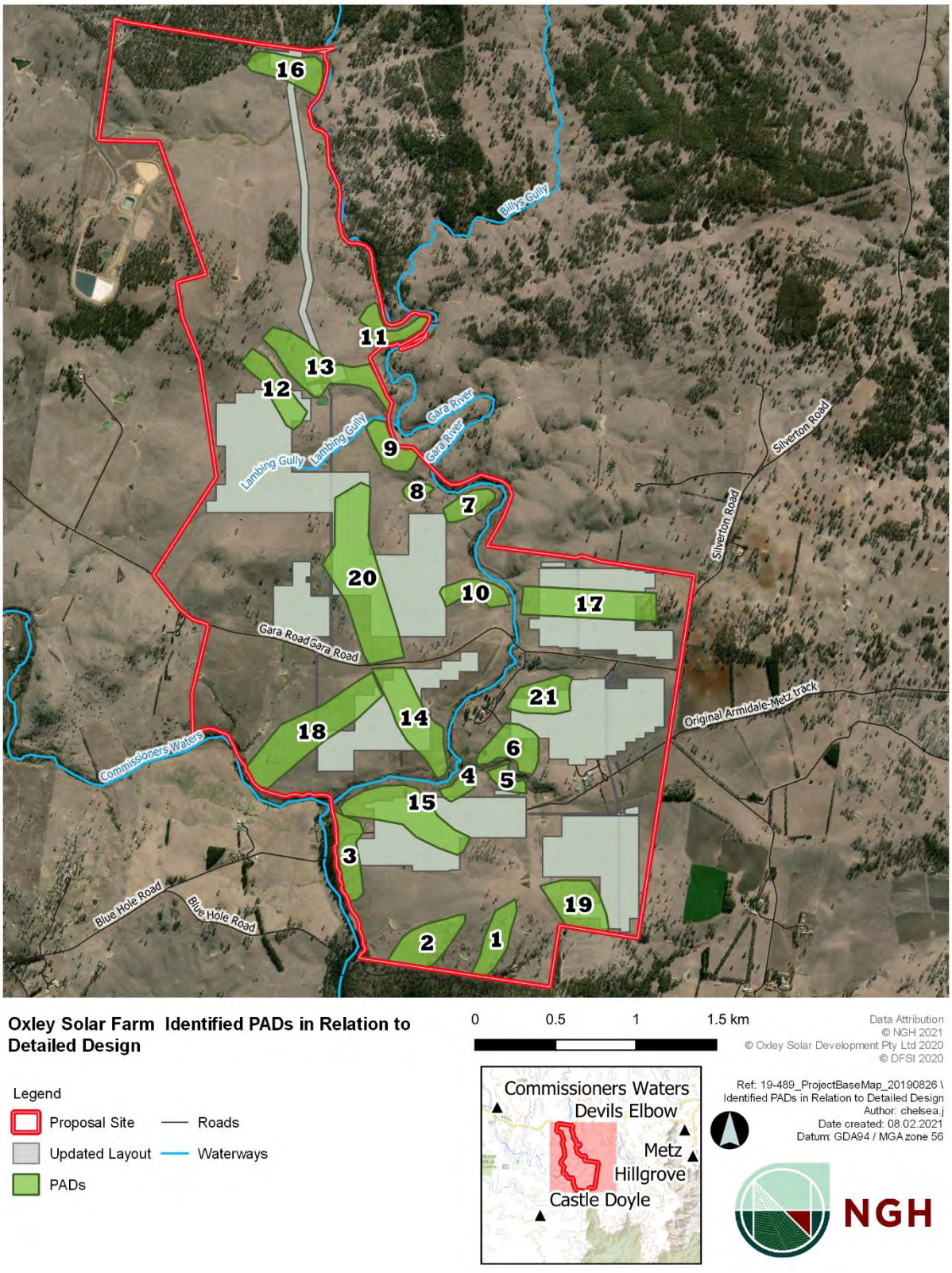

Figure 4-6 Identified PADs In Relation to Detailed Design.

4.4. DISCUSSION

The site modelling undertaken as part of the desktop assessment predicted that stone artefacts were the most likely evidence of past Aboriginal occupation to be present within the Oxley Solar Farm Proposal site. Such evidence was most likely to occur along the spurs and ridgelines which extend towards the banks of the high order streams such as the Gara River, and its associated tributaries.

The material composition of the recorded artefacts was predominantly silcrete material, which is consistent with the findings of past investigations for the Armidale region. The Armidale region also contains sources of a number of other suitable raw materials that were represented to lesser degrees, such as quartz, chert, greywacke, basalt and other unidentified volcanic types. This is likely due to the high quality and readily available silcrete varieties, which are favourable for the manufacture of stone tools. The presence of cores, hammerstones and flakes indicate that tool manufacture likely occurred onsite.

In particular, the presence of ground edge axes indicates that there was likely a suitable surface for the grinding of such tools in the local area, though grinding groove sites were not identified within the Proposal site. Furthermore, axes would likely have been utilised for the purpose of removing wood and bark from trees to construct shelters, shields, canoes, and coolamons, forming scars on the trees such as those recorded on site. However, only one tree consistent with Aboriginal scarring morphology was identified within the proposal site. While the lack of suitable geology explains the lack of grinding grooves, utilisation of axes for tree modification is less evidenced within the Proposal site. As such, it may be likely that additional scarred trees occur in the surrounding area, or that axes were used for alternative purposes.

Despite the moderate numbers of artefactual material identified throughout the course of the survey, it is likely that greater numbers may occur, and that identification of further material was impeded by the low surface visibility apparent during the survey. This lack of surface visibility limits a comprehensive picture of site use and thus characterisation of the cultural heritage located across the Proposal site was correspondingly limited. Moreover, the lack of visibility impedes understanding of relationships between geomorphology and artefact frequencies. While the prevalence of artefacts appears to be associated with undulating lower sloped landforms, ridgelines and crests, this prevalence is likely strongly influenced by the tendency of these areas to include eroded dams and ridgelines where exposure affords greater visibility and alluvial movement has pooled concentrations of artefacts for these discrete areas.

It should also be noted that the results of this survey have substantially increased the number of stone artefact sites recorded in the local area. In terms of the current proposal, extrapolating from the results of this survey, it is likely that additional low-density surface artefacts could occur within the Proposal site and the surrounding areas. The dominance of artefacts as a common site type within the area is further supported by the results of this survey. The implications for this relate to significance assessments and the related appraisal of site representativeness. We would argue that there are also likely to be many hundreds of such sites in the local area and that the number of sites recorded in AHIMS to date is merely an indication that few surveys have been undertaken in the immediate area and therefore they are yet to be found.

In terms of the current proposal therefore, extrapolating from the results of this survey, it is possible that additional stone artefacts could occur within the Proposal site. Undertaking the programme of subsurface testing will provide additional information once it is conducted.

5. CULTURAL HERITAGE VALUES AND STATEMENT OF SIGNIFICANCE

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

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

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

Feedback about the cultural value of the sites while in the field with the Aboriginal community representatives was that all sites hold cultural value to the Aboriginal community. It was clear from the conversations held in the field that the community view the stone artefacts as important and would like to see the surface artefacts that cannot be avoided by the development collected before any construction works occur. It was noted during the conversations that importance was placed on collecting the artefacts and moving them to a safe location to avoid future disturbance.

It was also clear that the scars on the modified trees and the cultural trees were considered by the Aboriginal community representatives onsite as likely to be Aboriginal in origin. Therefore, these were viewed as important and a particular site type that should be avoided by the proposed development.

The confluence of Commissioners Waters and the Gara River as well as the Blue Water Hole which is located towards the south-west corner of the Proposal site were also noted to hold cultural significance to the local Aboriginal community. Blue Water Hole formed an area utilised for subsistence procurement and to the south of it (outside the Proposal site) several Aboriginal burials are known to be present. Additionally, the river itself is said to follow a Songline known to the local Aboriginal community.

5.2. SCIENTIFIC (ARCHAEOLOGICAL) VALUE

The research potential of the surface sites located during this assessment is considered low. While the presence of the sites can be used to assist in the development of site modelling for the local landscape, their scientific value for further research is limited. However, the subsurface testing program of PADs will be able to provide moderate further research value and a better understanding of the area.

While individually the surface artefacts recorded during the survey are interesting, the sites are considered typical of the local and broader archaeological record. Nevertheless, this assemblage is larger than many previously identified in local studies and contains several significant formal tool types including axes, hammerstone and grindstone. The relationship between Gara River (and its tributaries) and the archaeological sites is of some significance for the modelling of site occurrences in the locality, as it correlates with the landscape predictions made by previous studies. Furthermore, the accounts of the cultural significance of the confluence of Commissioners Waters and the Gara River, as well as the Blue Water Hole, support increased material evidence for these areas as sites for subsistence procurement and cultural practices. The presence of a variety of material types, including several silcrete types, may provide further information about the accessibility of favoured raw materials. Unfortunately, no portion of these sites is assessed to be undisturbed and as such further detail about the sites is based on assumptions. The significance of the potential archaeological deposits cannot be determined prior to further assessment of the nature and extent of these deposits.

The presence of the scarred tree and scarring of the seven cultural trees most likely represent the opportunistic use of the landscape, but any further observations are restricted, especially given the scarring could not be unequivocally determined as Aboriginal in origin on the seven cultural trees. The fact that the surrounding landscape has been cleared and modified means that as a representative example of this site type, the trees have high value given they are relatively rare within a 10 km buffer of the Proposal site. The survival of modified trees is subject to natural factors such as death, decay, and bushfires, as well as man-made threats such as land clearing. As the long-term survival prospects for the remaining modified trees in the landscape are diminished they possess high value as examples of an ever-reducing Aboriginal cultural feature. Therefore, the scarred tree and cultural trees in the Proposal site are assessed overall as having high conservation value even though the cultural trees were unable to be unequivocally determined to be Aboriginal in origin.

The findings of this project have increased the number of sites listed in the AHIMS database for the area. In terms of representativeness and rarity, we would argue that there are likely to be many hundreds of such sites in the surrounding area as the relativity low number of sites in AHIMS is merely an indication that few surveys have been undertaken in the local area. The nature of Aboriginal occupation in almost any landscape in Australia is that stone artefact sites considerably outnumber any other site type, including scarred trees.

5.3. AESTHETIC VALUE

There are no aesthetic values associated with the archaeological site *per se*, apart from the presence of Gara River and its tributaries within the Proposal site and the presence of Aboriginal artefacts and

modified trees in the landscape. However, the modified and heavily disturbed landscape 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.

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, such as clearing, ploughing, contour banks and grazing.

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 are likely to be present and remain in the general area where they were discarded by Aboriginal people.

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

6.2. PROPOSED DEVELOPMENT ACTIVITY

As noted 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 connection to the existing 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 Oxley Solar Farm is expected to operate for around 30 years.

The proposed layout is provided in Figure 6-1.

The proposed impact assessment and recommendations henceforth relate to proposed impacts associated with the proposed layout.

6.3. ASSESSMENT OF HARM

As described in this report, a total of 24 isolated finds, 18 artefact scatters, one scarred tree, seven cultural trees and 21 areas of PAD were recorded within the Proposal site.

An assessment of the proposed layout has identified that the sites listed below will be impacted by the proposed development works, with direct impacts associated for:

- IF7
- AS4
- CT1

And indirect impacts for:

- IF13
- IF15
- IF16
- IF17
- AS2
- AS10
- AS13
- AS14
- AS16

In addition to these, several sections of PAD are partially within the proposed impact zones of the array and site facilities, and include:

- Oxley Solar Farm 3, 5, 6, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21

Finally, although outside the Proposal site and proposed layout, four sites are located immediately adjacent to Silverton Road. Given that Silverton Road is one of two access roads to the Oxley Solar Farm site, for the purposes of this assessment, indirect impacts have been assumed for the sites as a result of use of the road as a likely transport corridor.

These sites include:

- CT6
- CT7
- AS18
- IF14

This assessment considered where Aboriginal objects have been recorded outside the proposed layout. To ensure sites that are currently outside the proposed tracks, solar array and infrastructure are avoided by the proposed development work, “no go zones” have been established. Access to these areas would be restricted to use of existing vehicle tracks by light vehicles only or access by pedestrians. No plant, heavy machinery, laydown areas, excavation or other ground surface disturbance works would be permitted within these areas. The “no go zones” surrounding avoidance sites would ensure they are avoided by the proposed development works as shown in Figure 6-2.

The following sites are avoided and not impacted by the proposed works with the establishment of “no go zones” (Figure 6-2,

Figure 6-3, Figure 6-4, Figure 6-5).

- ST1
- CT2 to CT8
- AS1
- AS3
- AS5 to AS9
- AS11 and AS12
- AS15
- AS17
- IF1 to IF6
- IF8 to 12
- IF18 to 24
- PAD 1,2, 4, 7, 8, 9, 10, 11

Information regarding the avoidance of the sites listed above and the establishment of "no go zones" around them should be included in site inductions and any relevant management plans for the site.

