Appendix H Subsurface Aboriginal Cultural Heritage Assessment Report

Archaeological Report – Subsurface Testing

Oxley Solar Farm (SSD 10346)

July 2022

Project Number: 20-743

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Acronyms and abbreviations

ACHA	Aboriginal Cultural Heritage Assessment
ACHCRP	Aboriginal Cultural Heritage Consultation Requirements for Proponents
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AS	Artefact Scatter
ASRIF	Aboriginal Site Impact Recording Form
BP	Before Present
cl	clause
cm	centimetres
CHMP	Cultural Heritage Management Plan
CsT	Contemporary Scarred Tree
CT	Cultural Tree
EIS	Environmental impact statement
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
ESD	Ecologically Sustainable Development
ha	hectares
HNSW	Heritage NSW
IBRA	Interim Biogeographic Regionalisation for Australia
IF	Isolated Find
km	kilometres
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
m	metres
mm	millimetres
NGH	NGH Pty Ltd
NSW	New South Wales
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
OSF	Oxley Solar Farm
Oxley Solar	Oxley Solar Development Pty Ltd
PAD	Potential Archaeological Deposit
PCU	Power Conversion Unit

Proposal Site	Lot 2 DP1206469; Lot 5 DP253346, Lot 6, DP625427 and Lots 7003 and 7004 DP106020 on Gara Road within the Armidale Regional Council
pt	part
RAPs	Registered Aboriginal Parties
s	section
SEARS	Secretary's Environmental Assessment Requirements
SHI	State Heritage Inventory
SSI	State Significant Infrastructure
SSD	State Significant Development
ST	Scarred Tree
SvT	Surveyor Tree

Executive summary

Introduction

NGH Pty Ltd (NGH) was contracted by Oxley Solar Development Pty Ltd (Oxley Solar) to undertake an Aboriginal Cultural Heritage Assessment (ACHA) (NGH Pty Ltd 2021) for the State Significant Development (SSD) project, the Oxley Solar Farm (OSF) (Development Consent SSD 10346). Of the 1,048-hectare (ha) proposal site, the development footprint would represent approximately 263 – 265 ha which would be developed for the solar farm and associated infrastructure. The proposal site includes Lot 2 DP1206469; Lot 5 DP253346, Lot 6, DP625427 and Lots 7003 and 7004 DP106020 on Gara Road within the Armidale Regional Council Local Government Area (LGA). The proposed solar farm area will henceforth be described as the Proposal Site, and the portion subject to the archaeological investigations is termed the Assessment Area as shown in Figure 1-1.

In 2020, NGH undertook a survey of the then current Assessment Area (Figure 1-1) and identified and recorded 24 isolated stone artefacts, stone artefact scatters, one scarred tree and seven cultural trees within the Proposal Site. During the surface survey (NGH Pty Ltd 2021), 21 areas of Potential Archaeological Deposits (PAD) were identified within the Proposal Site. The proposed development footprint was originally identified to have the potential to impact sections of 10 of the 21 PAD areas. Further changes to the Assessment Area were issued in 2022, after both the survey and test excavation program were completed. Changes mean that some portions of areas previously identified as PADs that were not included in the test excavation owing to the 2021 Assessment area being current at the time, are now being considered for development. Specific management recommendations for these areas have been developed.

This archaeological report documents the Aboriginal heritage subsurface testing undertaken for sections of PADs 6, 7, 9, 10, 12, 13, 17, 19, 20 and 21, the survey of the additional north area. This report also provides management strategies to mitigate any potential impacts within the additional areas. It is intended that this report will be submitted as part of the Environmental Impact Statement (EIS) amendment report.

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

Aboriginal consultation

The consultation with Aboriginal stakeholders has been undertaken in accordance with cl80C of the National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010 and updated cl 60 of the National Parks and Wildlife Amendment Regulation 2019 following the consultation steps outlined in the Guidelines for Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (ACHCRP) guide. All consultation undertaken for the original OSF ACHAR is outlined and documented in the original report. Consultation for the subsurface testing of the identified PAD areas and an additional northern survey area has been a continuation of this process in accordance with provisions of acceptability outlined by Heritage NSW (HNSW) and in line with the ACHCRP.

Project proposal

The Oxley Solar Farm proposal would involve the construction, operation and decommission of a photovoltaic solar array farm with a capacity of up to 215 megawatts alternate current that would supply electricity to the national electricity grid. The proposed site is a maximum of about 1048 ha with the area of photovoltaic 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 50 megawatt hours (i.e., 50 megawatt power output for one hour). The proposed layout is shown in Figure 1-1.

Archaeological context

This assessment includes a review of relevant background information relating to the Proposal Site, 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 Aboriginal Heritage Information Management Systems (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 artefact scatters also occur on crests, spurs, slopes, and flats in proximity to water. Modified trees are generally 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. Potential sites would most likely be low to moderate density stone artefact scatters, isolated stone 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 proximity to Gara River and Commissioners Waters.

Survey and testing results

Archaeological surveys were undertaken within the Proposal Site in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010a). Three surveys were conducted for the assessment of the Proposal Site. The original survey was conducted from the 12 -21 May 2020 (Assessment Area), the second survey for the Additional North Survey Area 1 was conducted on 25 June 2021 and the third survey for the Alternative North Survey Area 2 was conducted on 11 January 2022.

The 2020 survey of the Assessment Area identified 24 isolated stone artefacts, 18 stone artefact scatters, one scarred tree and seven cultural trees. The 2021 survey of the area Additional North Survey Area 1 identified six contemporary scarred trees, one scarred tree, one surveyor tree, one unfired clay grass bowl and one stone artefact scatter. No archaeological or cultural material or modified trees were identified during the 2022 survey of the Alternative North Survey Area 2.

The 2020 field survey of the Assessment Area, in conjunction with an assessment of contour data, archaeological modelling and consideration of the comments from the Registered Aboriginal Parties (RAPs) resulted in the identification of several locations within the overall Proposal Site

which were considered to have potential to contain subsurface material. In total, there were 21 areas of PAD identified (Oxley Solar Farm PAD 1-21), the depth of which would determine whether *in situ* archaeological material would be present or not. Additionally, owing to the extremely low ground surface visibility due to dense vegetation cover, effective coverage of the survey area was considered very low. Consequently, a test excavation program was recommended to facilitate better characterisation of the archaeological nature of the area. As such, these areas required further assessment.

Test pits were excavated in sections of ten of the 21 archaeologically sensitive identified locations that intersected with the OSF development footprint that was current at the time. The testing locations corresponded with ridges and saddles, and elevated areas along several of the waterways within those areas proposed for impact by the development footprint. The ten PAD areas subjected to testing included PAD 17, PAD 20, PAD 9, PAD 12, PAD 13, PAD 10, PAD 7, PAD 21, PAD 6 and PAD 19 (Table 5-16).

The test excavation program was undertaken between 21-24 June, 26 June, 28 June - 1 July 2021 and 31 August - 3 September 2021, by NGH archaeologists and a rotation of representatives from the same five RAP groups engaged for the 2020 surveys. During this time, a total of 114 test pits were excavated across the ten areas of PAD (Figure 5 3). Test pit depths ranged from 10 to 70 centimetres (cm) with the majority of test pits excavated to a depth of 30 or 40cm. Artefacts were recovered from Pit 4 and Pit 5 (PAD 17); Pit 50 (PAD 20); Pit 52, Pit 53, Pit 54 and Pit 61 (PAD 9); Pit 78 and 82 (PAD 13); Pit 103 (PAD 21); Pit 109 and Pit 110 (PAD 19).

Potential Impacts

A total of 33 isolated finds, 20 artefact scatters, seven cultural trees, six contemporary scarred trees, two scarred trees, one unfired clay and grass bowl and one surveyor tree are described in this report.

An assessment of the proposed infrastructure layout identified that the sites listed below will be impacted by the proposed development works, with direct impacts for IF26, IF27, IF28, IF29, IF30, IF31, IF32, IF33, AS20, CST1, CST3, CST4 and CT1. It should be noted that IF26-33 and AS20 were recovered during the subsurface excavation program and retrieved for analysis and therefore impacts to these were negligible under the testing programme.

The following sites may be indirectly impacted by the proposed development due to their proximity, IF10, AS9, ST2, SVT1.

It should be noted that the development footprint extends into additional areas of the 10 PADs assessed that were not subjected to subsurface testing. The results of the survey and test excavation program indicate that there is potential for further archaeological deposits to exist in PADs 9 and 13 and therefore further test pits must be undertaken if works are to proceed in the areas. It is recommended that during the finalisation of the development footprint, these areas are designated as no go zones. Conditions for the no go zones are outlined in greater detail in the Recommendations. The general coverage of testing for the remainder of the PADs and low quantities of recovered subsurface artefacts can be generally extrapolated to assume low sensitivity in all other areas, provided an Unexpected Finds Procedure is employed during the construction works.

Finally, although outside the Proposal Site and proposed development footprint, four sites are located immediately adjacent to Silverton Road. Changes in the proposed development footprint mean that the sites IF14, AS18, CT6, CT7 will not be impacted. The Tables below provides a

summary of sites to be impacted and avoided by the proposed development and a summary of the degree of harm and the consequence of that harm upon site types.

Summary of sites to be impacted and avoided by the proposed infrastructure layout

Sites directly impacted	Sites indirectly impacted	Sites avoided
• IF26* • IF27* • IF28* • IF29* • IF30* • IF31* • IF32* • IF33* • AS20* • CST1 • CST3 • CST4 • CT1	• IF10 • AS9 • ST2 • SVT1	• IF1, IF2, IF3, IF4, IF5, IF6, IF7, IF8, IF9, IF10, IF11, IF12, IF13, IF14 IF15, IF16, IF17, IF18, IF19, IF20, IF21, IF22, IF23, IF24, IF25 • AS2, AS3, AS4, AS5, AS6, AS7, AS8, AS9, AS10, AS11, AS12, AS13, AS18, AS19, AS21 • CT2, CT3, CT4, CT5, CT6, CT7 • ST1 • cST2, cST5, cST6 • ABG1 • PAD1, PAD2, PAD3, PAD4, PAD5, PAD7, PAD8, PAD16, PAD11, PAD14, PAD15, PAD18 • Parts of PAD6, PAD9, PAD10, PAD12, PAD13, PAD19, PAD20, PAD21.

* Salvaged/Collected during the test excavation program

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	Number of sites
Isolated finds	Direct	Complete	Total loss of value	8
	Indirect	Partial	Partial loss of value	1
	Nil	Nil	Not applicable	25
Artefact scatters	Direct	Complete	Total loss of value	1
	Indirect	Partial	Partial loss of value	1
	Nil	Nil	Not applicable	14
Scarred trees	Indirect	Partial	Partial loss of value	0
	Nil	Nil	Not applicable	1

Site type	Type of harm	Degree of harm	Consequence of harm	Number of sites
Contemporary scarred trees	Direct	Complete	Total loss of value	3
	Nil	Nil	Not applicable	3
Cultural trees	Direct	Complete	Partial loss of value	1
	Indirect	Partial	Total loss of value	2
	Nil	Nil	Not applicable	4
Surveyor tree	Indirect	Partial	Partial loss of value	1
PADs	Direct	Complete	Negligible as a limited number of subsurface finds were collected during the testing programme.	Parts of PAD6, PAD9, PAD10, PAD12, PAD13, PAD19, PAD20, PAD21.
	Nil	Nil	Not applicable	PAD1, PAD2, PAD3, PAD4, PAD5, PAD7, PAD8, PAD16, PAD11, PAD14, PAD15, PAD18 and Parts of PAD6, PAD10, PAD12, PAD19, PAD20, PAD21
Unfired clay grass bowl	Nil	Nil	Not applicable	1

Recommendations

It is recommended that:

Trees

1. The proposed layout of the solar farm must be amended to avoid CT1, cST1, cST3 and cST4 inclusive of a 10 metre buffer surrounding these sites. A minimum of a 10-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 preconstruction, construction and decommission works. The location of CT1, cST1, cST3 and cST4 should be marked on all construction plans and in the CHMP for the Project.
2. During construction works, high visibility fencing must be erected around ST2, SvT1, CT6 and CT7 to ensure indirect impacts through the use of Silverton Road and Grafton Road as a transport corridor do not occur. In addition, the designated “no go zones” surrounding these areas must be marked on all construction plans and in the CHMP for the project.
3. The development avoids CT2, CT3, CT4, CT5, ST1, cST2, cST5 and cST6 within the Proposal Site. A minimum of a 10-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 preconstruction, construction, and decommission works. The location of CT2, CT3, CT4, CT5, ST1, cST2, cST5 and cST6 should be marked on all construction plans and in the CHMP for the Project.

Stone Artefacts

4. If complete avoidance of any of the surface isolated finds and/or artefact scatters recorded in proximity to the development footprint is not possible, then a reasonable attempt to collect the surface stone artefacts within the development footprint must be undertaken as part of a salvage programme. The surface collection salvage of these stone artefacts must occur prior to the proposed construction works commencing for the OSF. Until surface collection salvage has occurred, a minimum 5 metre buffer must be observed around all stone artefact sites. The location of isolated finds and artefact scatters within the development footprint should be marked on all construction plans until the salvage is completed.
5. A reasonable attempt to collect the surface stone artefacts at IF10a and AS9 should be undertaken by an archaeologist with RAPs (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.
6. Artefacts salvaged during the excavation program and in any future salvage efforts (IF10, IF26, IF27, IF28, IF29, IF30, IF31, IF32, IF33, AS9, and AS20) may be temporarily stored at an NGH office for further analysis if this cannot be undertaken on site at the time of salvage.
7. If permanent storage of artefacts is to be at the Armidale and Region Aboriginal Cultural Centre & Keeping Place, the authority responsible for the Keeping Place will need to submit a Care Agreement to Heritage NSW for approval. Selected artefacts will likely be displayed at the Cultural Centre.

8. If storage at the Keeping Place 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 details and burial location submitted to the AHIMS database.
9. A minimum 5 metre buffer should be observed around all stone artefact sites that will not be impacted by the proposed development. The heritage "no go zones" within the Proposal Site should be implemented to ensure that sites that are being avoided by the proposed development are not inadvertently impacted. In addition, the designated "no go zones" surrounding these areas must be marked on all construction plans and in the CHMP for the project.

PADs

10. If the proposed infrastructure layout is modified from that shown in Figure 1-1 and proposed works are likely to disturb additional portions of the PAD further subsurface testing may be required if the presence/absence of subsurface stone artefacts has not been sufficiently determined through the subsurface testing programme undertaken to date.
11. There are five additional areas of the 10 PADs that the development footprint extends into that were not subjected to subsurface testing. Owing to the number of artefacts and deposits encountered it has been determined that additional test pits are required to be excavated within areas where the new development footprint overlaps with areas not subject to test excavation in PADs 9 and 13 as shown in Figure 9-2 as further testing required. This further testing must be undertaken before any constructions works is undertaken if these two areas are unable to be avoided by the development. Until such time, these areas are designated as no go zones.
12. For any impacts to those sites and PADs currently being avoided by this project or areas outside those assessed for this project to date, further assessment and consideration of impacts on Aboriginal heritage should occur. Additional Aboriginal consultation and further assessment, which may include survey and/or subsurface testing, may be required.

Human Remains

13. In the unlikely event that human remains are discovered during the construction of the OSF, all work must cease in the immediate vicinity. HNSW 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 RAPs should be advised of the find as directed by HNSW.

Operational and Legislative

14. The Proponent should prepare a CHMP to address the potential for finding additional Aboriginal artefacts during the construction of the OSF and for the management of known sites, artefacts, PADs, and designated "no go zones" within the Proposal Site. The Plan should include an unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the RAPs. A draft unexpended finds procedure is provided in Appendix D.
15. All employees, contractors and visitors to the OSF area should participate in a Cultural Heritage Induction that outlines the location of sites, obligations regarding no go zones and

access outlined in these recommendations and any other information the RAPs agree to share about the sites located in the OSF Proposal Site.

16. 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. These will be included in the CHMP and all site inductions. 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.
17. 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 RAPs and may involve further field surveys and/or test excavations. A formal modification to the development consent would be required if any activity were proposed to extend beyond the area assessed and granted for development approval as part of this SSD project.
18. A care agreement with HNSW in accordance with the NPW Act must be undertaken for the artefacts to be stored at Armidale and Region Aboriginal Cultural Centre & Keeping Place.
19. In accordance with the development consent for this SSD, an ASIRF must be completed and submitted to AHIMS for each site collected or destroyed through salvage and/or construction works.

1. Introduction

NGH Pty Ltd was contracted by Oxley Solar to undertake an Aboriginal Cultural Heritage Assessment (ACHA) (NGH Pty Ltd 2021) for the State Significant Development (SSD) project, the Oxley Solar Farm (OSF) (Development Consent SSD 10346). Of the 1,048-hectare (ha) proposal site, the development footprint covers approximately 263 – 265 ha which would be developed for the solar farm and associated infrastructure. The proposal site includes Lot 2 DP1206469; Lot 5 DP253346, Lot 6, DP625427 and Lots 7003 and 7004 DP106020 on Gara Road within the Armidale Regional Council LGA. The proposed solar farm area will henceforth be described as the Proposal Site, and the proposed development footprint current at the time of this report preparation is shown in Figure 1-1.

In 2020, NGH undertook a survey of the Assessment Area that identified and recorded 24 isolated stone artefacts, 18 stone artefact scatters, one scarred tree and seven cultural trees. Details of the methodology, results and discussion of the 2020 surface survey are included in the original OSF ACHA (NGH Pty Ltd 2021, Appendix E). During the surface survey conducted as part of the ACHA (NGH Pty Ltd 2021), 21 areas of PAD were identified within the Proposal Site. The survey identified that the proposed development footprint that was current at the time had the potential to impact sections of 10 of these PAD areas. Since the original 2020 survey, two additional areas to the north of the previously designated OSF Area were also determined to be part of the Proposal Site. The Additional North Survey Area 1 was identified as a potential area of access and surveyed in 2021 and the Alternative North Survey Area 2 surveyed as an alternative access in 2022.

Further changes to the development footprint were issued in 2022, after both the survey and test excavation program were completed. Changes mean that some portions of areas previously identified as PADs that were not included in the test excavation, are now being considered for development. Specific management recommendations for these areas have been developed and are based on analysis of the survey and test excavations results.

This archaeological report documents the Aboriginal heritage subsurface testing undertaken for sections of PADs 6, 7, 9, 10, 12, 13, 17, 19, 20 and 21, the survey of the Additional North Survey Area 1 and the Alternative North Survey Area 2, summarises the findings of the surface survey conducted in 2020 and synthesises the significance and impact assessment on Aboriginal heritage items for the whole of the Proposal Site. This report also provides management strategies to mitigate any potential impacts within the additional areas. It is intended that this report will be submitted as part of the Environmental Impact Statement (EIS) amendment report and response to submissions.

1.1 Development context

The development of renewable energy projects is one of the most effective ways to achieve the commitments Australia and many other nations have made under the Paris Agreement to reduce greenhouse gas emissions. The OSF 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 direct employment opportunities

The establishment of the OSF would therefore have both local, national, and international benefits.

As part of the development impact assessment process, the proposed development application is being assessed under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposed solar farm is classified as an 'SSD' (SSD 10346) under pt4 of the EP&A Act. SSDs are major projects which require approval from the Minister for Planning and Environment. An EIS has been prepared in accordance with the requirements of the Secretary's Environmental Assessment Requirements (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

Of the 1,048-hectare (ha) proposal site, the development footprint would represent approximately 263 – 265 ha which would be developed for the solar farm and associated infrastructure. Two existing TransGrid 132kV transmission lines run parallel to each other within the northern section of the proposal site and would be used to connect the solar farm to the national electricity grid.

Access

The site access for all phases of development would be off Waterfall Way (Grafton Road), north of the site. While only one option would be developed, approval is now sought for two options to address timing uncertainties presented by Option 1:

- Option 1, just west of the location shown in the EIS; A new access point and intersection established, running directly south from Waterfall Way (Grafton Road).
- Option 2, turning off Waterfall Way (Grafton Road) about 950 m west of Option 1, via the existing Council landfill access road, and running east to join the project site via a new access track. This would involve slight widening of the existing landfill access road and relocation of the landfill entrance gates however, no upgrades to the Waterfall Way (Grafton Road) intersection would be required.

A causeway upgrade of the Gara River crossing will include now include– install approx. 3 x 12000 culverts (subject to hydraulic and detail design), raising the causeway level by approximately 1.3m, and widening Gara Road suitable for two-way heavy vehicle traffic. Castellated kerbing is shown in lieu of safety barriers since the causeway would be regularly submerged in major flow events, though this would be subject to Council design requirements. Maximum approach gradient ~10%.

The indicative site layout presented in this reprot assumes the maximum development impact and includes the following key infrastructure:

- Approximately 385,280 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 43 Power Conversion Units (PCU) composed of two inverters, a transformer and associated control equipment.

- An onsite 132kV substation containing up to two transformers and associated switchgear to facilitate connection to the national electricity grid via the existing 132kV transmission lines onsite.
- Steel mounting frames with driven or screwed pile foundations.
- 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 33kV switchgear, protection and control facilities, maintenance facilities and staff amenities.
- Internal access tracks for construction and maintenance activities.
- An energy storage facility with a capacity of up to 50MWh (i.e., 50 MW power output for one hour) and comprising of lithium-ion batteries with inverters.
- Perimeter security fencing about 2.3m high.
- Native vegetation planting to provide visual screening onsite and for specific receivers.

The construction phase of the proposal would take about 12 – 18 months. The peak construction period would be a shorter period of about 6 to 9 months. Approximately 300 workers would be required during construction.

Around five fulltime equivalent operations and maintenance staff and service contractors would operate the facility.

The solar farm is anticipated to be operational for about 30 years. Refurbishment may occur if it is extended beyond this initial duration. At the very end of the project's life, when the solar farm if no longer considered viable, the site will be returned to existing or better land capability. All above ground infrastructure, with the possible exception of the onsite substation, would be removed. Any cabling more than 500mm underground may also be left in place (as this 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.

1.3 Proposal site

The OSF Proposal Site is located on the southern side of Waterfall Way, approximately 14 kilometres (km) southeast of Armidale (Figure 1-1) in the Armidale Regional Council LGA. The OSF Proposal Site encompasses a 1,048ha 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 current at the time of this report preparation is shown in Figure 1-1.

The proposed development footprint current during the test excavation program is shown in Figure 1-2 and Figure 1-3.

1.4 Focus areas for results of this report

The additional north survey area and areas of PAD proposed for sub-surface testing based on the development footprint current at the time are detailed below and shown in Figure 1-3:

- Northeast section of PAD 6
- West section of PAD 7
- West section of PAD 9

- West section of PAD 10
- South section of PAD 12
- Middle of section of PAD 13
- Middle of section of PAD 17
- Southeast section of PAD 19
- North section of PAD 20
- South section of PAD 21 and
- Lot 7004 DP1060201 (Crown Land).

1.5 Project personnel

This assessment was undertaken by NGH archaeologist Chelsea Jones including research, Aboriginal community consultation, field survey and excavation and report preparation. NGH archaeologist Clair Davey assisted with reporting. NGH senior archaeologists Ali Byrne, Tony Miscamble and Shoshanna Grounds also attended the field survey and excavation and Tony Miscamble and Matthew Barber reviewed this report. Kirsten Bradley made final amendments to this report prior its finalisation on the 19th of July 2022.

The RAPs who participated in the original survey fieldwork (2020) were asked to participate in the 2021 sub-surface testing and additional survey fieldwork. These parties included:

- Armidale Local Aboriginal Land Council (LALC)
- Nunnawanna
- Iwatta Aboriginal Corporation
- Armidale NE Gumbaynggir Descendants and
- Nyakka Aboriginal Cultural Heritage Corporation.

The original survey fieldwork for the OSF Assessment Area was undertaken over 10 days from 12 - 21 May 2020.

The subsurface testing fieldwork and the additional survey were carried out on 21– 26 June; 28 June – 3 July and 31 August - 3 September 2021, with a rotation of field days to equitably distribute work and ensure sufficient recovery days throughout each of the five groups.

Further detail and an outline of the consultation process is provided in Section 3 of this report.

1.6 Report format

The purpose of this ACHA report is to provide an assessment of the Aboriginal cultural values associated with the Proposal Site and to assess the cultural and scientific significance of any identified Aboriginal heritage sites within it.

The objectives of the assessment were to:

- Continue Aboriginal consultation as specified in updated clause 60 of the National Parks and Wildlife Amendment Regulation 2019, using the consultation process outlined in the ACHCRP
- Undertake an assessment of the archaeological and cultural values of the Assessment Areas and any Aboriginal sites therein
- Assess the cultural and scientific significance of any archaeological material

- Assess the potential impacts of the proposal on the heritage objects and
- Provide management recommendations for any objects found.

The original OSF ACHA will form Appendix E of this report and this report will form the subsurface testing and additional survey ACHA to be submitted as part of the amendment EIS report.

This assessment and report were prepared in accordance with the following:

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

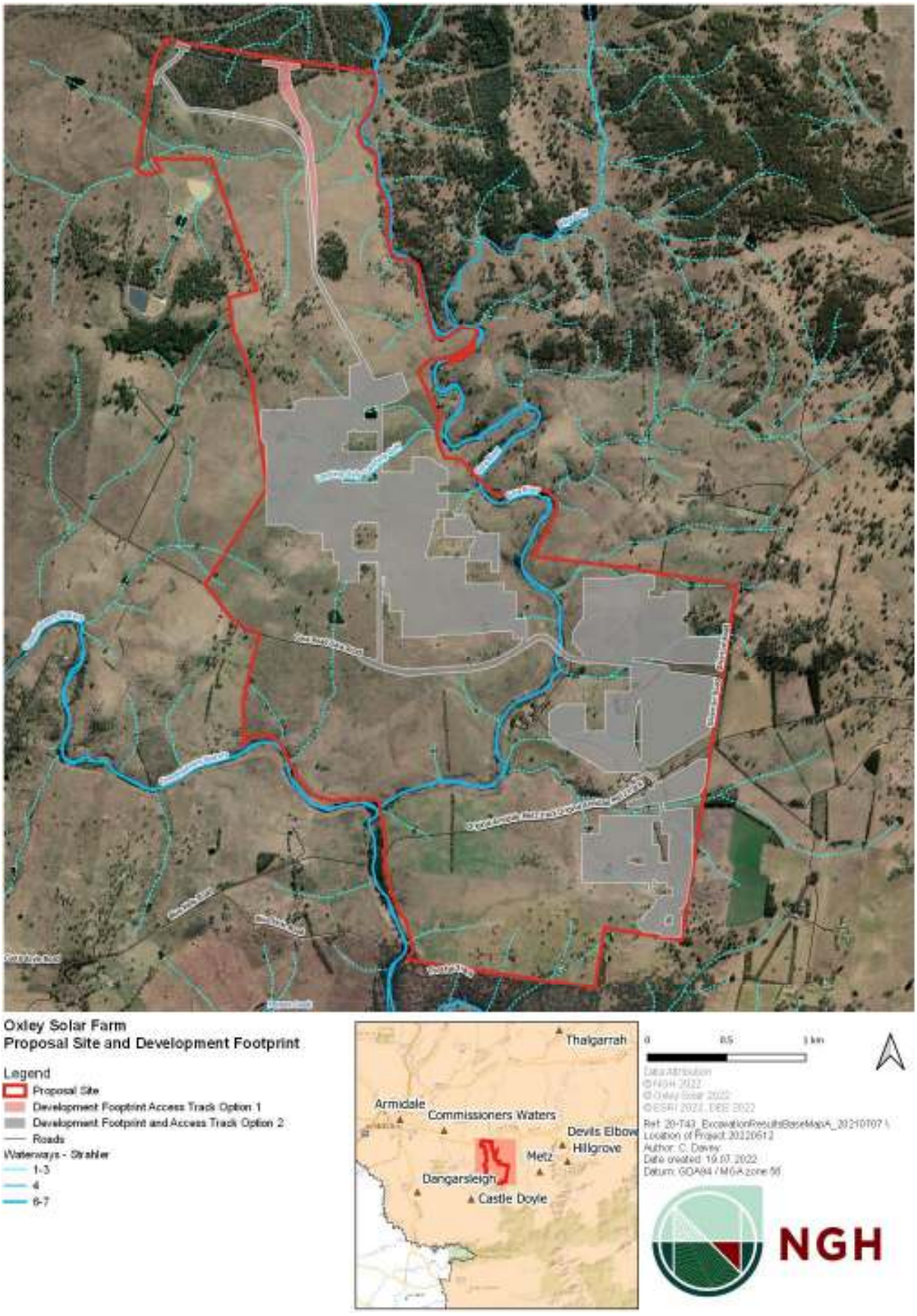

Figure 1-1 Proposal Site and Development Footprint

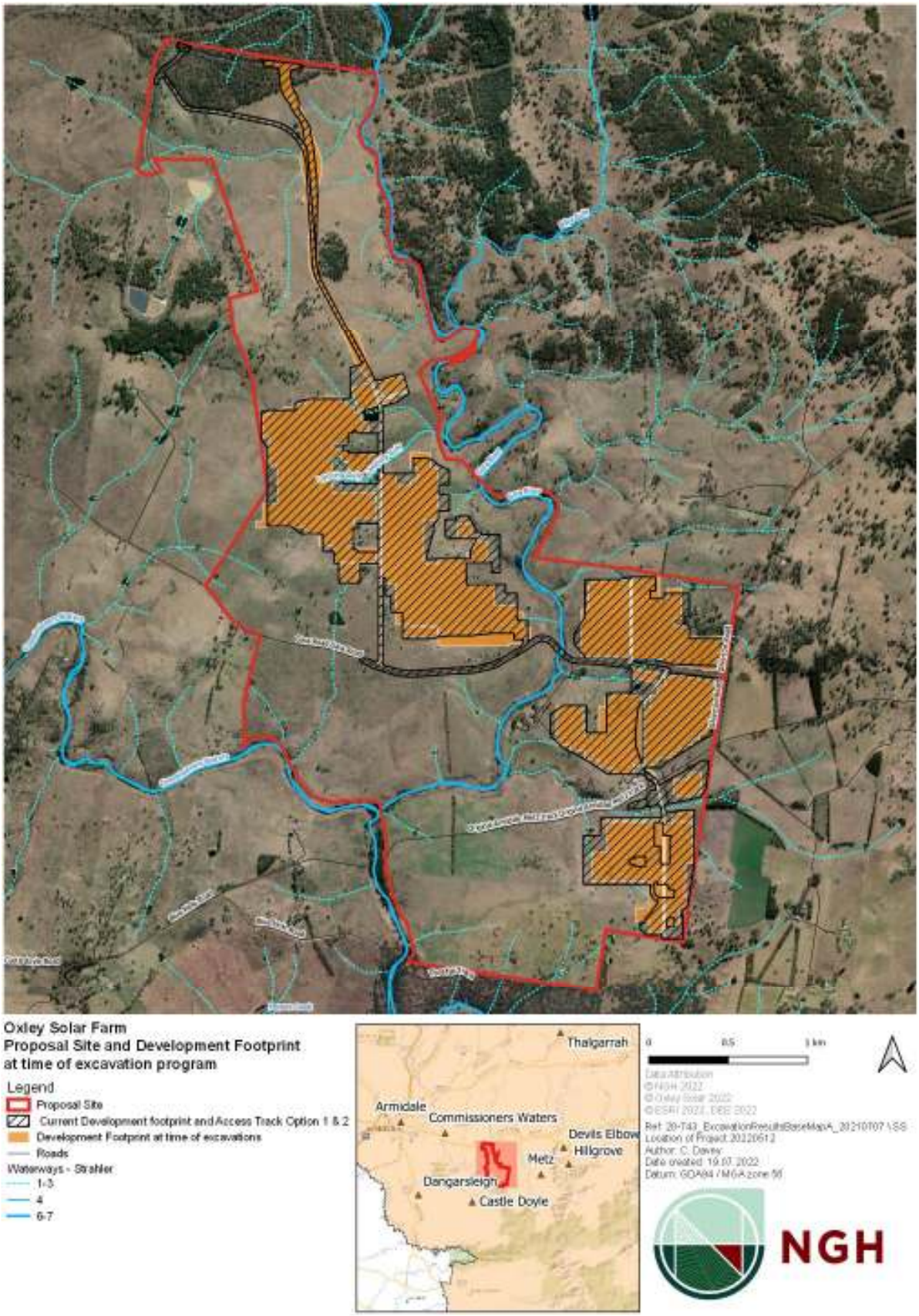

Figure 1-2 Proposal Site and Development Footprint current at time of test excavation program compared to now

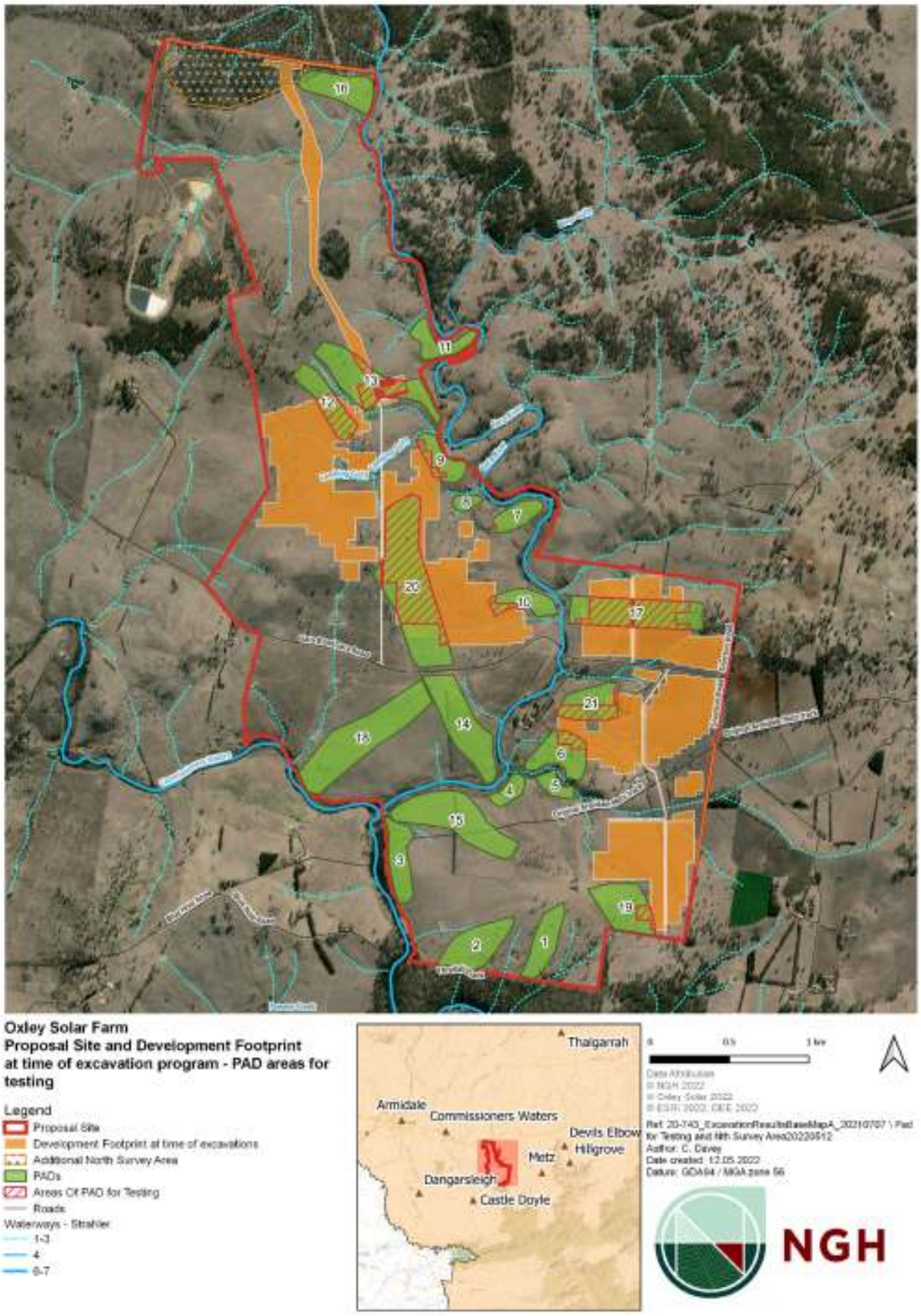

Figure 1-3 North survey area and areas of PAD proposed for sub-surface testing (development footprint current at time of excavation)

2. 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.'

Pt 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 s 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 s 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.

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

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

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

Proposals classified as SSD or State Significant Infrastructure (SSI) under the EP&A Act have a different assessment regime. As part of this process, s 90 harm provisions under the NPW Act are not required, that is, an AHIP is not required to impact Aboriginal objects. However, HNSW is

required to ensure that Aboriginal heritage is considered in the environmental impact assessment process.

The OSF proposal is an SSD project and is therefore being assessed via this pathway, which means an Aboriginal Heritage Impact Permit (AHIP) is not required to harm Aboriginal objects. An SSD project 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 ACHCRP (DECCW 2010b). The requirement for Aboriginal heritage assessment was also stipulated by the SEARs relating to Aboriginal heritage for the OSF. 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 (HNSW), prior to development consent being approved by the Minister for Planning.