Note that the assessment of the impacts on the known sites within the Proposal site is based on the information provided in the proposed layout as shown in Figure 6-1.

Table 6-1 provides a summary of sites to be impacted and avoided by the proposed development of the Oxley Solar Farm. Table 6-2 details the degree of harm and the consequence of that harm upon the heritage value of each site type resulting from the proposed works.

Table 6-1. Summary of sites to be impacted and avoided by the proposed development.

Sites impacted	Sites avoided
• AS2 • AS4 • AS10 • AS13 • AS14 • AS16 • AS18 • IF7 • IF13 • IF14 • IF15 • IF16 • IF17 • PAD 3, 5, 6, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 • CT1 • CT6 and CT7	• ST1 • CT2 to CT5 and CT8 • AS1 • AS3 • AS5 to AS9 • AS11 to AS12 • AS15 • AS17 • IF1 to IF6 • IF8 to 12 • IF18 to 24 • PAD 1, 2, 4, 7, 8, 9, 10, 11

Table 6-2. Summary of the degree of harm and the consequence of that harm upon site types.

Site Type	Type of Harm	Degree of Harm	Consequence of harm	No. of Sites
Isolated Finds	Indirect	Partial	Partial loss of value	8
	Direct	Complete	Total loss of value	1
	Nil	Nil	Not Applicable	15
Artefact Scatters	Indirect	Partial	Partial loss of value	6
	Direct	Complete	Total loss of value	1
	Nil	Nil	Not Applicable	11
Scarred Trees	Nil	Nil	Not Applicable	1
Cultural Trees	Indirect	Partial	Partial loss of value	2
	Direct	Complete	Total loss of value	1
	Nil	Nil	Not Applicable	5
PADs	Direct	Partial	Unknown/ yet to be established loss of value	13

	Nil	Nil	Not Applicable	8

It should be noted that, subsequent to the Aboriginal heritage survey, significant design changes to the Oxley Solar Farm development design layout have been made that have ensured the scarred tree and cultural trees are avoided.

Given that there is Aboriginal archaeological material present within the Proposal site, it is likely that other artefacts will be present within the proposed layout, although in similarly low densities. The proposed level of disturbance for the construction of the solar farm will likely impact the stone artefacts recorded during the field survey and others that may be present within other areas of the development site. The completion of the subsurface testing program across the PADs which are to be impacted will provide a better understanding of the context for the possible densities of subsurface material across the site.

Of the 24 isolated finds, 18 artefact scatters, the scarred tree and seven cultural trees recorded within the Proposal site, nine isolated finds, seven artefact scatters and three cultural trees are situated within or adjacent to the area of the proposed solar arrays, tracks, fencing and associated infrastructure. These 19 sites would be impacted directly or indirectly by the proposed layout. The impact to these 19 sites is likely to be most extensive where earthworks occur, such as the installation of cabling and the transmission line poles, which may involve the removal, breakage or displacement of artefacts. It should also be noted that one of these artefact scatters will only be partially impacted. However, both complete and partial harm to sites are considered an impact on the sites and the Aboriginal objects by the development in its present form.

The proposed construction methodology for the Oxley Solar Farm will, however, result in only small areas of disturbance. The construction of access 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 disturbances will likely be trenching for cables and vehicle movement during construction.

Of the PAD areas recorded across the Proposal site, a total of 13 will be impacted by the proposed works and a programme of subsurface testing must be undertaken so the impacts to these areas can be appropriately assessed.

The remaining 26 sites with stone artefacts within the Proposal site, the scarred tree, five cultural trees and eight PADs will not be impacted by the proposed development.

Consequently, the degree of harm overall for the project is assessed as low, however this may be revised following the subsurface testing programme of works.

6.4. IMPACTS TO VALUES

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

The impact on scientific values for this development is summarised in Section 5. A total of 13 stone artefact sites, which are primarily assessed as having low scientific value, are proposed to be impacted by the development of the Oxley Solar Farm. While the majority of the stone artefact sites to be impacted are rated as having a total loss of scientific value it is argued that there are likely to be a number of similar sites in the local area and therefore the impact to the overall local archaeological record is low. Additionally, there are 26 stone artefact sites within the Proposal site that will not be harmed.

The stone artefacts recorded during this survey have little research value apart from what has already been obtained during the present assessment. This information relates more to the presence of the artefacts and in the development of Aboriginal site modelling, which will be further realised following the subsurface testing programme of works. The intrinsic values of the artefacts recorded during this assessment may be affected by the development of the Proposal site. Any removal of the artefacts or their breakage would reduce the low scientific value they retain.

If the PADs were to be impacted by the development works for the Oxley Solar Farm a subsurface testing programme of works must be undertaken. The impact on the scientific values of the PADs are not assessed in this report as they cannot be established until the subsurface testing programme is completed.

The scarred tree and five of the cultural trees will not be impacted by the proposed layout. However, one cultural tree is proposed for direct impacts and two may be indirectly impacted by the proposed works. The proposed layout should be amended to avoid CT1 plus an appropriate buffer surrounding the site to preserve the root system. In addition, the two cultural trees located along Silverton Road should be a designated “no go zone” and should have high visibility fencing erected to ensure avoidance during the construction works. As a site type, the Aboriginal community has noted that they have high cultural value and given the low number of modified trees recorded in the area to date the scarred tree is considered to also have high archaeological value and to be relatively rare in the region. While the five cultural trees and one scarred tree were initially either directly in or within 50 m of the impact zone designated for the proposed works, the design has been modified to provide a minimum 20 m buffer around these sites to ensure that there are no inadvertent impacts to the root system and/or canopy of these trees.

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

Table 6-3 Identified risk to known sites.

AHIMS #	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0358	**Oxley Solar Farm IF1**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0359	**Oxley Solar Farm IF2**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0360	**Oxley Solar Farm IF3**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0332	**Oxley Solar Farm IF4**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0333	**Oxley Solar Farm IF5**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0361	**Oxley Solar Farm IF6**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.

AHIMS #	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0334	**Oxley Solar Farm IF7**	Poor – 100+ year history of agricultural and pastoral use.	Low	Direct	Whole	Total loss of value	Salvage surface objects prior to the development of Proposal site that will not be avoided by the proposed development.
21-4-0335	**Oxley Solar Farm IF8**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	Site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around site.
21-4-0362	**Oxley Solar Farm IF9**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0336	**Oxley Solar Farm IF10**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	Site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around site.
21-4-0337	**Oxley Solar Farm IF11**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0338	**Oxley Solar Farm IF12**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.

AHIMS #	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0339	**Oxley Solar Farm IF13**	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0363	**Oxley Solar Farm IF14**	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0340	**Oxley Solar Farm IF15**	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0318	**Oxley Solar Farm IF16**	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0364	**Oxley Solar Farm IF17**	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0319	**Oxley Solar Farm IF18**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.

AHIMS #	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0320	**Oxley Solar Farm IF19**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0321	**Oxley Solar Farm IF20**	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0366	**Oxley Solar Farm IF21**	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0365	**Oxley Solar Farm IF22**	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0354	**Oxley Solar Farm IF23**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0353	**Oxley Solar Farm IF24**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.

AHIMS #	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0367	**Oxley Solar Farm AS1**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0342	**Oxley Solar Farm AS2**	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0343	**Oxley Solar Farm AS3**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0344	**Oxley Solar Farm AS4**	Poor – 100+ year history of agricultural and pastoral use.	.Low	Direct	Whole	Total loss of value	Salvage surface objects prior to the development of Proposal site that will not be avoided by the proposed development.
21-4-0345	**Oxley Solar Farm AS5**	Poor – 100+ year history of agricultural and pastoral use.	.Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0346	**Oxley Solar Farm AS6**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.

AHIMS #	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0347	**Oxley Solar Farm AS7**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0348	**Oxley Solar Farm AS8**	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0352	**Oxley Solar Farm AS9**	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0351	**Oxley Solar Farm AS10**	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0349	**Oxley Solar Farm AS11**	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0350	**Oxley Solar Farm AS12**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.

AHIMS #	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0322	**Oxley Solar Farm AS13**	Poor – 100+ year history of agricultural and pastoral use.	Low-Moderate	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0355	**Oxley Solar Farm AS14**	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0356	**Oxley Solar Farm AS15**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0323	**Oxley Solar Farm AS16**	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.
21-4-0324	**Oxley Solar Farm AS17**	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with a minimum 5 m buffer around the site.
21-4-0357	**Oxley Solar Farm AS18**	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	Salvage surface objects prior to the development of Proposal site so that they may not be indirectly impacted by the proposed development.

AHIMS #	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0325	**Oxley Solar Farm ST1**	Good – *in situ* living tree	High	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with 20 m buffer around the site.
21-4-0326	**Oxley Solar Farm CT1**	Fair – the tree is alive however exhibits damage through limb fall.	N/A	Direct	Whole	Total loss of value	Design needs to be amended to avoid this site plus a 20m buffer to preserve the root system. Ensure avoidance with 20 m buffer around the site.
21-4-0327	**Oxley Solar Farm CT2**	Poor – the tree is dead	N/A	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with 20 m buffer around the site.
21-4-0328	**Oxley Solar Farm CT3**	Good – *in situ* living tree	N/A	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with 20 m buffer around the site.
21-4-0329	**Oxley Solar Farm CT4**	Good – *in situ* living tree	N/A	Nil	Nil	Nil	Site to be avoided by proposed development. Ensure avoidance with 20 m buffer around site.
21-4-0330	**Oxley Solar Farm CT5**	Good – *in situ* living tree	N/A	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with 20 m buffer around the site.
21-4-0341	**Oxley Solar Farm CT6**	Good – *in situ* living tree	N/A	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with 20 m buffer around the site.
21-4-0331	**Oxley Solar Farm CT7**	Good – *in situ* living tree	N/A	Nil	Nil	Nil	The site will be avoided by the proposed development. Ensure avoidance with 20 m buffer around the site.

AHIMS #	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
TBC	**Oxley Solar Farm PAD1**	Unknown	Unknown	Nil	Nil	Nil	No action required. To be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD2**	Unknown	Unknown	Nil	Nil	Nil	No action required. To be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD3**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD4**	Unknown	Unknown	Nil	Nil	Nil	No action required. To be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD5**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD6**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD7**	Unknown	Unknown	Nil	Nil	Nil	No action required. To be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD8**	Unknown	Unknown	Nil	Nil	Nil	No action required. To be included as no impact zone in CHMP and site inductions.

AHIMS #	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
TBC	**Oxley Solar Farm PAD9**	Unknown	Unknown	Nil	Nil	Nil	No action required. To be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD10**	Unknown	Unknown	Nil	Nil	Nil	No action required. To be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD11**	Unknown	Unknown	Nil	Nil	Nil	No action required. To be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD12**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD13**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD14**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD15**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.

AHIMS #	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
TBC	**Oxley Solar Farm PAD16**	Unknown	Unknown	Indirect	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. . Remainder of PAD to be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD17**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD18**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD19**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD20**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.
TBC	**Oxley Solar Farm PAD21**	Unknown	Unknown	Direct	Partial	Partial	Subsurface testing of only those areas of the PAD that intersect with the project layout. Remainder of PAD to be included as no impact zone in CHMP and site inductions.

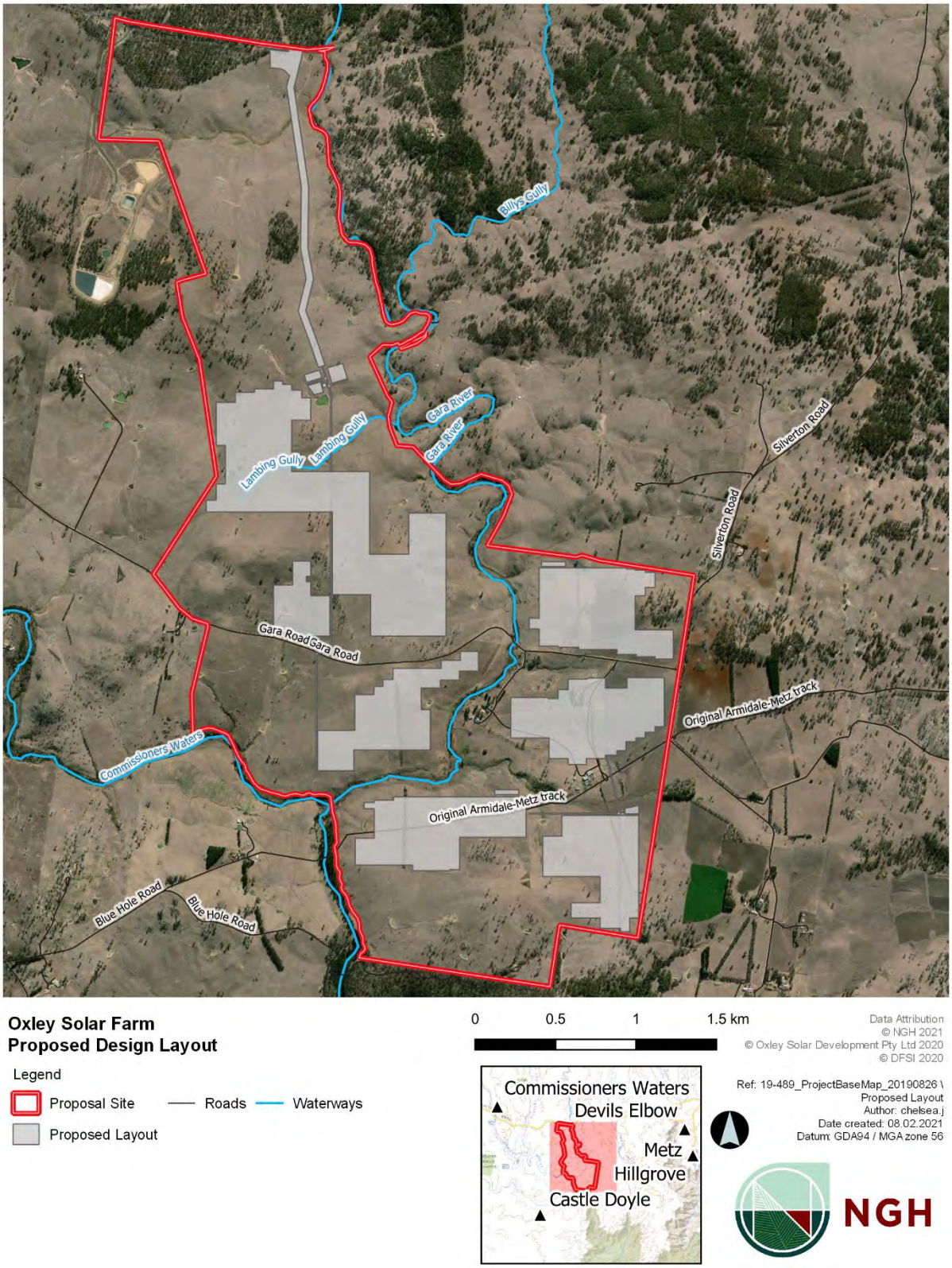

Figure 6-1 Oxley Solar Farm Proposed Design Layout.

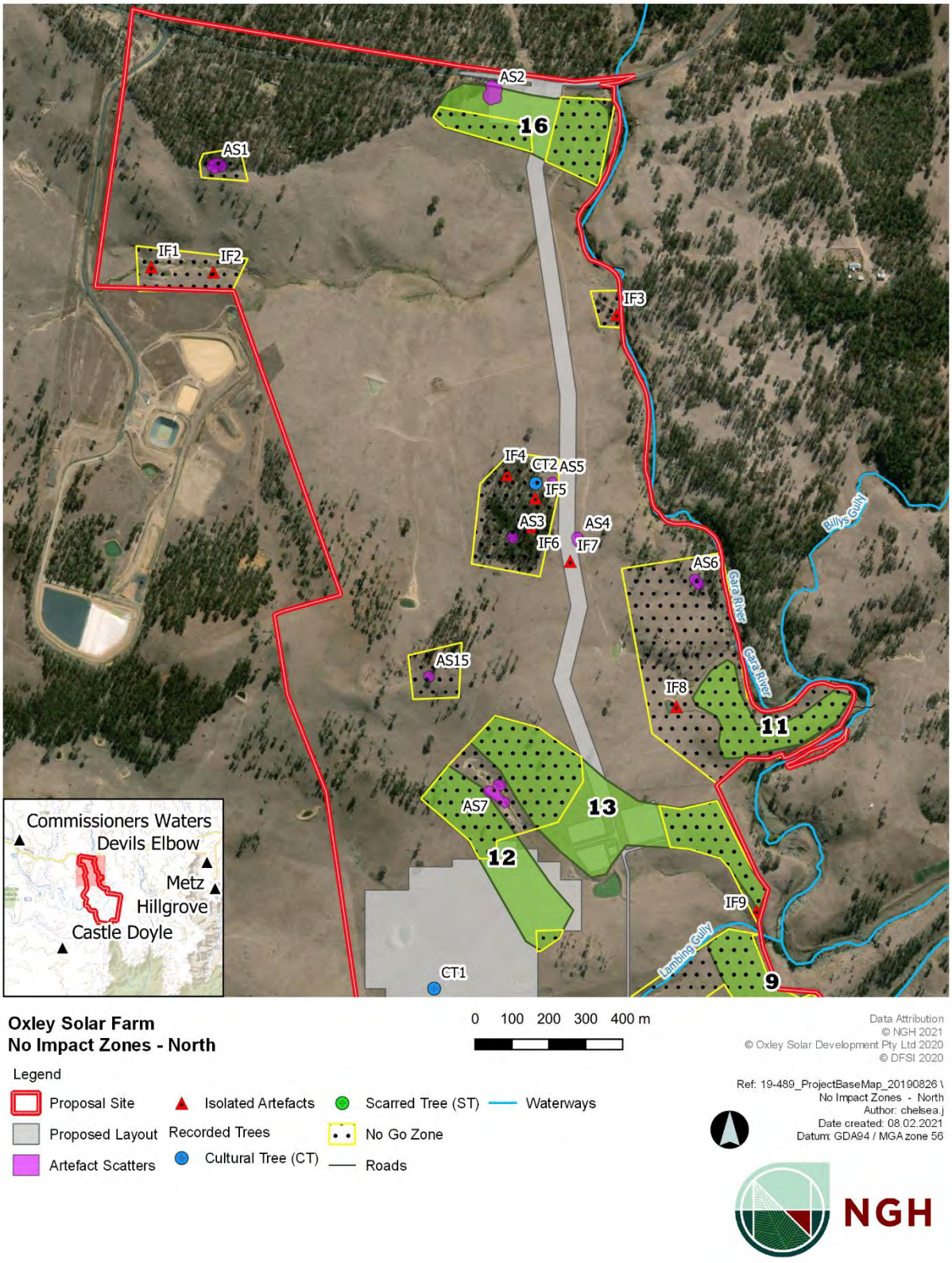

Figure 6-2 No Go Zones - North.

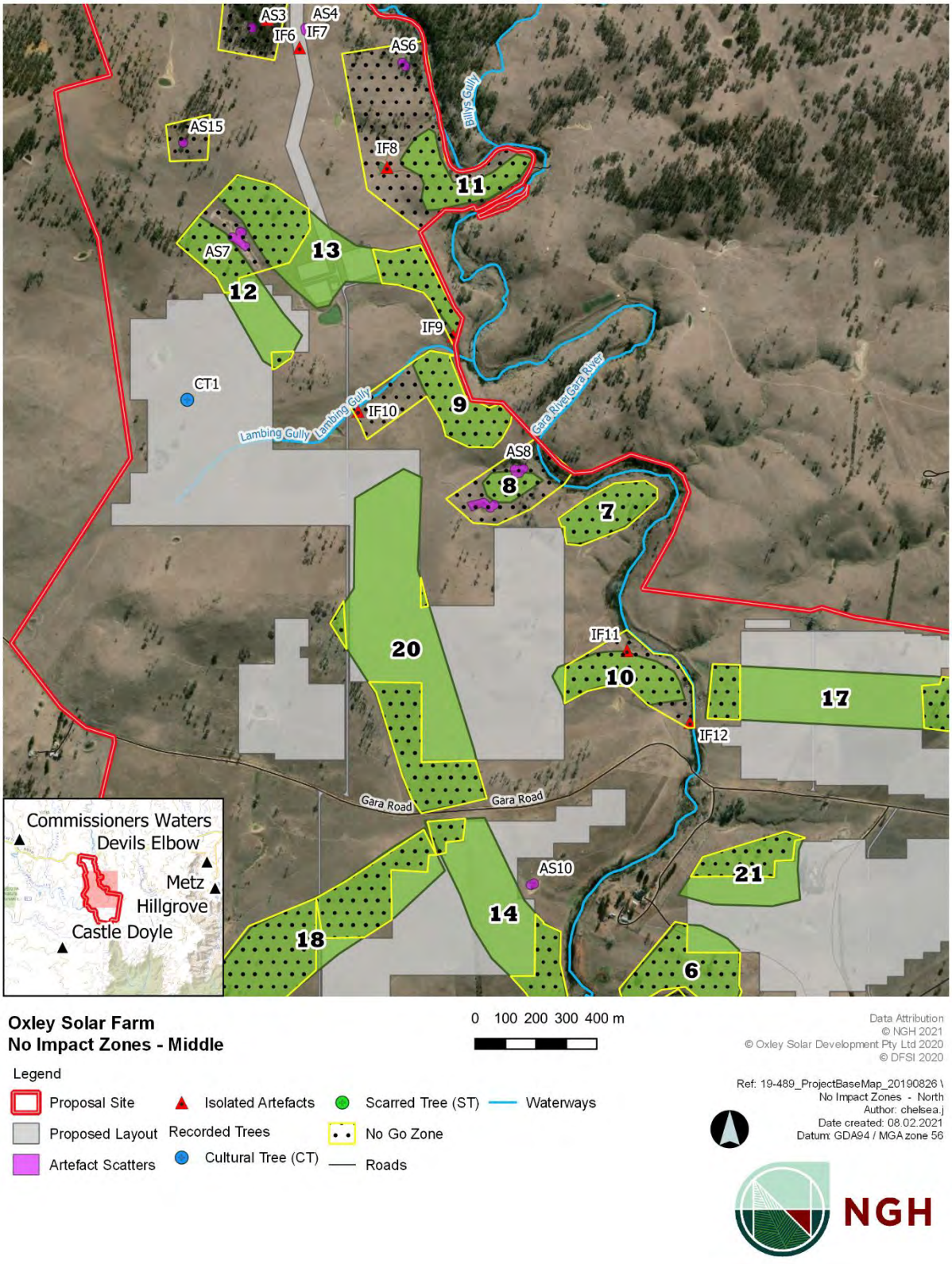

Figure 6-3 No Go Zones - Middle.

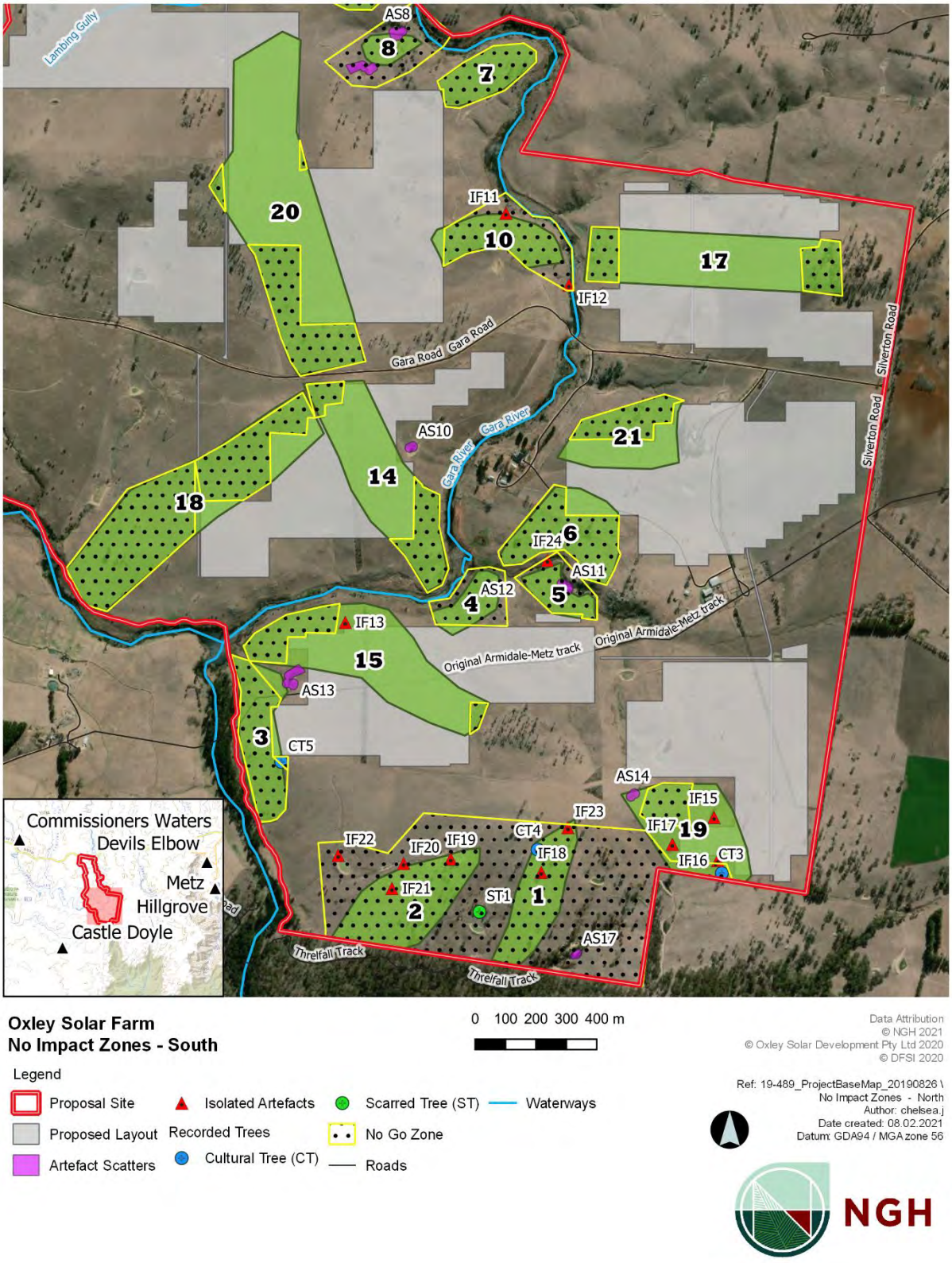

Figure 6-4 No Go Zones – South.