It should also be noted that under the new NSW *Electricity Infrastructure Investment Act 2020* legislation recently passed by NSW Parliament, that the NSW government has the power to prohibit projects from connecting to the grid within a renewable energy zone where there is 'significant opposition from the community in a local area" in an effort to maintain goodwill with the local community'.

3. Aboriginal consultation

Consultation with Aboriginal stakeholders was undertaken in accordance with cl 60 of the National Parks and Wildlife Regulation 2019, following the 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

Consultation for this assessment is considered a continuation of the OSF ACHA which began in 2019 but all consultation undertaken for OSF to date is summarised below.

Note: As a courtesy to all RAPs, only brief summaries of correspondence for this project are included. However, detailed information and correspondence logs can be provided on request to HNSW. The Consultation Log in Appendix A will be redacted in all public versions of this report.

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 HNSW), as identified under the ACHCRP. An advertisement was placed in the local newspaper, the Armidale Express on 28 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, eight RAPs registered their interest in the project as listed below:

- 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.

Stage 2 - On 27 March 2020, an Assessment Methodology (survey with provision for testing if required) document was sent to RAPs for review and comment. The 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 on 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 RAPs raised any objections to the methodology and all RAPs 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. At this stage, the survey fieldwork was organised, and five of the RAPs (Armidale LALC, Nunnawanna, Iwatta, Armidale NE Gumbaynggir Descendants and Nyakka Aboriginal Cultural Heritage Corporation) were invited to participate in the survey fieldwork as selected by the Proponent. The survey fieldwork was carried out in May 2020.

Stage 4. A draft ACHA survey report sent to all RAPs on 27 October 2020 recommended sub-surface testing of PADs identified to be impacted by the proposed development footprint. On the 1 June 2022 a copy of the draft sub-surface testing archaeological report was sent to all RAPs for review and comment.

A chronology of notifications and progress regarding the sub-surface testing program with HNSW and the following five participating RAPs is detailed in Table 3-1:

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

Table 3-1 Summary of notifications to participating RAPs and HNSW involving subsurface testing and additional surveys

Date	To	Notification
28 October 2020	RAPs	Details of proposed sub-surface testing
2 November 2020	RAPs	OSF project on hold
24 March 2021	RAPs	Updated OSF ACHA
4 June 2021	HNSW	Notification of intention to commence sub-surface testing
8 June 2021	RAPs	Invitation for sub-surface testing fieldwork, including copy of methodologies for additional survey and testing approach
21 June – 26 June; 28 June – 3 July 2021	Project progress point: Fieldwork including sub-surface testing and the additional survey conducted	
4 July 2021	Project progress point: Fieldwork incomplete owing to bad weather	
6 July 2021	RAPs	Intention to complete sub-surface testing
8 July 2021	RAPs	Invitation to complete the remainder of the sub-surface testing fieldwork
20 July 2021	HNSW	Intention for sub-surface testing
22 July 2021	RAPs; HNSW	Postponement of fieldwork owing to imminent border closure
24 August 2021	RAPs	Invitation to complete the remainder of sub-surface testing fieldwork
	HNSW	Intention to complete the remainder of sub-surface testing fieldwork

Date	To	Notification
31 August - 3 September 2021	Project progress point: Remainder of sub-surface testing completed	
28 October 2021	Request for assessment of alternative access	
30 November 2021	HNSW	Request for confirmation of continued consultation despite access just outside of advertised area
1 December 2021	HNSW	Confirmation approved given the proximity of proposed access provided consultation continues with existing RAPS
1 December 2021	RAPS	Invitation to complete survey of the proposed alternative access route
11 January 2022	Project progress point: Survey of alternative access route completed	
1 June 2022	RAPs	Draft sub-surface testing archaeological report for comments
22 June 2022	RAPs	Reminder for comments to be received within 28 days
23 June 2022	RAPs	Comment received from a single RAP, no other comments received
19 July 2022	RAPs	Testing Report Finalised and a copy of final report with minor amendments to be sent to RAPs for their records

3.1 Aboriginal community feedback

Community consultation occurred throughout the project.

Through initial contact with the RAPs, the Iwatta advised there was an Aboriginal Ceremony route that may run through or near the OSF alignment and therefore the prevalence of lithic artefacts throughout the area was anticipated to be high. No other response regarding particular cultural information was received.

The draft subsurface testing report (this report) was provided to each of the RAPs and feedback was sought on the recommendations, the assessment and any other issues of concern to the RAPs.

One comment was received within the 28 day review period via email on the 23 June 2022 from the Anaiwan Traditional Owners Aboriginal Corporation, with the response stating that upon receipt of the report, they were happy with the work that was completed, satisfied in the participation and approved of the report with no further comments to add.

No other comments were received from the other RAPs and this report was finalised on the 19 July 2022.

4. Background information

4.1 Review of landscape context

Understanding the landscape context of the Proposal Site assists us to better understand the archaeological modelling of the area and to identify 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 landscape forms 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.

It should be noted that during the course of the OSF heritage 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 but is considered in the background assessment section of this report.

4.1.1 Geology, topography and soils

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.

IBRA

The 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 1100m elevation with broad valleys, a stepped landscape across basalt flows with valleys steepening towards the Great Escarpment Gorges. The 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 & 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 (DECC 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 4-1.

Table 4-1 Description of the Mitchell Landscape relevant to the Proposal Site (DECC 2002)

Mitchell landscape	Description
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 extend 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.'
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.'
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.'

Soil landscapes

Soil landscape mapping shows that the Proposal Site falls into seven different landscapes, described in Table 4-2. 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 4-2 Descriptions of soil landscapes in the Proposal Site (State of NSW and Department of Planning, Industry and Environment 2020)

Soil landscape	Description
Ironstone	Shallow to very shallow (<50cm) well-drained Rudosols with other shallow soils along on crests and upper slopes. Moderately deep to deep (>60cm) Dermosols (Yellow and Brown Podzolic Soils) and Chromosols occur on the mid to lower slopes and footslopes. Whereas broader footslopes and basalt-influenced footslopes have deep (>100cm) Vertosols and Chromosols. The A1 horizon is generally characterised by a sandy clay loam with strong acidity and high erodibility, underlain by a similarly acidic hard setting silty clay loam A2 horizon. B2 horizons vary from sandy clay loam to iron-stone rich clay.
Argyle	Very shallow to shallow (<50cm) Rudosols (Lithosols) with other shallow soils on crests, ridges and upper slopes. Kandosols/Tenosols on midslopes and occasionally extending onto crests are shallow to moderately deep (40–80cm) and along midslopes, footslopes and drainage line are shallower to moderately deep (<80cm) Chromosols. Sandy clay loam strongly acidic, highly erodible sandy clay loam typifies the A1 horizons which overlie similarly acidic hard setting fine sandy clay to clay loam. The B2 horizon continues these acidic properties as a slightly sticky sandy clay loam. Which sits atop a mottled medium clay.
Castledoyle	Moderately deep (60–100cm) moderately well-drained Chromosols soils on most slopes. Shallow, well-drained soils (<60cm) on some crests, upper slopes and areas with rock outcrop. Exposed gullied drainage depressions and lower slopes have deep (>120cm) Sodosols. A1 horizons vary from weak sand to sandy clay loam underlain by hard setting highly erodible sandy clay loam. Below this, a mottled medium clay B2 horizon lies atop prismatic clayey sand with high erodibility above BC horizon of weathered granite/saprolite with gravel and mica flake. inclusions.
Commissioners Waters	In areas derived from coarse-grained parent materials shallow to moderately deep (40–100cm) well-drained Alluvial Sands and Alluvial Loams soils occur. Moderately deep to deep Chromosols and Sodosols occur >80cm. A1 horizons comprise loose river sand and gravels or brown clay loam highly erodible soils overlying slightly sticky clay with high plasticity, high erodibility. With B2 horizons similar to highly sticky.

Soil landscape	Description
Long Point	Moderately deep (50–100cm) Ferrosols/Dermosols on crests and sideslopes, shallow (<40cm) well-drained Rudosols along rock outcrops and moderately deep (>70cm) Vertosols on lower slopes and drainage lines. Clay loam or cracking clay A1 horizons atop of moderately sticky clay underlain by highly plastic, low-wet bearing pedal clay B2 horizons.
Middle Earth	Widespread moderately deep to deep (>70cm), well-drained Eutrophic Yellow Kurosols and Chromosols (Yellow Podzolic Soils). Poorly drained deep (>100cm) Yellow Chromosols. Yellow Sodosols (Soloths) and Bleached Yellow Chromosols occur along drainage depressions and poorly drained areas and occasional shallow (<40cm) well-drained Yellow Kandosols along slopes with bedrock close to the surface. A horizons soils are generally characterised by crumbly, low wet bearing neutral sandy clay loam, underlain by a hard setting sandy clay loam A2 horizon with high erodibility and strong acidity which lies atop a B2 horizon comprising a sticky mottled medium clay.
Silverton	Shallow (<40cm) well-drained Rudosols adjacent to granite tors and on some upper to mid slopes. Shallow to moderately deep (20–60cm) Kandosols on steep slopes and moderately deep to deep (>80cm) Kurosols/Chromosols/Sodosols on lower slopes and narrow drainage lines. Sandy clay loam with very high acidity overlies an A2 horizon of strongly acidic extremely hard setting sandy clay loam on top of the mottled medium B2 horizon clay and the very strong acidity continues on to the deep subsoil B3 horizon.

Summary

The basalt, greywacke and chert geology of the area would have provided suitable material for stone artefact manufacture and the high elevated crests and ridge landforms in proximity to water sources likely supported campsites. Alluvial sands and soils with low wet-bearing strength and high erodibility 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. Conversely, the acidic to highly acidic soils indicate a reduced potential for the retention of organic materials within the archaeological record.

4.1.2 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 situated 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. Twenty-four dams capturing ephemeral water sources 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.

4.1.3 Climate

The continent has been subject to fluctuating sea-levels as a result of changes in the climate over time. Approximately 70,000 years ago, oceans dropped to more than 60m below the current sea level, exposing the landmass of 'Sahul' which included Tasmania, Australia, and Papua New Guinea (Hiscock 2007). 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 120m (Connell 2000). The climate continued to warm until stabilising to present temperatures approximately 1,000 years ago. 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 653-1765mm. Temperatures within this range would have provided a year-round habitable environment for past Aboriginal people and the resources they relied on.

4.1.4 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 historical 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 (Keith 2004).

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 m, 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 southeast of the Proposal Site also partially encompasses New England Dry Sclerophyll and Northern Gorge Dry Sclerophyll communities. 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 (Allen & 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 in the past.

4.1.5 Land disturbances and historic land-use

John Oxley's expedition reached the southern part of the New England plateau in 1818, however, European movement into the 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 its surroundings. 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 Aboriginal 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 people 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 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 agriculture 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 NSW colony. The property of Gara was later 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 cattle while a 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 of Metz to the south.

4.1.6 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 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 2020 field survey and from the review of detailed contour mapping. Three archaeological survey landform units were identified within the Assessment Area. Figure 4-1, shows the location of 2 – Ridgelines and spurs and 3 – creek lines and associated terraces and banks, the remainder of the area is 1 – Simple Slopes:

1. Simple Slopes
2. Ridgelines and spurs and
3. Creek lines, and associated terraces and banks.

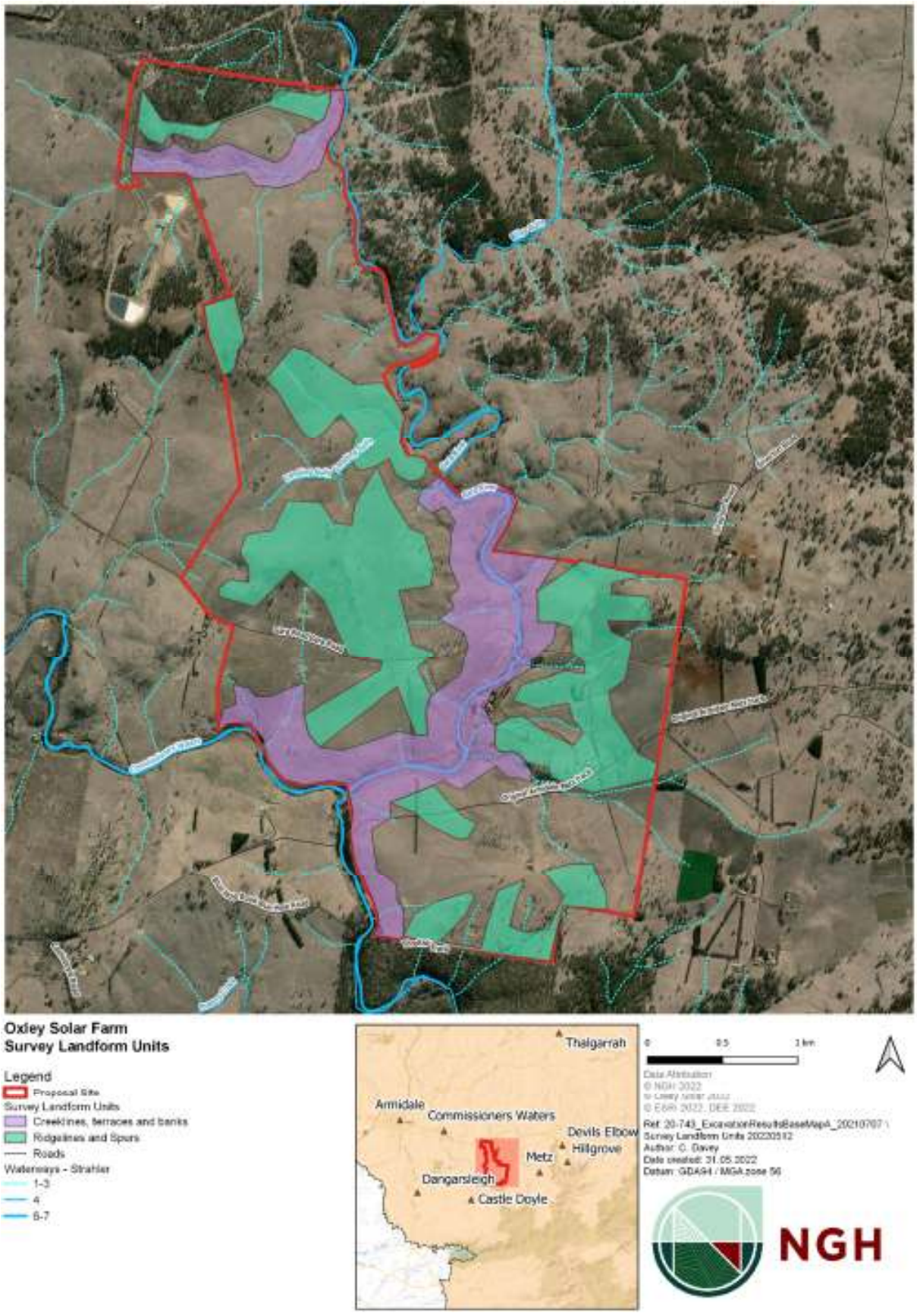

Figure 4-1 Survey landform units

4.2 Review of Aboriginal archaeological context

4.2.1 Ethnographic setting

Several ethnographic recordings of Aboriginal life in the region notably focus on the prevalence of Aboriginal people occupying areas 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 accurate 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 country.

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). 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) identifies the Proposal Site as being within the Nganyaywana language group (Tindale 1974). However, today the Proposal Site 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'(Mathews & American Physical Society 1898).

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. These maps implied that Aboriginal language groups identified and defined their borders/boundaries by language should be considered as territorial units. It is important however to remember that the boundaries mapped between all the language groups 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

The small family group was at the core of Aboriginal society and formed 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 materials.

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, which contain grinding implements and larger ranges of stone artefacts 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. When the ceremonial ground was recorded by McBryde in the 1960s as a locally known traditional meeting place and Bora Ground, 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 that 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 (NSW Government 2016).

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 as cited in NGH 2020).

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. 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 were very warm. Kangaroos were eaten, and their skins were 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 in 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 grass seeds, roots, tubers, yams, berries and fruits (Gott 1982).

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, timber or 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 discarded. 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 visible, although few trees of sufficient age survive in the modern context. While outcropping stone sources may provide visible clues to their use through flaking, pebble beds that also provided sources of stone, leave no archaeological trace. Archaeological evidence for Aboriginal occupation can therefore be fragmented and incomplete. While remnant materials inform models of utilisation and occupation of a landscape, durability of those materials is a key factor to consider in the representation of those models.

4.2.2 AHIMS

The AHIMS provides a database of previously recorded Aboriginal heritage sites. A search provides basic information about any sites previously identified within a search area. However, a register search is not conclusive evidence of the presence or absence of Aboriginal heritage sites, as it requires that an area has been inspected and details of any sites located have been provided to AHIMS to add to the register. As a starting point, the search will indicate whether any sites are known within or adjacent to the investigation area. On 14 June 2021, an extensive search of the AHIMS database were undertaken over an area of approximately 30 km x 30 km centred on the Proposal Site, using the following parameters:

- Client Service ID: 598483
- From: -30.6075, 151.7396 - Lat, Long
- To: -30.5222, 151.875
- Buffer: 1000m
- Aboriginal sites: 113
- Aboriginal Places: 0

A total of 113 sites were detected by the search (Figure 4-2), however, 21 sites are listed as destroyed. Table 4-3 below shows the site types previously recorded in the region.

All of the sites within the Proposal Site were identified during the survey field assessment of the OSF (

Table 4-4). The sites identified as part of the survey included stone artefact scatters, isolated stone artefacts, cultural trees, a scarred tree and several PADs indicating the potential for artefacts to remain below the surface. The findings of the OSF surface survey are discussed in further detail in Section 4.4.

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

Site type	Number
Artefact/s	96
Modified Tree (Carved or Scarred)	15

Site type	Number
Art (Pigment or Engraved)	1
Stone Arrangement	1
Total	**113**

Table 4-4 Sites identified within Proposal Site during initial OSF survey

AHIMS	Site name	Site type
21-4-0358	Oxley Solar IF1	Isolated find
21-4-0359	Oxley Solar IF2	
21-4-0360	Oxley Solar IF3	
21-4-0332	Oxley Solar IF4	
21-4-0333	Oxley Solar IF5	
21-4-0361	Oxley Solar IF6	
21-4-0334	Oxley Solar IF7	
21-4-0335	Oxley Solar IF8	
21-4-0362	Oxley Solar IF9	
21-4-0337	Oxley Solar IF11	
21-4-0338	Oxley Solar IF12	
21-4-0339	Oxley Solar IF13	
21-4-0363	Oxley Solar IF14	
21-4-0340	Oxley Solar IF15	
21-4-0318	Oxley Solar IF16	
21-4-0364	Oxley Solar IF17	
21-4-0319	Oxley Solar IF18	
21-4-0320	Oxley Solar IF19	
21-4-0321	Oxley Solar IF20	

AHIMS	Site name	Site type
21-4-0366	Oxley Solar IF21	
21-4-0365	Oxley Solar IF22	
21-4-0354	Oxley Solar IF23	
21-4-0353	Oxley Solar IF24	
21-4-0367	Oxley Solar AS1	Artefact Scatter
21-4-0342	Oxley Solar AS2	
21-4-0343	Oxley Solar AS3	
21-4-0344	Oxley Solar AS4	
21-4-0345	Oxley Solar AS5	
21-4-0346	Oxley Solar AS6	
21-4-0347	Oxley Solar AS7	
21-4-0348	Oxley Solar AS8	
21-4-0352	Oxley Solar AS9	
21-4-0351	Oxley Solar AS10	
21-4-0349	Oxley Solar AS11	
21-4-0350	Oxley Solar AS12	
21-4-0322	Oxley Solar AS13	
21-4-0355	Oxley Solar AS14	
21-4-0326	Oxley Solar CT1	Cultural Tree
21-4-0327	Oxley Solar CT2	
21-4-0328	Oxley Solar CT3	
21-4-0329	Oxley Solar CT4	
21-4-0330	Oxley Solar CT5	
21-4-0341	Oxley Solar CT6	
21-4-0331	Oxley Solar CT7	

AHIMS	Site name	Site type
21-4-0325	Oxley Solar ST1	Scarred Tree
N/A	PAD 1	PAD
N/A	PAD 2	
N/A	PAD 3	
N/A	PAD 4	
N/A	PAD 5	
N/A	PAD 6	
N/A	PAD 7	
N/A	PAD 8	
N/A	PAD 9	
N/A	PAD 10	
N/A	PAD 11	
N/A	PAD 12	
N/A	PAD 13	
N/A	PAD 14	
N/A	PAD 15	
N/A	PAD 16	
N/A	PAD 17	
N/A	PAD 18	
N/A	PAD 19	
N/A	PAD 20	
N/A	PAD 21	

4.3 Other heritage registers 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) 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 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 7km 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 (Figure 4-3).

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

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

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

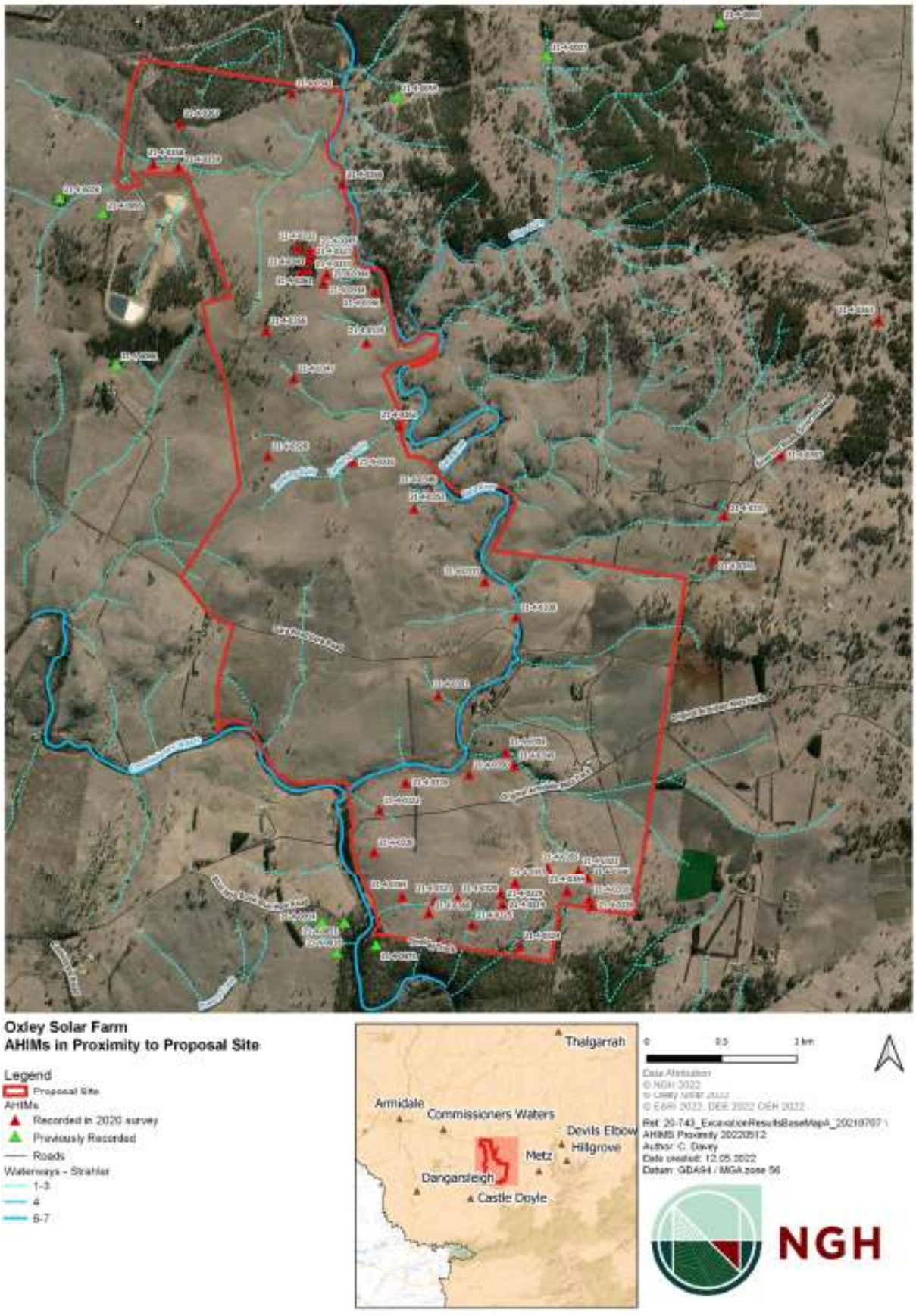

Figure 4-2 Location of AHIMS in proximity to Proposal Site

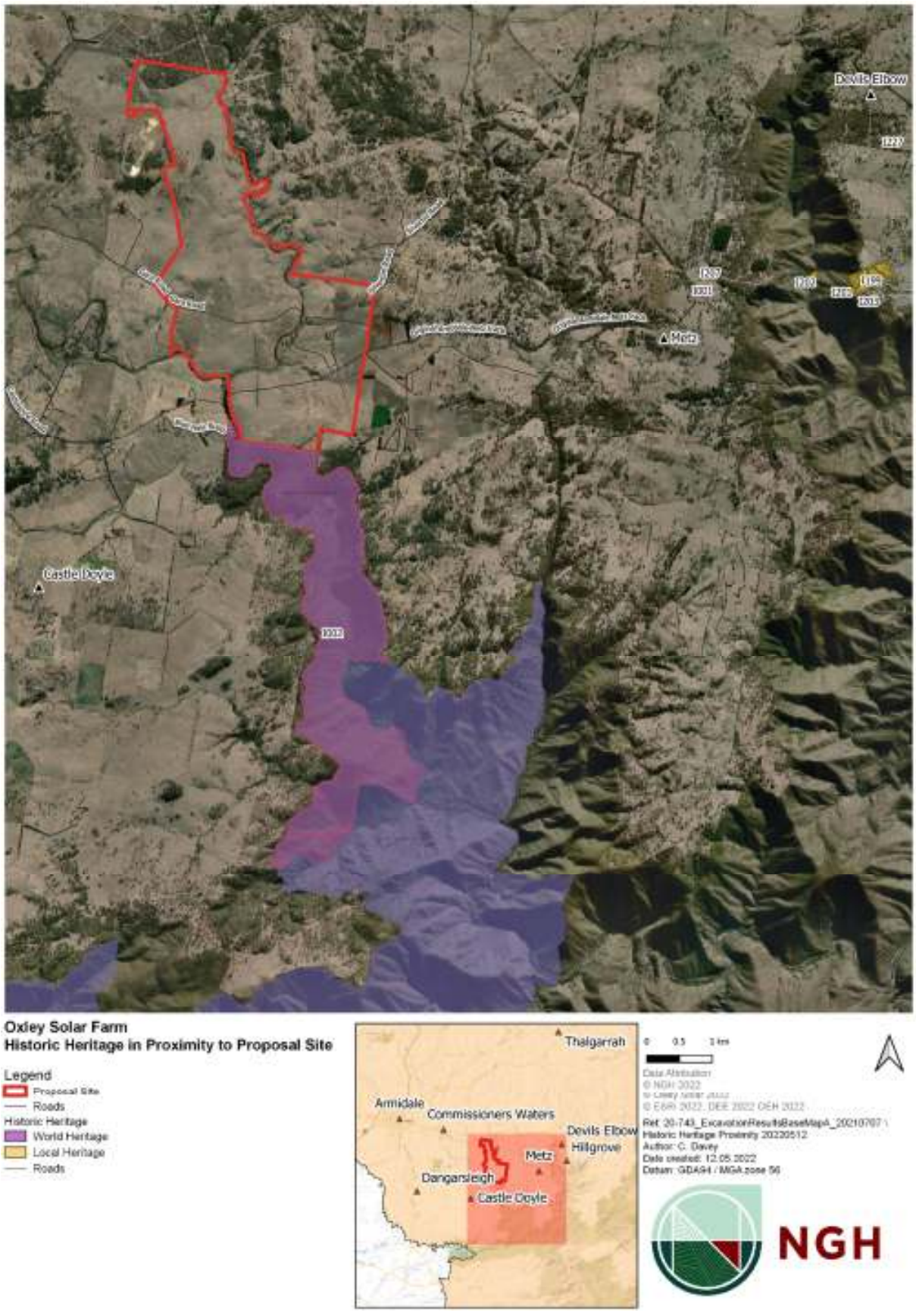

Figure 4-3 Location of historic heritage items in proximity to Proposal Site

4.4 Previous archaeological studies

Regional archaeological modelling

Early research into the Aboriginal occupation of the Tableland carried out Bowdler (1981) proposed that the Tablelands was a transitory area that people visited for specific purposes only and that people did not occupy areas above 1000m for any extended periods of time (as cited in Remnant Archaeology 2017). This model was initially established by the number of ceremonial and intangible sites in the area (Remnant Archaeology 2017).

Later research by Hall and Lomax (1991, in Davies 2002), suggested that the separation of occupation patterns 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 1,000m. However, research by Godwin resulted in the identification of sites above 1,000m, citing bias in McBryde's (1983) survey methodology (Davies Heritage Consultants Pty Ltd 2002). 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, were 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 1990a). Godwin's observations included that many relatively dense stone 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 artefacts.

Regional archaeological dating

Dates regarding the occupation of the New England region by Aboriginal people are limited. However, excavations undertaken in the Hunter Valley and Nepean region further to the south-east have yielded dates as early as 20,000 years and up to 40,000 years before present (McDonald 2005; Nanson *et al*. 1987). Dates retrieved from New England (detailed in Table 4-6) are 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 dated to this period, while another theory suggests that sites that 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).

Table 4-6 Dated sites in the greater New England region (Source: McBryde 1977 as cited in RPS 2010).

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

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 dietary change which was accompanied by greater use 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 artefact 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 stone artefact scatters and five isolated surface stone artefacts. The material was primarily silcrete, with porcellanite and mudstone also present at one site. Davidson and Appleton (1990) recorded a number of stone artefact locations along Cluny Road to the north of Armidale, more than 15 km to the north of the current Proposal Site. These were also surface sites dominated by stone 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 to the northeast of Armidale Airport. Appleton states that with the exception of the two quarries, and two other sites, the stone artefacts were all recorded on erosion features in a secondary context.

In 1990 Appleton (1990a) undertook an archaeological salvage program for the New England Traffic Education centre Armidale, following a previous survey and 'consent and permit to salvage', approximately 10 km northwest of the current Proposal Site (Appleton 1990b). A total of 22 stone 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. Artefact and material types were not specified in the salvage report. However, the survey report for this assessment details that the original 18 stone artefacts comprised 12 cores and six flakes predominantly composed of silcrete, chert and quartzite material (Appleton 1990a).

In 1990 Appleton (1990b) also conducted an archaeological investigation of the proposed cable route for the Armidale to Hillgrove Telephone exchange, approximately 9 km east of the current Proposal Site. Eight artefact locations were recorded during the survey including three isolated stone artefacts and a stone artefact scatter along ridge and mid to upper slope landforms. A knapping floor or campsite was located along a ridge spur and comprised approximately 500 stone 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 stone artefacts composed of a variety of different materials, contained examples of pot lidding (an effect resulting from the stone artefact being exposed to high heat). 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 stone artefact scatters and one campsite. The artefact scatters included flakes and backed blades and was comprised mostly of silcrete material with small numbers of quartz, greywacke and basalt also present. The campsite included 13 silcrete artefacts (Ahoy 1992).

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 stone artefact scatter, located near Threlfall Rest Area along a minor vehicle track, comprised approximately 30 artefacts. Artefact density was approximated at 11 artefacts per metres squared and included chert and silcrete materials (Umwelt 2010).

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 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. The archaeological integrity of the PAD was considered low owing to past farming practices undertaken across most of the area (RPS 2010).

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 stone artefact concentrations as well as thirty-eight isolated stone artefacts, 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 a 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 conditions. The stone arrangement consisted of five granite stones in a patterned arrangement located along with a gentle slope grading towards the east (Remnant Archaeology 2017).

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 northwest 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 schools 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. During the survey 49 isolated stone artefacts, 28 stone artefact scatters, six scarred trees and three cultural trees were 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 caused by large flocks of sheep on the property in combination with extreme drought conditions 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 16 test pits, a total of 1.2125 metres cubed was excavated and dry sieved.

Test pit depths ranged from 20cm to 40cm, with the majority of test pits excavated to a depth of 30cm below the surface. The technological characteristics of the surface and subsurface stone artefact assemblage suggest that the artefacts recorded during the survey and testing program may have been 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 demonstrates that the Tilbuster project area was likely repeatedly used on multiple occasions by small to medium groups of people as they moved through the New England region (NGH Pty Ltd 2020).

In 2021, NGH was engaged to conduct the surface salvage of the 37 sites identified in the Remnant Archaeology (2017) report and undertake the other heritage management provisions recommended in the Metz Solar Farm Cultural Heritage Management Plan (Geolyse 2017). The surface collection salvage program recovered seven of the originally recorded surface stone artefacts, located five additional stone artefacts and identified an area of PAD. The PAD (PAD 1) was associated with nine surface stone artefacts of which four were relocated and salvaged and three additional subsurface stone objects recovered. The PAD was situated along a sloped landform undulating down to a small drainage line and dam and intersected by a small grove of

trees at the western end of the PAD. From the 16 test pits excavated across the PAD, a grindstone top of metamorphic material was recorded at the surface of an upper slope, an item of unfamiliar material featuring coarse weathering was excavated from Pit 6, and an angular fragment recorded as a potential artefact was also recovered. Lack of subsurface material was attributed to agricultural disturbance of the area and transient utilisation of the area.

Oxley Solar Farm archaeological background

Prior to the survey heritage assessment for OSF (NGH Pty Ltd 2021), there had been no previous archaeological studies conducted within the Proposal Site and only a few undertaken within the immediate local area.

From 12 to 21 May 2020, across a period of 10 days, the entirety of the Assessment Area was subject to a systematic pedestrian archaeological survey. The survey area consisted primarily of cleared and cropped paddocks that had been previously subject to farming and grazing activities. 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 ground surface 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. Ground Surface Visibility across the surveyed landforms was generally very low, averaging only 10%. Soils within the Proposal Site consisted of grey-brown silty sand overlaying a sandy clay, atop compact clay.

Over the course of the field survey, approximately 136 km of transects were walked across the Assessment Area by each team member. Allowing for an effective view width of approximately 5m per person, with eight people present, a total surface area of approximately 546ha was examined. However, allowing for the ground surface visibility restrictions, the effective survey coverage is calculated to have been 77.3ha or 6.9% of the total Assessment Area (Table 4-7).

Despite the variable ground surface visibility encountered during the survey, 24 isolated stone artefacts, 18 stone artefact scatters, one scarred tree and seven cultural trees were identified and recorded within the Assessment Area (Figure 4-4). A total of seven cultural trees were also recorded at the request of the Aboriginal community representative due to their cultural value to the Aboriginal community.

In addition, 21 areas of PAD were also identified within the Assessment Area. Each of the PAD areas was located towards the middle and southern sections of the Assessment Area, with the exception of the northernmost PAD associated with AS2. The PADs were also generally associated with 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 supports the likelihood for subsurface material. Areas located near the Gara homestead, to the south-east of the Assessment Area (near AS11 and AS12), were investigated firstly for the eroded nature of the artefacts identified in the gully, and secondly for Aboriginal cultural and historical accounts that the outcropping near this gully may have been an area that Aboriginal farmhands/workmen had occupied.

4.4.1 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, with high-density stone artefact 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 stone artefact sites, with closed sites such as shelters occurring only on the scarps and slopes of upper slope landforms.

From the studies that have been undertaken previously in the region, 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.

Table 4-7 Transect information from NGH 2020 survey of the Assessment Area

Landforms	Number of survey transects	Exposure type	Landform area (ha)	Surveyed area (length {m} × width {m})	Surveyed area (m^2)	Visibility	Effective coverage (area × visibility) m^2	Landform area surveyed (ha)	Percentage 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.
Creek lines, 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	**N/A**	**NA**	**1083**	**N/A**	**N/A**	**N/A**	**763, 616**	**77.3**	**6.9**	**21 Isolated**

Landforms	Number of survey transects	Exposure type	Landform area (ha)	Surveyed area (length {m} × width {m})	Surveyed area (m^2)	Visibility	Effective coverage (area × visibility) m^2	Landform area surveyed (ha)	Percentage of Proposal Site effectively surveyed (%)	Survey result
										artefacts; 25 Artefact scatters; 13 Cultural trees; 2 Scarred trees.