Figure 6-5 No Go Zones - Silverton Road.

7. AVOIDING OR MITIGATING HARM

7.1. CONSIDERATION OF ESD PRINCIPLES

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

In broad terms, the archaeological material located during this investigation is similar to what has been found previously within the Armidale region. Currently, there are a number of suggested models for nature, number, extent and content for archaeological sites within the Armidale-Dumaresq LGA. Nevertheless, given the size of the geographical area and results of previous studies, it is certain that there would be similar Aboriginal objects and sites present within the region.

The results of this Aboriginal heritage assessment have confirmed the proposed model of site location and site distribution whereby sites could be expected to occur across the landscape and in particular in proximity to a water source, even in ploughed areas.

The implications for ESD principles are that more sites are likely to be present in the region than previously thought. This may reduce the individual value of individual sites within the Proposal site as they are likely to be represented elsewhere and potentially with better integrity. However, it must be recognised that large parts of the region have been heavily cleared, mined, farmed and developed through the construction and maintenance of roads and residential structures and therefore other sites are also likely to have been subjected to heavy disturbance. The sites present within the Proposal site generally have low integrity due to the historical disturbances and conform to site types associated with modelling for the area. As these sites are heavily disturbed and not considered to be unique, their representativeness across the broader Armidale landscape is reduced. It should also be noted that not all sites recorded during this survey fall within the proposed layout and that the sites outside the proposed layout will not be impacted by the proposed solar farm development.

As noted above, the archaeological values of the sites within the proposed layout, considering scientific, representative and rarity values, was assessed to be low but still require further assessment for those PADs where the nature and extent of the deposit have not yet been established. It is believed therefore that the proposed impacts to the sites through the development would not significantly adversely affect the broader archaeological record for the local area or the region.

The principle of inter-generational equity requires the present generation to ensure that the health and diversity of the archaeological record are maintained or enhanced for the benefit of future generations. NGH concludes that the diversity of the archaeological record, with reference to the artefact sites, is not compromised by the proposed development particularly given the existing disturbed nature of the sites and that stone artefacts are the most common site type so far recorded within the local area.

NGH estimate, that while the current proposed layout will impact a number of the stone artefact sites within the Proposal site, as assessed in this report, the overall cumulative impact on the archaeological record for the region is likely to be minimal, assuming a similar density of artefact sites remain across the wider region. Notwithstanding the results of the subsurface testing of PADs within the Proposal site, it is argued that the cumulative impacts of the proposal on the known archaeological record do not form a substantial objection to are not enough to reject outright the development proposal for the Oxley Solar Farm as a whole.

7.2. CONSIDERATION OF HARM

Avoiding harm to all the Aboriginal sites identified within the Proposal site is technically possible through avoidance. However, the scattered nature of the archaeological sites across the Proposal site would pose serious design and viability constraints on the proposed solar farm development. Given that the proposed layout has already been significantly altered to avoid the scarred tree and eight culturally modified trees, additional measures to redesign the proposed layout for the Oxley Solar Farm are not considered to be necessary until the results of the subsurface testing programme are established.

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

The proposed layout will impact upon 13 stone artefact sites. Harm to these sites will be through ground preparation activities such as topsoil stripping, installation of posts and arrays, tracks and underground cabling, as well as the movement of construction vehicles and plant. However, the question remains about the possible occurrence of artefacts within the balance of the solar farm site. It is considered likely that additional stone artefacts will be present, most likely in the form of isolated artefacts or small low-density scatters. Without knowing their exact locations, it is difficult to manage the impacts. To provide further understanding of the landforms identified as PADs a subsurface testing programme will be undertaken.

The subsurface testing programme will provide a better understanding of the presence and/or absence of additional stone artefacts within the PAD areas. The archaeological material identified in the survey and potentially present in the remainder of the development area outside the PAD areas is not of sufficient value to reject the development proposal, especially considering the avoidance of 29 sites with stone artefacts, the scarred tree and the five cultural trees.

The establishment of the aforementioned “no go zones” would further ensure the protection of the sites which will be avoided by the works during development.

Additionally, the majority of PADs identified (PAD 3, 5, 6, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21) will be at least partially impacted by the project layout. Targeted subsurface testing in those areas where the proposed design intersects with the designated PADs will establish the nature and extent of the PAD and inform required significance and impact assessment of these sites and subsequent management strategies.

7.3. MITIGATION OF HARM

Mitigation of harm to cultural heritage 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 site. Mitigation can be in the form of minimising harm through changes in the development plan or direct management measures of the artefacts.

Mitigation of harm has been incorporated into the development design by the avoidance of the scarred tree and five cultural trees. Provided that the design is amended to ensure the avoidance of CT1 plus an appropriate surrounding buffer, it is argued here that further mitigation is not warranted. However, it should be noted that the subsurface testing program may provide additional information that influences considerations of mitigation of harm and site avoidance within the Proposal site.

The surface stone artefact sites within or adjacent to the proposed layout that will be impacted by the works for the Oxley Solar Farm are conducive to surface collection salvage as a mitigation strategy. The surface collection salvage of the surface stone artefact sites within the Proposal site was also

requested by the Aboriginal community representatives during the fieldwork programme. It is recommended that the stone artefact sites that will be impacted by the proposed layout be salvaged by an archaeologist with representatives of the RAPs, as selected by the Proponent, prior to the proposed development commencing.

The artefacts should be collected and moved to a safe area within the property that will not be subject to any solar farm-related ground disturbance works. It is proposed that the reburial location within the Proposal site occur within the designated “no go zones” outside the extent of the sites. The Aboriginal community representatives present during the survey also suggested that the salvaged artefacts be stored at the Armidale Cultural Centre and Keeping Place where possible. In the event that storage of all artefacts at this location is not possible, formal tools and artefacts of particular cultural or scientific significance should be stored in a display case at the cultural centre and the remainder of the artefacts should be buried “on Country” but outside of the proposed impact area of the Oxley Solar Farm.

An archaeological test excavation of those sections of PAD 3, 5, 6, 12. 13, 14. 15, 16,17, 18, 19, 20, 21 that intersect with the proposed layout is required in order to establish the nature and extent of the deposits and therefore inform significance, impact and proposed mitigation measures. This test excavation and subsequent associated reporting must be undertaken prior to any approvals of the project (and therefore also development works).

Moreover, as identified in Section 1 of this report, since the start of this assessment the assessment area and proposed design has undergone minor changes. As such, the Proposal site now includes a small section of vegetated area to the far north of the site. This area has not previously undergone heritage survey and therefore requires systematic field inspection by a qualified archaeologist alongside the RAPs during the proposed test excavation works to ensure that appropriate recommendations and heritage assessment is applied to this area.

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 OEH AHIMS site cards for all sites located during heritage surveys.

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

The *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 on Aboriginal heritage that development 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 Heritage NSW is required to ensure that Aboriginal heritage is considered in the environmental impact assessment process.

The Oxley 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 2010b). The requirement for Aboriginal heritage assessment was also stipulated by the SEARs relating to Aboriginal heritage for the Oxley 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 Heritage NSW, prior to development consent being approved by the Minister for Planning.

9. RECOMMENDATIONS

The recommendations are based on the following information and considerations:

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

It is recommended that:

1. The proposed layout of the solar farm must be amended to avoid CT1 plus a 20 m buffer surrounding the site.
2. A small heavily vegetated area to the north of the Proposal area near Waterfall Way has not been subject to archaeological survey. As part of subsequent management measures, this area must be surveyed to locate Aboriginal cultural heritage and management and mitigation measures determined through further archaeological assessment.
3. The subsurface testing of the PADs (3, 5, 6, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21) which will be impacted by the development must be undertaken prior to any works and/or the issuing of any approvals for the Oxley Solar Farm.
4. An archaeological test excavation of those sections of PAD that intersects with the proposed design is required in order to establish the nature and extent of the deposits and therefore inform, significance, impact and proposed mitigation measures. This subsurface excavation will be undertaken following the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010a). An addendum ACHA report must be prepared to address the findings of the test excavation, significance assessment, impact assessment and proposed management of these PAD areas and any additional sites identified during the subsurface testing programme of works.
5. During construction works, high visibility fencing must be erected around CT6 and CT7 to ensure indirect impacts through use of Silverton Road as a transport corridor do not occur and the designated “no go zones” surrounding these areas must be included in the CHMP for the project. The development avoids the scarred tree (Oxley Solar Farm ST1) as well as the five cultural trees (Oxley Solar Farm CT1-5 and CT8) within the Proposal site. A minimum of a 20-m buffer should be established around each of these sites by placing high visibility bunting (or similar) to avoid any inadvertent impacts to the root system and canopy during construction, preconstruction and decommission works.
6. If complete avoidance to any of the isolated finds and/or artefact scatters recorded within the Proposal site is not possible the surface stone artefacts within the development footprint must be salvaged. The surface collection salvage of these stone artefacts must occur prior to the proposed construction works commencing for the Oxley Solar Farm. Until surface collection salvage has occurred a minimum 5 m buffer must be observed around all stone artefact sites.
7. The collection and relocation of the surface artefacts should be undertaken by an archaeologist with representatives of the registered Aboriginal parties, as selected by the Proponent and be consistent with Requirement 26 of the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales. The salvage of Aboriginal objects can only occur following development consent that is issued for State Significant Developments and must occur prior to any construction works commencing.
8. Salvaged artefacts may be temporarily stored at an NGH office for further analysis if this cannot be undertaken onsite at the time of salvage. Permanent storage of artefacts will be at the Armidale and Region Aboriginal Cultural Centre & Keeping Place. Formal tools will likely be displayed at

the Cultural Centre. If storage there is not possible, it is proposed that artefacts be buried on-site within a “no go zone”. All objects salvaged and buried within the Proposal site must have their burial location submitted to the AHIMS database.

9. A care agreement with Heritage NSW in accordance with the NPW Act must be undertaken for the artefacts to be stored at Armidale and Region Aboriginal Cultural Centre & Keeping Place.
10. In accordance with the development consent for this SSD, an Aboriginal Site Impact Recording Form must be completed and submitted to AHIMS for each site collected or destroyed through salvage and/or construction works.
11. A minimum 5 m buffer should be observed around all stone artefact sites that are being avoided by the proposed development. The implantation of heritage “no go zones” within the Proposal site should be implemented to ensure that sites which are being avoided by the proposed development are not inadvertently impacted.
12. For any impacts to those sites and PADs currently being avoided by this project or areas outside those assessed as part of the survey for the Oxley Solar Farm, as assessed in this report, further assessment and consideration of impacts on Aboriginal Heritage as determined by an archaeologist should occur. Additional Aboriginal consultation and further assessment which may include survey and/or subsurface testing may be required.
13. The Proponent should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal artefacts during the construction of the Oxley Solar Farm and for the management of known sites, artefacts and PADs within the Proposal site. The Plan should include the unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties. A draft unexpended finds procedure is provided in Appendix F.
14. In the unlikely event that human remains are discovered during the construction of the Oxley Solar Farm, all work must cease in the immediate vicinity. Heritage NSW and the local police should be notified. A 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.
15. A 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.

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APPENDIX A ABORIGINAL CONSULTATION

A.1 CONSULTATION LOG

Redacted due to public display.

NEWSPAPER ADVERTISEMENT

8 ARMIDALE EXPRESS Wednesday, August 28, 2019 armidaleexpress.com.au

The Armidale Express **Connect with Classifieds** Phone: 02 6776 0500 Email: classifieds@armidaleexpress.com.au

Funeral Notices

CLARK, Dianne Evelyn

Unexpectedly passed away at home, late of Sawtell. Beloved sister of Graeme & Tracy and Janice & Peter. Devoted aunt & great-aunt. Dear friend to many. Long standing member of Sawtell SLSC.

Aged 65 Years

Loved And Sadly Missed, Spread Your Wings & Fly High Di

Relatives and friends are invited to attend Dianne's Funeral Service to be held in the Chapel of Hogbin Drive Crematorium & Memorial Gardens, Stadium Drive, Coffs Harbour on Friday 30th August 2019, commencing at 11.30 am.

KEITH LOGUE & SONS F.D.A. of N.S.W. COFFS HARBOUR (02) 6652 1999

WEATHERALL
Wade William

Loved son of Tessa, Leonie and Paul Lomas. Loved brother of Oshea, Mallkyn, Lelia and Brooklyn.

Aged 15 Years

Funeral Service to be held at St Peter's Anglican Church, on Friday 30th August 2019 commencing at 10.00am.

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Positions Vacant

Uralla Shire Council

Plant Mechanic
Full-time
Closing date: 30th August 2019, 5pm

We are currently looking for a Plant Mechanic to join our workshop team!

Salary $1011.60 gross per week + 9.5% superannuation + rostered day off each fortnight.

Further information and access to an interactive online application are available on the Uralla Shire Council website: www.uralla.nsw.gov.au

Positions Vacant

Uralla Shire Council

Senior Executive Officer
Closing date: 6th September 2019, 5pm

Council has an exciting opportunity for a **Senior Executive Officer** join our team on a full-time basis!

This position has a **competitive remuneration package** circa **$65,000 - $75,000**

Plus access to a range of benefits including:

- **A 9-day fortnight**
- **Long service leave after 5 years' continuous service**
- **Access to our Employee Assistance Program**
- **Service Recognition Program**

The position description and access to an interactive online application are available on the Uralla Shire Council website: www.uralla.nsw.gov.au

Positions Vacant

Uniform & Book Shop Assistant

TAS is looking to hire a positive and enthusiastic member of staff to manage the sales and ordering necessary for the operation of the school's uniform and book shop.

Retail experience is expected though not essential. **Immediate start.**

- 30 hours per week term time
- Additional hours will be required during school holidays

Job description and application form are available at www.as.edu.au

Applications close Monday 2 September, 2019.

Applicants should be supportive of the Christian ethos of the school.

TAS THE ARMIDALE SCHOOL

www.as.edu.au

Public Notices

Notification of project proposal and registration of interest under BCD Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 1) - Proposed Gonzo Mountain Bike Track, Armidale

McCardle Cultural Heritage (MCH) have been engaged by the University of New England (Facilities Management Services, Armidale NSW 2351 Australia) to prepare an Aboriginal Cultural Heritage Assessment (ACHA) and Section 90 Aboriginal Heritage Impact Permit (AHIP) application, if required, for the proposed Gonzo Mountain Bike Track, Armidale (DP 755808 Lots 792, 795 and 797).

The purpose of community consultation with Aboriginal people is to assist the proposed applicant in the preparation of the AHIP application if required and to assist the Chief Executive of BCD in his or her consideration and determination of the application should an AHIP be required.

In compliance with the BCD policy – Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, MCH would like to extend an invitation to Aboriginal people who hold cultural knowledge relevant to the proposed project area and who can determine the significance of Aboriginal object(s) and/or place(s) in the area of the proposed project to register an interest in the consultation process for this project.

Written registrations must be forward to MCH | P.O. Box 166 Adamstown, NSW, 2289; mcheritage@iprimus.com.au; fax 02 4950 5501) no later than **C.O.B. Wednesday 11th September 2019.**

All registered parties will then be contacted to discuss the project in compliance with the BCD policy. If you register your interest in this project, please also nominate your preferred option to receive the initial information. You may wish to attend a non-paid meeting and receive an information pack, or receive an information packet through the mail, fax or e-mail.

Any parties wishing to register are advised that, unless otherwise requested, their details will be forward to BCD and the relevant LALC within 28 days of the closing date of registration and in compliance with the BCD policy.

Public Notices

Notification for registration of interest for Aboriginal stakeholders

NGH Pty Ltd (NGH) has been engaged by Oxley Solar Development Pty Ltd (PO Box K1053 Haymarket NSW 1240) to undertake an Aboriginal Cultural Heritage Assessment (ACHA) to support an Environmental Impact Statement addressing the proposed Oxley Solar Farm on Garra Road (Lot 2, DP1206469; Lot 5, DP253346; and Lot 6, DP625427). The proposal is to be assessed as a State Significant Development under Part 4 of the *NSW Environmental Planning & Assessment Act 1979*.

The purpose of the consultation with Aboriginal people is to provide an opportunity to assist in the preparation of the ACHA; to be involved in consultation regarding Aboriginal cultural heritage; and to be involved in the assessment and management of potential impact to Aboriginal cultural heritage values in accordance with the Secretary's Environmental Assessment Requirements for the project.

In order to fulfil the requirements set out in the OEH *Aboriginal Cultural Heritage Consultation 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 cultural significance of any Aboriginal objects subject to the application.

Registrations should be provided in writing to:

Ali Byrne
NGH Pty Ltd
Unit 2, 54 Hudson Street
HAMILTON NSW 2303

Or via email to: ali.b@nghenvironmental.com.au

Closing date for registration is **Wednesday 11th September 2019**

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

NSW GOVERNMENT

Department of Planning, Industry & Environment

Low Level Aircraft Conducting Fauna Surveys

Department of Planning, Industry and Environment will be conducting low level aerial fauna surveys in the Northern Tablelands of NSW covering an area of approximately 40,000 km². A helicopter will be flying approximately 60 metres (200 ft) above the ground at a speed of 50 knots. **The surveys will occur between 2nd September and 11th September 2019**, covering areas near Tenterfield, Glen Innes, Inverell, Armidale and Tamworth.

For further information please contact Stephen Wolter on (02) 6883 5309 or 0400 869 812 and email: stephen.wolter@environment.nsw.gov.au

Public Notices

New England Art Society Inc AGM

Armidale Art Gallery 24th Sept 2019, 5pm at the Gallery, 168 Beardy St

COMPETITION TERMS AND CONDITIONS THE ARMIDALE EXPRESS

Employees of the promoter and agencies associated with this promotion are ineligible to enter the competition, as are their immediate families. To enter, fill in the coupon that appears in the Armidale Express and place in the entry boxes listed in the competition advertisement. No photocopies will be accepted. Entry is only open to Australian residents of NSW. The judges decision is final and binding on each person who enters. The promoter reserves the right to withdraw or amend the competition as necessary due to circumstances outside its control. The prize is non-transferable and non-redeemable for cash. Any attempt to resell or auction this prize will result in an immediate cancellation of the prize. The promoter shall not be liable for any loss or damage whatsoever which is suffered (including, but not limited to, indirect or consequential loss) or for personal injury which is suffered or sustained, in connection with the prize, except for any liability which cannot be excluded by laws. Entry close date is printed on the coupon. By entering these competitions, all entrants will be deemed to have accepted and agreed to be bound by these rules. The information you are asked to provide to the promoter is personal information and is protected by the Privacy Act 1988. All entries become the property of the promoter. The promoter may use the entrant's names and literary pieces for any commercial purpose, including future promotional marketing and publicity purposes. Entries will be drawn at the Armidale Express office, 115 Faulkner Street, Armidale NSW and the winners names will be published in said newspaper within three days. The prize winners will be personally notified by the phone number on the entry. If the winner's phone is unanswered after 3 attempts and no return call within one hour, the prize will be redrawn. The promoter is Regional Publishers Pty Ltd, ABN 20 000 014 700, head office 115 Faulkner Street, Armidale NSW 2350. NSW Permit No. LTPM/18/03974

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APPENDIX B SITE DESCRIPTIONS

Isolated Finds

Oxley Solar Farm IF1

This site consisted of a single artefact located within a small unnamed gully situated to the north of the dump. The artefact was a red silcrete flake located approximately 1.2 km west of the Gara River. The soils consisted of grey-brown sandy silt. Visibility within the area was 40%.

Red silcrete flake, Oxley Solar Farm IF1.

Oxley Solar Farm IF2

This site consisted of a single artefact located within a small unnamed gully situated to the north of the dump. The artefact was a basalt core located approximately 1 km west of the Gara River. The soils consisted of grey-brown sandy silt. Visibility within the area was 80%.

Basalt core, Oxley Solar Farm IF2.

Oxley Solar Farm IF3

This site consisted of a single artefact within predominantly cleared paddock beside three trees. The artefact was a basalt flake located almost directly adjacent to the Gara River. The soils consisted of grey-brown sandy silt. Visibility within the area was 80%.

	
Ventral side of grey basalt flake, Oxley Solar Farm IF3.	Context of Oxley Solar Farm IF3.

Oxley Solar Farm IF4

This site consisted of a single artefact within a small grove of trees within a large grazing paddock. The artefact was a grey, red silcrete flake located approximately 400 m west of the Gara River. The soils consisted of grey-brown sandy silt. Visibility within the area was 60%.

	
Ventral side of silcrete flake, Oxley Solar Farm IF4.	Context of Oxley Solar Farm IF4.

Oxley Solar Farm IF5

This site consisted of a single artefact within a small grove of trees within a large grazing paddock. The artefact was a pink silcrete core located approximately 350 m west of the Gara River. The soils consisted of grey-brown sandy silt. Visibility within the area was 60%.

Silcrete core, Oxley Solar Farm IF5.

Context of Oxley Solar Farm IF5.

Oxley Solar Farm IF6

This site consisted of a single artefact within a moderately sized grove of trees within a large grazing paddock. The artefact was a silcrete flake located approximately 360 m west of the Gara River. The soils consisted of grey-brown sandy silt. Visibility within the area was 80%.

Silcrete flake, Oxley Solar Farm IF6.

Silcrete flake, Oxley Solar Farm IF6.

Oxley Solar Farm IF7

This site consisted of a single artefact just outside a small grove of trees within a large grazing paddock. The artefact was a white broken chert flake (possibly a pressure flake) located approximately 300 m west of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 80%.

Broken white chert flake, possibly a pressure flake, Oxley Solar Farm IF7.

Context of Oxley Solar Farm IF7.

Oxley Solar Farm IF8

This site consisted of a single artefact along the arm of a small dam. The artefact was a broken orange cream silcrete flake located approximately 300 m west of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 80%.

Ventral surface of broken orange silcrete flake, Oxley Solar Farm IF8.

Context of Oxley Solar Farm IF8, along the edge of a small dam.

Oxley Solar Farm IF9

This site consisted of a single artefact within a predominantly cleared field located inside a small unnamed gully running between the Gara River and the Lambing Gully. The artefact was a silcrete flake located approximately 70 m west of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 80%.

Silcrete flake, Oxley Solar Farm IF9.

Silcrete flake, Oxley Solar Farm IF9.

Oxley Solar Farm IF10

This site consisted of a single artefact 80 m northeast of small dam in a predominantly cleared paddock. The artefact was a grey chert flake located approximately within the Lambing Gully. The soils consisted of a grey-brown sandy loam and visibility within the area was 80%.

. Chert flake, Oxley Solar Farm IF10.

Context of Oxley Solar Farm IF10, northeast of small dam and within the Lambing Gully.

Oxley Solar Farm IF11

This site consisted of a single artefact within a gully in a predominantly cleared paddock. The artefact was a grey basalt proximal flake located approximately 40 m west of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 60%.

Ventral surface of grey basalt proximal flake, Oxley Solar Farm IF11.

Context of Oxley Solar Farm IF11, adjacent to gully of Gara River.

Oxley Solar Farm IF12

This site consisted of a single artefact within a gully in a predominantly cleared paddock. The artefact was a grey silcrete core located immediately west adjacent to the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 60%.

Grey silcrete core, Oxley Solar Farm IF12.

Context of Oxley Solar Farm IF12, adjacent to Gara River.

Oxley Solar Farm IF13

This site consisted of a single artefact in a predominantly cleared paddock adjacent to a small strip of juvenile vegetation. The artefact was a grey cream volcanic hammerstone located immediately 120 m south of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 40%.

Volcanic hammerstone, Oxley Solar Farm IF13.

Context of Oxley Solar Farm IF13.

Oxley Solar Farm IF14

This site consisted of a single artefact in a predominantly along the road shoulder of Silverton Rd. The artefact was an isolated dark grey volcanic axe with bifacial flaking and one ground surface. The soils consisted of a grey-brown sandy loam and visibility within the area was 80%.

Volcanic axe, Oxley Solar Farm IF14.

Context of Oxley Solar Farm IF14.

Oxley Solar Farm IF15

This site consisted of a single artefact in a predominantly cleared paddock adjacent to a couple of smaller trees. The artefact was a greywacke broken medial fragment located 280 m south-east of a small dam. The soils consisted of a grey-brown sandy loam and visibility within the area was 60%.

Greywacke broken medial fragment, Oxley Solar Farm IF15.

Context of Oxley Solar Farm IF15.

Oxley Solar Farm IF16

This site consisted of a single artefact in a predominantly cleared paddock adjacent to a couple of smaller trees. The artefact was a creamy brown chert core, with five flake scars, located 390 m south-east of a small dam. The soils consisted of a grey-brown sandy loam and visibility within the area was 70%.