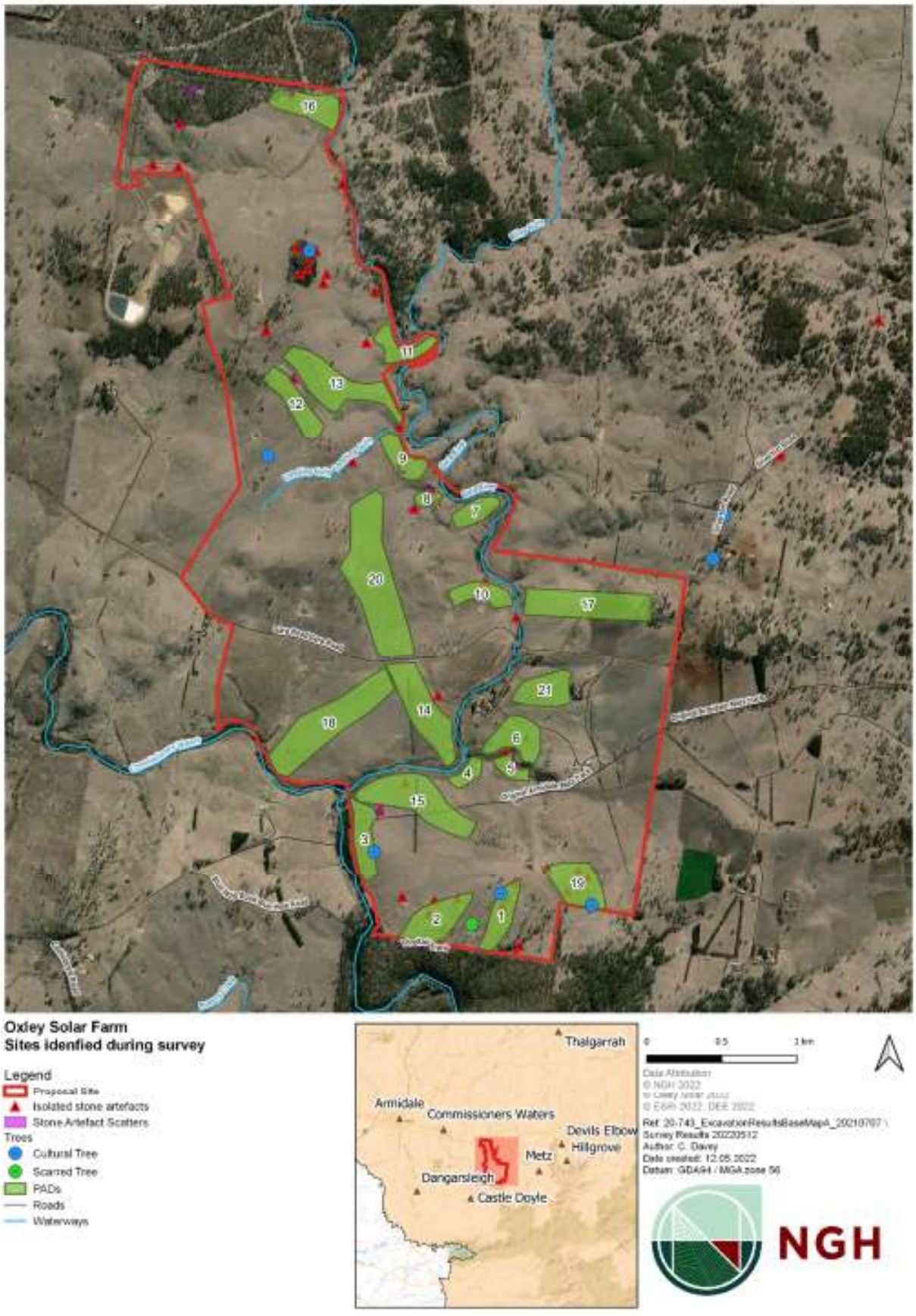

Figure 4-4 Sites identified during surface survey

4.4.2 Archaeological site location model

Based on the results of 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 undulating landscape. Creek lines and small water-holding bodies and boundaries between changes in vegetation can also be a focus of Aboriginal occupation areas. Within the OSF Proposal Site, gentle 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 Stone 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 highly likely to occur.

Scarred Trees – these require the presence of mature trees in old growth areas and are likely to be concentrated along major ridgelines, flat and 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 Proposal Site. This feature is therefore likely to occur.

Stone resources – are areas where people used natural stone outcrops as source material for flaking stone artefacts. This requires outcroppings of geologically suitable material to be accessible. The OSF Proposal Site may contain some natural outcroppings of 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 OSF Proposal Site and therefore such sites are unlikely to occur.

PAD – are 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 combinations of these 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 given the context of the Proposal Site, this is most likely to be in the form of stone artefacts of varying densities and modified trees.

4.4.3 Comment on existing information

The AHIMS database is a record of Aboriginal heritage sites that have been identified and had site cards submitted to HNSW. 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 nonarchaeological sites may be threatened by development.

5. Archaeological investigation results

5.1 Survey strategy

Subsequent to the 2020 survey of the original Assessment Area, two additional areas were identified as part of the proposed Proposal Site and therefore required archaeological survey. These have been named Additional North Survey Area 1 which encompasses an area in the northern part of the Proposal Site, and Alternative North Survey Area 2, which includes part of the existing Council waste deposit.

The pedestrian survey of the Additional North Survey Area 1 was undertaken over a half-day (25 June 2021) after wet weather rendered the day unsuitable for excavation. The survey team included two NGH archaeologists, a representative from Iwatta Aboriginal Corporation, one representative from Nyakka Aboriginal Cultural Heritage Corporation Archaeological and one representative from Armidale NE Gumbaynggir Descendants and Cultural Heritage Consultants. Although ground disturbance from construction of the proposed site access track off Waterfall Way will occur to the east of the additional assessment area, the full area was surveyed to facilitate flexible access and movement of machinery where required.

In October 2021, an alternative access route utilising part of the existing Council waste depot road was identified as part of the Proposal Site and therefore required archaeological survey. On 11 January 2022 a pedestrian survey of the alternative access (Alternative North Survey Area 2) was undertaken over a half day involving one representative from each of the five aforementioned groups alongside one NGH archaeologist. Ground disturbance from construction of the proposed access track is assumed to be largely confined to the existing road alignment, however a buffer extending to the fenceline either side was inspected to ensure comprehensive coverage of the area if extension beyond the existing corridor is required.

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. To achieve maximum coverage, the survey team were evenly spaced at 30-35m intervals for the 2021 Additional North Survey Area 1 and 5m for the 2022 Alternative North Survey Area 2, walking transects in parallel lines across the landscape. At the end of each transect, the team repositioned along a new transect line at the same spacing and walked back on the same compass bearing. Despite restricted visibility, the open woodland setting of the additional northern survey area suited this survey strategy enabling the identification of heritage objects and maximum survey coverage.

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

5.2 Survey coverage

5.2.1 Additional North Survey Area 1

The Additional North Survey Area 1 comprised open woodland on Crown Land on either side of Grafton Road/Waterfall Way. Pedestrian survey transects traversed the entire Additional North Survey Area 1. The survey ground surface visibility was reduced in areas of dense ground cover,

dumped rubbish, and by overcast weather conditions. Ground surface visibility increased along the road and track shoulders and the perimeter of the dam. Visibility was generally low 20-30% and soils within the additional northern area consisted of the same grey-brown silty sand underlain by a compact clay as the Proposal Site.

The Additional North Survey Area 1 was categorised into two landforms based on the landscape maps and visual inspection of the area during the field survey. The two landforms are listed below and shown in Figure 4-1.

- Disturbed road/track corridor and
- Simple slopes.

Table 5-1 shows examples of the transect landforms and visibility across the Additional North Survey Area 1 and Table 5-3 below shows the calculations of effective survey coverage.

Table 5-1 Transect landforms and visibility of Additional North Survey Area 1

<table>
<tr>
<td> 
Plate 1 Disturbed track running east-west along the southern portion of the Additional North Survey Area 1.</td>
<td> 
Plate 2 Rubbish dumped throughout the area.</td>
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<td> 
Plate 3 Erosion along drainage line extending from the dam towards the middle of the additional northern area affording increased visibility.</td>
<td> 
Plate 4 Vehicle disturbance outside of established track area.</td>
</tr>
</table>

Plate 5 Fenceline demarcating southern extent of the additional northern area showing consistent grass cover with low (20-30%) visibility interspersed by juvenile vegetation.

Plate 6 Boundary of the northern extent of additional northern area Grafton Road/Waterfall Way Road shoulder showing heavy disturbance and increased visibility of 30%.

Plate 7 Increased visibility around the perimeter of the dam.

Plate 8 Lower visibility in a consistent grassed and leaf-littered area away from dam and tracks (10-20%).

The field survey of the Additional North Survey Area 1 was achieved with two transects by each team member. The effective view width of approximately 30-35m per person, with five people present, equates to a total surface area examined of approximately 5ha. However, allowing for the ground surface visibility restrictions, the effective survey coverage overall is calculated to have been 85% of the disturbed road corridor landform area and 8.95% of the simple slopes landform area.

The discovery of Aboriginal sites during the survey indicates that, despite limited visibility, the survey technique effectively identified the presence and locations of Aboriginal utilisation and occupation of this area within the Proposal Site.

5.2.2 Alternative North Survey Area 2

The Alternative North Survey Area 2 included the northern section of the existing Council waste depot road. Pedestrian survey transects traversed the entire road corridor up to the fenceline boundary parallel to either side of the road, with a similar width of distance covering the intersection at Waterfall Way. Ground surface visibility was reduced in areas of dense cover of weeds, scrub and shrubs. Visibility increased along the road and track shoulders and along episodic exposures within the scrub and particularly along the drainage line towards the southern end of the proposed access area. Ground surface visibility was generally low (10-20%) and soils within the Alternative North Survey Area 2 consisted of the same grey-brown silty sand as the Proposal Site.

The Alternative North Survey Area 2 was categorised into three landforms based on the landscape maps and visual inspection of the area during the field survey. The three landforms are listed below and shown in Figure 4-1.

- Disturbed road/track corridor
- Simple slopes and
- Creeklines, terraces and banks.

Table 5-2 shows examples of the transect landforms and visibility across the Alternative North Survey Area 2 and Table 5-3 below shows the calculations of effective survey coverage.

Table 5-2 Transect landforms and visibility of Alternative North Survey Area 2

 Plate 9 Moderately grassed area with episodic exposures closer to Waterfall Way transitioning to dense scrub with occasional trees towards fenceline .	 Plate 10 Low visibility within densely grassed area adjacent to council depot road and electrified fenceline.

Plate 11 Erosion along drainage line extending from council depot road bridge affording increased visibility.

Plate 12 Eroded soils affording increased visibility between drainage line and simple sloped densely grassed/shrubbed area.

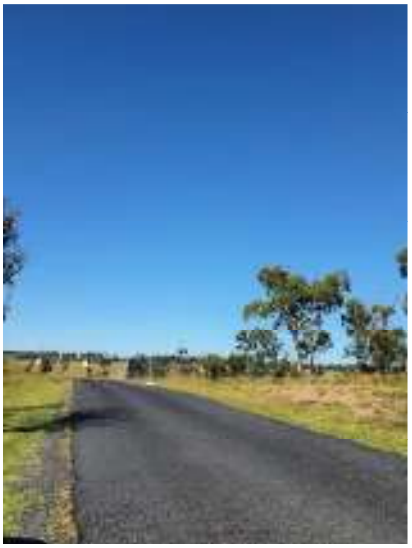


Plate 13 Gate and fenceline demarcating extent of council depot road. Fill extended beyond road corridor onto road shoulder with episodic exposures adjacent to this clearly showing pushed soil/fill material.

Plate 14 Facing west, looking towards shoulder of the road crown land margin between Waterfall Way and council depot boundary.

The field survey of the Alternative North Survey Area 2 was completed with two transects by each team member. The effective view width of approximately 5m per person, with six people present. However, allowing for the ground surface visibility restrictions, the effective survey coverage overall is calculated to have been 21% of the disturbed road corridor landform area, 6% of the simple slopes landform area and 2% for the creeklines, terraces and banks area.

Although no archaeological or cultural material was identified, all survey participants agreed that the survey was effective and comprehensive.

Table 5-3 Transect information

Survey area	Landform	Number of survey transects	Exposure type	Landform area (ha)	Surveyed area (length {m{ × width {m})	Surveyed area (m^2)	Visibility	Effective coverage (area × visibility) m^2	Landform area surveyed (ha)	Percentage (%) of survey area effectively surveyed	Survey result
Additional North Survey Area 1	Disturbed road/track corridor;	2	Bare ground, earth cutting, vehicle tracks, ground disturbance area	2.4	850×60	51,000	40%	20,400	2.04	85%	Nil
	Simple slopes	8	Bare ground, soil mounds, vehicle tracks, ground disturbance areas	22.77	850×240	204,000	20%	40,800	4.08	17.91%	One artefact scatter; one unfired clay grass bowl; seven contemporary scarred trees; one surveyor tree and one scarred tree.
Alternative North Survey Area 2	Disturbed road/track corridor;	2	Bare ground, earth cutting, vehicle tracks, ground disturbance area	4	900×15	12,150	70%	8,505	0.85	21.25%	Nil
	Simple slopes	4	Bare ground, soil mounds, vehicle tracks, ground disturbance areas	4	794×20	15,880	15%	2,382	0.24	6%	Nil
	Creeklines, terraces and banks.	1	Eroded drainage lines	1	120×5	600	40%	240	0.02	2%	Nil

5.3 Survey results

5.3.1 Additional North Survey Area 1

Despite the variable ground surface visibility encountered during the survey, one stone artefact scatter, one surveyor tree, one scarred tree, one unfired clay and grass bowl, and six contemporary scarred trees were recorded. Although seven of the trees were clearly a result of contemporary scarring practices, as confirmed by the attending RAPs, they represent a continuation of Aboriginal culture to be recorded in accordance with the AHIMS scarred tree recording requirements. It was concluded that the unfired clay and grass bowl was also an expression of contemporary Aboriginal cultural practise.

Sites recorded during the survey of the additional northern area are listed in Table 5-4 below and shown in Figure 5-1. It should be noted that although the proposed development will not impact the entirety of the additional northern area, the full extent was surveyed to ensure comprehensive assessment and to provide flexibility to infrastructure design.

The majority of the additional northern survey area was characterised by the same grey-brown sandy silt evident throughout the remainder of the Proposal Site. Significant erosion was evident adjacent to the dam and the drainage lines running to and from as well as the tracks evident throughout the area and either side of Grafton Road.

Evidence of significant previous disturbance was noted throughout the Additional North Survey Area 1, including the absence of veteran trees, the stumps of felled mature trees among relatively immature regrowth, accumulations of rock and soil from earthmoving, a dam and various dirt tracks. The location of pits and mounds near access tracks around the dam and hill indicate that sections of the survey area were previously either mined or utilised for road works. The relatively immature stands of trees amid older stumps of larger trees indicate previous land clearance, potentially for grazing.

Table 5-4 Summary of all Aboriginal objects recorded in Additional North Survey Area 1.

AHIMS Number	Site name	Site type
21-4-0414	Oxley Solar Farm cST1	Contemporary scarred tree
21-4-0420	Oxley Solar Farm cST2	Contemporary scarred tree
21-4-0415	Oxley Solar Farm cST3	Contemporary scarred tree
21-4-0419	Oxley Solar Farm cST4	Contemporary scarred tree
21-4-0418	Oxley Solar Farm cST5	Contemporary scarred tree
21-4-0417	Oxley Solar Farm cST6	Contemporary scarred tree
TBC	Oxley Solar Farm cST7	Contemporary scarred tree
21-4-0325	Oxley Solar Farm ST1	Scarred tree
N/A	Oxley Solar Farm SvT1	Surveyor tree

AHIMS Number	Site name	Site type
21-4-0416	Oxley Solar Farm ABG1	Unfired clay and grass bowl
21-4-0410	Oxley Solar Farm AS19	Artefact scatter

Contemporary scarred trees

There are seven contemporarily scarred trees recorded in the additional northern area survey. Bruce Cohen of the Armidale NE Gumbaynggir Descendants was the senior RAP participating in the survey and stated that there is a local group (One Connection Disability Services) that practices traditional scarring methods in this area. It was concluded that the seven recorded scarred trees were contemporary manifestations of Aboriginal cultural practise. The clay and grass bowl ABG1, which is located near cST5, was assumed to also be a contemporary manifestation of traditional Aboriginal cultural practise.

Oxley Solar Farm cST1

This site consists of a single contemporarily scarred tree assessed as culturally Aboriginal in origin located within a stand of trees, located 560m west of the Gara River and in the crown land area south of Grafton Road and north of the fenceline. The tree is a living, standing, red gum (*Eucalyptus Camaldulensis*) in a moderate condition with a single curved pre-form scar assessed as conforming to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The oval scar faces east, is well formed and is situated on the trunk of the tree. The scar measures 45cm in length by 32cm in width and has a depth of 4cm. The base of the scar is approximately 65cm above the ground. Several contemporary metal axe marks were visible around the perimeter and in the middle of the dry face of the scar. It was noted that some general degradation of the tree and scar was likely due to insect damage. The clean margins of the scar coupled with the contemporary metal axe marks establish the scarring of the tree as recent (Table 5-5).

Table 5-5 Photographs of Oxley Solar Farm cST1

Plate 15 Context of Oxley Solar Farm cST1, north of fenceline and south of Grafton Road within a stand of trees.

Plate 16 Close up of scar of Oxley Solar Farm cST1.

Oxley Solar Farm cST2

This site consists of a single contemporarily scarred tree assessed as culturally Aboriginal in origin located within a stand of trees on the southern side of Waterfall Way, located 1 kilometre west of the Gara River. The tree is a living, standing, undetermined species of *Eucalypt*. The tree has two trunks and is in moderate condition with two oval-shaped scars assessed as conforming to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The first scar is facing south and exhibits a zig-zag pattern cut into the centre of the dry face. The second scar is divided into separate panels for removal. Splitting of the sheet dryface is a common feature of contemporary scarred trees (cf. Long 2005). The clean margins of the scar coupled with the contemporary metal axe marks establish that the scarring of the tree is recent (Table 5-6).

Table 5-6 Photographs of Oxley Solar Farm cST2

Plate 19 Context of Oxley Solar Farm cST2, north of fenceline and south of Grafton Road within a grove of trees.

Oxley Solar Farm cST3

This site consists of a single contemporarily scarred tree assessed as culturally Aboriginal in origin located within a stand of trees, located 580m west of the Gara River and in the crown land area south of Grafton Road and north of the fenceline. The tree is a living, standing, multi-trunked *Eucaplytus* in moderate condition with a single curved pre-form scar assessed as conforming to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The oval scar, faces east, is not well formed but is in good condition. The scar measures 45cm in length by 25cm in width and has a depth of 5cm. The base of the scar is approximately 130cm above the ground. The clean margins of the scar coupled with the contemporary metal axe marks establish the scarring of the tree as recent (Table 5-7).

Table 5-7 Photographs of Oxley Solar Farm cST3

	
Plate 20 Context of Oxley Solar Farm cST3, north of fenceline and south of Grafton Road adjacent to a cleared paddock.	**Plate 21 Close up of scar on Oxley Solar Farm cST3.**

Oxley Solar Farm cST4

This site consists of a single contemporarily scarred tree assessed as culturally Aboriginal in origin located adjacent to the fence of a cleared paddock, approximately 520m west of the Gara River and in the crown land area south of Grafton Road and north of the fenceline. The tree is a living, standing, *Eucalyptus* in moderate condition with a single curved pre-form scar assessed as conforming to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The oval scar, faces north, is well formed and is in good condition. The scar measures 47cm centimetres in length by 40cm in width and has a depth of 2cm. The base of the scar is approximately 100cm above the ground. Contemporary metal axe marks were visible in the middle of the dry face of the scar. The clean margins of the scar coupled with the contemporary metal axe marks establish the recent scarring of the tree (Table 5-8).

Table 5-8 Photographs of Oxley Solar Farm cST4

 **Plate 22 Context of Oxley Solar Farm cST4, north of fenceline and south of Grafton Road adjacent to the fence of a cleared paddock.**	 **Plate 23 Close up of scar on Oxley Solar Farm cST4.**

Oxley Solar Farm cST5

This site consists of a single contemporarily scarred tree assessed as culturally Aboriginal in origin located beside a dirt access track approximately 576m east of the Gara River. The tree is a living, standing, red gum (*Eucalyptus Camaldulensis*) in moderate condition with a single curved pre-form scar assessed as conforming to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The oval scar faces east, is well formed and is in good condition. The scar measures 45cm in length by 32cm in width and has a depth of 4cm. The base of the scar is approximately 65cm above the ground. Metal axe marks were visible towards the base and the middle of the dry face of the scar. The clean margins of the scar coupled with the contemporary metal axe marks establish the recent scarring of the tree (Table 5-9).

Table 5-9 Photographs of Oxley Solar Farm cST5

 **Plate 24 Context of Oxley Solar Farm cST5, north of fenceline and south of Grafton Road beside a dirt access track.**	 **Plate 25 Close up of scar on Oxley Solar Farm cST5 adjacent to a dirt access track.**

Oxley Solar Farm cST6

This site consists of a single contemporarily scarred tree assessed as culturally Aboriginal in origin located within an area of regrowth, approximately 1.3 km west of the Gara River and 97 m west of an unnamed drainage line. The tree is in the crown land area south of Grafton Road and north of the fenceline. The tree is a living, standing, red gum (*Eucalyptus Camaldulensis*) in moderate condition a single curved pre-form scar assessed as conforming to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The oval scar faces east, is well formed and is in good condition. The scar measures 60 cm in length by 40 cm in width and has a depth of 1 centimetre. The base of the scar is approximately 80 cm above the ground. Some contemporary metal axe marks were visible in the middle of the dry face of the scar. The clean margins of the scar coupled with the contemporary metal axe marks establish the scarring of the tree is recent (Table 5-10).

Table 5-10 Photographs of Oxley Solar Farm cST6

Plate 26 Context of Oxley Solar Farm cST6, north of fenceline and south of Grafton Road within a regrowth area west of the dam.

Scarred tree

Oxley Solar Farm ST2

This site consists of a single scarred tree considered to be Aboriginal in origin located within open woodland, bordering the northern side of Waterfall Way located 670 m west of the Gara River. The tree is a living, standing, stringybark in moderate condition with a single curved oval scar assessed as conforming to the standard scarring morphology accepted for Aboriginal modification (cf. Long 2005). The oval scar faces south and is in good condition. The scar measures 50 cm in length by 20 cm in width and has a depth of 1 cm. The base of the scar is approximately 140 cm above the ground. A couple of axe marks were visible along the bottom margin of the scar. It was noted that some general degradation of the tree and scar was likely due to insect damage apparent by the small holes present throughout the dry face of the scar (Table 5-11).

Table 5-11 Photographs of Oxley Solar Farm ST2

	
Plate 27 Context of Oxley Solar Farm ST2 on the northern side of Waterfall Way between fenceline and road.	**Plate 28 Close up Oxley Solar Farm ST2 scar.**

Surveyor tree

Oxley Solar Farm SvT1

This site consists of a single European scarred tree on the northern side of Grafton Road. The tree is a living, standing, undetermined species of *Eucalyptus* in moderate condition with a single oval-to-triangular shaped scar. The scar is in good condition and located on the west-facing trunk of the tree. The scar measures 75c m in length by 35 cm in width and has a depth of 2 cm. The base of the scar is approximately 80 cm above the ground. Steel hatchet marks are visible towards the base of the scar with an arrow evident at the top of the scar and the letters ‘P M’ chiselled into the centre of the dry face. The chiselled notation was used to identify permanent survey marks placed along public roads and refer to the circled ‘P.M’ notation of plans deposited to the Registrar Generals Department (Table 5-12).

Table 5-12 Photographs of Oxley Solar Farm SvT1

 **Plate 29 Context of Oxley Solar Farm SvT1, located on the northern side of Waterfall Way between fenceline and road.**	 **Plate 30 Close up of Oxley Solar Farm SvT1 scar.**

Unfired clay and grass bowl

Oxley Solar Farm ABG1

This site consists of an unfired clay and grass bowl on the south side of Grafton Road. The bowl is intact but obscured by grass cover. The clay and grass bowl was situated adjacent to Oxley Solar Farm cST5 and has a radius of approximately 9cm. It was concluded in conversation with senior RAP Bruce Cohen that the clay and grass bowl was likely also a contemporary manifestation of traditional Aboriginal cultural practise by the local group One Connection Disability Services (Table 5-13).

Table 5-13 Photographs of Oxley Solar Farm ABG1

Plate 31 Close up of Oxley Solar Farm ABG1.

Stone Artefact scatters

Oxley Solar Farm AS19

This site is a low-density stone artefact scatter located immediately east of CSt6 within crown land south of Grafton Road and north of the fence line. The site was located on a brown-black sandy loam deposit at the base of a tree, mid-slope and approximately 1 kilometre west of the Gara River. The artefact scatter comprised a silcrete flake and a silcrete flaked piece. Ground surface visibility was reduced to 20% at the base of a tree by leaf litter and humus (Table 5-14).

Table 5-14 Photographs of Oxley Solar Farm AS19

	
Plate 32 Close up of Oxley Solar Farm AS19.	**Plate 33 Context of Oxley Solar Farm AS19, located on the southern side of Grafton Road between fenceline and road.**

5.3.2 Alternative North Survey Area 2

No archaeological or cultural materials were identified within the Alternative North Survey Area 2. The existing council waste depot road plus a 20-30 m parallel to either side of the road demonstrated significant disturbance including pushed soil/fill adjacent to the shoulder of the road.

Ground surface visibility was very low owing to thick shrub and grass cover. However episodic exposures throughout the scrub and more towards the drainage lines confirmed extension of the deposited fill into the area well beyond the existing road corridor.

It should be noted that although the proposed development will not impact the entirety of the Alternative North Survey Area 2, the full extent was surveyed to ensure comprehensive assessment and to provide flexibility to infrastructure design.

The majority of the additional northern survey area was characterised by the same grey-brown sandy silt evident throughout the remainder of the Proposal Site. Significant erosion was evident along the drainage lines towards the southern end of the Alternative North Survey Area 2

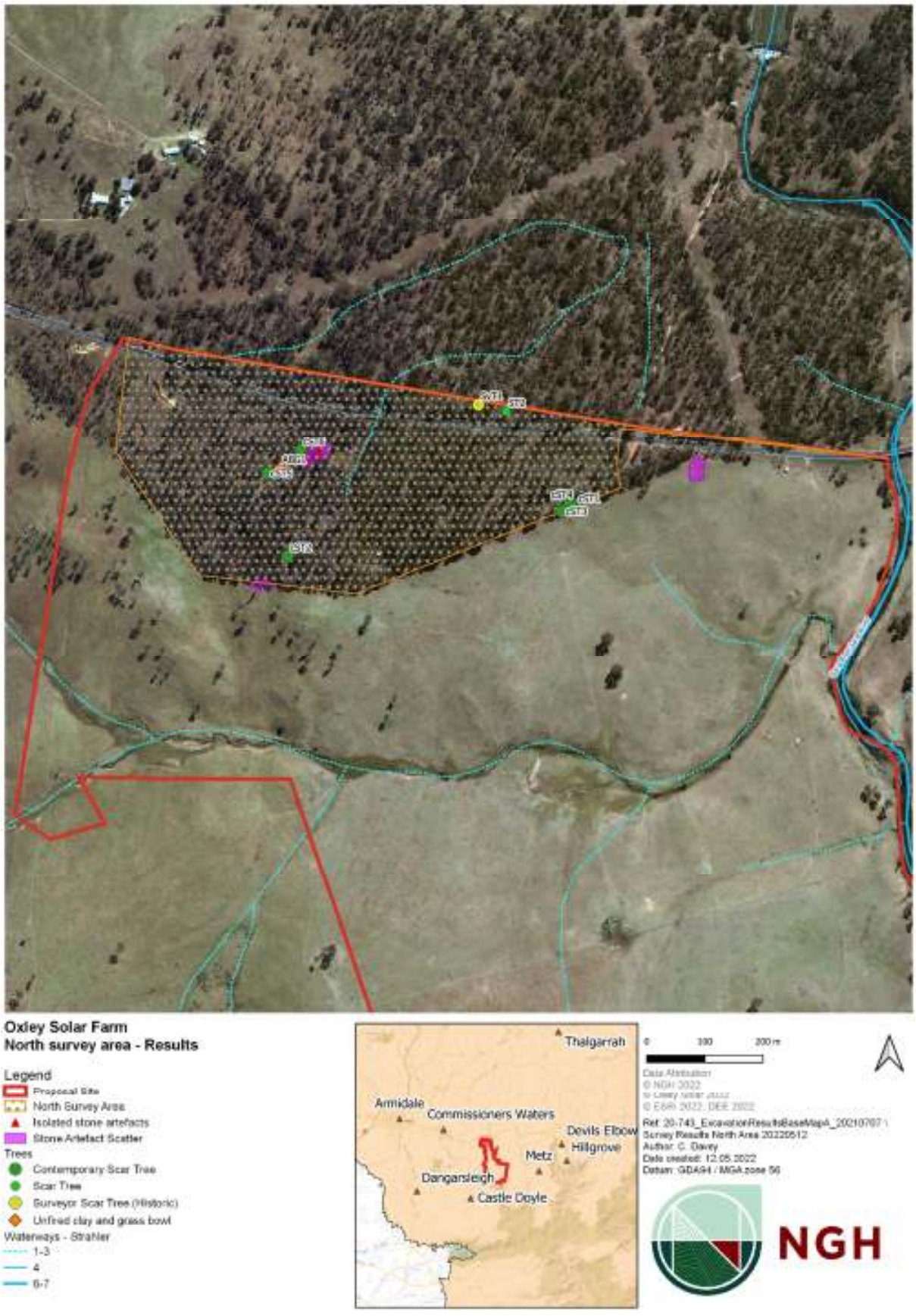


Figure 5-1 Sites identified in the Additional North Survey Area 1.

5.4 Subsurface test excavation

5.4.1 Subsurface testing aims

The primary aims of the subsurface testing were:

- To identify the presence and potential extent of Aboriginal sites in areas of archaeological potential.
- To address the shortcoming of the reduced effective coverage of the survey and better facilitate characterisation of the archaeological nature of the area.
- To more accurately quantify the impact of the OSF development on Aboriginal cultural heritage.
- To establish the nature and character of the archaeological record and use the stratigraphic understanding gained from excavation to complement the results of the subsurface artefact analysis.
- To increase understanding of Aboriginal people's use of stone artefacts through analysis of recovered artefacts.
- To contribute to the broader understanding of the Aboriginal use of the landscape.

5.4.2 Subsurface testing methodology

The subsurface testing program was undertaken in accordance with the Code of Practice for Archaeological Investigations and included the following excavation methodology.

Sections of ten of the 21 PADs identified during the previous archaeological investigations will be impacted by the proposed development footprint (2021 version). Transects at 20 metre to 40 metre spacing were established to determine the location of excavation test pits within each of the PADs. Across the 10 PAD areas, ~130 test pits were proposed but this was subject to change depending on the density of subsurface artefacts recovered and the depths of deposits encountered.

Figure 5-2 below shows the ten PAD areas that were subject to subsurface testing and provides the completed test pit locations. Subsurface testing involved the following elements:

- Hand excavation using shovels with test pits measuring a minimum of 50 cm x 50 cm in area.
- Removal of deposit in initial excavation unit in 5 cm levels or 'spits' with subsequent excavation units at 10 cm unless features found requiring a different strategy.
- Sieving of deposits (wet and dry sieving).
- Soil residue removed from sieves, bagged and labelled for analysis.
- Excavation to the base of A horizon, which is generally the 'culturally sterile' clay layer, bedrock or another factor to be determined in the field (e.g., depth exceeds 80 cm).
- Photography of site prior, during and post-excavation as well as photos of all finished test pits.
- At the completion of the excavation, backfill test pits (with sieved material if possible or clean fill if required).

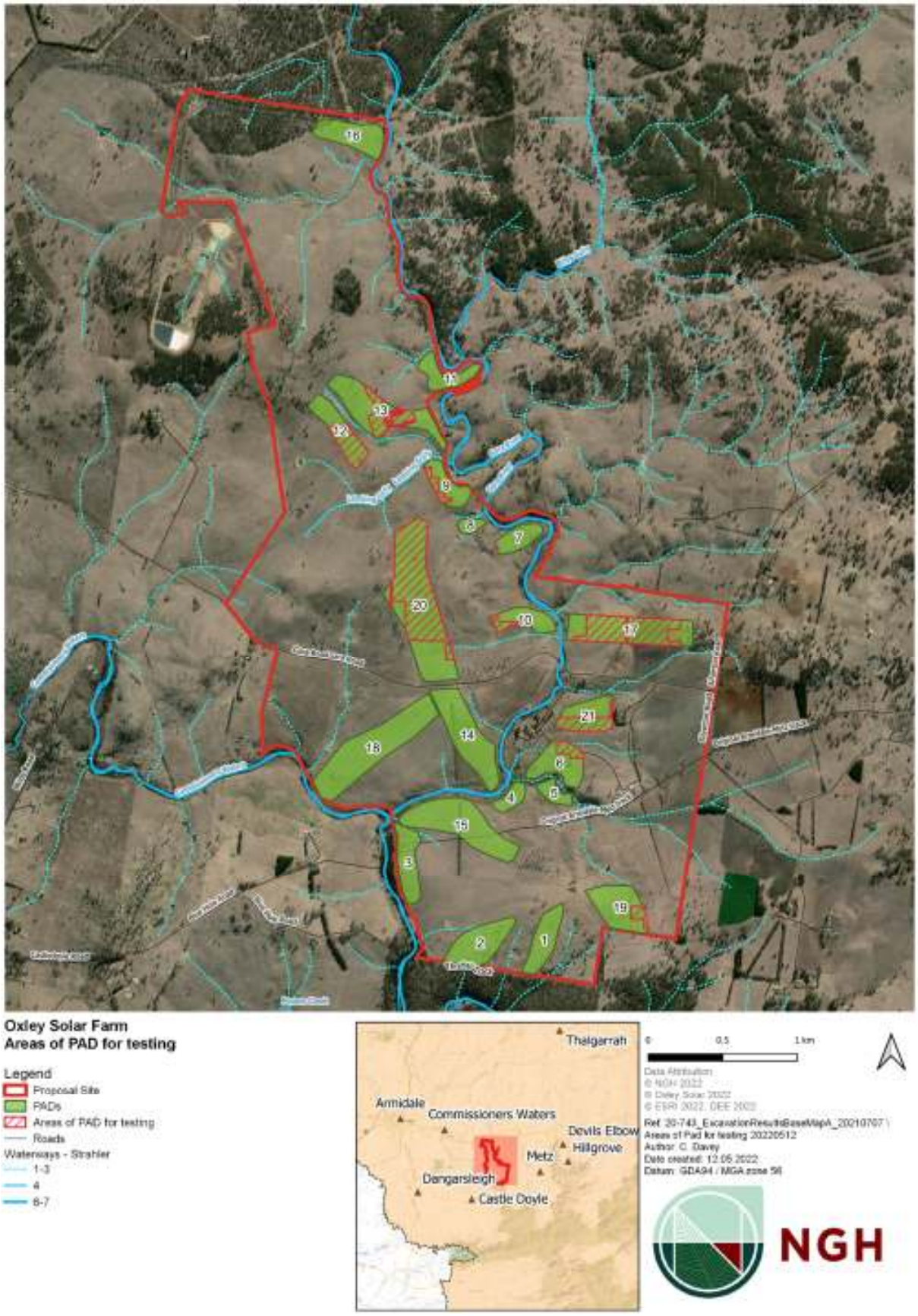


Figure 5-2 Areas of PAD required for testing

The sieved material was sorted, and the following characteristics of recovered stone artefacts were recorded:

- Raw material type and colour.
- Dimensions (e.g. percussion length, width, thickness for complete items).
- Technological characteristics (e.g. platform surface, platform type and termination type).
- Presence and extent of cortex.
- Presence and extent and type of edge damage (e.g. use wear, retouch).
- Comments (e.g. production method).

The recovered archaeological material was stored at the Brisbane and Newcastle NGH office until a suitable repository is found or agreed reburial location identified. The storing of the material was discussed with the RAPs during the fieldwork and they were satisfied with this approach. NGH suggest that a reburial location be on the property in an area that will not be impacted by the proposed development. This location should be determined by consensus of NGH archaeologists, RAPs, landowners and Oxley Solar. Once the reburial location is agreed, a new AHIMS site card will be submitted detailing its location, to ensure the location of the reburied material is formally recorded.

5.4.3 Test excavation results

Test pits were excavated in sections of ten of the 21 PADs that intersected with the OSF development footprint current in 2021 (Figure 5-2). In chronological order, the ten PAD areas subjected to testing were PAD 17, PAD 20, PAD 9, PAD 12, PAD 13, PAD 7, PAD 10, PAD 21, PAD 6 and PAD 19 (Table 5-15).

It should be noted that throughout this section the results will be discussed in numerical order of test pits excavated in relation to an identified PAD area.

Wet sieving equipment was organised but was only required in test pits with clay soils in the upper layers. Elsewhere, dry sieving was employed to save time, water, and to minimise potential safety risks. Test excavation was undertaken between 21-24 June, 26 June, 28 June - 1 July 2021 and 31 August - 3 September, 2021 by NGH archaeologists and a rotation of representatives from the same five RAP groups engaged for the 2020 surveys.

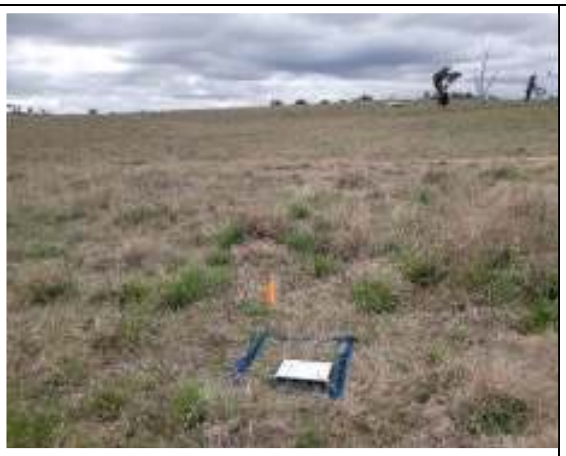
A summary of the test pit excavation results is included below. A total of 114 test pits were excavated across the ten areas of PAD (Figure 5-3). Test pit depths ranged from 10 cm to 70 cm with the majority of test pits excavated to a depth of 30 cm or 40 cm. Artefacts were recovered from Pit 4 and Pit 5 (PAD 17); Pit 50 (PAD 20); Pit 52, Pit 53, Pit 54 and Pit 61 (PAD 9); Pit 78 and 82 (PAD 13); Pit 103 (PAD 21); Pit 109 and Pit 110 (PAD 19). New site cards have been submitted to AHIMS for any newly recorded surface and subsurface sites within the OSF Proposal Site. No artefacts were recovered from the remaining test pits. The locations of the test pits are shown in Figure 5-3, Table 5-15 below provides an overview of each testing location and soil descriptions are included in Appendix B.

Table 5-15 Photographs showing an overview of testing locations within identified PAD areas

PAD 17	 Plate 34 View north-west across the western end of PAD 17, showing upper slope landform	 Plate 35 View from the lower slope towards the eastern half of PAD 17
PAD 20	 Plate 36 View north from the west side of PAD 20 along the lower plain of ridgeline/spur	 Plate 37 View south from the northern end of PAD 20

PAD 9	 Plate 38 View north from the southern end of PAD 9	 Plate 39 View north towards Gara River at the northern end of PAD 9
PAD 12	 Plate 40 View north from the centre of PAD 12	 Plate 41 View northeast from the middle of PAD 12
PAD 13	 Plate 42 View east towards Gara River, the easternmost part of the PAD	 Plate 43 View west towards the slope overlooking lambing gully to the south

PAD 7	 Plate 44 Facing east, along the mid-slope, looking toward the Gara River and dam	
PAD 10	 Plate 45 Facing west, within the tree grove towards the top of the hill	 Plate 46 Facing east towards Gara River, mid-slope
PAD 21	 Plate 47 Facing west towards the northeast arm of the PAD	 Plate 48 Facing west from the western side of PAD, nearby the homestead

PAD 6		
	Plate 49 Facing north	Plate 50 Facing west
PAD 19		
	Plate 51 Facing north from the middle of PAD 19	Plate 52 Facing south-east of hillcrest area of PAD

A summary of the testing locations is detailed in Table 5-16 and the excavation undertaken concerning each PAD area is discussed below. In each case the participating RAPs agreed that the spacing of test pits and excavation strategy sufficiently tested the landform.

Table 5-16 Summary of testing results

PAD ID (in order of excavation)	Number of test pits	Test pit IDs	Number of artefacts identified
17	14	1-11,12A,12B and 13	2
20	39	14-31, 32A and 32B and 33-51	1
9	13	52-64	11
12	9	65-73	0
13	18	74-91	3

PAD ID (in order of excavation)	Number of test pits	Test pit IDs	Number of artefacts identified
10	4	92-95	0
7	1	96	0
21	7	97-103	1
6	4	104-107	0
19	5	108-111	2
Total	**114**	**1-11, 12A, 12B, 13-31, 32A, 32B, 33-111.**	**20**

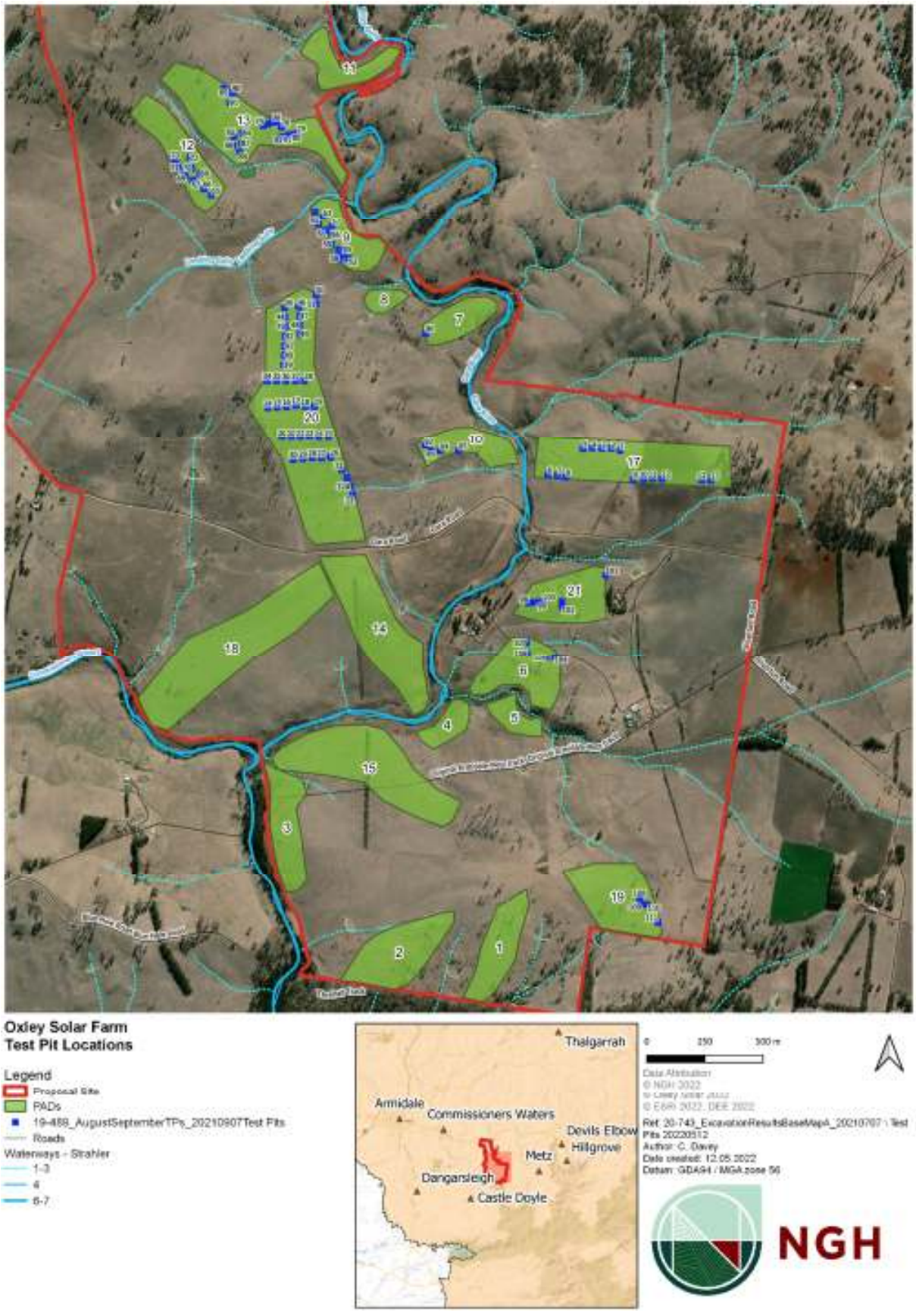


Figure 5-3 Location of test pits

PAD 17 (Pits 1-13)

PAD 17 was associated with an elevated flat area above a gentle slope 250 m east of the Gara River and a connecting first-order drainage line cutting through the northern extent of the PAD. The PAD encompassed sections of two large paddocks divided by a sparsely tree-lined fence. Test pitting was conducted in the middle section of PAD 17.

Originally 22 test pits were proposed across the PAD; however, owing to persistently hard sticky clay across both paddocks and the limited amount of cultural material recovered, the extent of excavation was limited to a total of 14 test pits (Figure 5-4). The spacing between test pits along each transect was 40m. After the first few test pits, a change from dry sieving to wet sieving was required as the thick clay soils were too sticky to push through sieves. Much of the excavation for these pits was undertaken using crowbars and mattocks with the transition to hand trowels occurring either as the soils became more friable or if potential artefactual materials were observed.

In Pits 1-8, at around 40 cm depth, sticky clay was replaced by a layer of stony material similar to a creek bed. Excavation of test pits continued until the deposit was determined to reach culturally sterile clay, which mostly occurred around 20 cm depth in Pits 9-13 of PAD 17.

Two of the test pits (TP 4 and TP 5) contained isolated artefacts which were recorded as Oxley Solar Farm IF 26 (AHIMS 21-4-0407) and IF 27 (AHMIS 21-4-0406).

PAD 20 (Pits 14-51)

PAD 20 is located north of Gara Road along a ridgeline/spur landform and is located approximately 600 m west of Gara River with a first-order drainage line immediately east and another 320 m west. This PAD is the largest PAD area identified within the Proposal Site and has the largest proposed impact area. Test pitting was conducted in the northern section of the PAD.

Originally 30 test pits were proposed across the PAD, however, to facilitate consistent coverage of the PAD, and given the excavation deposits comprised sandy loam topsoils containing stone resource materials, a total of 39 test pits were excavated (Figure 5-5). The spacing between the test pits was 40m, depending on the presence of subsurface artefacts and the depth of deposit encountered during excavation.

Excavation continued until the deposit was determined to be culturally sterile clay, which mostly occurred at around 30 cm depth in PAD 20. However, in Pits 16, 17, 22, 23, 37, 38, 39 sterile clay occurred between 30-40cm, which is assumed to be associated with the slightly elevated landform. In contrast, Pits 14, 15, 18, 31, 45, 46, 47 and 48 terminated around 15-25 cm at a stony layer similar to a creek bed.

One of these test pits (TP 50) contained artefacts. Charcoal inclusions were observed in TP 30 and TP 37, yam daisy was recovered in the topsoil of TP 22 and TP 23, and an isolated artefact from TP 50 has been recorded as Oxley Solar Farm IF 28 (AHIMS 21-4-0408).

PAD 9 (Pits 52-64)

PAD 9 is located on an elevated landform to the immediate southwest of the confluence of Gara River and Lambing Gully, which is a second-order perennial stream. The area of PAD tested was the western and most elevated section of the PAD oriented along the ridgeline/spur landform.

Originally eight test pits were proposed across the PAD, however, due to the shallow depth of deposits an additional five test pits were excavated, increasing the PAD 9 total to 13 test pits. The spacing of test pits varied between 20 m and 40 m, depending on the presence of subsurface artefacts and the depth of each deposit.

Pit excavation progressed until the deposit reached culturally sterile clay, which occurred at around 5c m for test pits 58, 59, 60, 64 and 65 and at 20 cm for test pits 52, 53, 54, 55 and 61. The deeper sterile clay reached at 30cm in test pits 62 and 63, which were at lower elevations and therefore likely the result of fluvial movement from the ridgeline downslope towards Lambing Gully.

Results of test pitting for PAD 9 included artefacts in test pits 52, 53, 54 and 61, fragments of petrified wood in test pits 54, 55 and 62 and natural inclusions of charcoal in TP 52 (Figure 5-6). The subsurface finds from PAD 9 have been recorded as Oxley Solar Farm AS20 (AHIMS 21-4-0321).

PAD 12 (Pits 66-73)

PAD 12 is located on a ridgeline/spur landform north of Lambing Gully and between two first-order drainage lines and dams. The PAD is also directly west of the small exposure north of one of the dams where AS 7 was identified in the original survey (Figure 5-7). Test pitting was conducted in the southern half of the PAD.

Originally 12 test pits were proposed across PAD 12, however, the shallow depth of deposits and absence of artefacts resulted in three of the northernmost pits being abandoned. The spacing of the nine test pits was between 40 and 60m, depending on the depth of deposit encountered during excavation.

Culturally sterile clay was reached at depths between 20 and 25 cm for test pits 69, 67 and 73, at 30 cm for test pits 66 and 68, and at around 15 cm in test pits 71 and 72. The lower elevation of TP71 and TP72 and their closer proximity to the nearby drainage line may account for the increased moisture content and shallower deposit observed in these two test pits.

No test pits in PAD 12 contained artefacts (Figure 5-7).

PAD 13 (Pits 74-91)

PAD 13 is located on a southwest facing slope north of Lambing Gully and between two first-order drainage lines approximately 95 m west of Gara River. The PAD is also directly east of a small exposure north of one of the dams where the artefact scatter AS 6 was identified and encompasses the area north of IF 9 (Figure 5-7). Test pitting was focussed on the middle section of the PAD.

Originally 16 test pits were proposed across the PAD, however, two additional test pits were added to ensure effective coverage. The spacing of the 18 test pits was between 20 and 40m, depending on the depth of deposit encountered during excavation.

The culturally sterile clay layer was reached at depths of 10-20 cm in test pits 74-78, 80 and 89. A stony layer was noted instead of pure natural clay, which was reminiscent of a creek bed for Pit 79 and 81-88 at 10-20cm.

One of these test pits contained two stone artefacts (Pit 82) and one contained one stone artefact (Pit 78) (Figure 5-7). The subsurface finds from this testing area have been recorded as Oxley Solar Farm IF 30.

PAD 10 (Pits 92-95)

PAD 10 is located on a lower slope southwest of the confluence of Gara River and a first-order drainage line. Test pitting was conducted in a small section of the western side of the PAD. That this drainage line formed part of the broader regions watershed was further supported by a notable change in the retention of moisture in the soil compared to the surrounding area. This drainage line extends west with two dams intercepting the drainage alignment and contour banking and swales push away from the dams to the east demonstrating past land modification of the area.

The four test pits proposed across the PAD were excavated, with spacing of the test pits between 40 and 80m, depending on the depth of the deposit.

Excavation terminated when either the water table and/or a stony base layer was encountered at depths ranging between 20-50cm. None of the test pits excavated contained artefacts (Figure 5-8).

PAD 7 (Pit 96)

PAD 7 is located on an upper slope bounded to the north, east and south by the Gara River. A single test pit where the western end of the PAD intersects with the proposed development was excavated.

Test pit 96 was excavated to a depth of 20 cm with both moisture and ironstone content increasing with depth. No artefacts were recovered from test pit 96 (Figure 5-9).

PAD 21 (Pits 97-103)

PAD 21 is located south of Gara Road along an elevated flat area approximately 170 m east of Gara River with a second-order drainage line 40 m north and a first-order drainage line 80 m south. The areas of PAD tested included the southern section and a smaller area to the east.

Seven test pits were excavated along a ridgeline that was identified as having the highest potential for subsurface artefacts within the PAD. Test pits were spaced 20 m apart along transects up to 300m apart.

Excavation terminated at a layer of culturally sterile clay or stone, which occurred at depths between 40-70cm. A disturbance was evident along the low elevated area and interpreted to relate to the little solar panel test area which has previously been installed and was encountered at the time of testing demonstrating previous disturbance has occurred in the area.

A single artefact from Pit 103 has been recorded as Oxley Solar Farm IF 31 (Figure 5-10).

PAD 6 (Pits 104-107)

PAD 6 is located north of Gara Road along an elevated flat area approximately 380 m east of Gara River with a first-order drainage line transecting the testing area. That this drainage line formed part of the broader regions watershed was further supported by a notable change in the retention of moisture in the soil, particularly in Pit 106 and 107, compared to the surrounding area.

Of six test pits originally proposed only four test pits were excavated. The northernmost test pits were not excavated due to the limited depth of deposit encountered elsewhere in the PAD. The spacing of test pits was between 40 metres and 75 metres between transects.

Layers of culturally sterile clay or stone were found at depths between 20 and 30 centimetres. The stony layer and increased moisture content evident in test pits 106 and 107 were indicative of their proximity to the nearby first-order drainage line. None of the test pits in PAD 6 were found to contain artefacts (Figure 5-10).

PAD 19 (Pits 108-111)

PAD 19 is located approximately 480 m south of the original Armidale Metz Track and is situated in an elevated landform at the head of first-order drainage lines flowing to the east and to the south. Significant ground disturbance to the immediate area is evident in the construction of contour banks and dams across the drainage lines. Nonetheless, the PAD has a relatively high abundance of cultural material, encompassing previously recorded sites AS 14, AS 16, IF 15, IF 16, IF 17 and CT3 (Figure 5-11). The southeast section of the PAD was tested for subsurface archaeology.

Originally eight test pits were proposed across the PAD, however, only five test pits were excavated in response to the small number of finds and the shallow depth of deposits. The spacing of test pits was between 20 and 30m.

Excavation continued until deposits were determined to be culturally sterile, with a layer of clay and ironstone occurring between 27 to 40c m depth in PAD 19.

The two artefacts recovered PAD 19, one each from test pit 109 and test pit 110, have been recorded as Oxley Solar Farm IF 32 and IF 33 (Figure 5-11).