Creamy brown chert core, Oxley Solar Farm IF16.

Context of Oxley Solar Farm IF16.

Oxley Solar Farm IF17

This site consisted of a single artefact adjacent to a singular tree approximately 300 m south of the southernmost internal track for the Proposal site. The artefact was a quartz flake, located 1.4 km east of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 80%.

Ventral side of quartz flake, Oxley Solar Farm IF17.

Dorsal side of quartz flake, Oxley Solar Farm IF17.

Oxley Solar Farm IF18

This site consisted of a single artefact in a predominantly cleared paddock adjacent to a couple of smaller trees. The artefact was a black-grey basalt flake, located approximately 870 m east of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 70%.

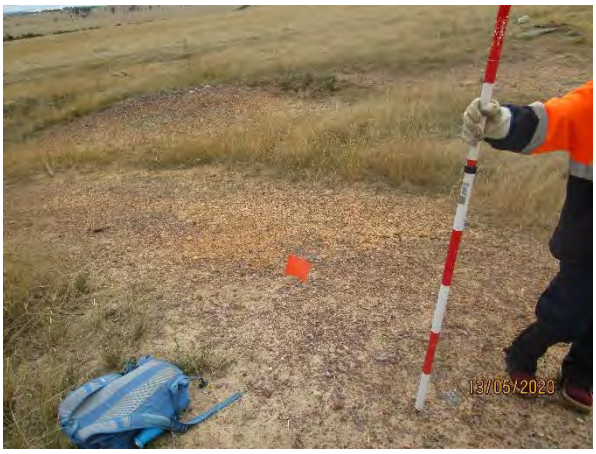
Black-grey basalt flake, Oxley Solar Farm IF18.

Context of Oxley Solar Farm IF18, adjacent to the tree.

Oxley Solar Farm IF19

This site consisted of a single artefact in a predominantly cleared paddock along a small exposure extending east from a small dam. The artefact was a white quartz flake, located approximately 600 m east of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 80%.

White quartz flake, Oxley Solar Farm IF19.



Context of Oxley Solar Farm IF19, along a small exposure which leads east of the dam.

Oxley Solar Farm IF20

This site consisted of a single artefact in a predominantly cleared paddock along a small exposure extending east from a small dam. The artefact was a grey-black basalt flake, located approximately 430 m east of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 70%.

Grey-black basalt flake, Oxley Solar Farm IF20.

Context of Oxley Solar Farm IF20, along a small exposure which leads east of the dam.

Oxley Solar Farm IF21

This site consisted of a single artefact located in a small linear exposure extending east from a small dam. The artefact was a greywacke flake with retouch evident along the distal end of the artefact, located approximately 380 m east of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 40%.

Oxley Solar Farm IF22

This site consisted of a single artefact located along a small exposure extending north from a small dam. The artefact was a basalt core, located approximately 200 m east of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 40%.

Oxley Solar Farm IF23

This site consisted of a single artefact in a small gully extending east from the Gara River. The artefact was a red silcrete core, located approximately 260 m east of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 70%.

Red silcrete core, Oxley Solar Farm IF24.

Red silcrete core, Oxley Solar Farm IF24.

Oxley Solar Farm IF24

This site consisted of a single artefact nearby a small cluster of trees, 130 m south of a small track towards the south of the Proposal site. The artefact was a basalt core with five flake scars, located approximately 1km east of the Gara River. The soils consisted of a grey-brown sandy loam and visibility within the area was 80%.

Grey-black basalt core, Oxley Solar Farm IF26.

Context of Oxley Solar Farm IF26, along a small exposure.

Artefact Scatters

Oxley Solar Farm AS1

This site consisted of large artefact scatter comprising 28 artefacts located adjacent to the northernmost fence line of the proposal site and approximately 350 m east of the dump unnamed entry road. The site was located along the mid-slope and approximately 1km west of the Gara River. The material composition of the artefact scatter was characterised solely silcrete material. Flakes were the most common artefact type (n=24), followed by flaked pieces (n=4). The majority of complete flakes were all identified as products of the tertiary stage of reduction with one or two anomalous artefacts exhibiting characteristics of secondary reduction phase, with partial cortex visible on the dorsal surface. The artefacts were located on a grey-brown sandy loam deposit and visibility within the area was approximately 70% along a small exposure adjacent to the northern fence line. The area has been subject to disturbance associated with some vehicles use of the track and the slope exhibits some erosion, which has removed topsoils from much of the area. The presence of artefacts within and adjacent to the exposure is a result of the higher levels of visibility. An assessment of the site determined that, due to erosion, there was nil to low potential for subsurface material to be present.

Context of Oxley Solar Farm AS1 adjacent to the northern fence line and Waterfall Way

Dorsal side of grey silcrete flake, part Oxley Solar Farm AS1.

Oxley Solar Farm AS2

This site consisted of large artefact scatter comprising 15 artefacts located adjacent to the northernmost fence line of the proposal site and directly adjacent to the Waterfall Way highway. The site was located along the mid-slope and approximately 300 m west of the Gara River. The material composition of the artefact scatter was predominantly characterised by silcrete material with a single occurrence of fine-grained siliceous material also identified. Flakes were the most common artefact type (n=14), followed by a single core (n=1). The majority of complete flakes were all identified as products of the tertiary stage of reduction with one or two anomalous artefacts exhibiting characteristics of secondary reduction phase, with partial cortex visible on the dorsal surface. The artefacts were located on a grey-brown sandy loam deposit and visibility within the area was approximately 70% along a small exposure adjacent to the northern fence line. The area has been subject to disturbance associated with some vehicles use of the track and the slope exhibits some erosion, which has removed topsoils from much of the area. The presence of artefacts within and adjacent to the exposure is a result of the higher levels of visibility. An assessment of the site determined that owing to the sloped landform which decreases in elevation towards the Gara River and the presence of some artefacts associated with the site protruding from the topsoil, there was potential for subsurface material to be present (refer to Section 5.3.2).

Ventral side of retouched silcrete flake, part of Oxley Solar Farm AS2.

Context of Oxley Solar Farm AS2, facing north.

Oxley Solar Farm AS3

This site consisted of small artefact scatter comprising two artefacts located within a moderately sized grove of trees approximately 400 m west of the Gara River. The material composition of the artefact scatter was solely characterised by silcrete material. Flakes were the most common artefact type (n=1), followed by a broken flake (n=1). The artefacts were located on within an area with reduced visibility of approximately 40% along the base of the trees. The area has been subject to disturbance associated with selective tree felling throughout the grove. The presence of artefacts within and adjacent to this small exposure is a result of the higher levels of visibility surrounding each of the trees. An assessment of the site determined that there was nil to low potential for subsurface material to be present.

Context of Oxley Solar Farm AS3, facing east.

Orange silcrete broken flake, part of Oxley Solar Farm AS3.

Oxley Solar Farm AS4

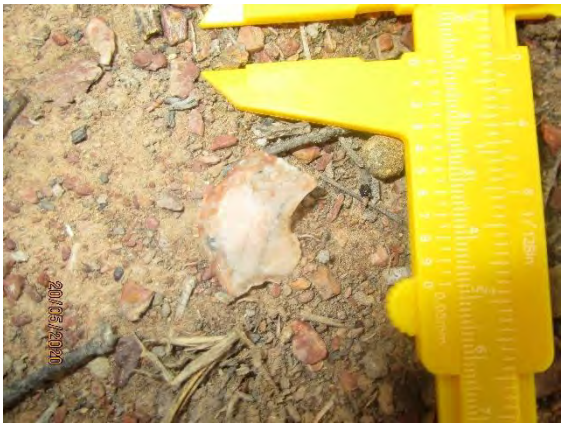
This site consisted of small artefact scatter comprising five artefacts located adjacent to the existing vehicle track. The site was located adjacent to a moderately sized grove of trees approximately 290 m west of the Gara River. The material composition of the artefact scatter was predominantly characterised by silcrete material and chert material with basalt also noted. Flakes were the most common artefact type (n=4), followed by a flaked piece (n=1). The artefacts were located on a yellow-brown sandy loam deposit and visibility within the area was approximately 60% along a small exposure adjacent to the main property access track. The area has been subject to disturbance associated with vehicle use along the track. The presence of artefacts within and adjacent to the exposure is a result of the higher levels of visibility adjacent to the track. An assessment of the site determined that there was nil to low potential for subsurface material to be present.

Yellow silcrete flake, part of Oxley Solar Farm AS4.

Context of Oxley Solar Farm AS4.

Oxley Solar Farm AS5

This site consisted of small artefact scatter comprising two artefacts located nearby the existing vehicle track. The site was located adjacent to a moderately sized grove of trees approximately 260 m west of the Gara River. The material composition of the artefact scatter was solely characterised by silcrete material. The scatter included a single distal fragment (n=1) and a single proximal fragment (n=1). The presence of artefacts within and adjacent to the exposure is a result of the higher levels of visibility associated with disturbance from the ant's nest on which they were situated. The artefacts were located on a yellow-brown sandy loam deposit and visibility within the area was approximately 70% along a small exposure. An assessment of the site determined that there was nil to low potential for subsurface material to be present.



Silcrete proximal fragment, part of Oxley Solar Farm AS5.

Context of Oxley Solar Farm AS5, nearby track and grove of trees located within an ant's nest.

Oxley Solar Farm AS6

This site consisted of small artefact scatter comprising two artefacts. The site was located adjacent to a large grove of trees approximately 80 m west of the Gara River. The material composition of the artefact scatter was solely characterised by basalt material. The scatter was included flakes (n=2). The artefacts were located on a white-grey sandy loam deposit and visibility within the area was approximately 70% along a small exposure. An assessment of the site determined that there was nil to low potential for subsurface material to be present.

Ventral side basalt flake, part of Oxley Solar Farm AS6.

Ventral side basalt flake, part of Oxley Solar Farm AS6.

Oxley Solar Farm AS7

This site consisted of small artefact scatter comprising five artefacts. The site was located adjacent to a large exposure of likely a dried-up dam 760 m west of the Gara River. The material composition of the artefact scatter was predominantly characterised by silcrete material with one inclusion of chert and one inclusion of basalt also evident. The scatter was mainly made up of flakes (n=2), a single core (n=1), a single broken flake (n=1) and a single retouched flake (n=1). One of the flakes is thought to be scraper. The dried-up dam afforded increased visibility with exposed soils and lack of vegetation. The artefacts were located on a grey-brown sandy loam deposit and visibility within the area was approximately 80% along a small exposure of the dam. Owing to the ridgeline north of the site and upper sloped landform leading down towards AS7 in combination with artefacts likely exposed owing to exposed soils associated with the dam, the area surrounding the AS7 was determined to have the potential for subsurface material to be present (refer to section 5.3.2).

Context of Oxley solar Farm AS7, increased visibility apparent at exposure

Retouched silcrete flake, part of Oxley Solar Farm AS7.

Oxley Solar Farm AS8

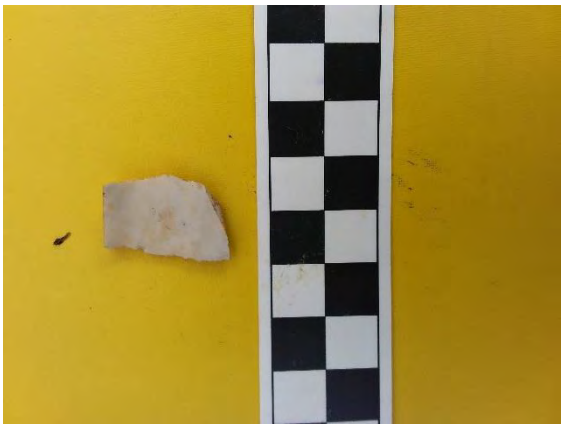
This site consisted of large artefact scatter comprising thirteen artefacts. The site was located adjacent to a large exposure of a small dam 95 m west of the Gara River. The material composition of the artefact scatter was predominantly characterised by basalt material with one inclusion of fine-grained siliceous, one inclusion of quartzite, one inclusion of silcrete and one inclusion of volcanic. The scatter was mainly made up of flakes (n=10), a single core (n=1), a single broken flake (n=1), a single grindstone fragments (n=1) and a single retouched flake (n=1). The exposure afforded increased visibility with exposed soils and lack of vegetation. The artefacts were located on a yellow-brown sandy loam deposit and visibility within the area was approximately 70% along a small exposure. Owing to the upper slope landform, exposure of the disturbed surface soils and proximity to Gara River it was determined there was potential for subsurface material to be present (refer to Section 5.3.2).

Ventral side of grey flake, part of Oxley Solar Farm AS8.

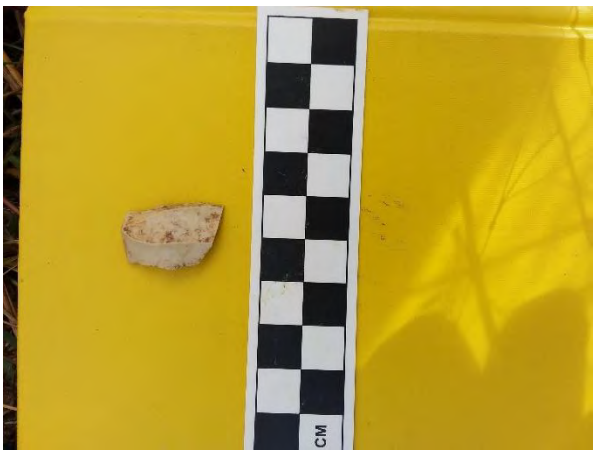
Context of Oxley solar Farm AS8, facing exposure.

Oxley Solar Farm AS9

This site consisted of moderately sized artefact scatter comprising seven artefacts. The site was located adjacent to a large exposure of a small dam 240 m west of the Gara River. The material composition of the artefact scatter was predominantly characterised by basalt and silcrete material with one inclusion of chert, one inclusion of greywacke and one inclusion of volcanic. The scatter was mainly made up of flakes (n=4), cores (n=2) and a single retouched flake (n=1). The exposure associated with the dam afforded increased visibility with exposed soils and lack of vegetation. The artefacts were located on a grey-brown sandy loam deposit and visibility within the area was approximately 70%. Owing to the upper slope landform, exposure of the disturbed surface soils and proximity to Gara River it was determined there was potential for subsurface material to be present (refer to Section 5.3.2).



Ventral side of white chert flake, part of Oxley Solar Farm AS9.



Dorsal side of white chert flake, part of Oxley Solar Farm AS9.

Oxley Solar Farm AS10

This site consisted of a small artefact scatter comprising four artefacts. The site was located adjacent to a large exposure of a small dam 193 m west of the Gara River. The material composition of the artefact scatter was predominantly characterised by basalt with one inclusion of chert and one inclusion of silcrete. The scatter was mainly made up of flakes (n=3) and a single broken flake (n=1). The exposure afforded increased visibility with exposed soils and lack of vegetation. The artefacts were located on a yellow-brown sandy loam deposit and visibility within the area was approximately 70% along a small exposure of an eroded dam.

Ventral side of basalt flake, part of Oxley Solar Farm AS10.

Dorsal side of chert flake, part of Oxley Solar Farm AS10.

Oxley Solar Farm AS11

This site consisted of a large artefact scatter comprising twelve artefacts. The site was located within a small gully extending 324 m east of the Gara River. The material composition of the artefact scatter was predominantly characterised by silcrete followed by basalt, volcanic and greywacke. The scatter was mainly made up of flakes (n=8), a single broken flake (n=1), a flaked piece (n=1), a core (n=1) and a blade (n=1). The erosion of the gully afforded increased visibility with exposed soils and lack of vegetation. The artefacts were located on a yellow-brown sandy loam deposit and visibility within the area was approximately 70% along a small exposure on the bank of the creek extending south from Garra River. Owing to the upper sloped gully, presence of artefacts protruding from the eroded gully and proximity to Gara River it was determined there was potential for subsurface material to be present (refer to Section 5.3.2).

Ventral side of retouched grey silcrete flake, part of Oxley Solar Farm AS11.

Context of Oxley Solar Farm AS11, looking down the gully.

Oxley Solar Farm AS12

This site consisted of a small artefact scatter comprising two artefacts. The site was located within a predominantly cleared field 100 m south of the Gara River. The material composition of the artefact scatter was made up of silcrete and quartz. The scatter was made up of flakes (n=2). The artefacts were located on a heavily grassed yellow-brown sandy loam deposit and visibility within the area was approximately 30%. Owing to the sloped gully, presence of artefacts protruding from the eroded gully and proximity to Gara River it was determined there was potential for subsurface material to be present (refer to Section 5.3.2).

Context of Oxley Solar Farm AS12.

Pointed geometric quartz flake, part of Oxley Solar Farm AS12.

Oxley Solar Farm AS13

This site consisted of a moderate artefact scatter comprising seven artefacts. The site was located within a predominantly cleared field 100 m south of the Gara River. The material composition of the artefact scatter was made up of volcanic followed tuff, silcrete and chert. The scatter was made up of axes/blanks (n=4), flakes (n=2) and one hammerstone (n=1). The artefacts were located on a yellow-brown sandy loam deposit and visibility within the area was approximately 70% along a small exposure drainage line of a dam. Owing to the sloped landform and proximity to the Gara River the area surrounding AS13 was determined to have the potential for subsurface material to be present (refer to section 5.3.2).

Axe blank symmetrical hafting marks on each side, part of Oxley Solar Farm AS13.

Light grey tuff axe, part of Oxley Solar Farm AS13.

Context of Oxley Solar Farm AS13, view of the dam.

Context of Oxley Solar Farm AS13, view of the dam.

Oxley Solar Farm AS14

This site consisted of a small artefact scatter comprising three artefacts. The site was located within a predominantly cleared field, nearby a couple of trees, 1.2 km east of the Gara River. The material composition of the artefact scatter was made up of chert, quartz and volcanic material. The scatter was made up of flakes (n=2) and one core (n=1). The artefacts were located on a cream-brown sandy loam deposit and visibility within the area was approximately 70% along a small exposure line extending from a dam. Owing to upper sloped landform extending towards the hill/ridgeline and proximity to AS14 indicated the area including and surrounding AS14 was likely to have subsurface potential (refer to Section 5.3.2).

Volcanic core, part of Oxley Solar Farm AS1P

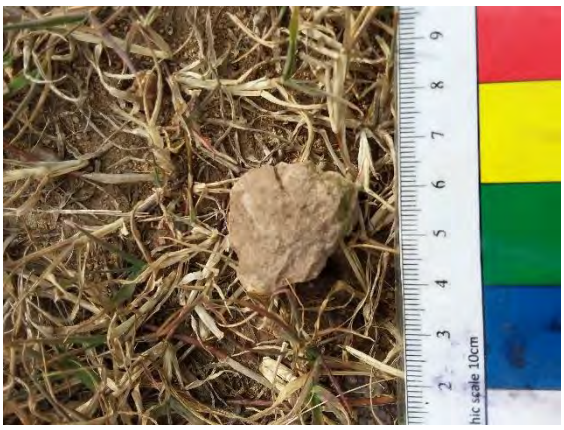
Quartz flake, part of Oxley Solar Farm AS14.

Oxley Solar Farm AS15

This site consisted of a small artefact scatter comprising two artefacts. The site was located within a predominantly within a small grove of trees, 820 m west of the Gara River. The material composition of the artefact scatter was made up of quartz material. The scatter was made up of flakes (n=1) and a core (n=1). The artefacts were located on a grey-brown sandy loam deposit and visibility within the area was approximately 80% along a small exposure

Oxley Solar Farm AS16

This site consisted of a small artefact scatter comprising two artefacts. The site was located within a predominantly cleared field, 1 km south-east of the Gara River. The material composition of the artefact scatter was made up of quartzite and volcanic material. The scatter was made up of flakes (n=1) and a core (n=1). The artefacts were located within a heavily grassed field. Owing to upper sloped landform extending towards the hill/ridgeline and proximity of the site to AS14 indicated the area including and surrounding AS14 was likely to have subsurface potential (refer to Section 5.3.2).



Quartzite flake, part of Oxley Solar Farm AS16.

Context of Oxley Solar Farm AS16.

Oxley Solar Farm AS17

This site consisted of a small artefact scatter comprising two artefacts. The site was located within a large cluster of trees extending from the SHR Gara River Hydro-Electric curtilage, 970 m east of the Gara River. The material composition of the artefact scatter was made up of volcanic material. The scatter was made up of a core (n=1) and a manuport (n=1). The artefacts were located on a grey-brown sandy loam deposit and visibility within the area was approximately 70% along a small exposure adjacent to the gully. An assessment of the site determined that there was nil to low potential for subsurface material to be present.

Volcanic river cobble manuport, part of Oxley Solar Farm AS17.

Context of Oxley Solar Farm AS17, shallow gully.

Oxley Solar Farm AS18

This site consisted of a small artefact scatter comprising two artefacts. The site was located towards the southern end of Silverton Road on the eastern side adjacent to a couple of trees, 2 km east of the Gara River. The material composition of the artefact scatter was made up of volcanic and basalt material. The scatter was made up of axes (n=2). Owing to vehicle use the shoulders of the road demonstrated disturbance which afforded increased visibility in the areas where the artefacts were located. The artefacts were located along the road shoulder on a grey-brown sandy loam deposit and visibility within the area was approximately 80% along a small exposure adjacent to the road. An assessment of the site determined that there was nil to low potential for subsurface material to be present.

Dark grey volcanic axe, part of Oxley Solar Farm AS18, located along Silverton Rd.

Dark grey volcanic axe, part of Oxley Solar Farm AS18, located along Silverton Rd.

Archaeological Scarred Trees

Oxley Solar Farm ST1

This site consists of a single scarred tree considered to be Aboriginal in origin located within a small grove of trees, located 700 m east of the Gara River. The tree is alive, standing, and of undetermined species in a moderate condition that has a single curved pre-form scar assessed as conforming to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The oval scar is in good condition and located on the trunk of the tree facing east. The scar measures 45 cm in length by 11 cm in width and has a depth of 2 cm. The base of the scar is approximately 105 cm above the ground. No axe marks were visible. It was noted that some general degradation of the tree and scar was likely due to insect damage.

Curved preform scar of Oxley Solar farm ST1.

Context of Oxley Solar farm ST1.

Cultural Trees

Oxley Solar Farm CT1

The scar identified on this tree was determined to not be archaeological in nature and did not conform to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The morphological characteristics of the scarring are interpreted to conform to natural scarring (cf. Long 2005). The amorphous shape of the scar, lack of other cultural procurement indicators such as axe marks, lack of obvious utility based on each scares size and shape, indicates the result of natural scarring rather than cultural scarring. Additionally, the presence of two scars with these same features alongside the callus bulbs and nodules present on the tree render unsuitable for bark removal for cultural use. However, the Aboriginal community members present during the site survey indicated that this tree was determined to be of cultural importance to the community and believe that the scaring was likely to be Aboriginal in origin.

Oxley Solar Farm CT1.

Oxley Solar Farm CT1.

Oxley Solar Farm CT2

The scar identified on this tree was determined to not be archaeological in nature and did not conform to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). Evidence of holes and galleries in the cambium and sapwood, the irregular amorphous morphology of the scar support natural scarring through termite and larval activity. Additionally, the utility of the scar based on shape and depth is questionable (cf. Long 2005). However, the Aboriginal community members present during the site survey indicated that this tree was determined to be of cultural importance to the community and believe that the scaring was likely to be Aboriginal in origin.

Oxley Solar Farm CT2

Oxley Solar Farm CT2

Oxley Solar Farm CT3

The scar identified on this tree was determined to not be archaeological in nature and did not conform to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The irregular shape slight curve of the scar around the trunk of the tree, lack of other cultural procurement indicators such as axe marks indicates the result of natural scarring rather than cultural scarring. This may be a result of trauma associated branch deterioration evidenced by branches nearby or bird damage through strip barking of the tree. However, the Aboriginal community members present during the site survey indicated that this tree was determined to be of cultural importance to the community and believe that the scaring was likely to be Aboriginal in origin.

Oxley Solar Farm CT3.

Oxley Solar Farm CT4

The scar identified on this tree was determined to not be archaeological in nature and did not conform to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). At the time of recording, this tree was thought to represent a scar with possible significant overgrowth. While a vertical join is indeed present no distinctive radial crease lines along the margin are evident nor are there any tool marks or any other cultural features to lend support to Aboriginal scarring of the tree (cf. Long 2005). Additionally, evidence of limb fall either side of the tree mays support impact damage related to branch impact as these limbs came off the tree. However, the Aboriginal community members present during the site survey indicated that this tree was determined to be of cultural importance to the community and believe that the scaring was likely to be Aboriginal in origin.

Oxley Solar Farm CT4.

Oxley Solar Farm CT4.

Oxley Solar Farm CT5

The scar identified on this tree was determined to not be archaeological in nature and did not conform to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). At the time of recording, this tree was thought to represent a scar with possible significant overgrowth. While a vertical join is indeed present no distinctive radial crease lines along the margin are evident nor are there any tool marks or any other cultural features to lend support to Aboriginal scarring of the tree (cf. Long 2005). Additionally, evidence of limb fall either side of the tree mays support impact damage related to branch impact as these limbs came off the tree. However, the Aboriginal community members present during the site survey indicated that this tree was determined to be of cultural importance to the community and believe that the scaring was likely to be Aboriginal in origin. In particular, it was indicated that by the Aboriginal representatives present that this tree could be a potential marker to the burial located to the north near Blue hole.

Oxley Solar Farm CT5.

Oxley Solar Farm CT5.