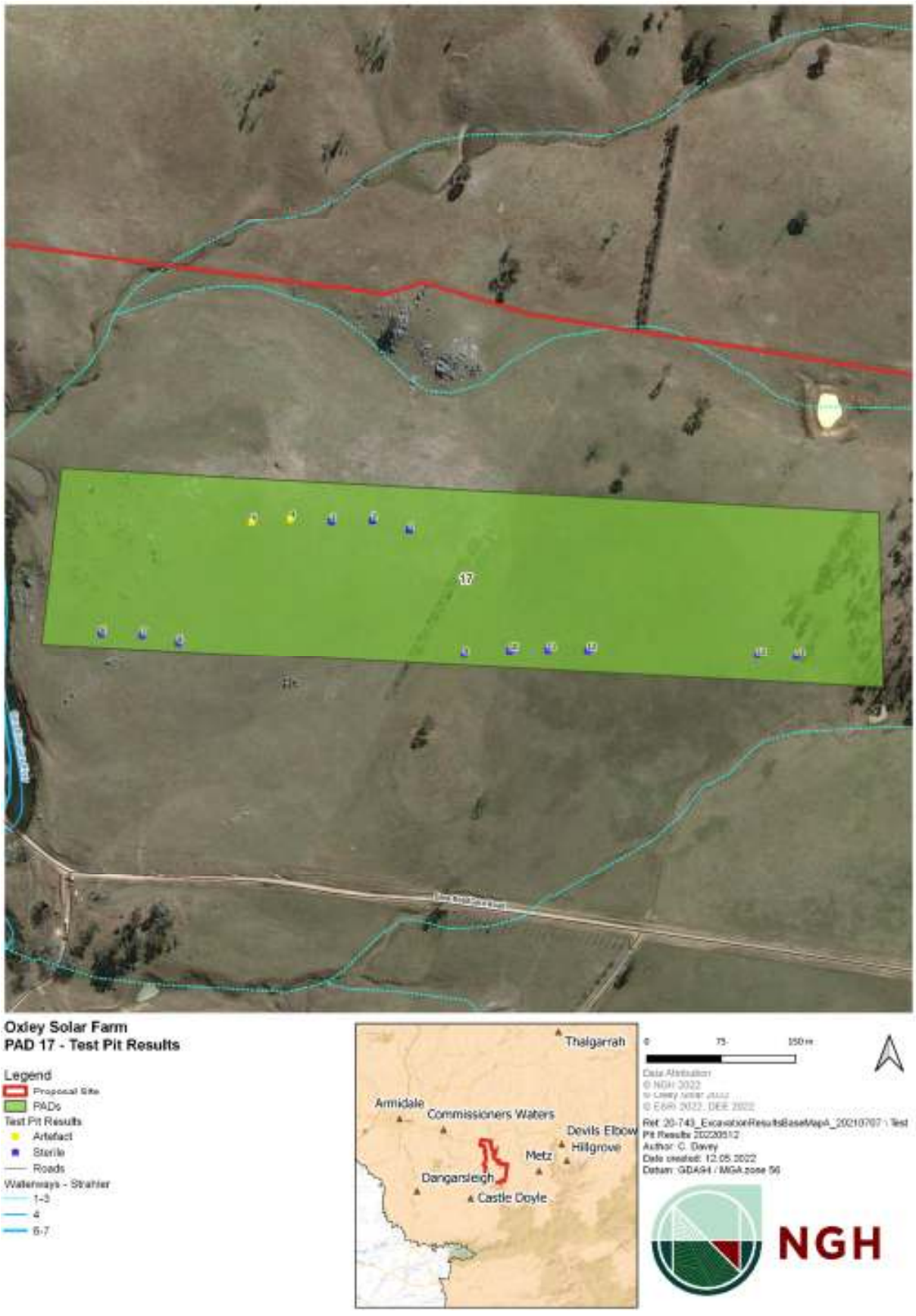


Figure 5-4 Results of testing – PAD 17

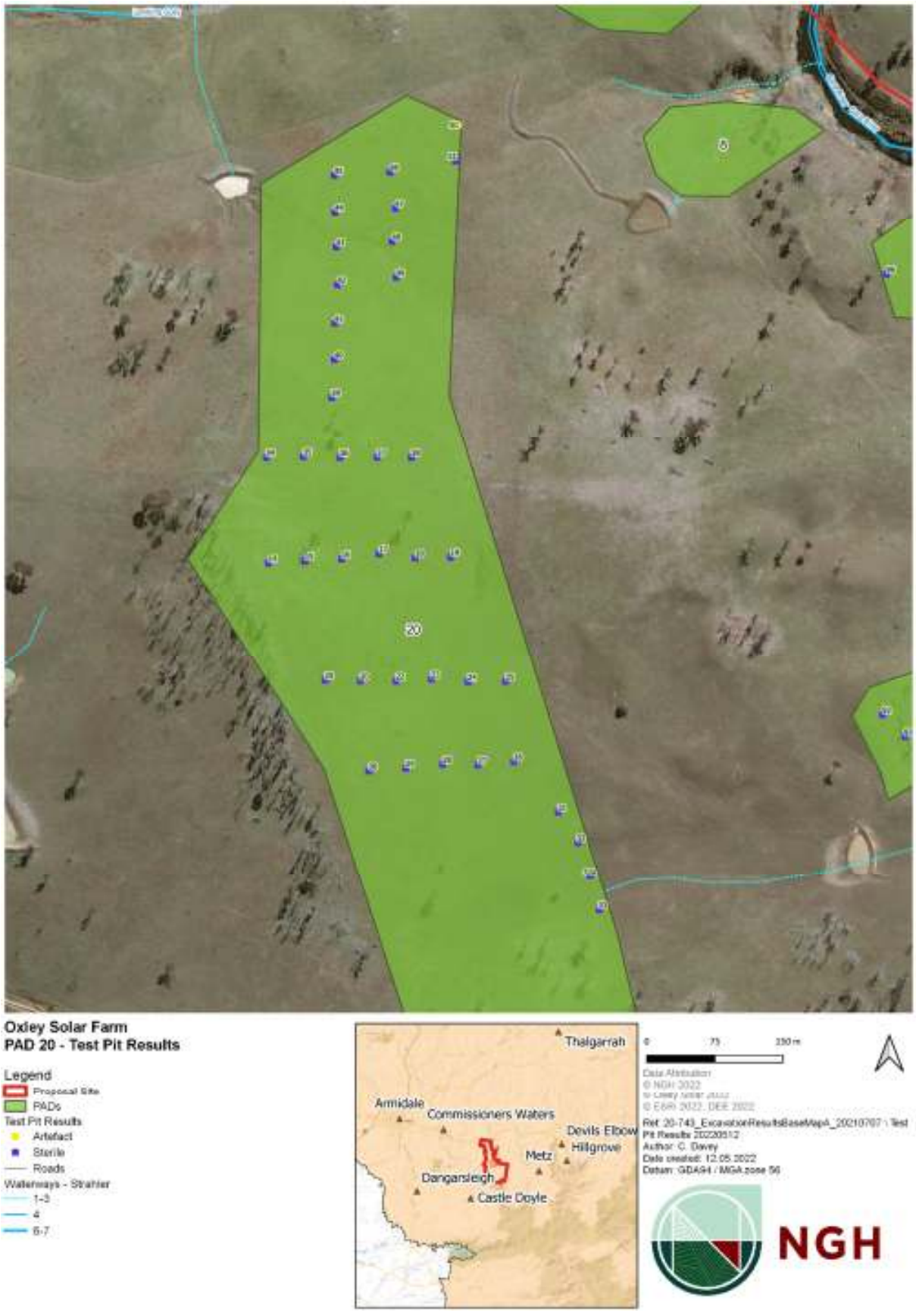


Figure 5-5 Results of testing – PAD 20

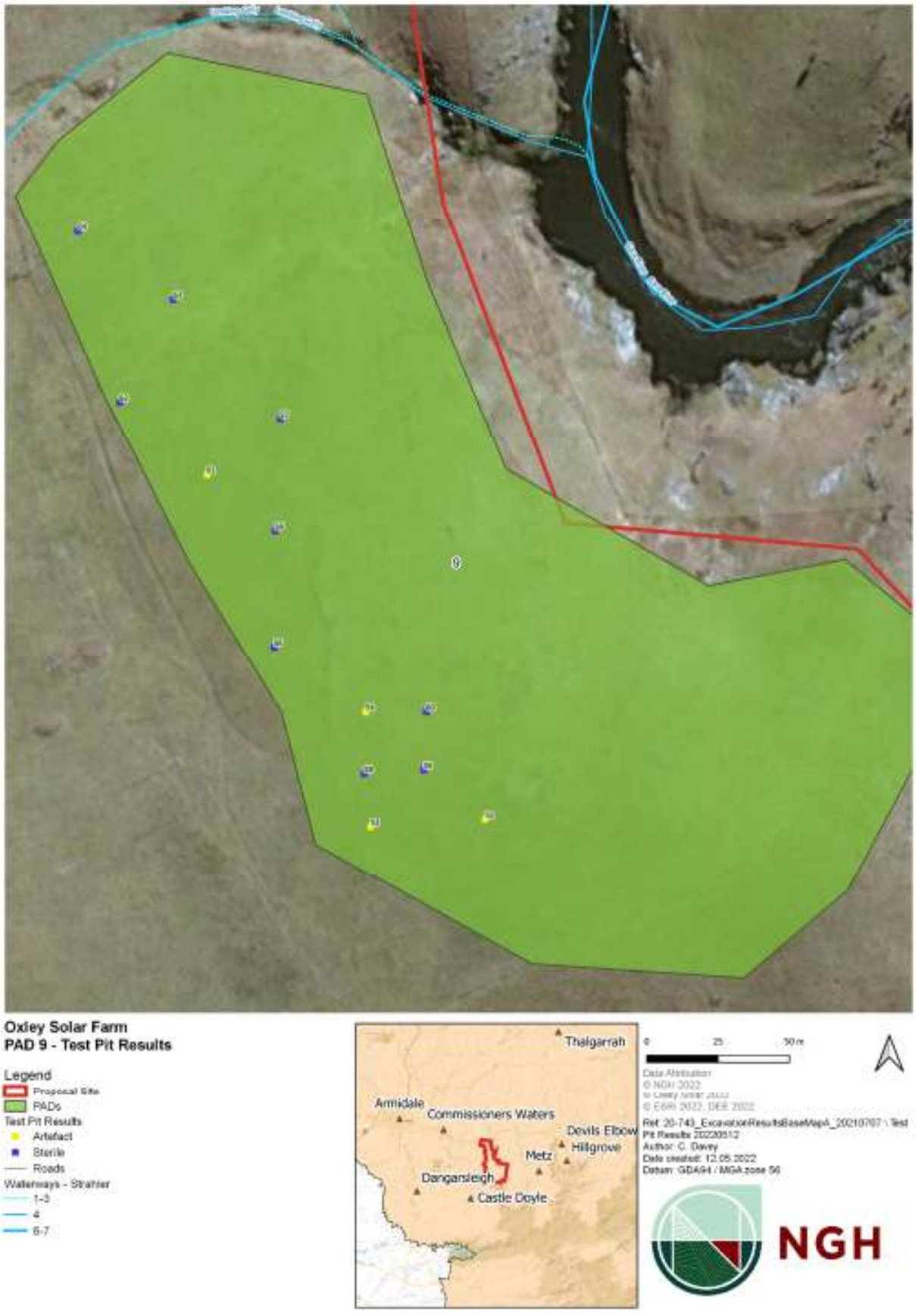


Figure 5-6 Results of testing – PAD 9

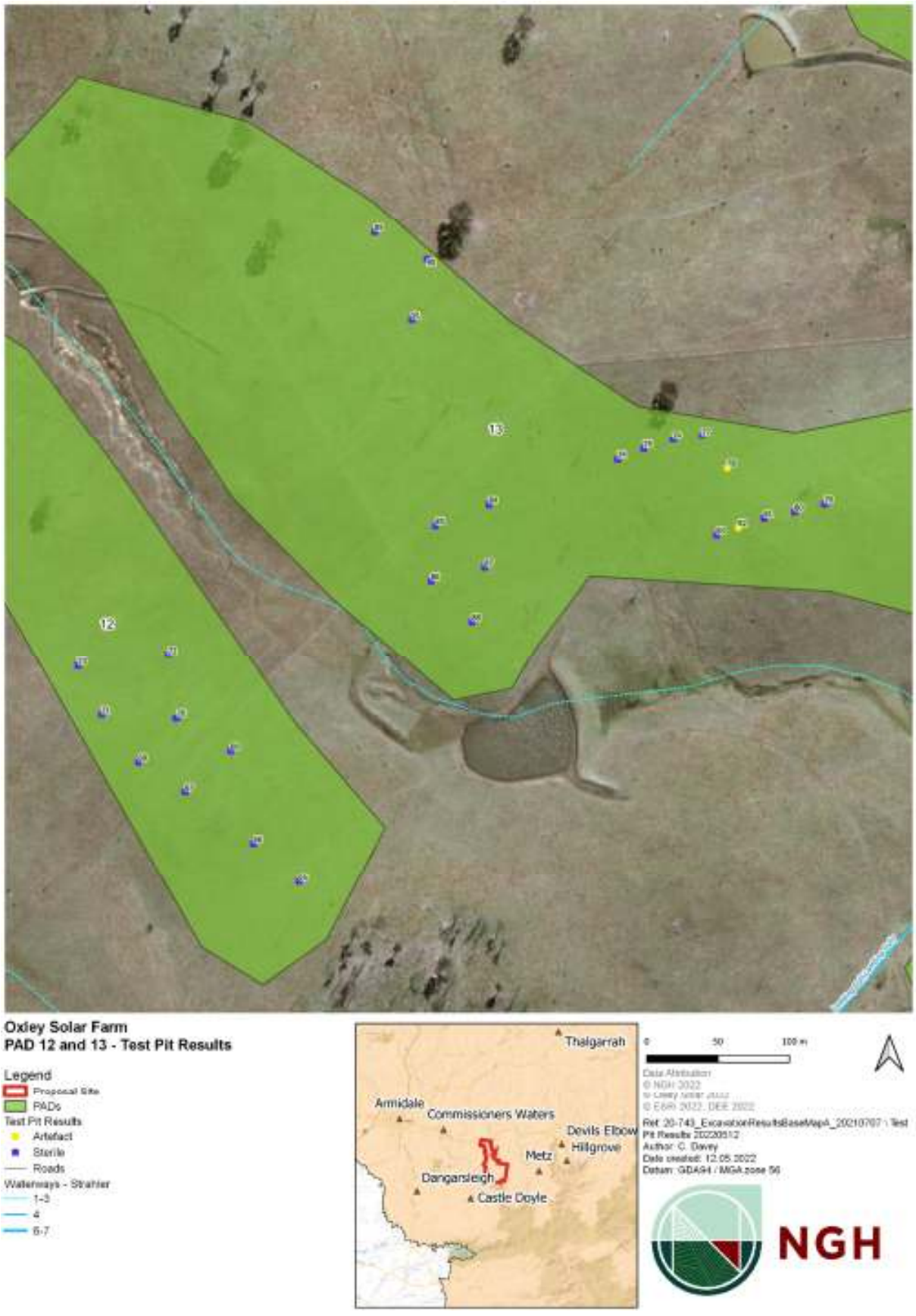


Figure 5-7 Results of testing – PAD 12 and 13

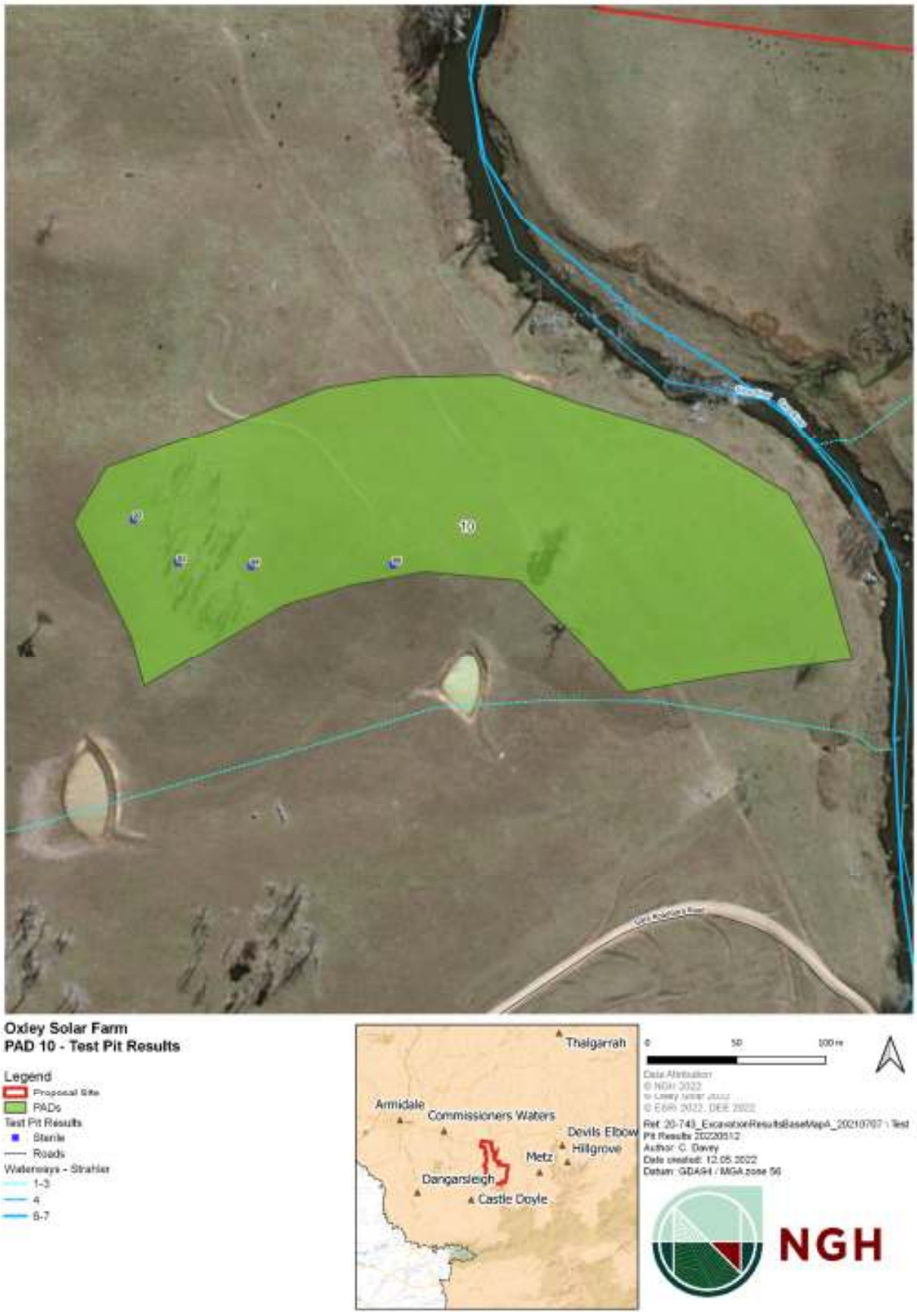


Figure 5-8 Results of testing – PAD 10

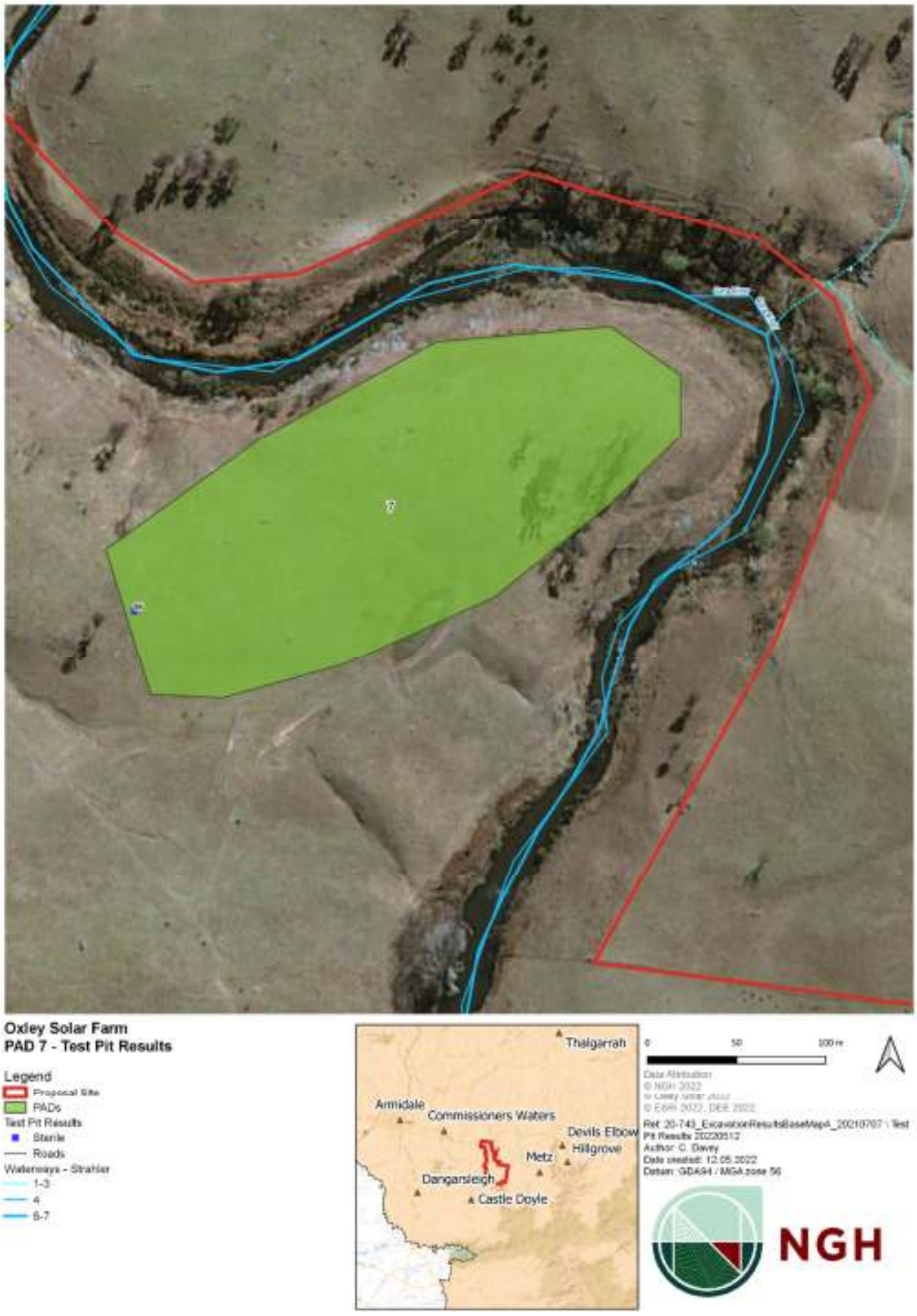


Figure 5-9 Results of testing – PAD 7

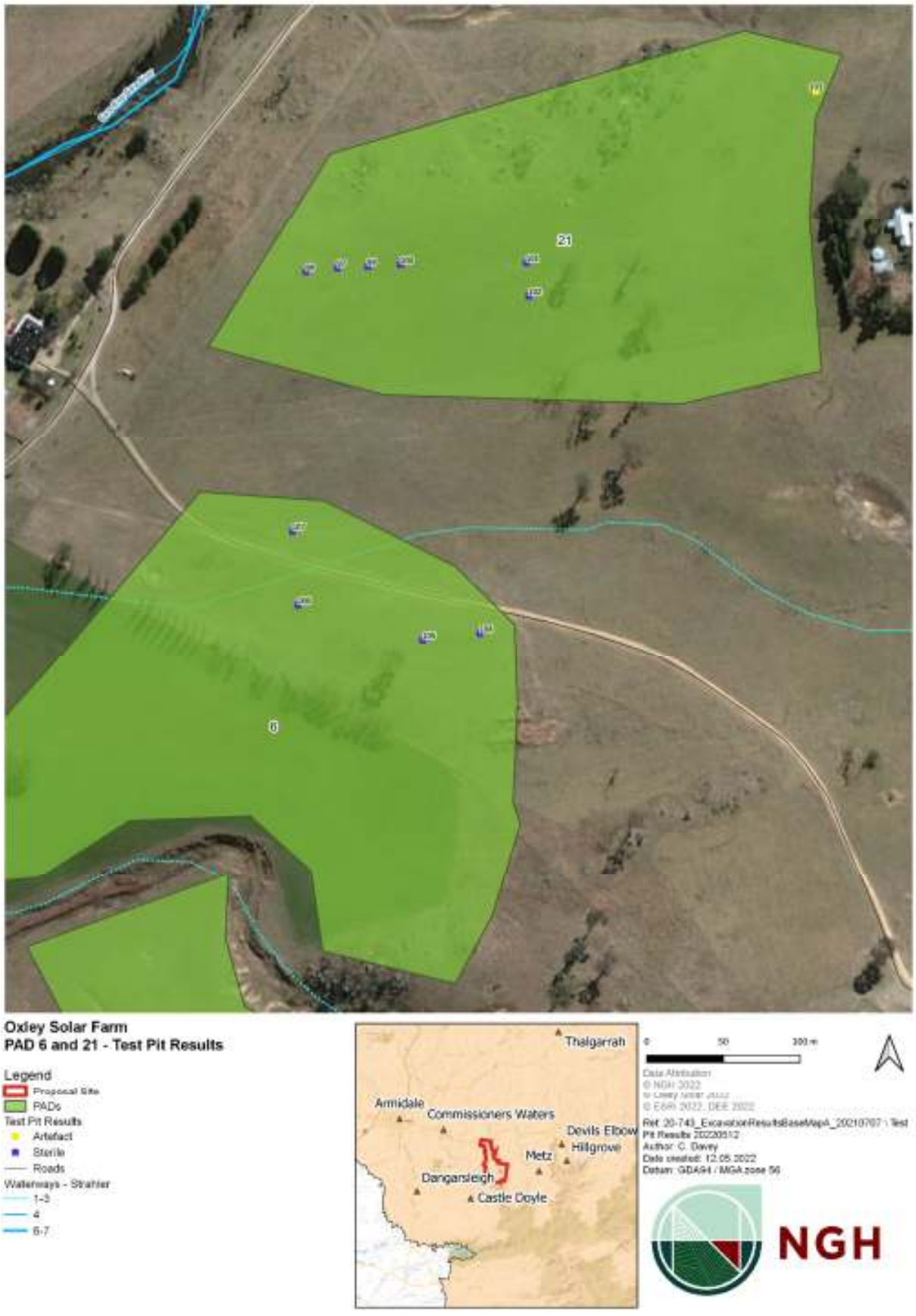


Figure 5-10 Results of testing – PAD 6 and 21

Figure 5-11 Results of testing – PAD 19

5.4.4 Additional surface artefacts

At the conclusion of excavations a single isolated artefact was identified by a paddock gate. Details of the site are discussed below.

Oxley Solar Farm IF25 AHIMS # 21-4-0409

The site was located adjacent to a paddock gate, 60 m north of Gara Road and 90 m from the Gara River and consisted of a pale grey cream silcrete flake in a small exposure with 60% ground surface visibility (Table 5-17).

Table 5-17 Photographs of Oxley Solar Farm IF25.

Plate 53 Close up of Oxley Solar Farm IF25.

Plate 54 Close up of Oxley Solar Farm IF25.

Plate 55 Context of Oxley Solar Farm IF25.

5.4.5 Deposit characteristics

The Proposal Site has been significantly disturbed by historical land clearing and grazing practices, including the early clearing of trees and more recently the movement of earth for the creation of contour banks, swales and dam construction. Property owner accounts also confirm that many paddocks have been repeatedly subjected to deep ripping and surface harrowing to improve soil aeration and productivity. Some areas may also have been ploughed for cultivation and cropping. These practices have exaggerated fluvial effects and led to significant erosion of the original topsoil. The shallowness of excavated deposits and the elevated surface water levels encountered in some PADs suggest the combined effects on surface and subsurface archaeology have been profound.

Test pits ranged in depth between 10-70 cm and comprised a sandy loam humic topsoil most commonly underlain by intrusions of decayed stone and clay nodules. The base clay layer generally appeared at around 20 cm. On the elevated flat and ridgeline/spur landforms the colour of the sterile base clay ranged from a deep red to a mottled yellow colour. Variations to deposits were minimal, with sterile clay appearing in more recent deposits of the elevated flat areas, particularly in the paddocks northeast of Gara Road. Consistent stony layers at early depths were encountered in proximity to the drainage lines and tree lines.

Charcoal inclusions were recovered in Test Pit 22, Test Pit 23 and Test Pit 52. However, as no cultural material was recovered from these test pits or the general area, the charcoal was considered related to land clearing or bushfire activity and not retained for dating. Moderate bioturbation in the form of root, earthworm and insect action, which can cause movement of material through the stratigraphic profile, was observed throughout the majority of the units. This supports the assumption of the stone artefacts identified during excavation are not *in situ* and that stratigraphic shifting of artefacts has occurred as a result of bioturbation or alluvial processes.

In locations where thick tuft grass was encountered, mattock excavation of the top section of the first spit of each test pit was required, and also in test pits where stony layers were encountered. Crowbars were also used for early spits in the elevated flat areas where clay was encountered in the upper spit.

5.4.6 Material recovered from pits

A total of 114 test pits were excavated. While 103 test pits did not contain artefacts, there were 20 artefacts recovered from 12 test pits. The data for subsurface artefacts recovered is provided in Appendix C.

The distribution of artefacts throughout the soil profile is included in Table 5-18, which demonstrates that the majority of artefacts were recovered from 0 to 10 cm below the surface (n=13), with artefact numbers decreasing substantially below 10cm in depth. The shallow compaction of soils from grazing and agricultural disturbance most likely explains the greater presence of artefacts between the ground surface and the top 10cm in comparison to the limited number of artefacts present in deeper layers.

With the exception of one artefact recovered between 30-40 cm, the predominant occurrence of artefacts in the top 10cm of soil likely reflects that these artefacts were not *in situ* and were deposited into a secondary, subsurface context as a result of agricultural and/or bioturbation activities.

The number of stone artefacts resulting from the test excavation program is considered low and therefore does not provide a sufficient sample from which to extrapolate broader trends in stone artefact manufacture and use, and landform modelling

5.5 Discussion of stone artefact data

As noted above, 20 subsurface stone artefacts were recovered from a total of 12 test pits. The spatial distribution of the data is shown in Figure 5-4 to Figure 5-11.

The distribution of artefacts through the soil profile as shown in Table 5-18 indicates that the majority of artefacts (65 %) were retrieved in the first 10 cm of the soil profile (n=13). Artefact numbers decrease sharply below 10 cm depth, with five artefacts recovered from between 10 to 20 cm (n=5) accounting for 25 % of the total. A single artefact was recovered from between 20 to 30 cm (n=1) and one artefact was recovered from between 35 to 45 cm (n=1). No artefacts were recovered below this depth.

Compaction of soils from a shallow depth combined with the agricultural disturbance is likely to explain the general presence of artefacts on the ground surface and in the top 10cm in comparison with the limited numbers in deeper deposits.

The distribution of artefacts across the Proposal Stie suggests an association with the area near the confluence of Lambing Gully and Gara River. While archaeological modelling suggests Aboriginal cultural activity is generally concentrated around such waterways, the increase of artefact density may actually be more related to fluvial translocation of materials (erosion) than indicative of focussed utilisation within that particular area. Such a small sample size renders land use conclusions regarding the context of these materials very much speculative.

Table 5-18 Distribution of artefacts in soil profile

Spit number (Depth cm)	Test Pit Numbers	Artefact Count by Spit	Percent of total artefacts
1 (0-10cm)	50, 53, 54, 61, 82	13	65%
2 (10-20cm)	5, 52, 78, 109, 110	5	25%
3 (20-30cm)	103	1	5%
4 (30-40cm)	4	1	5%
5 (40-50cm)	-	-	0%
Total	12	20	100%

It is considered unlikely that any of the artefacts identified were *in situ*, as the soils were shallow and exhibited evidence of disturbances throughout, as a result of agricultural activities and bioturbation. The limited number of subsurface artefacts and absence of *in situ* material prevents any meaningful analysis of the technology, distribution, or density of the stone artefacts. However, the excavation data combined with the surface artefact data demonstrates the distribution of archaeological material is positioned across the ridges/spurs, lower slopes and along creek lines within the Proposal Site.

Raw material types recovered are consistent with the general lithologies identified within the Proposal Site and broader Armidale area (Table 5-19).

Table 5-20 shows the technological characteristics of the artefacts recovered from the test pits. The majority of artefacts were flakes (n=9), followed by flake pieces (n=4), distal flakes (n=3), broken flakes (n=2), proximal flakes (n=1) and a microcore (n=1). The technological characteristics of the artefacts would suggest they were for the most part discarded pieces collateral to the manufacture of a general-purpose toolkit (Table 5-21). Such artefacts would likely have been manufactured as required, with some blade manufacturing potentially occurring onsite. This is consistent with the core and flake industry as outlined by Witter (1990) and consistent with observations made in the region and local area by Davidson and Appleton (1990), Godwin (1993), and Burke *et al* (2000). It is also worth noting that a number of flake fragments are likely a result of mechanical damage sustained from ploughing.

Table 5-19 Material types for subsurface materials recovered

Material type	Count
Quartz	5
Silcrete	5
Chert	6
Greywacke	2
Petrified wood	1
Crenulated tuff	1
Total	**20**

Table 5-20 Technology types for subsurface materials recovered

Technology type	Count
Flake	9
Flaked piece	4
Distal flake fragment	3
Broken flake	2
Proximal flake	1
Microcore	1
Total	**20**

Table 5-21 Selection of artefacts recovered from the subsurface testing programme

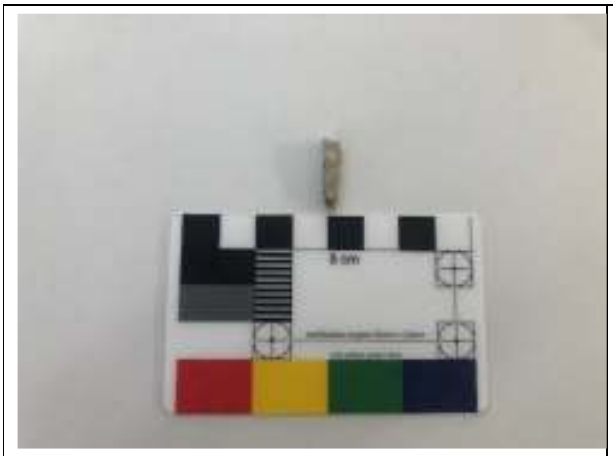


Plate 56 Elongated speckled chert flake (possibly a pressure flake).

Plate 57 Greywacke complete flake.

Plate 58 Quartz complete flake.

5.6 Summary of fieldwork results

All artefacts recovered from the subsurface testing programme are likely waste materials from the flaking process as few formal tool types were recorded. Stone artefacts recovered from the subsurface testing program represent an expedient approach to the manufacture and use of artefacts. The lack of retouched artefacts supports this interpretation, as retouched artefacts generally make up low proportions of stone artefact assemblages, particularly in areas where plentiful supplies of suitable stone resources are available. The stone artefacts are representative of stone artefact assemblages found in the region and do not appear to represent any departure from the common flaking methods employed by Aboriginal people in the past.

Test pit excavation of A horizons terminated at the concreted clayey silt, clay sediment and stony layers described above, and which form the commencement of B horizon soils. It should also be noted that these observed horizons and the recorded depths are in accordance with the Code of Practice, as B horizon clays are generally archaeologically sterile.

Site modelling undertaken as part of the desktop assessment was consistent with the types identified across the fieldwork programmes conducted for OSF. Stone artefacts were predicted to be the most likely evidence of past Aboriginal occupation within the OSF Proposal Site and the

results show that stone artefacts were located along the spurs and ridgelines which extend towards the banks of the high order streams such as the Gara River and its associated tributaries.

Stone artefacts was predominantly produced from silcrete, 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 in the OSF stone artefact assemblage, such as quartz, chert, greywacke, basalt and other unidentified volcanic types. The predominance of silcrete is likely due to the high quality and readily available silcrete varieties and sources, which are favourable for the manufacture of stone artefacts.

The presence of cores, hammerstones (identified during the survey programme) and flakes indicate that tool manufacture likely occurred onsite. In particular, the presence of ground edge axes (identified also during the survey programme) 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 to remove wood and bark from trees to construct shelters, shields, canoes, and coolamons, forming scars on the trees such as the two trees identified within the Proposal Site (ST1 and ST2) that are consistent with historical Aboriginal scarring morphology. While the lack of suitable geology explains the absence 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 that once occurred in the area were destroyed during the previous 200 years of European land clearing, or that axes were used for alternative purposes.

Although lack of ground surface visibility impeded understanding of relationships between the geomorphology and stone artefact frequencies during the surface survey programme, drier conditions afforded greater ground surface visibility during the subsurface testing programme. Generally, stone artefacts appear to be associated with undulating lower sloped landforms, ridgelines and crests, and this prevalence is likely strongly influenced by the tendency of these areas to include eroded dams and ridgelines where exposures afford greater ground surface visibility. It is also possible that surface water movement has pooled concentrations of artefacts into these discrete areas.

It should also be noted that the results of this survey and testing 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 stone artefacts as a common site type within the area is advanced by the results of this survey. The implications for this relate to significance assessments and the related appraisal of site representativeness. There are also likely to be many hundreds of such sites in the local area. Consequently, 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 additional sites are yet to be found.

5.7 Changes in Disturbance footprint – Further analysis of Results

The location of test pits in the PADs was planned to conduct investigations in areas where the highest probability of significant ground surface disturbance was proposed. Changes in the proposed disturbance footprint as outlined in Figure 1-1 to Figure 1-3 means that some areas of PADs 9, 10, 13, 19 and 21 now likely to undergo ground disturbance in areas not subject to test pits. The following discussion examines the results from those PADs where testing has not occurred within the new development footprint and is intended to provide rationale for the recommendations provided.

PAD 9

PAD 9 is situated to the immediate southwest of the confluence of Gara River and Lambing Gully on a landform characterised as ridgeline/spur (Figure 5-6). Testing was undertaken in the western portion of the PAD, in the areas of highest elevation. The results of the test excavations indicate that shallow deposits of soil are present, overlying culturally sterile clay. Stone artefacts and petrified wood were identified in the soil deposits, particularly to the south west. Results indicate that the landform where test pits 55, 56, 57, 62, 63 and 64 are located has low potential for further archaeological material, whilst the part of the landform to the north and east of Test Pits 52, 53, and 54 have a moderate to low potential for further archaeological material.

On these grounds, further testing must occur to ensure that the potential for this landform to contain archaeological material has been fully explored. The proposed further test pit locations should be situated to the north and east of the area where the highest number of artefacts were identified (Test Pits 52, 53 and 54) and be undertaken before any works involving ground surface disturbance will occur. Further detail on Management Recommendations can be found in Section 10.

PAD 10

PAD 10 is situated southwest of the confluence of Gara River and a drainage line on a landform characterised as a lower slope (Figure 5-8). Four test pits were excavated in the south western portion of the PAD and no artefacts were recovered. These results indicate there is a low potential for further archaeological material to be located in this landform where the extension to development footprint is located.

PAD 13

PAD 13 is situated north of Lambing Gully and between drainage lines feeding into the Gara River located 95 m away. The landform is characterised as a southwest facing slope (Figure 5-7), situated east of artefact scatter AS6 and north of IF9. Test pits were undertaken towards the middle of the PAD, concentrated in the area identified as the development footprint. Results from the 18 test pits indicates that a shallow soil horizon overlies a culturally sterile clay layer in some areas and a stony layer resembling a creek bed in other areas. The soil horizon was approximately 10 – 20 cm deep. Three stone artefacts were recovered from the test pits, indicating there is moderate to low potential for further finds. The two artefact bearing test pits (TP 78 and 82) indicate that further archaeological material may be located in the deposits around this location.

On these grounds, further testing must occur to ensure that the potential for this landform to contain archaeological material has been fully explored. The proposed further test pit locations should be situated to the south of Test Pits 78 and 82 and be undertaken before any works involving ground surface disturbance will occur. Further detail on Management Recommendations can be found in Section 10. It was determined that within the remaining area of PAD 13 to be impacted, as noted in this report, no additional testing was required beyond the area noted in Figure 5-12 for additional testing of a small portion of PAD 13 which is now proposed to be impacted.

PAD 19

PAD 19 is situated south of the Armidale Metz Track near drainage lines on a landform characterised as elevated (Figure 5-11). Despite evidence of prior significant ground disturbance, previously recorded sites AS14, IF15, IF16, IF17 and CT3 are within proximity of the test pits that were excavated. Results indicate there is a shallow deposit of soil where the two artefacts were recovered from the five test pits, located towards the east of the PAD. The soil horizon overlays a sterile clay and ironstone deposit. These results indicate that whilst there is potential for further archaeological material to be located around the location of TP109 and 110, there is very low potential for further archaeological material to be located in this landform where the extension to the development footprint is proposed.

PAD 21

PAD 21 is situated south of Gara Road near drainage lines to the north and south on a landform characterised as an elevated flat area. Test pits were located primarily in the south western portion of the PAD, concentrated in the area identified as the development footprint. This area also had been identified as having the highest potential for subsurface archaeological deposits due to its proximity to a ridgeline. One test pit was excavated to the north, outside of the development footprint. Results indicate that a soil horizon overlays culturally sterile clay or stone which was revealed at depths of approximately 40 – 70 cm. Test pits 97, 98, 99, 100, 101 and 102, excavated in the area of highest archaeological potential, were culturally sterile and one stone artefact was recovered from Test Pit 103. Given these results, the potential for further archaeological materials to exist in this landform where the extension to the development footprint is proposed are low.

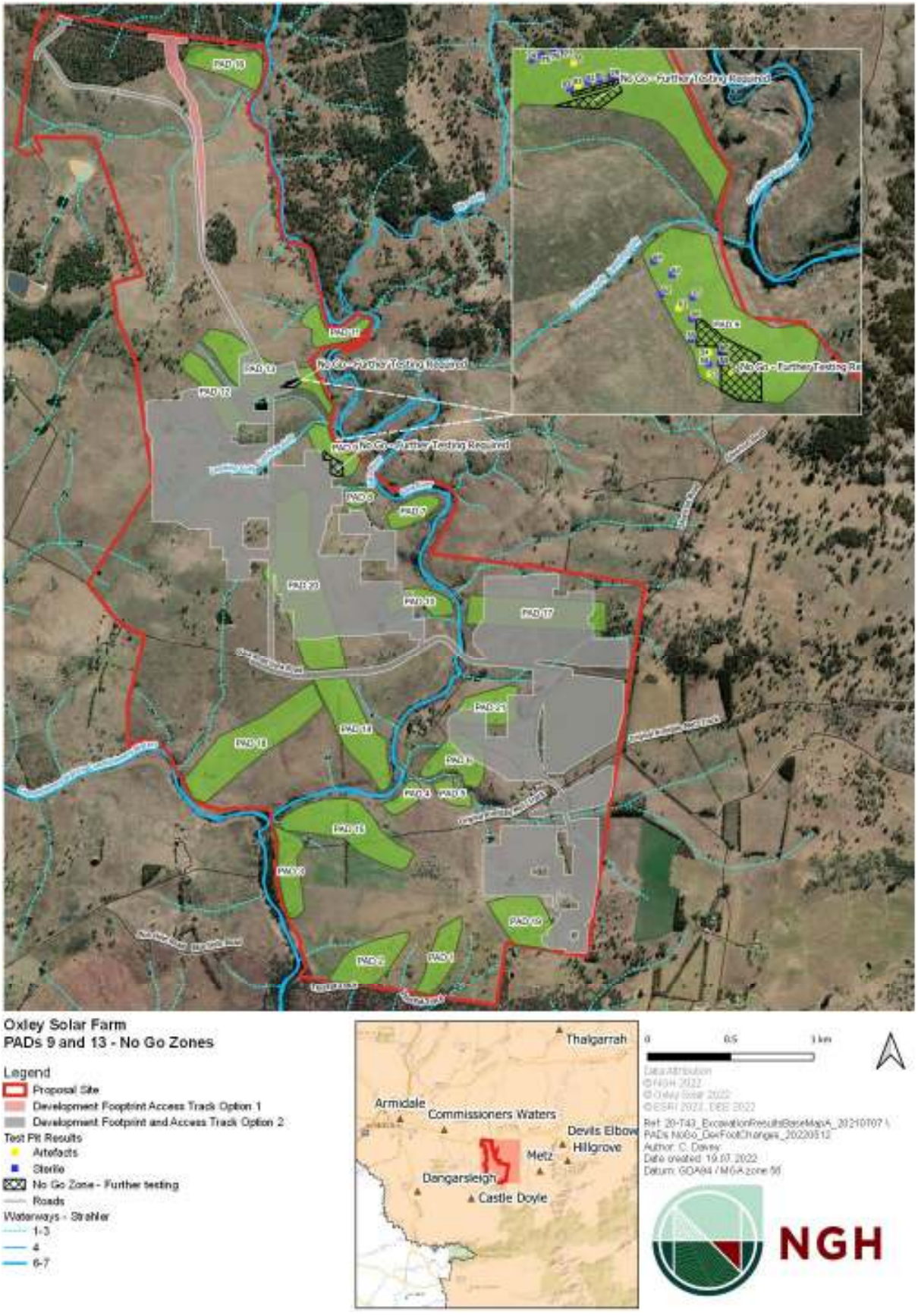


Figure 5-12 No Go Zones in PADS 9 and 13

6. Keeping place and reburial of artefacts

Owing to the particular circumstances of COVID-19 related border restrictions in place at the time of the two subsurface programmes, until the salvage program may be completed, the artefacts recovered from the test excavation will be kept at the respective NGH offices of NGH personnel involved in the excavations.

- Artefacts from the first programme of excavation will be kept at the Brisbane NGH office located at T3, level 7, 348 Edward St Spring Hill QLD 4000.
- Artefacts from the second programme of excavation will be kept at the Newcastle NGH office located at Unit 2, 54 Hudson St Hamilton NSW 2303.

Following the completion of the subsurface testing and upcoming surface salvage collection programs, the collected and analysed artefact assemblage will be placed in an appropriately labelled box to then be reburied at a location agreed upon by archaeologists, RAPs, Oxley Solar and the landowners. It is a requirement that the reburial location must not be subject to any proposed development. The reburial site will be recorded and photographed, and this information submitted by NGH in a new site card to AHIMS. Artefacts determined by RAPs to be culturally significant, such as the axes, will be stored at the Armidale Aboriginal Cultural Centre And Keeping Place (128 Kentucky St, Armidale New South Wales 2350) under an approved Care Agreement.

7. Cultural heritage values and statement of significance

The assessment of the significance of Aboriginal archaeological sites is currently undertaken with reference to criteria outlined in the ICOMOS Burra Charter (Australian ICOMOS 2013). Criteria used for assessment are:

- *Social or Cultural Value*: In the context of an Aboriginal heritage assessment, this value refers to the significance placed on a site or place by the local Aboriginal community – either in a contemporary or traditional setting.
- *Scientific Value*: Scientific value is the term employed to describe the potential of a site or place to answer research questions. In 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 as a whole should be considered.

7.1 Social or cultural value

While the 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. Comments regarding cultural and social values was sought from the registered Aboriginal stakeholders for this proposal through the draft reporting process. The following information details the currently known information regarding the cultural significance of the Proposal Site but is subject to revision based on feedback from this report.

Feedback obtained during the fieldwork with the Aboriginal community representatives was that all sites hold cultural value to the Aboriginal community. 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. Importance was placed on collecting the artefacts and moving them to a safe location to avoid further disturbance.

Scars on the modified trees and the cultural trees were considered likely to be Aboriginal in origin by the representatives present. Therefore, they are 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, located towards the southwest corner of the Proposal Site, also hold cultural significance. Blue Water Hole is an area targeted for subsistence procurement and further to the south (outside the Proposal Site), several Aboriginal burials are known to exist. Additionally, the river itself is said to follow a Songline known to the local Aboriginal community.

One comment was received within the 28 day review period, with the response stating the land is culturally significant and they wish for as much cultural heritage as possible to be preserved and recovered. The respondent also stated that upon receipt of the report, they were happy with the work that was completed, satisfied in the participation and approved of the report with no further comments to add.

7.2 Scientific 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. The subsurface testing of the PADs yielded very limited artefacts that were unlikely *in situ* and consisted of materials and typologies consistent with surface finds. As such these results compounded the low scientific value of the survey assemblage.

While individually the artefacts recorded during the surface 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 artefact types including axes, hammerstones and grindstones. The relationship between the Gara River, its tributaries and the archaeological sites is of some significance for local site modelling 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 materials, including several silcrete types, may provide further information about the accessibility of high quality raw materials.

Unfortunately, no portion of the recorded sites was assessed as undisturbed and as such further detail about the sites relies on assumption. The significance of those areas of PAD that have not undergone testing cannot be determined prior to further assessment of the nature and extent of these deposits.

The presence of the traditional scarred trees most likely represent the opportunistic use of the landscape. The scarring on the cultural trees is not considered to represent unequivocal Aboriginal activity but more likely natural scarring processes and therefore these items are considered to have negligible scientific significance. The fact that the surrounding landscape has been cleared and modified means that as a representative example of this site type, the traditional scarred trees have a high value given they are relatively rare within a 10 kilometre buffer of the Proposal Site.

The survival of such scarred 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 diminish with time, they possess high value as examples of an ever-reducing Aboriginal cultural feature. Therefore, the scarred trees (ST1, ST2,) in the Proposal Site are assessed overall as having high conservation value. The contemporary scarred trees are considered to be of low to moderate scientific significance, given they represent a continuation of cultural practices but are not significant from an archaeological perspective of traditional, pre contact Aboriginal land use.

The findings from archaeological surveys and test pit programs of the OSF 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 more 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.

7.3 Aesthetic value

There are no aesthetic values associated with the archaeological site locations *per se*, apart from the presence of the Gara River and its tributaries within the Proposal Site and the presence of Aboriginal artefacts and modified trees in the landscape. However, the modifications and disturbances to the landscape by agriculture and land clearing within the OSF development area arguably detract from the aesthetic setting.

7.4 Historic value

There are no known historic values associated with the Aboriginal heritage within the Proposal Site, the sites identified or links to known important historic events, phases or persons.

7.5 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.

8. Proposed activity

8.1 History and land use

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 disturbances are that the archaeological record within the Proposal Site has been compromised in terms of the potential for culturally 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 culturally modified trees remain in the area, indicating the presence of past Aboriginal people and providing indications of their use of this landscape.

8.2 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 via a connection to the existing transmission line that runs through the Proposal Site.

Disturbances will largely result from the preparation of the ground for the solar farm. To reduce the overall level of ground disturbance, it is proposed that piles would be driven or screwed into the ground to support the solar array's mounting system. Flat plate photovoltaic 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 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 OSF is expected to operate for around 30 years.

The following impact assessment and recommendations relate to the potential impacts associated with the proposed infrastructure layout shown in Figure 1-1.

8.3 Assessment of harm

A total of 33 isolated finds, 20 artefact scatters, seven cultural trees, six contemporary scarred trees, two scarred trees, one unfired clay and grass bowl and one surveyor tree are described in this report.

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

- IF26
- IF27

- IF28
- IF29
- IF30
- IF31
- IF32
- IF33
- AS20
- CST1
- CST3
- CST4
- CT1 (Figure 8-1).

It should be noted that IF26-33 and AS20 were recovered during the subsurface excavation program and retrieved for analysis and therefore impacts to these were negligible under the testing programme.

The following sites may be indirectly impacted by the proposed development due to their proximity:

- IF10
- AS9
- ST2
- SVT1 (Figure 8-1).

The aim of subsurface testing was to test those areas subject to disturbance as indicated by the infrastructure layout current at the time of the test excavation program. As outlined earlier, the revised development footprint extends into areas not subjected to subsurface testing within the five assessed PADs (PAD 9, 10, 13, 19 and 21). The results of the survey and test excavation program indicate that there is potential for further archaeological deposits to exist in PADs 9 and 13 and therefore further test pits must be undertaken if works are to proceed in the areas specified in Figure 5-12. It is recommended that during the finalisation of the development footprint, these areas are designated as no go zones. Conditions for the no go zones are outlined in greater detail in the Recommendations.

In all areas where works will involve ground surface disturbance, an Unexpected Finds Procedure should be employed during the construction works. The conditions of an Unexpected Finds Procedure are outlined in the Recommendations and a suitable template is provided in Appendix D.

Finally, although outside the Proposal Site and proposed development footprint, four sites are located immediately adjacent to Silverton Road. Changes in the proposed development footprint mean that the sites IF14, AS18, CT6, CT7 will not be impacted.

Table 8-1 provides a summary of sites to be impacted and avoided by the proposed development of the OSF.

Table 8-1 Summary of sites to be impacted and avoided by the proposed infrastructure layout

Sites directly impacted	Sites indirectly impacted	Sites avoided
• IF26* • IF27* • IF28* • IF29* • IF30* • IF31* • IF32* • IF33* • AS20* • CST1 • CST3 • CST4 • CT1	• IF10 • AS9 • ST2 • SVT1	• IF1, IF2, IF3, IF4, IF5, IF6, IF7, IF8, IF9, IF10, IF11, IF12, IF13, IF14 IF15, IF16, IF17, IF18, IF19, IF20, IF21, IF22, IF23, IF24, IF25 • AS2, AS3, AS4, AS5, AS6, AS7, AS8, AS9, AS10, AS11, AS12, AS13, AS18, AS19, AS21 • CT2, CT3, CT4, CT5, CT6, CT7 • ST1 • cST2, cST5, cST6 • ABG1 • PAD1, PAD2, PAD3, PAD4, PAD5, PAD7, PAD8, PAD16, PAD11, PAD14, PAD15, PAD18 • Parts of PAD6, PAD9, PAD10, PAD12, PAD13, PAD19, PAD20, PAD21.

* Collected during the test excavation program

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 the ‘no go zone’ areas.

The following sites are to be avoided and not impacted by the proposed works with the establishment of ‘no go zones’ (Figure 9-1, Figure 9-2, Figure 9-3).

- IF1, IF2, IF3, IF4, IF5, IF6, IF7, IF8, IF9, IF10, IF11, IF12, IF13, IF14 IF15, IF16, IF17, IF18, IF19, IF20, IF21, IF22, IF23, IF24, IF25
- AS2, AS3, AS4, AS5, AS6, AS7, AS8, AS9, AS10, AS11, AS12, AS13, AS19, AS21
- CT2, CT3, CT4, CT5
- ST1
- cST2, cST5, cST6
- ABG1
- SvT1
- ABG1
- PAD1, PAD2, PAD3, PAD4, PAD5, PAD7, PAD8, PAD16, PAD11, PAD14, PAD15, PAD18
- Parts of PAD6, PAD9, PAD10, PAD12, PAD13, PAD19, PAD20, PAD21.

The current proposed infrastructure layout will directly impact CT1, cST1, cST3, cST4. These sites have also been recommended for avoidance within a designated “no go zone”. As such, it is

strongly recommended that the infrastructure layout is modified to excise these areas from the proposed footprint.

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 infrastructure layout information provided in the proposed layout as shown in Figure 1-1 -Figure 1-3. If at any point, the proposed layout is modified, this assessment of harm and ACHA report will need to be updated by a qualified heritage consultant.

Table 8-2 details the degree of harm and the consequence of that harm upon the heritage value of each site type resulting from the proposed works and is contingent on the implementation of the recommended 'no go zones'.

Table 8-2 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	Number of sites
Isolated finds	Direct	Complete	Total loss of value	8
	Indirect	Partial	Partial loss of value	1
	Nil	Nil	Not applicable	25
Artefact scatters	Direct	Complete	Total loss of value	1
	Indirect	Partial	Partial loss of value	1
	Nil	Nil	Not applicable	14
Scarred trees	Indirect	Partial	Partial loss of value	0
	Nil	Nil	Not applicable	1
Contemporary scarred trees	Direct	Complete	Total loss of value	3
	Nil	Nil	Not applicable	3
Cultural trees	Direct	Complete	Partial loss of value	1
	Indirect	Partial	Total loss of value	2
	Nil	Nil	Not applicable	4

Site type	Type of harm	Degree of harm	Consequence of harm	Number of sites
Surveyor tree	Indirect	Partial	Partial loss of value	1
PADs	Direct	Complete	Negligible as a limited number of subsurface finds were collected during the testing programme.	Parts of PAD6, PAD9, PAD10, PAD12, PAD13, PAD19, PAD20, PAD21.
	Nil	Nil	Not applicable	PAD1, PAD2, PAD3, PAD4, PAD5, PAD7, PAD8, PAD16, PAD11, PAD14, PAD15, PAD18 and Parts of PAD6, PAD10, PAD12, PAD19, PAD20, PAD21
Unfired clay grass bowl	Nil	Nil	Not applicable	1

The proposed infrastructure development has already been redesigned to minimise impact to Aboriginal heritage where possible but modification to excise impacts to CT1, cST1, cST3, cST4 as well as appropriate buffers surrounding them is highly recommended. Overall, the proposed construction footprint and methodology will result in only small areas of disturbance. The construction of access and maintenance tracks may involve some grading but given the history of previous land clearing and track development evident in most of the terrain, this is likely to be of minimal concern. 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.