Oxley Solar Farm CT6

The scar identified on this tree was determined to not be archaeological in nature and did not conform to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). At the time of recording, this tree was thought to represent a scar with possible significant overgrowth. While a vertical join is indeed present no distinctive radial crease lines along the margin are evident nor are there any tool marks or any other cultural features to lend support to Aboriginal scarring of the tree (cf. Long 2005). Additionally, evidence of limb fall either side of the tree mays support impact damage related to branch impact as these limbs came off the tree. However, the Aboriginal community members present during the site survey indicated that this tree was determined to be of cultural importance to the community and believe that the scaring was likely to be Aboriginal in origin.

Oxley Solar Farm CT6.

Oxley Solar Farm CT7

The scar identified on this tree was determined to not be archaeological in nature and did not conform to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The morphological characteristics of the scarring are interpreted to conform to natural scarring (cf. Long 2005). While the oval shape of the scar does indeed appear consistent, lack of other cultural procurement indicators such as axe marks, the questionable utility of scar and lack of suitability of bark material for utilitarian use indicates natural scarring rather than cultural scarring. Additionally, evidence of cattle rubbing around the base of the tree support likely natural scarring. However, the Aboriginal community members present during the site survey indicated that this tree was determined to be of cultural importance to the community and believe that the scaring was likely to be Aboriginal in origin.

Oxley Solar Farm CT7.

Oxley Solar Farm CT7.

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APPENDIX C SURFACE ARTEFACT DATA

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
AS1	Flake	Silcrete		24	14	5		Broad			
AS1	Flake	Silcrete		9	8	3					
AS1	Flake	Silcrete		14	10	2		Broad	Feather		
AS1	Flake	Silcrete		16	12	4		Broad	Feather		
AS1	Flake	Silcrete		10	8	1					
AS1	Flake	Silcrete		11	8	1	Crushed		Feather		
AS1	Flake	Silcrete		11	14	3		Focal	Hinge		
AS1	Flake	Silcrete	<20mm	18	12	3		Focal	Plunge		
AS1	Flake	Silcrete	<30mm	18	13	3		Broad	Feather		
AS1	Flake	Silcrete		8	7	2		Focal	Hinge		
AS1	Flake	Silcrete		10	11	2	Crushed	Focal			

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
AS1	Flake	Silcrete		11	9	3					
AS1	Flake	Silcrete		10	9	2			Feather		
AS1	Flake	Silcrete		15	10	2	Crushed		Feather		
AS1	Flake	Silcrete		24	14	3	Crushed		Feather		
AS1	Flake	Silcrete		15	10	2	Crushed	Focal	Feather		
AS1	Flake	Silcrete									
AS1	Flake	Silcrete		30	28	7	Crushed		Feather		
AS1	Flake	Silcrete		30	29	7					
AS1	Flake	Silcrete		20	18	7		Broad	Feather		
AS1	Flake	Silcrete		10	8	2		Broad			
AS1	Flake	Silcrete		19	14	4		Broad			
AS1	Flake	Silcrete		12	9	2		Focal			
AS1	Flake	Silcrete		6	11	4		Broad			

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
AS1	Flaked Piece	Silcrete	<20mm								
AS1	Flaked Piece	Silcrete	<20mm								
AS1	Flaked Piece	Silcrete	<10mm								
AS1	Flaked Piece	Silcrete	<20mm								
AS2	Core	Silcrete		30	25	23					10 scars
AS2	Flake	Silcrete		11	10	3			Feather		
AS2	Flake	Silcrete		16	11	4		Broad	Feather		
AS2	Flake	Silcrete		20	15	3	Crushed		Feather		
AS2	Flake	Silcrete		9	8	2	Crushed	Focal			
AS2	Flake	Silcrete		30	24	4	Crushed	Focal			
AS2	Flake	Silcrete		10	8	2		Broad			
AS2	Flake	Silcrete		37	30	10		Focal			
AS2	Flake	Silcrete		16	244	4			Feather		

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
AS2	Flake	Silcrete		12	14	3			Feather		
AS2	Flake	Silcrete		20	19	66					
AS2	Flake	Silcrete		19	14	7		Broad			
AS2	Flake	Fine-grained silicious		6	20	1		Focal	Feather		
AS2	Flake	Silcrete		15	14	3		Broad			
AS2	Flake	Silcrete		48	19	5		Broad	Feather		
AS3	Broken Flake	Silcrete		20	20	5			Feather		Distal flake
AS3	Flake	Silcrete		15	15	2		Focal			Broken term
AS4	Flake	Silcrete		15	5	2		Focal	Feather		Beside track
AS4	Flake	Chert		16	12	2		Focal	Feather		
AS4	Flake	Basalt		20	12	4		Focal	Feather		
AS4	Flake	Silcrete		24	19	5		Broad	Feather		Beside road and grove of trees 10 percent cortex and retouch on lateral margins

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
AS4	Flaked Piece	Chert		19	15	6		Shattered	Feather		Beside track and grove of trees
AS5	Distal Fragment	Silcrete		9	7	3			Feather		
AS5	Proximal Fragment	Silcrete		15	20	2	More than 1	Broad			
AS6	Flake	Basalt		44	60	22	Flake scar	Broad	Feather		
AS6	Flake	Basalt		42	27	7		Broad	Feather		
AS7	Broken Flake	Silcrete	<70mm	36	19	6		Broad	Feather		Longitudinally split
AS7	Core	Chert		45	30	25					11 flake scars
AS7	Flake	Silcrete	<70mm	60	51	22		Focal	Plunge	Secondary (partial dorsal is cortex	
AS7	Flake	Basalt		50	40	15		Broad	Feather		Scraper
AS7	Retouched flake	Silcrete		44	25	10		Broad	Feather		Retouch around distal end
AS8	Broken Flake	Basalt	<50mm						Feather		Distal end of broken flake.
AS8	Core	Basalt	<90mm	47	85	36					Very smooth river cobble but no evidence of grinding

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
AS8	Flake	Fine-grained silicious		14	32	4		Broad	Feather		RAP notes that the elders say this type of material comes from Duruka.
AS8	Flake	Basalt		48	38	18	Crushed	Focal	Feather		
AS8	Flake	Basalt	<50mm	46	34	5	Cortex	Broad	Feather	Secondary (partial dorsal is cortex	
AS8	Flake	Basalt		38	32	13	Flake scar	Broad	Feather		
AS8	Flake	Quartzite	<30mm	28	18	7	Flake scar	Focal	Feather		Many faults in quartzite
AS8	Flake	Basalt	<80mm	48	86	16					
AS8	Flake	Silcrete		40	42	11	Crushed		Feather		
AS8	Flake	Basalt		22	31	12	Flake scar	Broad	Feather		
AS8	Flake	Basalt		30	40	10	Bipolar	Broad	Step		
AS8	Flake	Basalt		35	25	5		Focal	Hinge		
AS8	Grindstone fragment	Volcanic		13	5	20					Broken in two grinded on both faces
AS9	Core	Silcrete		30	45	20					

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
AS9	Core	Basalt		35	25	12					
AS9	Flake	Chert		23	15	4		Broad			Broken blade, quite fine
AS9	Flake	Volcanic		35	25	2		Broad	Feather		
AS9	Flake	Basalt		15	15	5		Broad	Feather		
AS9	Flake	Other		30	16	4		Focal	Feather		Retouch distal end
AS9	Retouched flake	Silcrete		20	25	4		Broad	Feather		Retouch along distal margin
AS10	Broken Flake	Basalt	<20mm	15	14	3	Faceted	Focal			
AS10	Flake	Basalt	<40mm	36	24	6	Crushed	Focal	Feather	Secondary (partial dorsal is cortex	
AS10	Flake	Chert	<30mm	25	12	3		Focal	Feather		
AS10	Flake	Silcrete		44	22	16	Faceted	Focal	Step	Tertiary (no cortex)	
AS11	Blade	Basalt		45	25	5		Shattered	Feather		
AS11	Broken Flake	Silcrete		15	25	5		Broad			Absent termination

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
AS11	Core	Volcanic									4 flake scars
AS11	Flake	Basalt	<30mm	17	25	4	Cortex	Broad	Feather	Secondary (partial dorsal is cortex	
AS11	Flake	Silcrete		35	30	10		Broad	Feather		Retouch
AS11	Flake	Volcanic		24	18	6		Broad	Feather		
AS11	Flake	Silcrete		15	22	5		Broad			Absent term pros flake
AS11	Flake	Basalt		35	5	4		Focal	Plunge		
AS11	Flake	Other		20	8	2	Indeterminate	Focal	Feather		
AS11	Flake	Silcrete		11	16	4		Broad	Feather		
AS11	Flake	Silcrete		19	6	2		Focal	Feather		
AS11	Flaked Piece	Basalt	<30mm								Debitage
AS12	Flake	Silcrete	<20mm	20	17	8	Faceted	Focal	Feather		
AS12	Flake	Quartz		16	11	2		Broad	Feather		Retouch towards point

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
AS13	Axe	Volcanic		60	50	15					Possible half axe linear striations
AS13	Axe	Tuff		18	11	4					Axe blank
AS13	Axe	Tuff		11	65	30					
AS13	Axe	Volcanic		139	96	31					axe blank rafting marks symmetrical on each side
AS13	Flake	Silcrete	<60mm	57	46	17	More than 1	Focal	Feather	Tertiary (no cortex)	In fill of confluence of creek. Part of scatter.
AS13	Flake	Chert		30	20	9		Focal	Feather		Retouch distal lateral margin beside axe blank
AS13	Hammerstone	Volcanic	>100mm	119	94	61					One area shows evidence of impact pitting.
AS14	Core	Volcanic	<90mm	33	58	86					4 flake scars
AS14	Flake	Quartz	<30mm	39	25	12	Cortex	Broad	Feather		
AS14	Flake	Chert	<20mm	13	11	2					
AS15	Core	Quartz	<30mm	22	35	2202					Two small flake scars. Found in exposure under box tree
AS15	Flake	Quartz		19	16	6		Broad	Feather		

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
AS16	Flake	Quartzite		27	27	7	Crushed	Focal	Feather		
AS16	Grindstone fragment	Volcanic	>100mm	114	75	44					Granite, one smooth side grinding stone. Mild concavity- possible base stone.
AS17	Core	Volcanic	>100mm	64	76	65					
AS17	Flake	Quartzite		32	29	10		Broad	Feather		
AS17	Manuport	Volcanic		142							River cobble manuport, possible hammer stone
AS18	Axe	Volcanic		127	78	38					Bifacial flaking, one ground surface
AS18	Axe	Basalt	>100mm	10292	65	36					Flaking on dorsal and ventral, grinding surface obvious on both sides
IF1	Flake	Silcrete	<30mm	27	12	3					
IF3	Flake	Basalt		75	44	14	Crushed	Focal	Feather		
IF4	Flake	Silcrete		20	15	6		Bipolar	Feather		
IF5	Core	Silcrete		30	25	25					6 scars
IF6	Flake	Silcrete	<30mm	23	12	3	Crushed	Focal	Feather		Longitudinally split

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
IF7	Broken Flake	Chert		15	5	3		Focal			Possible pressure flake
IF8	Broken Flake	Silcrete		16	21	4		Broad			Broken term
IF9	Flake	Silcrete	<30mm	27	23	8	Cortex	Focal	Feather	Secondary (partial dorsal is cortex	
IF10	Flake	Chert		30	15	7		Broad	Plunge		
IF11	Flake	Basalt		16	39	5		Broad			Proximal flake absent term
IF12	Core	Silcrete		43	35	29					5 to 6 flakes
IF13	Hammerstone	Volcanic		15	12	7					Strike on one edge, plough striations on surface
IF14	Axe	Volcanic		97	60	24					Bifacial flaking, one ground surface, cortex still present.
IF15	Broken Flake	Other		15	20	2					Medial fragment
IF16	Core	Chert		45	50	20	Indeterminate	Broad			5 flake scars
IF17	Flake	Quartz		15	12	4	Crushed	Focal	Feather		
IF18	Flake	Basalt		15	8	2		Focal	Feather		

Site Name	Type	Raw Material	Size Class	Length mm	Width mm	Thickness mm	Platform Surface	Platform Type	Termination	Reduction stage	Notes
IF19	Flake	Quartz		26	24	10	Indeterminate	Broad	Feather		
IF2	Core	Basalt	>100mm								
IF20	Flake	Basalt		35	20	5	Indeterminate	Shattered	Feather		
IF21	Flake	Other		18	24	5		Broad	Feather		Retouch distal end
IF22	Core	Basalt	>100mm	47	67	65					2 flake scars from same hemisphere, same direction of force, both flake scars 3x3. Next to turkey's nest erosion caused by land modification.
IF23	Core	Silcrete	<60mm	55	35						
IF24	Core	Basalt	<90mm	74	76	56	More than 1			Secondary (partial dorsal is cortex	Five flake scars

APPENDIX D SITE CARDS

Redacted from public display

APPENDIX E 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.