It should be noted that based on the revised footprint provided on 21 April 2022 there are five areas of PAD that intersect with the proposed infrastructure layout that have not been subjected to subsurface testing (Figure 9-1, Figure 9-2, Figure 9-3). The results of the survey and test excavation program indicate there is residual potential for archaeological deposits in areas of PADs 9 and 13. Further testing must be undertaken if works are to proceed in the areas specified in Figure 5-12. It is recommended that during the finalisation of the development footprint, these areas are designated as no go zones.

In all areas where works will involve ground surface disturbance, an Unexpected Finds Procedure must be employed during construction works.

In summary, the overall degree of harm for the project is assessed as low.

8.4 Impacts to values

Values that may be impacted by the development include 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 the community is something the Aboriginal community can articulate. One comment was received within the 28 day review period, with the response stating the land is culturally significant and they wish for as much cultural heritage as possible to be preserved and recovered. The respondent also stated that upon receipt of the report, they were happy with the work that was completed, satisfied in the participation and approved of the report with no further comments to add.

The impact on scientific values for this development is summarised in Section 0 and detailed in Table 8-3. There are several artefact sites, which are primarily assessed as having low scientific value, that are proposed to be impacted by the development of the OSF. 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 on the overall local archaeological record is low.

The stone artefacts recorded during this survey and subsurface testing program have little research value apart from what has already been obtained during this assessment. 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 further reduce the already low scientific value they retain.

The impact on the scientific values of those areas of PADs that will be impacted is therefore considered low.

One scarred tree (ST1), three contemporary scarred trees (cST2, cST5, cST6), and four of the cultural trees (CT2, CT3, CT4, CT5) will not be impacted by the proposed layout. However, one cultural tree (CT1) and three contemporary scarred trees (cST1, cST3, cST4) are proposed for direct impacts. Also, one scarred tree (ST2), two cultural trees (CT6, CT7) and a surveyor tree (SvT1) may be indirectly impacted by the proposed works. Where possible, the proposed layout should be amended to avoid CT1, cST1, cST3 and cST4 plus an appropriate buffer (~10 metre) surrounding the site to preserve the root system. In addition, the two cultural trees (CT6, CT7) located along Silverton Road and scarred tree (ST2) and surveyor tree (Svt1) along Grafton Road should also be avoided and 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 the trees have high cultural value and given the low number of traditionally modified trees recorded (ST1, ST2) in the area to date these two trees are considered to have high archaeological value and are relatively rare in the region. The remaining contemporary scarred trees and cultural trees have reduced or negligible archaeological significance and therefore impacts are reduced.

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

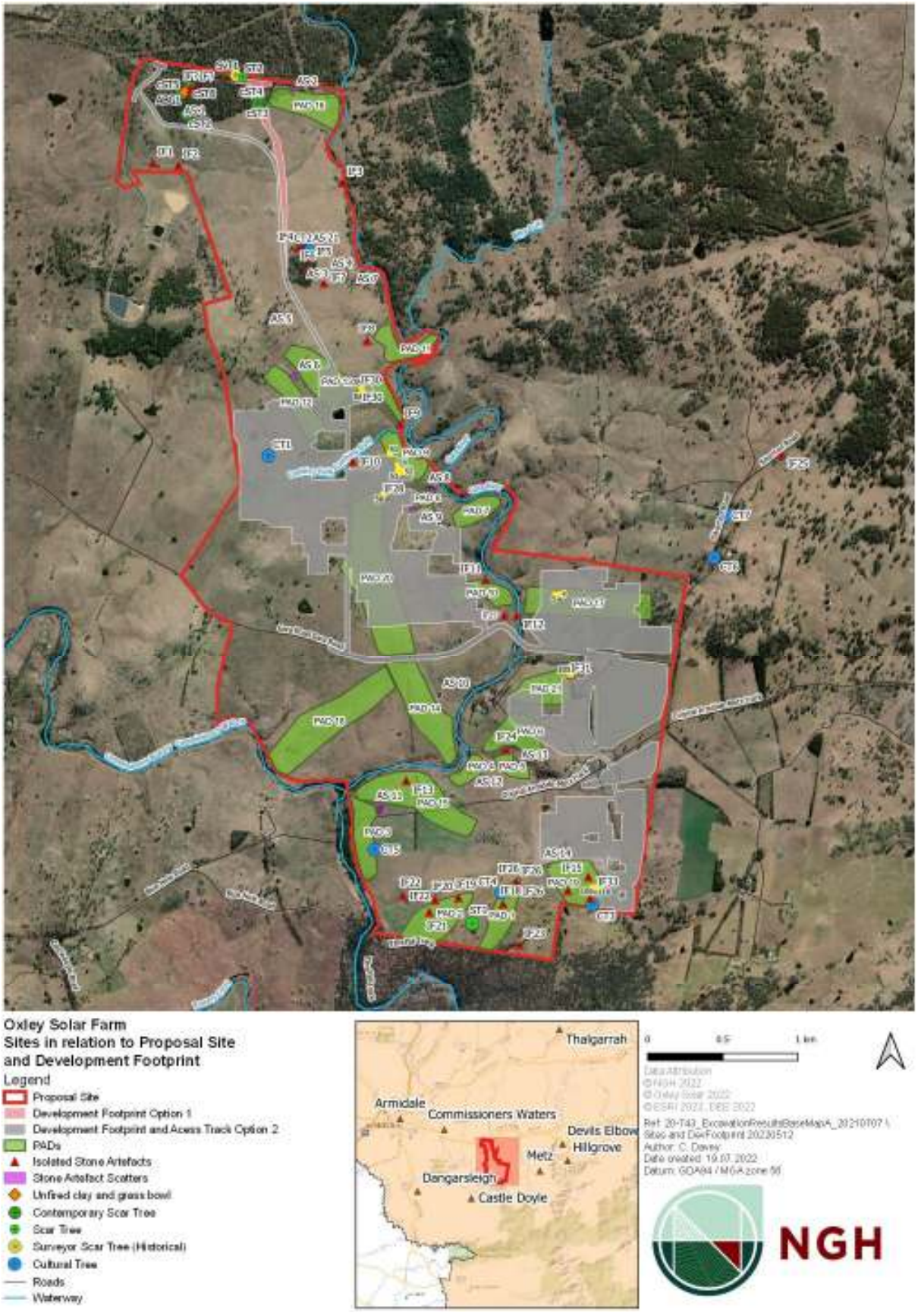


Figure 8-1 Identified sites in relation to proposed infrastructure layout

Table 8-3 Identified risks to known sites

AHIMS number	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	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0359	Oxley Solar Farm IF2	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0360	Oxley Solar Farm IF3	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0332	Oxley Solar Farm IF4	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0333	Oxley Solar Farm IF5	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0361	Oxley Solar Farm IF6	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0334	Oxley Solar Farm IF7	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0335	Oxley Solar Farm IF8	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0362	Oxley Solar Farm IF9	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.

AHIMS number	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0336	Oxley Solar Farm IF10	Poor – 100+ year history of agricultural and pastoral use.	Low	Indirect	Partial	Partial loss of value	Salvage surface objects before the development of the Proposal Site so that they may not be indirectly impacted by the proposed development.
21-4-0337	Oxley Solar Farm IF11	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0338	Oxley Solar Farm IF12	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0339	Oxley Solar Farm IF13	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0363	Oxley Solar Farm IF14	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	Outside boundary of Proposal Site. No action is required.
21-4-0340	Oxley Solar Farm IF15	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0318	Oxley Solar Farm IF16	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0364	Oxley Solar Farm IF17	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0319	Oxley Solar Farm IF18	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.

AHIMS number	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	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0321	Oxley Solar Farm IF20	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0366	Oxley Solar Farm IF21	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0365	Oxley Solar Farm IF22	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0354	Oxley Solar Farm IF23	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0353	Oxley Solar Farm IF24	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0409	Oxley Solar Farm IF25	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	Outside boundary of Proposal Site. No action is required. No action is required.
21-4-0407	Oxley Solar Farm IF26	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	Already collected during the testing programme. To be reburied with other surface salvage artefacts following the salvage programme.
21-4-0406	Oxley Solar Farm IF27	Poor – 100+ year history of agricultural and pastoral use.	Low	Direct	Total	Total loss of value.	Already collected during the testing programme. To be reburied with other surface salvage artefacts following the salvage programme.

AHIMS number	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0408	Oxley Solar Farm IF28	Poor – 100+ year history of agricultural and pastoral use.	Low	Direct	Total	Total loss of value.	Already collected during the testing programme. To be reburied with other surface salvage artefacts following the salvage programme.
TBC	Oxley Solar Farm IF29	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	Already collected during the testing programme. To be reburied with other surface salvage artefacts following the salvage programme.
21-4-0402	Oxley Solar Farm IF30	Poor – 100+ year history of agricultural and pastoral use.	Low	Direct	Total	Total loss of value.	Already collected during the testing programme. To be reburied with other surface salvage artefacts following the salvage programme.
21-4-0403	Oxley Solar Farm IF31	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	Already collected during the testing programme. To be reburied with other surface salvage artefacts following the salvage programme.
21-4-0404	Oxley Solar Farm IF32	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	Already collected during the testing programme. To be reburied with other surface salvage artefacts following the salvage programme.
21-4-0405	Oxley Solar Farm IF33	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	Already collected during the testing programme. To be reburied with other surface salvage artefacts following the salvage programme.

AHIMS number	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	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0342	Oxley Solar Farm AS2	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0343	Oxley Solar Farm AS3	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0344	Oxley Solar Farm AS4	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0345	Oxley Solar Farm AS5	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0346	Oxley Solar Farm AS6	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0347	Oxley Solar Farm AS7	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0348	Oxley Solar Farm AS8	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0352	Oxley Solar Farm AS9	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Indirect	Partial	Partial loss of value	Salvage surface objects before the development of the Proposal Site so that they may not be indirectly impacted by the proposed development.

AHIMS number	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0351	Oxley Solar Farm AS10	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0349	Oxley Solar Farm AS11	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0350	Oxley Solar Farm AS12	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0322	Oxley Solar Farm AS13	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0355	Oxley Solar Farm AS14	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0356	Oxley Solar Farm AS15	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0323	Oxley Solar Farm AS16	Poor – 100+ year history of agricultural and pastoral use.	Moderate	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0324	Oxley Solar Farm AS17	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0410	Oxley Solar Farm AS19	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	Outside boundary of Proposal Site. No action is required.

AHIMS number	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0400	Oxley Solar Farm AS20	Poor – 100+ year history of agricultural and pastoral use.	Low	Direct	Total	Total loss of value.	Already collected during testing programme. To be reburied with salvaged surface artefacts once salvage has occurred.
21-4-0401	Oxley Solar Farm AS21	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
21-4-0325	Oxley Solar Farm ST1	Good – *in situ* living tree	High	Nil	Nil	Nil	High visibility fencing to demarcate 10 m buffer around the tree during construction works. To be included as no go zone in CHMP and site inductions. Ensure avoidance with a 10 m buffer around the site.
21-4-0413	Oxley Solar Farm ST2	Good – *in situ* living tree	High	Nil	Nil	Nil	High visibility fencing to demarcate 10 m buffer around the tree during construction works. To be included as no go zone in CHMP and site inductions. Ensure avoidance with 10 m buffer around the site.
21-4-0414	Oxley Solar Farm cST1	Good – *in situ* living tree	Moderate	Direct	Total	Total loss of value	The design needs to be amended to excise tree plus 10 m from the development footprint. To be included as no go zone in CHMP and site inductions. Ensure avoidance with 10 m buffer around the site.
21-4-0420	Oxley Solar Farm cST2	Good – *in situ* living tree	Moderate	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions. Ensure avoidance with a 10 m buffer around the site.

AHIMS number	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0415	Oxley Solar Farm cST3	Good – *in situ* living tree	Moderate	Direct	Total	Total loss of value	The design needs to be amended to excise tree plus 10 m from the development footprint. To be included as no go zone in CHMP and site inductions. Ensure avoidance with 10 m buffer around the site.
21-4-0419	Oxley Solar Farm cST4	Good – *in situ* living tree	Moderate	Direct	Total	Total loss of value	The design needs to be amended to excise tree plus 10 m from the development footprint. To be included as no go zone in CHMP and site inductions. Ensure avoidance with 10 m buffer around the site.
21-4-0418	Oxley Solar Farm cST5	Good – *in situ* living tree	Moderate	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions. Ensure avoidance with a 10 m buffer around the site.
21-4-0417	Oxley Solar Farm cST6	Good – *in situ* living tree	Moderate	Nil	Nil	Nil	High visibility fencing to demarcate 10 m buffer around the tree during construction works. To be included as no go zone in CHMP and site inductions. Ensure avoidance with 10 m buffer around the site.
N/A	Oxley Solar Farm SvT1	Good – *in situ* living tree	N/A	Indirect	Partial	Partial loss of value	High visibility fencing to demarcate 10 m buffer around the tree during construction works. To be included as no go zone in CHMP and site inductions. Ensure avoidance with 10 m buffer around the site.

AHIMS number	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0326	Oxley Solar Farm CT1	Fair – the tree is alive however exhibits damage through limb fall.	N/A	Direct	Total	Total loss of value	The design needs to be amended to excise tree plus 10 m from the development footprint. To be included as no impact zone in CHMP and site inductions. Ensure avoidance with 10 m buffer around the site.
21-4-0327	Oxley Solar Farm CT2	Poor – the tree is dead	N/A	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions. Ensure avoidance with a 10 m buffer around the site.
21-4-0328	Oxley Solar Farm CT3	Good – *in situ* living tree	N/A	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions. Ensure avoidance with a 10 m buffer around the site.
21-4-0329	Oxley Solar Farm CT4	Good – *in situ* living tree	N/A	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions. Ensure avoidance with a 10 m buffer around the site.
21-4-0330	Oxley Solar Farm CT5	Good – *in situ* living tree	N/A	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions. Ensure avoidance with a 10 m buffer around the site.
21-4-0341	Oxley Solar Farm CT6	Good – *in situ* living tree	N/A	Nil	Nil	Nil	Outside boundary of Proposal Site. No action is required.
21-4-0331	Oxley Solar Farm CT7	Good – *in situ* living tree	N/A	Nil	Nil	Nil	Outside boundary of Proposal Site. No action is required.

AHIMS number	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
N/A	Oxley Solar Farm PAD1	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD2	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD3	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD4	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD5	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD6	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD7	Unknown	Unknown	Direct	Partial	Nil	No action required. To be included as no go zone in CHMP and site inductions.

AHIMS number	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
N/A	Oxley Solar Farm PAD8	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD9	Unknown	Unknown	Direct	Partial	Nil	Part of the area to be impacted has been tested. Those artefacts recovered have been collected and will be reburied with the remainder of salvaged artefacts outside of the development footprint. The area not tested that is now part of the development footprint will require testing if works will impact on this area. This area is a no go zone until testing is carried out. The remainder of PAD is to be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar FarmPAD10	Unknown	Unknown	Direct	Partial	Nil	The area to be impacted has been tested. The remainder of PAD outside of the development footprint is to be included as no impact zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD11	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no impact zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD12	Unknown	Unknown	Direct	Partial	Nil	The area to be impacted has been tested. The remainder of PAD is to be included as no impact zone in CHMP and site inductions.

AHIMS number	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
N/A	Oxley Solar Farm PAD13	Unknown	Unknown	Direct	Partial	Nil	The area to be impacted has been tested. Those artefacts recovered have been collected and will be reburied with the remainder of salvaged artefacts outside of the development footprint. The area not tested that is now part of the development footprint will require testing if works will impact on this area. This area is a no go zone until testing is carried out. The remainder of PAD is to be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD14	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD15	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD16	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD17	Unknown	Unknown	Direct	Partial	Nil	The area to be impacted has been tested. Those artefacts recovered have been collected and will be reburied with the remainder of salvaged artefacts outside of the development footprint. The remainder of PAD is to be included as no go zone in CHMP and site inductions.

AHIMS number	Site name	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
N/A	Oxley Solar Farm PAD18	Unknown	Unknown	Nil	Nil	Nil	No action is required. To be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD19	Unknown	Unknown	Direct	Partial	Nil	The area to be impacted has been tested. Those artefacts recovered have been collected and will be reburied with the remainder of salvaged artefacts outside of the development footprint. The remainder of PAD outside the development footprint is to be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD20	Unknown	Unknown	Direct	Partial	Nil	The area to be impacted has been tested. Those artefacts recovered have been collected and will be reburied with the remainder of salvaged artefacts outside of the development footprint. The remainder of PAD is to be included as no go zone in CHMP and site inductions.
N/A	Oxley Solar Farm PAD21	Unknown	Unknown	Direct	Partial	Nil	The area to be impacted has been tested. Those artefacts recovered have been collected and will be reburied with the remainder of salvaged artefacts outside of the development footprint. The remainder of PAD is to be included as no go zone in CHMP and site inductions.

9. Avoiding and mitigating harm

9.1 Consideration of ecologically sustainable development 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 all sites recorded within the OSF Proposal Site. 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 the 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 also 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 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 development footprint and that the sites outside the proposed development footprint will not be impacted by the proposed solar farm development.

As noted above, the archaeological values of the sites within the proposed development footprint, considering scientific, representative and rarity values, were assessed to be low. However, for those areas of PAD not part of the proposed development footprint and therefore not tested, the nature and extent of the deposit have not yet been established. Three of these areas, PAD 10, 19 and 21 are considered to have low potential for further archaeological deposits, but PAD 9 and 13 are likely to have moderate potential. It is therefore required that test pits be excavated within areas where the new development footprint overlaps with areas not subject to test excavation in PADs 9 and 13 before any works involving ground surface disturbance is undertaken. Until such time, these areas are designated as no go zones.

Overall, it is considered 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 few 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.

In consideration of the current proposed development footprint and known archaeological sites recorded, cumulative impacts of the proposal on the known archaeological record do not form a substantial objection to, or are not enough to reject outright, the development proposal for OSF as a whole.

9.2 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 development footprint has already been significantly altered to avoid several sites, additional measures to substantially redesign the proposed layout for the OSF are not considered to be necessary. However, minor modifications to excise proposed impacts to CT1, cST1, cST3 and cST4 plus an appropriate buffer (~10m) are highly recommended.

Based on the assessment of the Aboriginal sites and in consideration of discussions with the Aboriginal community representatives during the field survey and test excavation work 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 from proceeding.

The proposed development footprint will impact several stone artefact sites. Harm to these sites will be generated 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 plants. However, at the end of the 2019 surveys, limited ground surface visibility obscured the possible locations of artefacts within the balance of the Proposal Site and it was recommended that further understanding of the landforms identified as PADs could be ascertained through a subsurface testing programme. As the limited finds from subsurface testing were evaluated to be in secondary contexts, potential harm to PADs within the proposed infrastructure layout was considered low.

The archaeological material identified in the survey and through the subsurface testing programme is not of sufficient value to reject the development proposal, especially considering the total avoidance of 41 sites with stone artefacts, 12 areas of PAD, four cultural trees, three contemporary scarred trees, one scarred tree and one unfired clay and grass bowl.

9.3 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 for the artefacts.

The mitigation of harm has been incorporated into the development design by the avoidance of the scarred tree and four cultural trees, provided that the design is amended to ensure the avoidance of CT1, cST1, cST3, cST4 and include an appropriate surrounding buffer.

The establishment of the aforementioned ‘no go zones’ would further ensure the protection of the sites which are to be avoided by the works during development. Further to this, the implementation of ‘no go zones; could mitigate indirect impacts to CT6, CT7, ST2 and SvT1 and, alongside modification of design, direct impacts to CT1, cST1, cST3, cST4.

The surface stone artefact sites within or adjacent to the proposed development footprint that will be impacted by the works for the OSF are conducive to surface collection salvage as a mitigation strategy. A salvage programme is required for the collection of IF10 and AS9. It should be noted that IF26, IF27, IF28, IF29, IF30, IF31, IF32, IF33, and AS20 were collected during the testing programme. It is recommended that the stone artefact sites that will be impacted by the proposed development footprint be salvaged by an archaeologist with 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 Proposal Site 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, 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 OSF.

There are five areas of PAD that intersect with the proposed infrastructure layout that have not been subjected to subsurface testing (Figure 9-1, Figure 9-2, Figure 9-3). Owing to the nature of artefacts and deposits encountered PADs 9 and 13, if works were to proceed in the untested areas additional subsurface testing would be required. Although survey results generally indicate low sensitivity for the remainders of the PADs, an Unexpected Finds Procedure should be employed during the construction works.

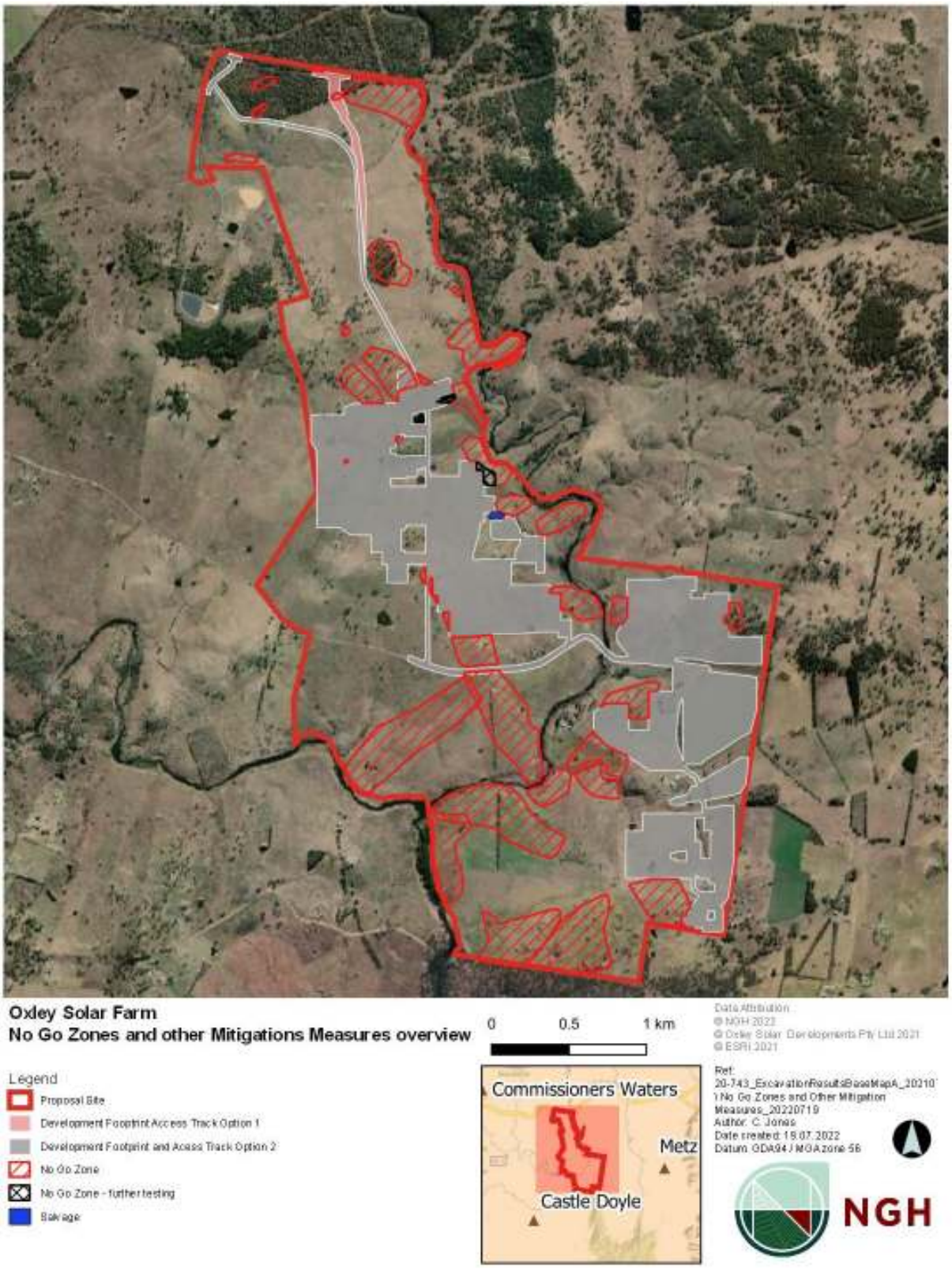


Figure 9-1 No go zones and other mitigation measures – Overview

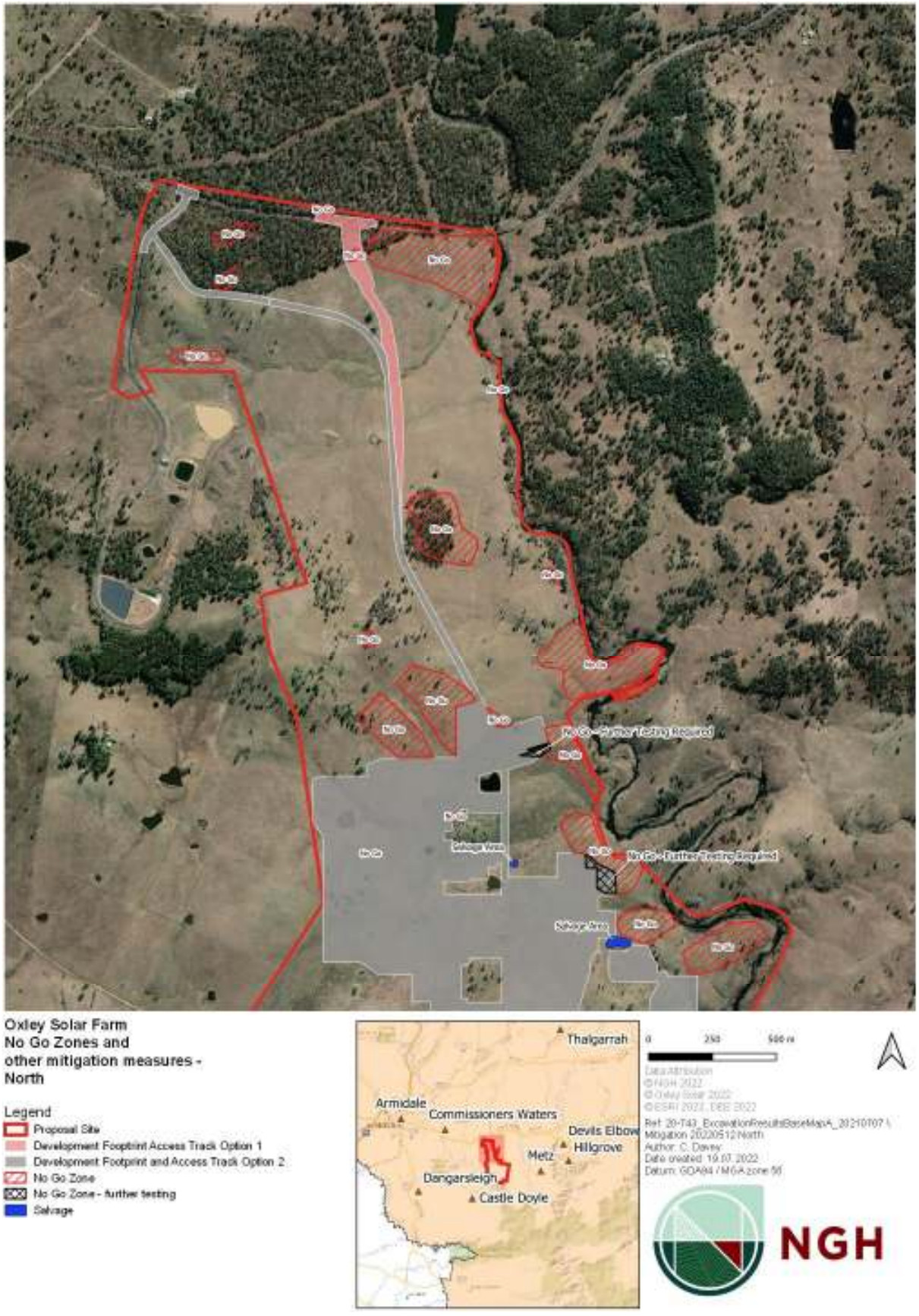


Figure 9-2 No go zones and other mitigation measures –North

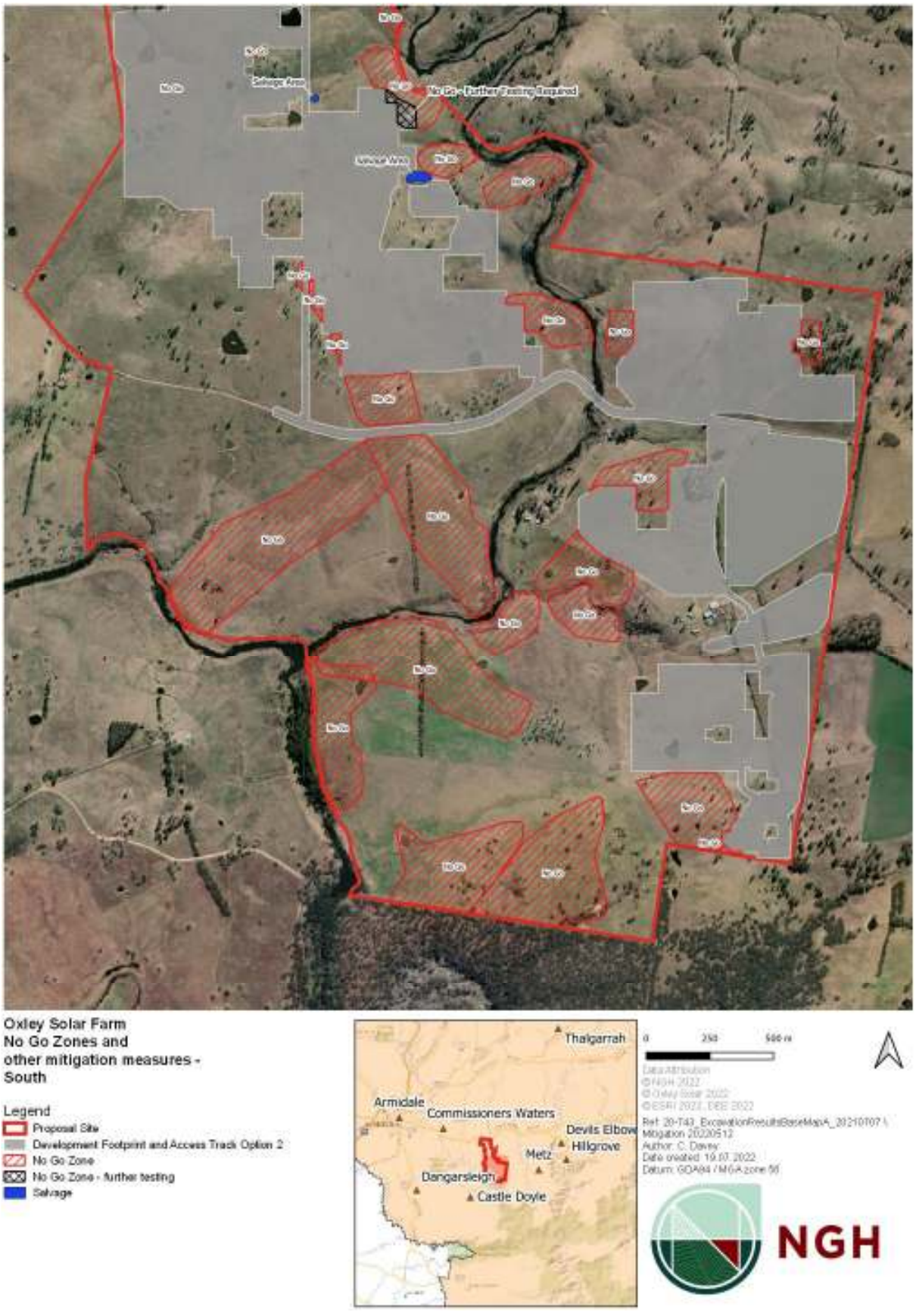


Figure 9-3 No go zones and other mitigation measures – South

10. Recommendations

The recommendations are based on the following information and considerations:

- Results of the 2021 archaeological survey of the Additional North Survey Area 1 and subsurface testing of the area
- Results of the 2022 archaeological survey of the Alternative North Survey Area 2
- Results of the previous archaeological survey of the Assessment Area (2020)
- Consideration of results from other local archaeological studies
- Results of consultation with the RAPs
- The assessed significance of the sites
- Appraisal of the proposed development and
- The legislative context for the development proposal.

It is recommended that:

Trees

1. The proposed layout of the solar farm must be amended to avoid CT1, cST1, cST3 and cST4 inclusive of a 10 metre buffer surrounding these sites. A minimum of a 10-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 preconstruction, construction and decommission works. The location of CT1, cST1, cST3 and cST4 should be marked on all construction plans and in the CHMP for the Project.
2. During construction works, high visibility fencing must be erected around ST2, SvT1, CT6 and CT7 to ensure indirect impacts through the use of Silverton Road and Grafton Road as a transport corridor do not occur. In addition, the designated “no go zones” surrounding these areas must be marked on all construction plans and in the CHMP for the project.
3. The development avoids CT2, CT3, CT4, CT5, ST1, cST2, cST5 and cST6 within the Proposal Site. A minimum of a 10-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 preconstruction, construction, and decommission works. The location of CT2, CT3, CT4, CT5, ST1, cST2, cST5 and cST6 should be marked on all construction plans and in the CHMP for the Project.

Stone Artefacts

4. If complete avoidance of any of the surface isolated finds and/or artefact scatters recorded in proximity to the development footprint is not possible, then a reasonable attempt to collect the surface stone artefacts within the development footprint must be undertaken as part of a salvage programme. The surface collection salvage of these stone artefacts must occur prior to the proposed construction works commencing for the OSF. Until surface collection salvage has occurred, a minimum 5 metre buffer must be observed around all stone artefact sites. The location of isolated finds and artefact scatters within the development footprint should be marked on all construction plans until the salvage is completed.

5. A reasonable attempt to collect the surface stone artefacts at IF10a and AS9 should be undertaken by an archaeologist with RAPs (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.
6. Artefacts salvaged during the excavation program and in any future salvage efforts (IF10, IF26, IF27, IF28, IF29, IF30, IF31, IF32, IF33, AS9, and AS20) may be temporarily stored at an NGH office for further analysis if this cannot be undertaken on site at the time of salvage.
7. If permanent storage of artefacts is to be at the Armidale and Region Aboriginal Cultural Centre & Keeping Place, the authority responsible for the Keeping Place will need to submit a Care Agreement to Heritage NSW for approval. Selected artefacts will likely be displayed at the Cultural Centre.
8. If storage at the Keeping Place 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 details and burial location submitted to the AHIMS database.
9. A minimum 5 metre buffer should be observed around all stone artefact sites that will not be impacted by the proposed development. The heritage "no go zones" within the Proposal Site should be implemented to ensure that sites that are being avoided by the proposed development are not inadvertently impacted. In addition, the designated "no go zones" surrounding these areas must be marked on all construction plans and in the CHMP for the project.

PADs

10. If the proposed infrastructure layout is modified from that shown in Figure 1-1 and proposed works are likely to disturb additional portions of the PAD further subsurface testing may be required if the presence/absence of subsurface stone artefacts has not been sufficiently determined through the subsurface testing programme undertaken to date.
11. There are five additional areas of the 10 PADs that the development footprint extends into that were not subjected to subsurface testing. Owing to the number of artefacts and deposits encountered it has been determined that additional test pits are required to be excavated within areas where the new development footprint overlaps with areas not subject to test excavation in PADs 9 and 13 as shown in Figure 9-2 as further testing required. This further testing must be undertaken before any constructions works is undertaken if these two areas are unable to be avoided by the development. Until such time, these areas are designated as no go zones.
12. For any impacts to those sites and PADs currently being avoided by this project or areas outside those assessed for this project to date, further assessment and consideration of impacts on Aboriginal heritage should occur. Additional Aboriginal consultation and further assessment, which may include survey and/or subsurface testing, may be required.

Human Remains

13. In the unlikely event that human remains are discovered during the construction of the OSF, all work must cease in the immediate vicinity. HNSW 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 RAPs should be advised of the find as directed by HNSW.

Operational and Legislative

14. The Proponent should prepare a CHMP to address the potential for finding additional Aboriginal artefacts during the construction of the OSF and for the management of known sites, artefacts, PADs, and designated “no go zones” within the Proposal Site. The Plan should include an unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the RAPs. A draft unexpended finds procedure is provided in Appendix D.
15. All employees, contractors and visitors to the OSF area should participate in a Cultural Heritage Induction that outlines the location of sites, obligations regarding no go zones and access outlined in these recommendations and any other information the RAPs agree to share about the sites located in the OSF Proposal Site.
16. 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. These will be included in the CHMP and all site inductions. 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.
17. 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 RAPs and may involve further field surveys and/or test excavations. A formal modification to the development consent would be required if any activity were proposed to extend beyond the area assessed and granted for development approval as part of this SSD project.
18. A care agreement with HNSW in accordance with the NPW Act must be undertaken for the artefacts to be stored at Armidale and Region Aboriginal Cultural Centre & Keeping Place.
19. In accordance with the development consent for this SSD, an ASIRF must be completed and submitted to AHIMS for each site collected or destroyed through salvage and/or construction works.

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Appendix A Aboriginal consultation

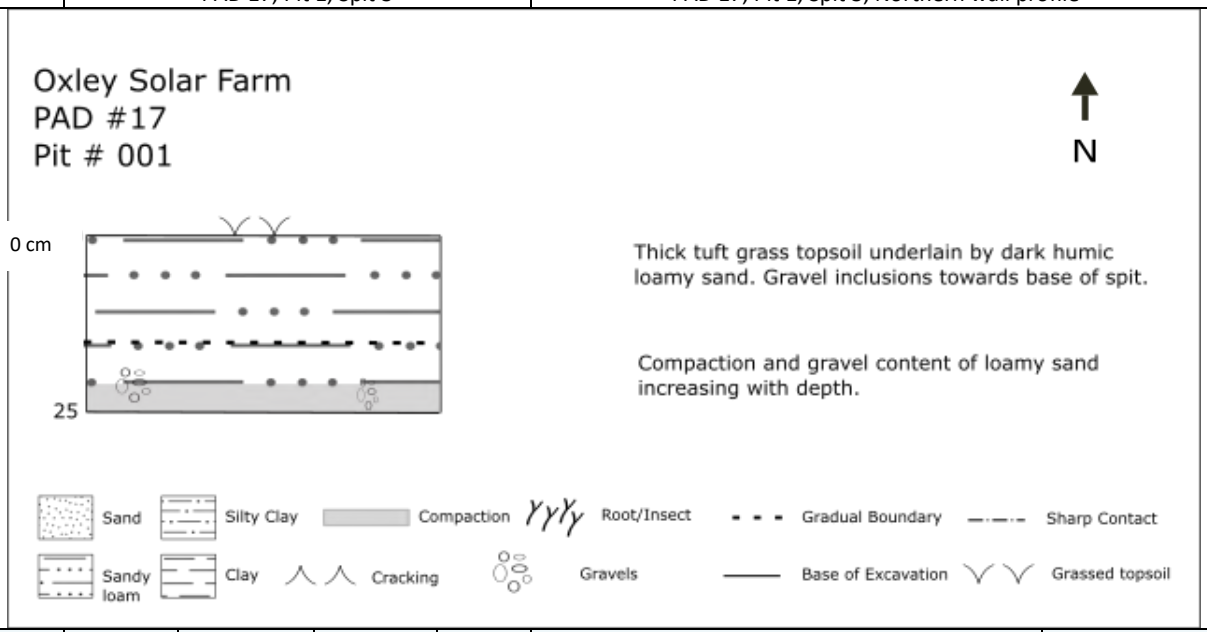
Redacted due to cultural sensitivities. Available upon request for Heritage New South Wales.

Appendix B Spit sheets

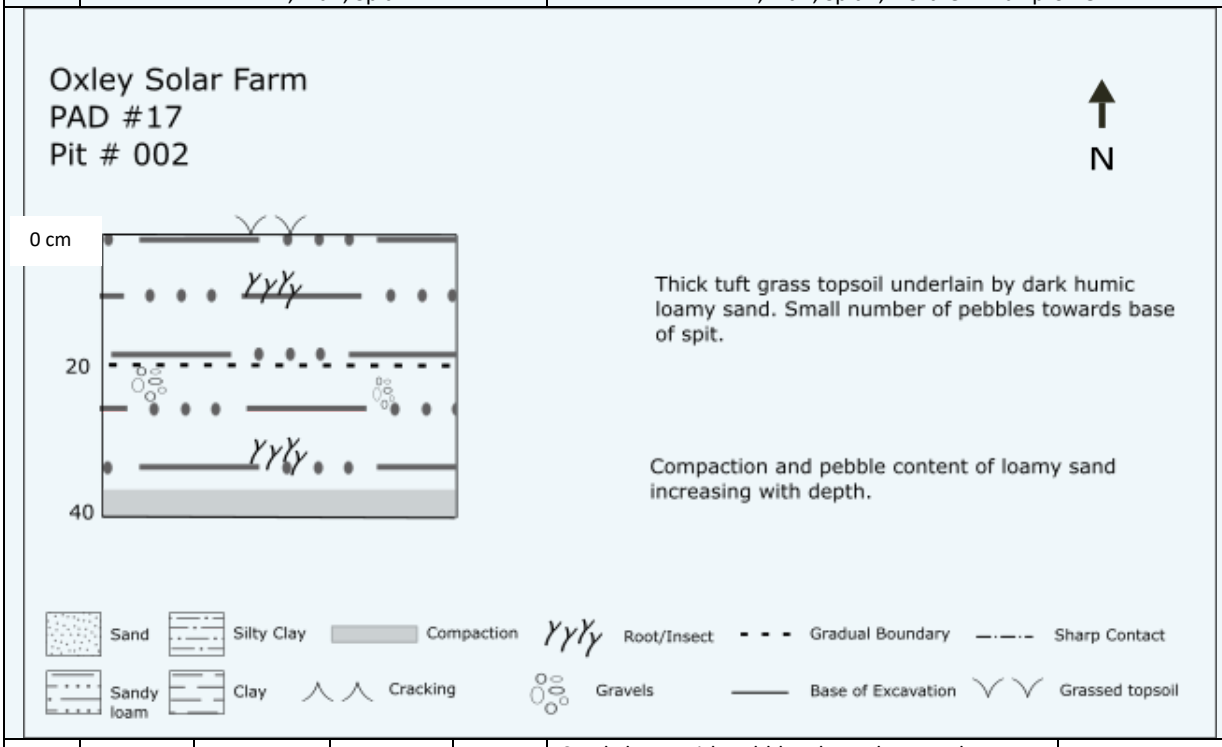
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
17	1	386318, 6616874	1	1-5	Dark humic loamy sand with thick tuft grass inclusions. PH=6.	Nil
			2	5-15	Dark humic loamy sand with thick tuft grass inclusions. Coarse sand gravels and worms throughout. PH 6.5.	Nil
			3	15-25	Quartz grains and pebbles are more prevalent throughout. PH=6.5.	Nil

PAD 17, Pit 1, Spit 3

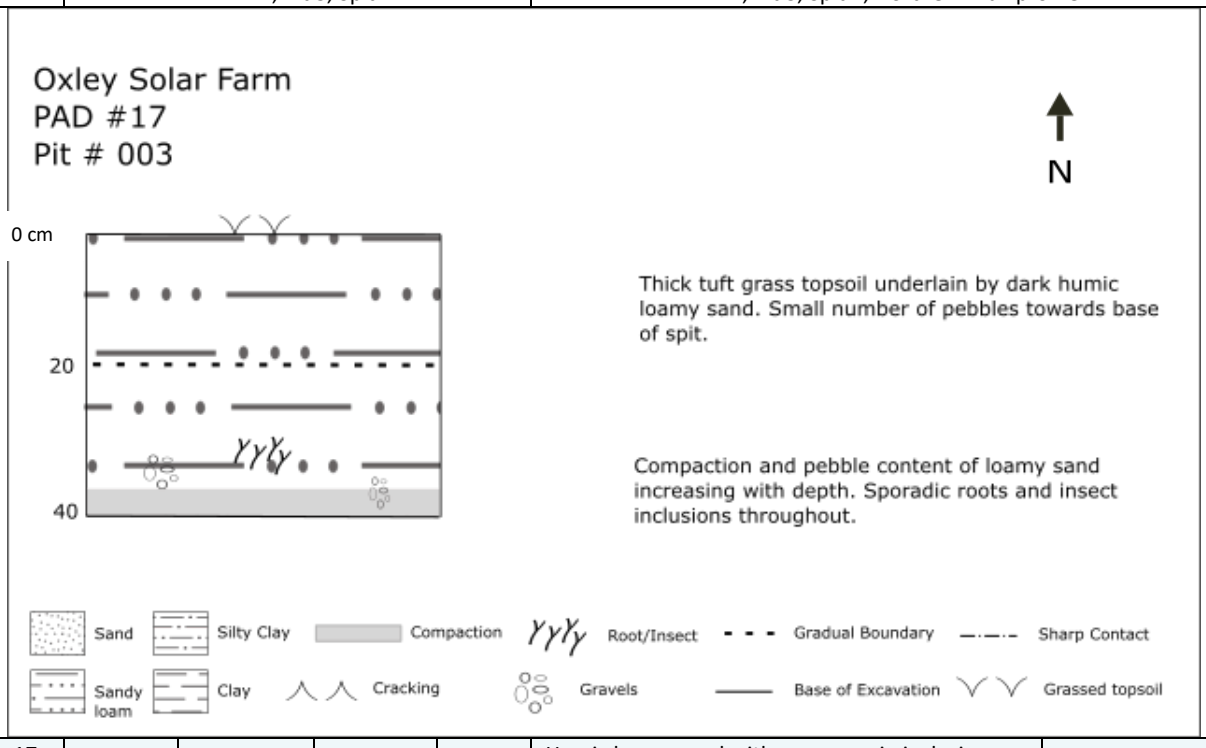
PAD 17, Pit 1, Spit 3, Northern wall profile



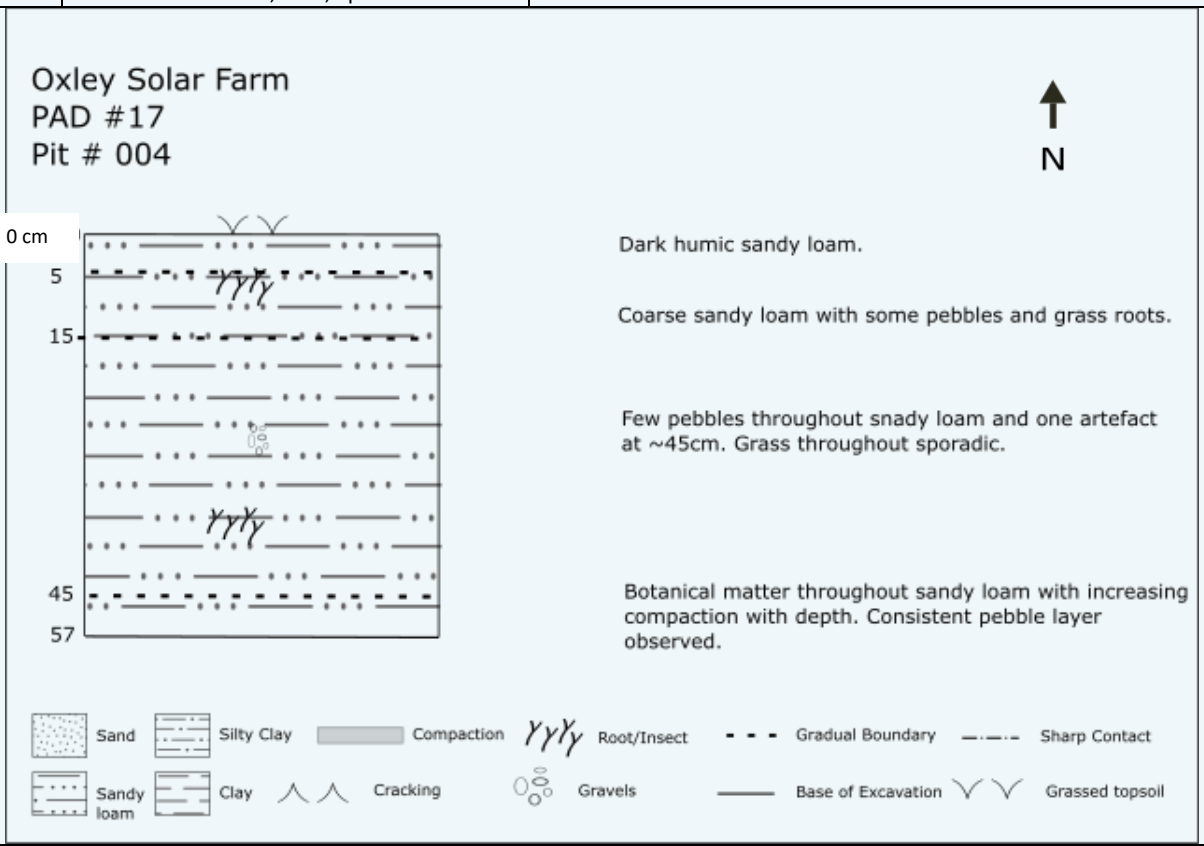
17	2	386281, 6616884	1	1-10	Dark humic loamy sand with thick tuft grass as well as insect inclusions. PH=6.	Nil
			2	10-20	Loamy sand with occasional worm and pebble inclusions. Grass roots still present throughout. PH=6.	Nil
			3	20-30	Grassroots decreasing with depth and quartz pebble inclusions increasing with depth. PH=6.	Nil
			4	30-~40	Coarse sand with quartz pebbles and grassroots throughout. PH=6.	Nil

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 17, Pit 2, Spit 4				 PAD 17, Pit 2, Spit 4, Northern wall profile	
						
17	3	386240, 6616883	1	1-10	Sandy loam with pebbles throughout and rootlets protruding throughout the base of the spit. PH=6.	Nil
			2	10-20	Some pebbles are still present throughout (mainly comprising quartz materials). PH=6.	Nil
			3	20-30	More gravel and pebble inclusions are present throughout. More friable textured soils and rootlets are still present protruding through walls.	Nil
			4	30-40	Small quartz pebbles still present with sporadic rootlets also evident. Some occasional insect inclusions. PH=5.5.	Nil

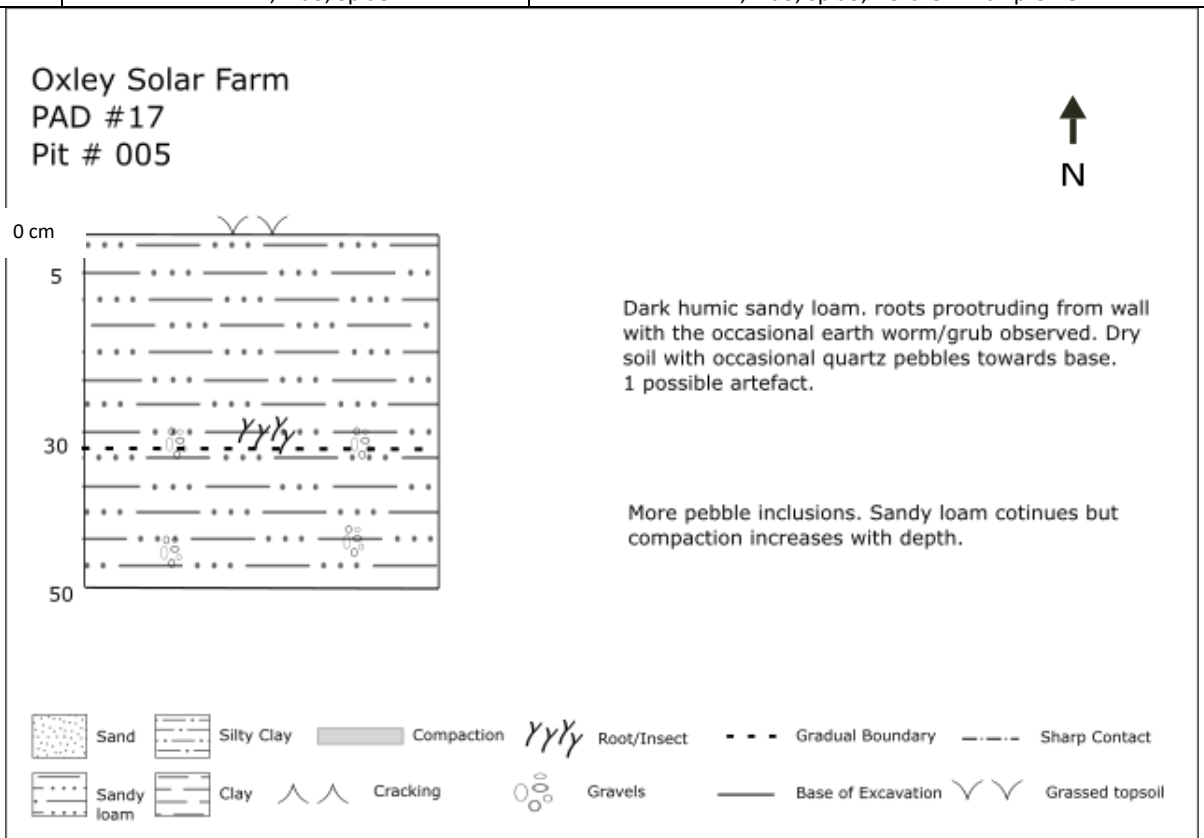
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 17, Pit 3, Spit 4				 PAD 17, Pit 3, Spit 4, Northern wall profile	



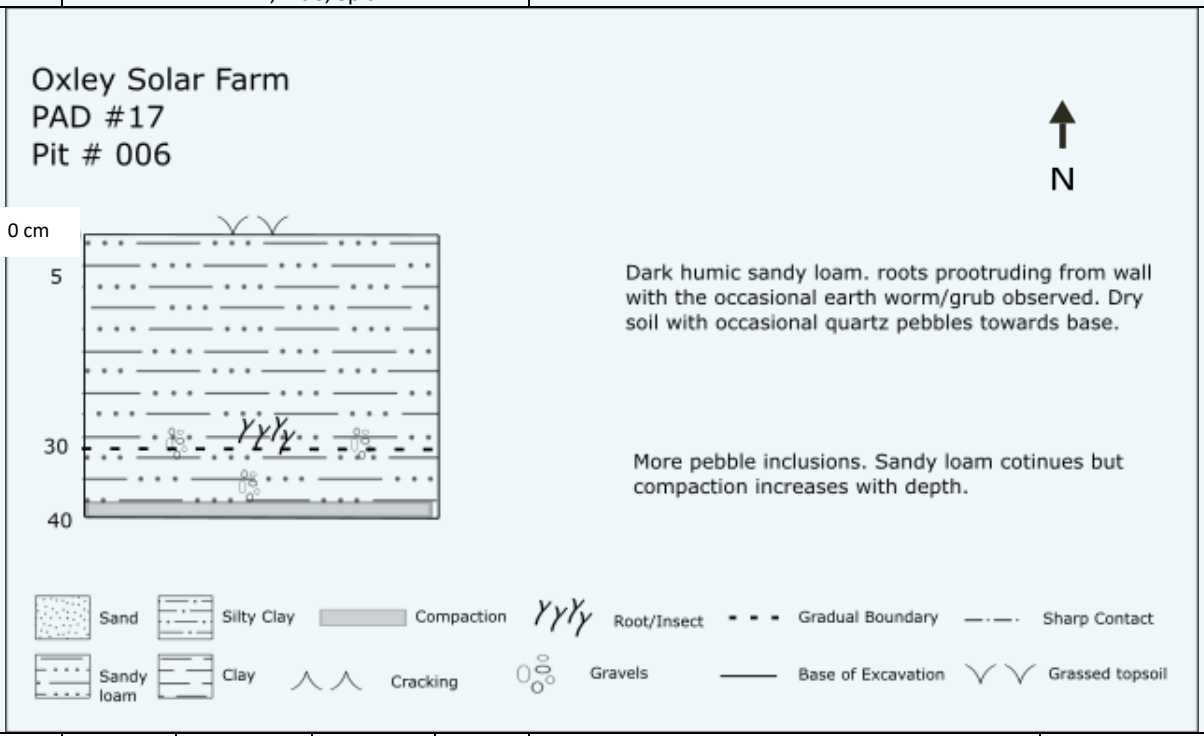
17	4	386198, 6616885	1	1-5	Humic loamy sand with coarse grain inclusions. PH=6.	Nil
			2	5-15	Loamy sand with grass-root, pebble and insect inclusions throughout. PH=6.	Nil
			3	15-25	Pebble inclusions decreasing with depth. Loamy sand continued. PH=6.	Nil
			4	25-35	Fewer pebble inclusions again with the occasional worm and grass-root evident. PH=6.5.	Nil
			5	35-45	Continued loamy sand. PH=6.5.	1 artefact, chert flaked piece
			6	45-55	The layer of small quartz pebbles is approximately 2 cm in size. Loamy sand is present but decreasing in friability.	Nil

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 17, Pit 4, Spit 6				 PAD 17, Pit 4, Spit 6, Northern wall profile	
						
17	5	386159, 6616882	1	1-10	Sandy loam with thick tuft grass topsoil.	Nil
			2	10-20	Sandy loam.	Nil
			3	20-30	Small quartz inclusions present throughput. Occasional root and insect inclusions Dry friable sandy loam material.	Nil
			5	30-40	Increased pebble inclusions throughout with the occasional grub are also evident. PH=6.	1 possible artefact.
			5	40-50	Another 10 cm spit was excavated to ensure the below layer was culturally sterile.	Nil

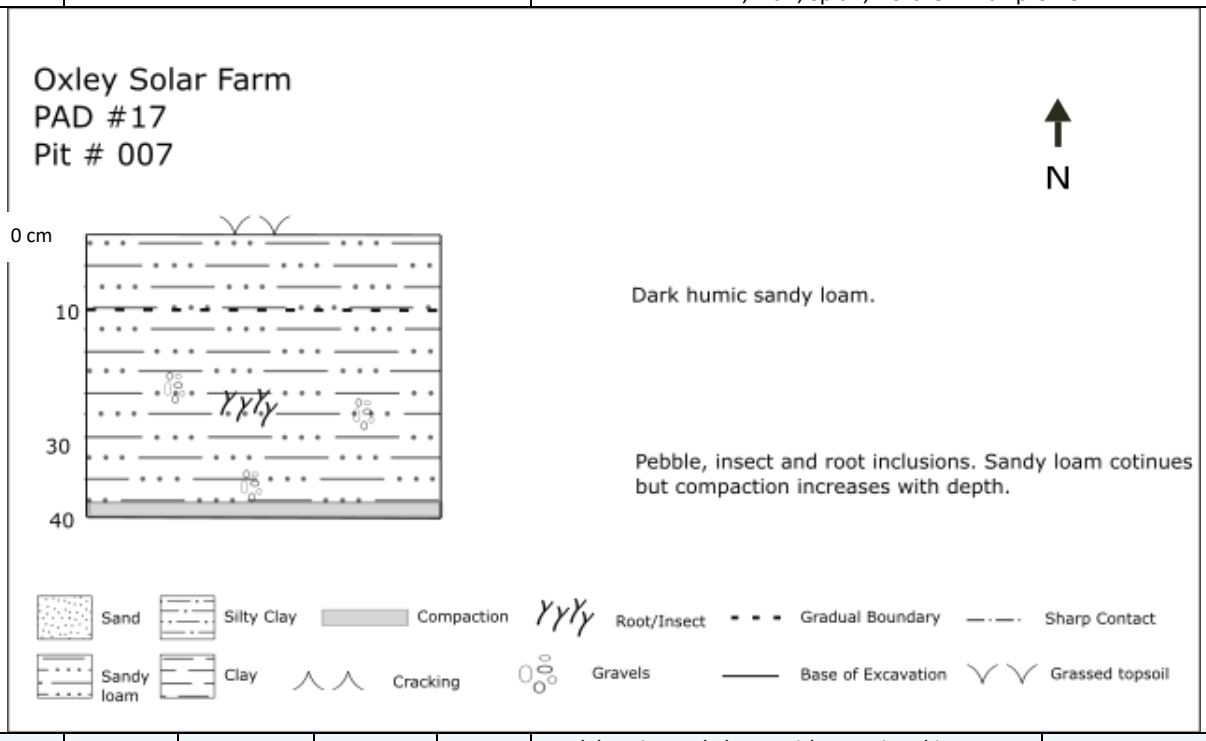
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 17, Pit 5, Spit 5				 PAD 17, Pit 5, Spit 5, Northern wall profile	



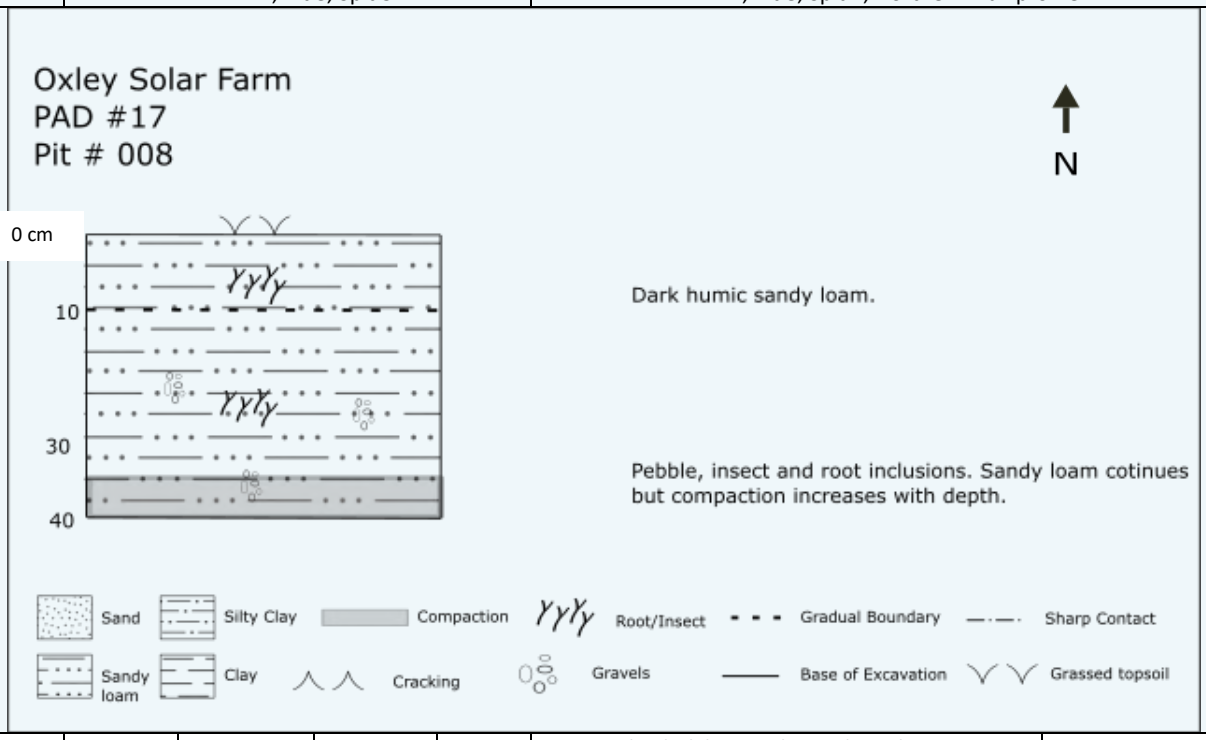
17	6	386008, 6616771	1	1-10	Sandy loam. PH=6.	Nil
			2	10-20	As above.	Nil
			3	20-30	Roots and gravel inclusions towards base of spit.	Nil
			4	30-40	Occasional gravel. Compaction increasing with depth.	Nil

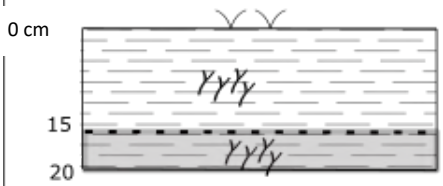
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 17, Pit 6, Spit 4				 PAD 17, Pit 6, Spit 4, Northern wall profile	
						
17	7	386049, 6616769	1	1-10	Sandy loam. PH=6.	Nil
			2	10-20	Small pebble inclusions throughout as well as the occasional worm. PH=6.	Nil
			3	20-30	Grubs and root inclusion protruding from the wall.	Nil
			4	30-40	Dark humic sandy loam continues with depth. Composition less friable and more compact with depth.	Nil

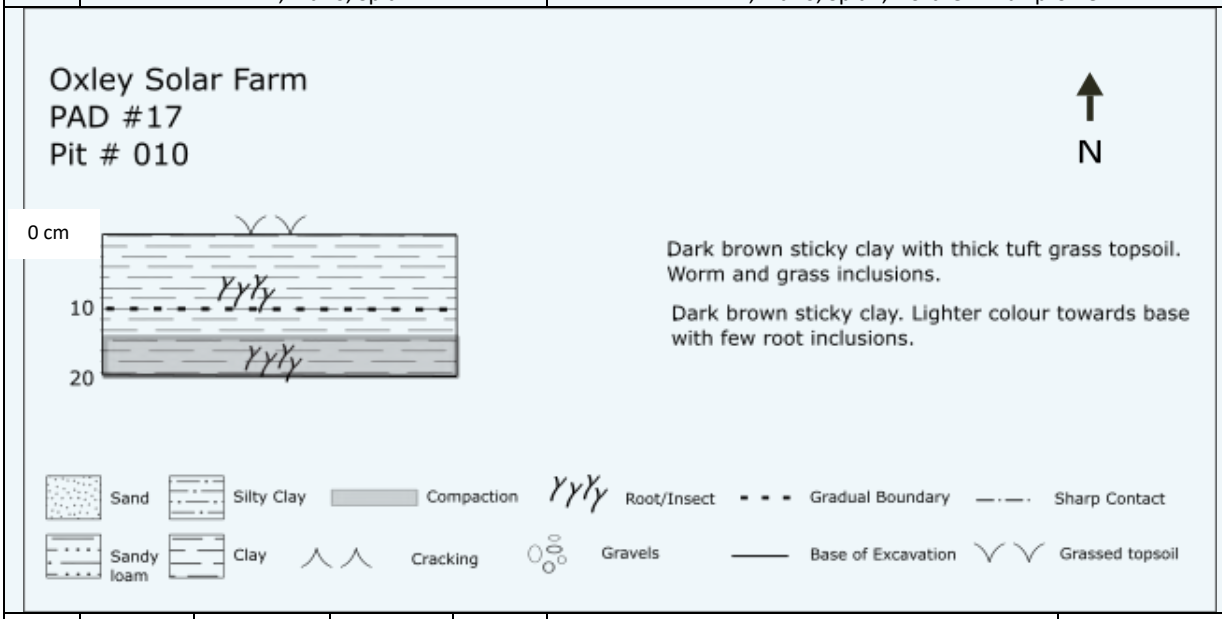
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 17, Pit 7, Spit 4				 PAD 17, Pit 7, Spit 2, Northern wall profile	

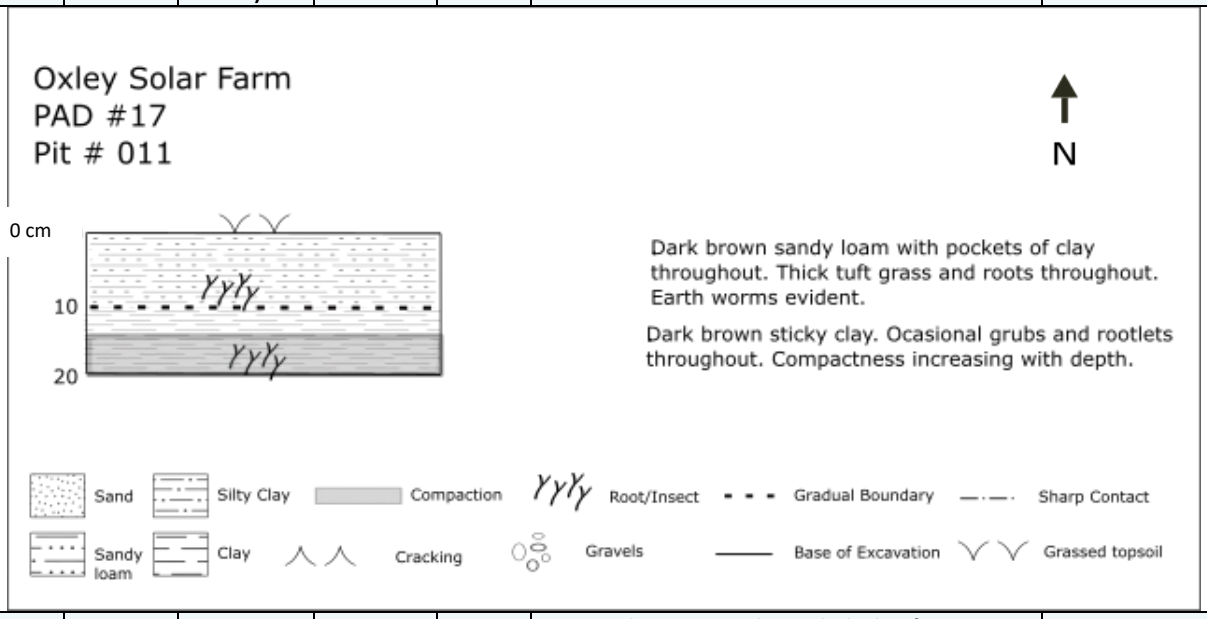


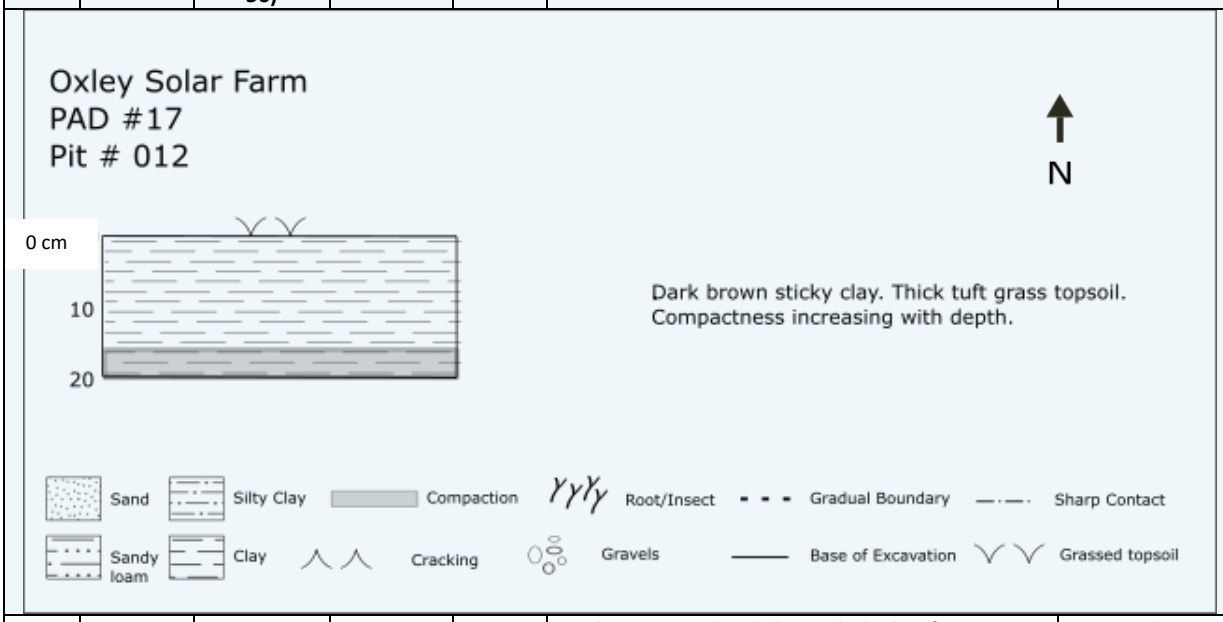
17	8	386085, 6616761	1	1-10	Dark humic sandy loam with occasional insect inclusions beneath thick tuft grass. PH=6.	Nil
			2	10-20	As above.	Nil
			3	20-30	Few quartz pebbles, sporadic roots and occasional worms throughout. PH=6.	Nil
			4	30-40	As above.	Nil

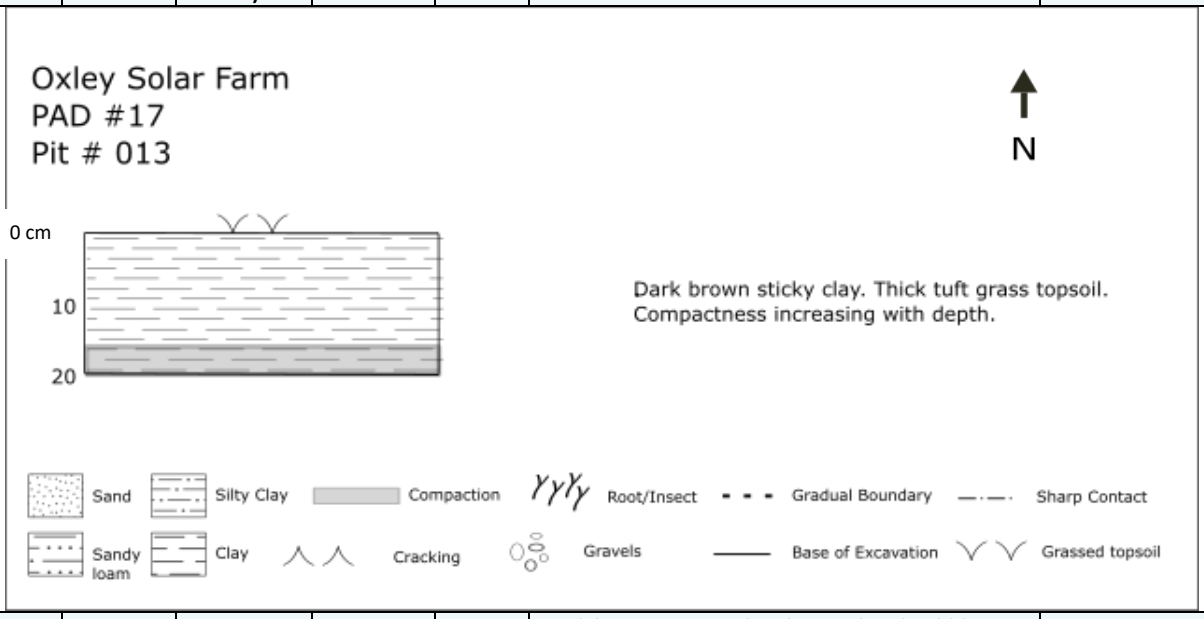
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 17, Pit 8, Spit 3				 PAD 17, Pit 8, Spit 4, Northern wall profile	
						
17	9	386374, 6616749	1	1-10	Very sticky dark humic clay and much more compact compared to the west side of PAD. Thick tuft grass with occasional grub inclusions present. PH=5.5.	Nil
			2	10-20	Very sticky black clay with some rootlets and grubs protruding from the wall.	Nil

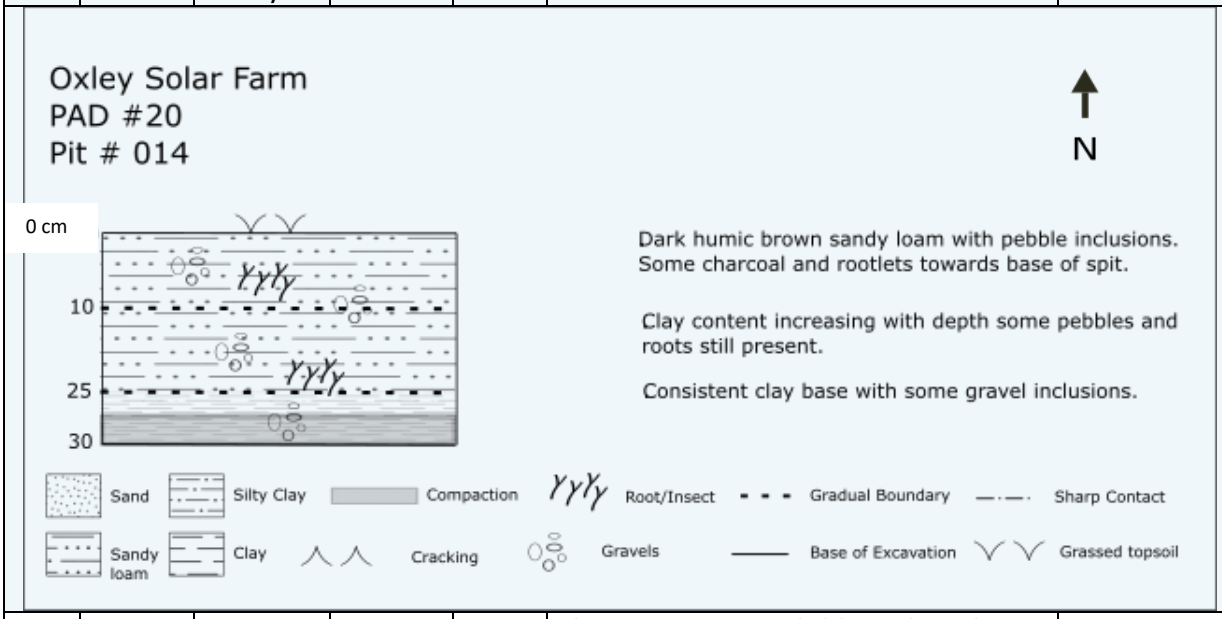
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
		 PAD 17, Pit 9, Spit 2			 PAD 17, Pit 9, Spit 2, Northern Wall Profile	
					Oxley Solar Farm PAD #17 Pit # 009  N Dark humic very sticly clay. Thick tuft grass with occasional grub inclusions atop and compactness and stickyness increase with depth. 	
17	10	386419, 6616753	1	1-10	Dark brown clayey soil with thick tuft grass atop. Worm and root inclusions are present throughout. PH=6.5.	Nil
			2	10-20	Fewer root inclusions with a lighter colour clay composition with depth. PH=6.5.	Nil

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 17, Pit 10, Spit 2.				 PAD 17, Pit 10, Spit 2, Northern wall profile.	
						
17	11	386457, 6616754	1	1-10	Damp humic grassy topsoil. Several worm inclusions. Clayey soil was still prevalent.	Nil
			2	10-20	Occasional rootlets in the wall and several grubs were observed. Sticky compact clay continues with depth.	Nil
	 PAD 17, Pit 11, Spit 2				 PAD 17, Pit 11, Spit 2, Northern wall profile	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
17	12A	386669, 6616754	1	1-10	Very sticky compact clay with thick tuft grass atop humic topsoil.	Nil
			2	10-20	Very sticky hard clay, difficult to break up even with the crowbar. PH=6.	Nil
	 PAD 17, Pit 12, Spit 2.				 PAD 17, Pit 12, Spit 2, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
17	12b	386498, 6616754	1	1-10	Sticky compact hard clay with thick tuft grass humic topsoil.	Nil
			2	10-20	As above with clay content increasing with depth.	Nil
As per Pit 13.						
17	13	386708, 6616747	1	1-10	Sticky compact hard clay with thick tuft grass humic topsoil.	Nil
			2	10-20	As above with clay content increasing with depth.	Nil
	 PAD 17, Pit 13, Spit 2.				 PAD 17, Pit 13, Spit 2.	

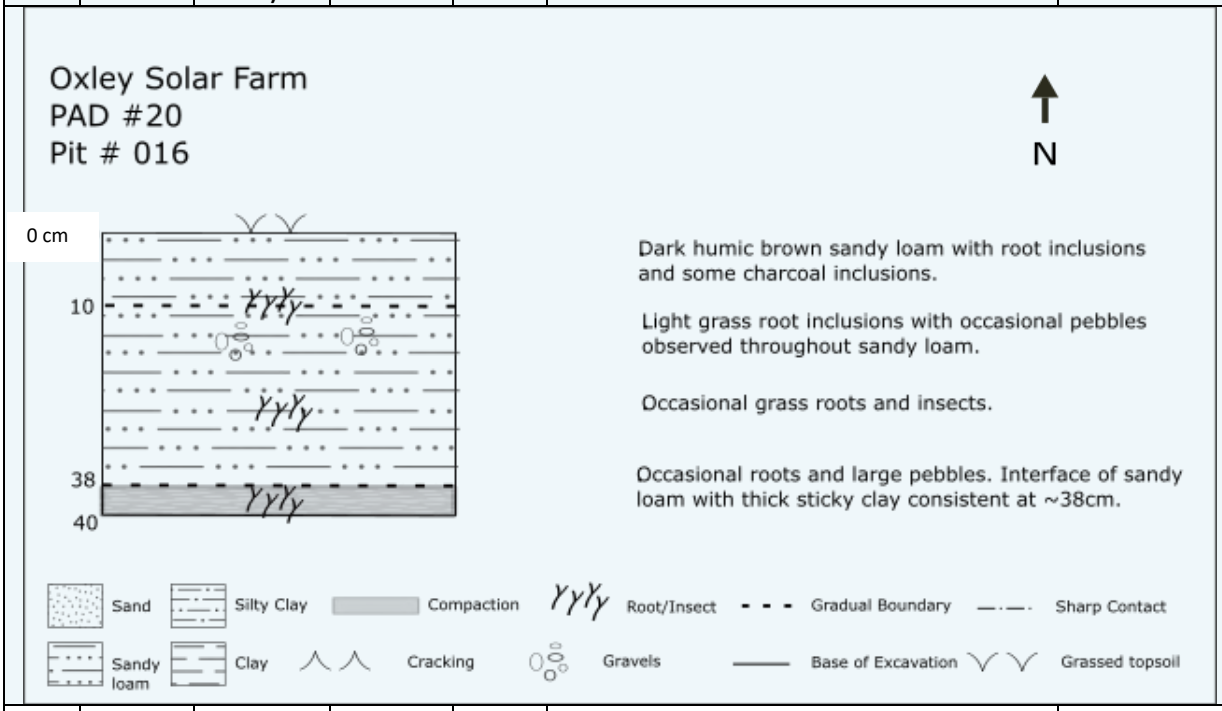
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	14	384804, 6617065	1	1-5	Dark humic gritty soil with gravel and pebble inclusions throughout. Sandy loam soil. PH=5.	Nil
			2	5-10	Small charcoal inclusions with gravel and pebbles continuing with depth. Rootlets are now also evident.	Nil
			3	10-15	As before.	Nil
			4	15-20	Gravel and pebbles continue but decrease in frequency. Rootlets protruding from the wall.	Nil
			5	20-25	A subtle change to a lighter brown colour. Clay content increasing with depth.	Nil
			6	25-30	Large rock protruding from the west wall. Gravels and pebbles are increasing with depth in density and the occasional rootlet is also evident. Start of consistent clay toward base around the rock.	Nil
	 PAD 20, Pit 14, Spit 6.				 PAD 20, Pit 14, Spit 6, Northern wall profile.	

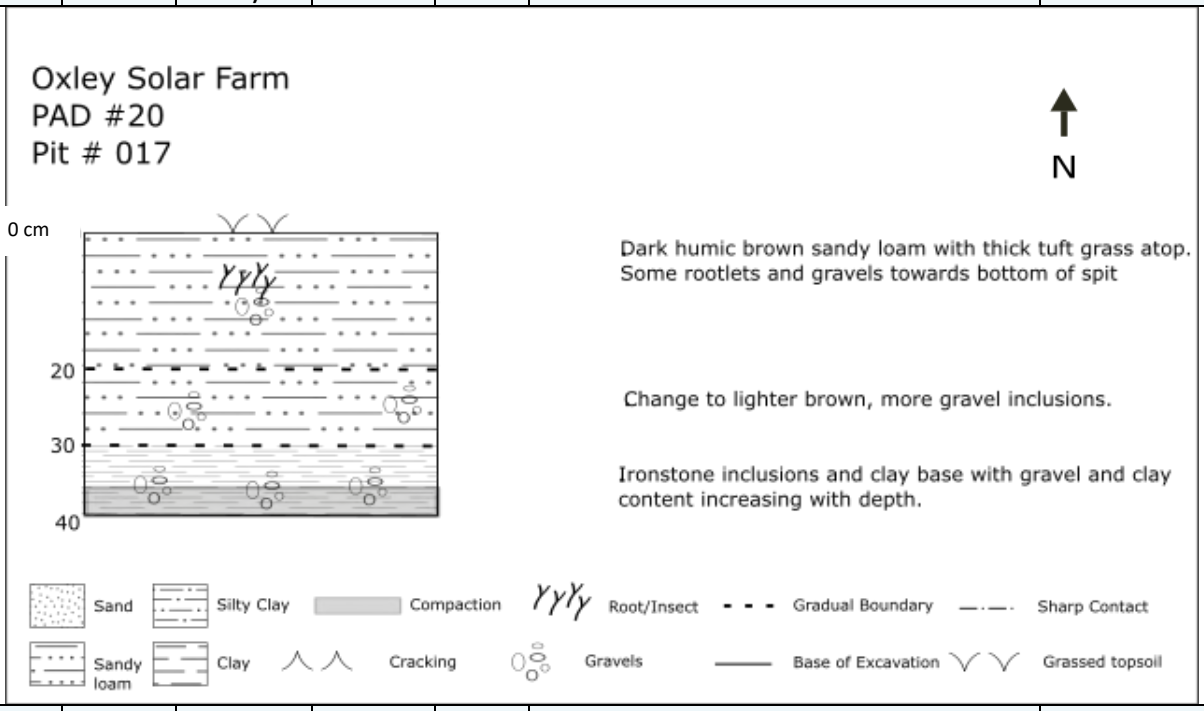
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	15	384844, 6617067	1	1-10	Thin grass cover over a dark brown humic layer. Pebble inclusions and continued grassroots throughout. PH=6.	Nil
			2	10-20	Loamy sand brown soil with inclusions of a tree root and pebbles ranging in size between .5 and 5cm. PH=6.	Nil
	 PAD 20, Pit 15, Spit 2.				 PAD 20, Pit 15, Spit 2, Northern wall profile.	

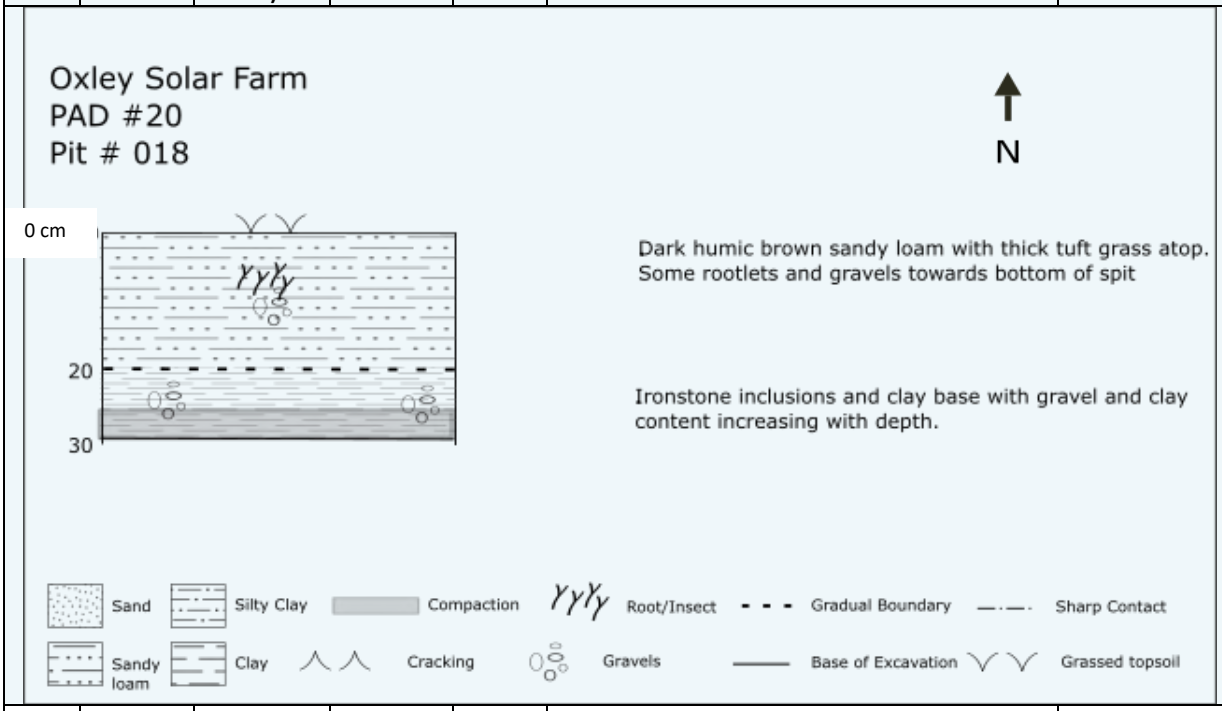
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 015 N 0 cm 10 20 Dark humic brown sandy loam with pebble inclusions. Clay content and compactness increasing with depth some pebbles and roots still present. Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
20	16	384884, 6617069	1	1-10	Dark brown humic layer down to 2cm. Sandy loam with grass inclusions beneath and some charcoal fragments recovered. PH=6.	Nil
			2	10-20	Brown loamy sandy with light grass-root inclusions. Very small occasional pebbles throughout the soil. PH=6.5.	Nil
			3	20-30	Occasional grass root and pebble inclusions. PH=6.5.	Nil
			4	30-40	Occasional thin tree roots. Large pebbles at the interface of soil and clay. Consistent clay at ~38cm. PH=6.5.	Nil

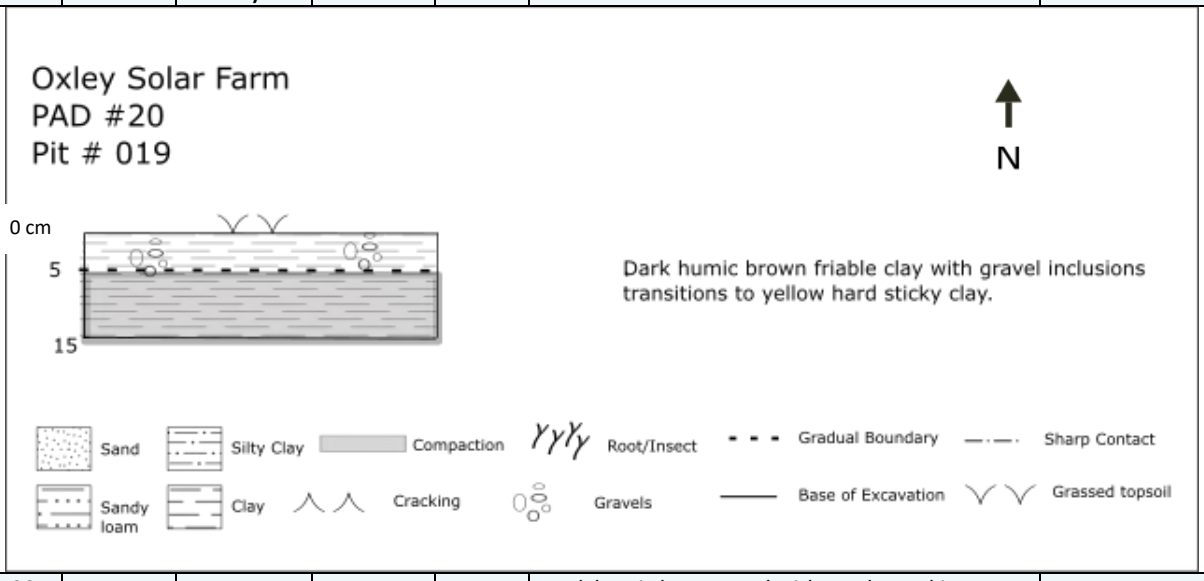
PAD 20, Pit 16, Spit 4.

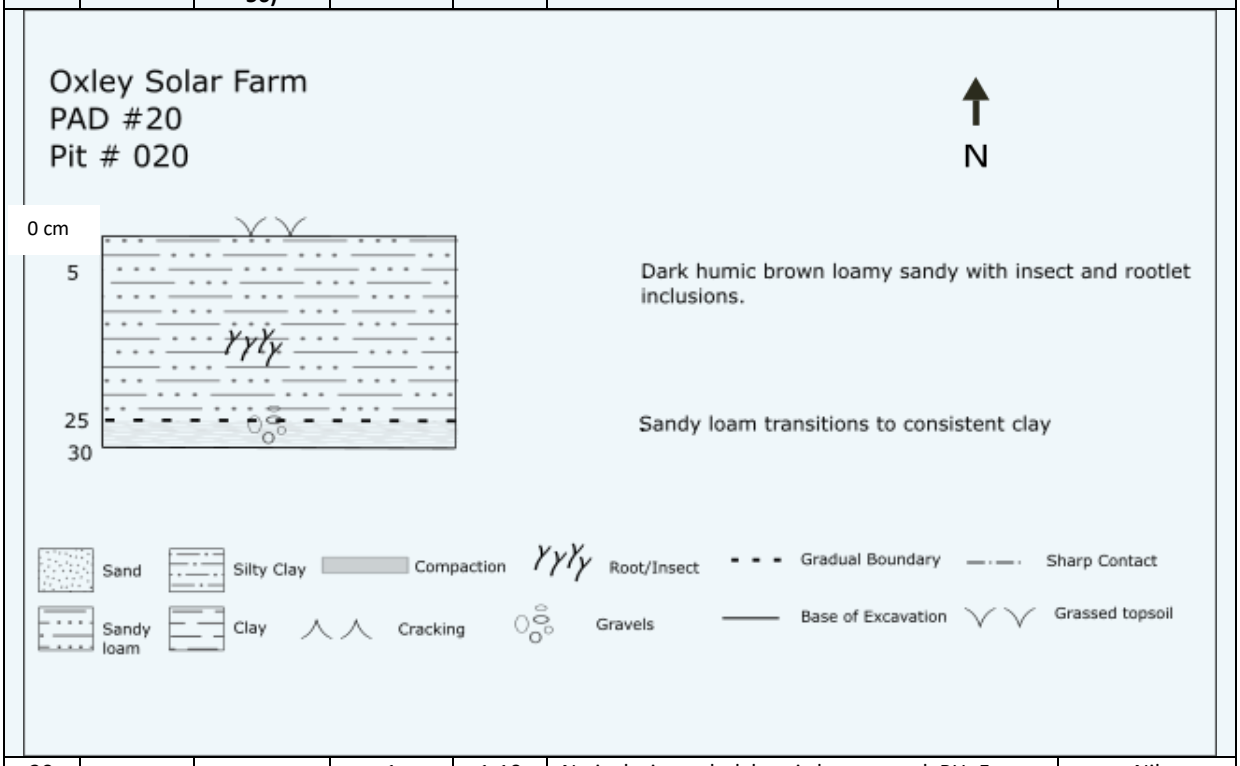
PAD 20, Pit 16, Spit 4, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	17	384925, 6617075	1	1-10	No inclusions apart from thick tuft grass. Loamy sand, dark humic soil. PH=5.	Nil
			2	10-20	Some rootlets are present throughout protruding from the wall. PH=5.	Nil
			3	20-30	Change to lighter brown soil with more gravel inclusions. Sandy loam soils. PH=6.	Nil
			4	30-40	Ironstone inclusions and clay base. Gravel content increasing with depth and contributing to a red/orange tinge throughout the soil. Sandy loam transitions to clay. PH=6.	Nil
	 PAD20, Pit 17, Spit 4.				 PAD 20, Pit 17, Spit 4, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	18	384965, 6617070	1	1-10	Dark humic sandy loam with occasional roots and gravels.	Nil.
			2	10-20	As above.	Nil.
			3	20-30	Transition to clay base, clay content and compactness increasing with depth.	Nil.
	 PAD 20, Pit 18, Spit 3.				 PAD 20, Pit 18, Spit 2, Northern wall profile.	

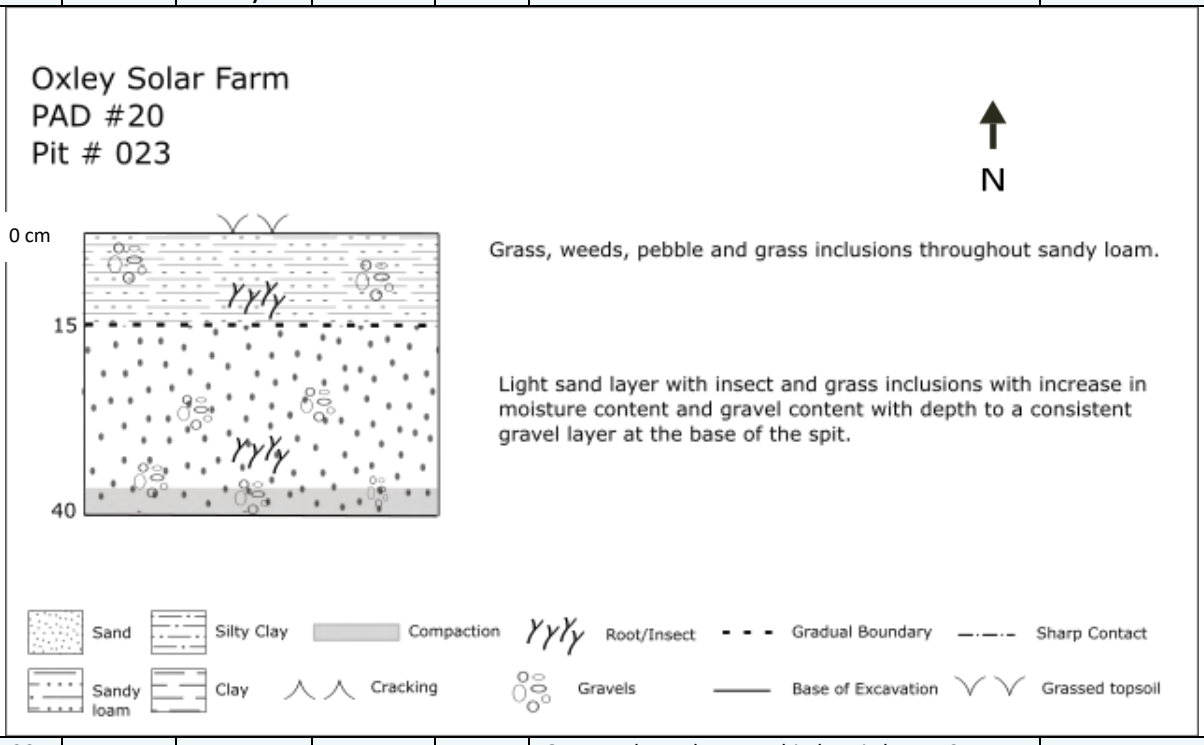
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	19	385004, 6617071	1	1-10	Grass and weeds at the surface layer. Humic layer to ~2cm. Few pebbles and insects throughout. Yellow hard clay from ~5cm. Hard clay base continuing until ~10-13cm. PH=6.	Nil
	 PAD 20, Pit 19, Spit 1.				 PAD 20, Pit 19, Spit 1, Northern wall profile.		

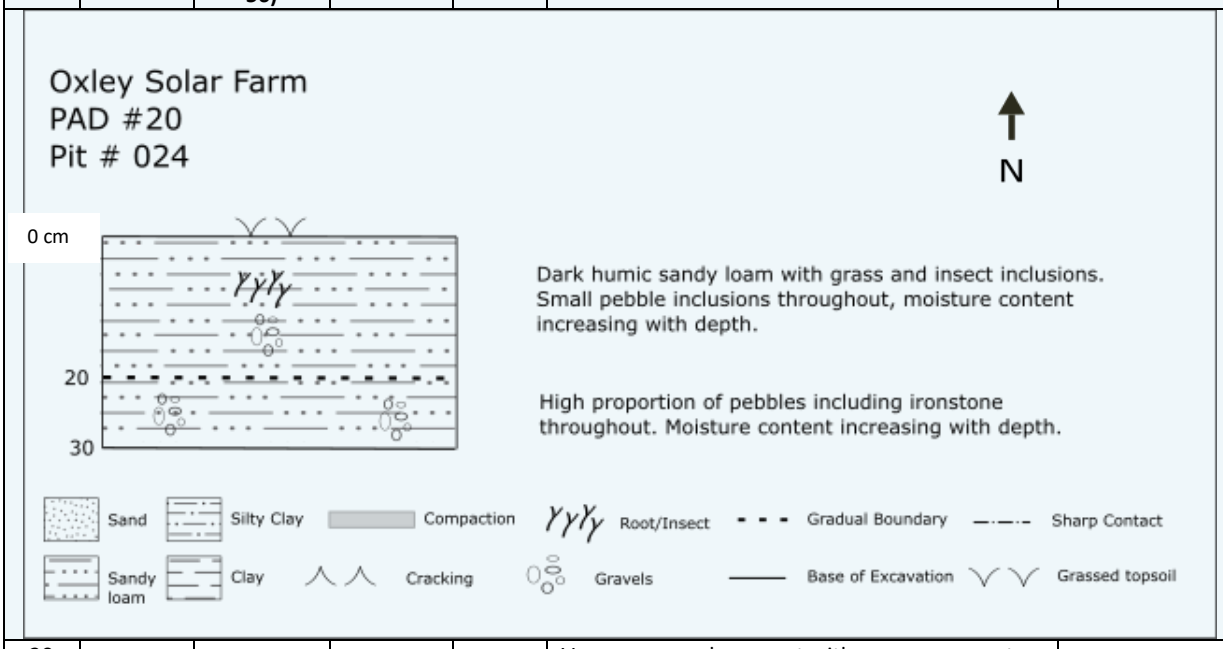
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	20	384866, 6616935	1	1-10	Dark humic loamy sand with rootlet and insect inclusions. PH=5.	Nil
			2	10-20	Same as above.	Nil
			3	20-30	Loamy sand clay with increased gravel inclusions. Hard clay at 30cm.	Nil
	 PAD 20, Pit 20, Spit 3.				 PAD 20, Pit 20, Spit 3, Northern wall profile.	

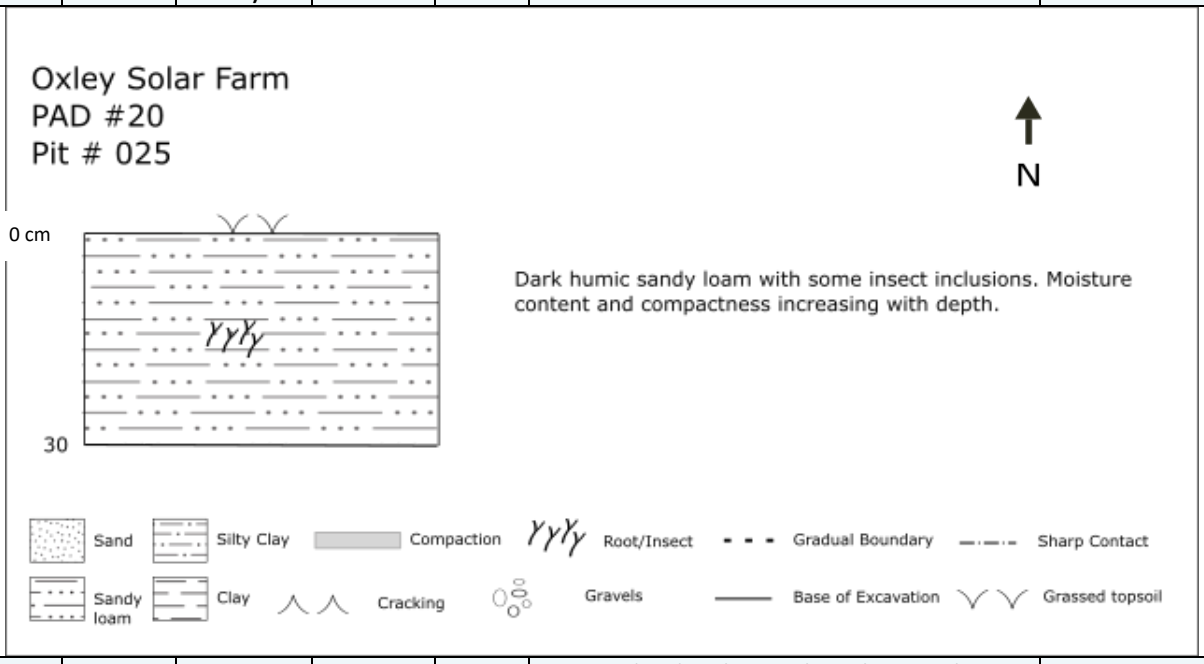
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	21	384905, 6616935	1	1-10	No inclusions, dark humic loamy sand. PH=5.	Nil
			2	10-20	Gravel increasing with dept. PH=5.	Nil
			3	20-30	Consistent gravel layer interspersed with clay at ~30cm.	Nil
	 PAD 20, Pit 21, Spit 3.				 PAD 20, Pit 21, Spit 3, Northern wall profile.	

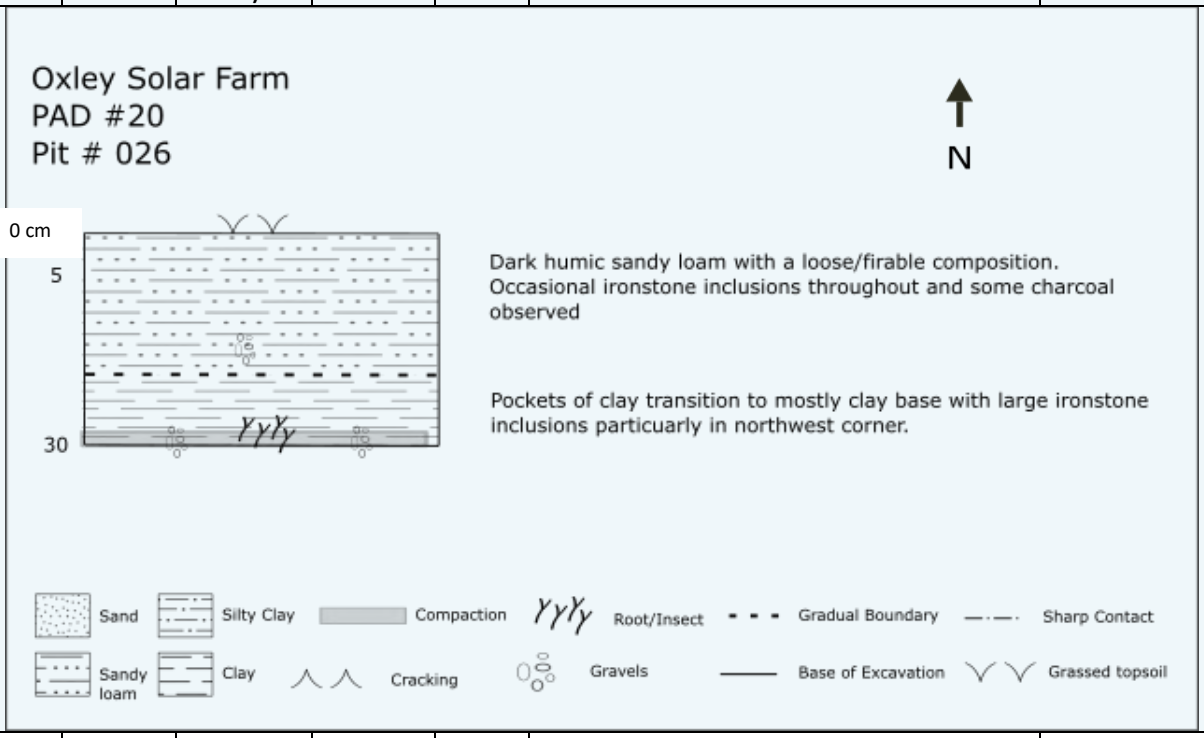
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 021 N 0 cm 25 30 Dark humic sandy loam with thick tuft grass atop. Some gravel observed with depth. Compaction, gravel and clay content increasing with depth Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
20	22	384944, 6616934	1	1-10	Grass and weed cover over shallow loamy sand humic soil ~2cm. Worms and grass-root inclusions throughout. PH=6.5	Nil
			2	10-20	Lots of roots and gravel. Size of rocks increasing with depth. Grubs throughout. PH=6.5.	Nil
			3	20-30	As above.	Nil
			4	30-35	Pockets of clay peeking through at ~32cm. Heavy gravel and rock inclusions with insect burrows in the wall. Sandy clay composition. PH=6.	Nil
	 PAD 20, Pit 22, Spit 4.				 PAD 20, Pit 22, Spit 4, Northern wall profile.	

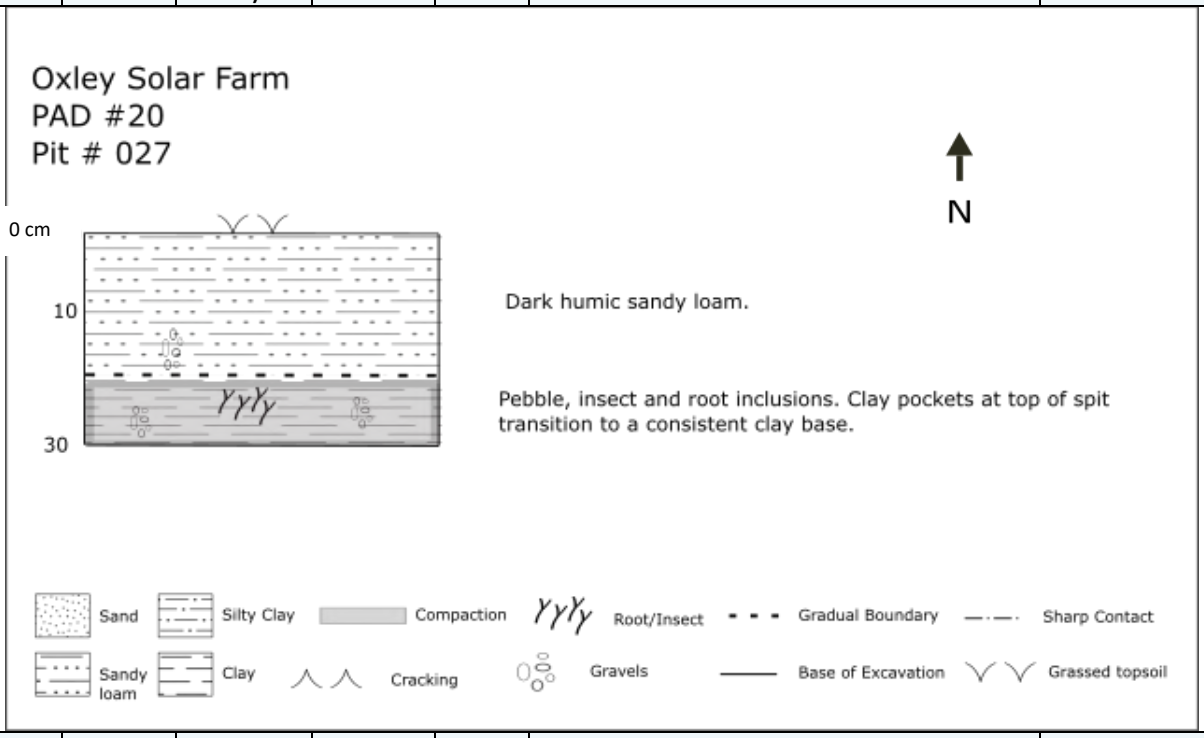
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 022 N 0 cm 10 30 35 Grass and weed cover over shallow humic layer with insect and grass inclusions. Lots of rocks and gravel. Size of rocks increasing with depth.. Pockets of clay peaking through at top of spit. Consistent clay base with depth. Heavy gravel and rock inclusions with insect burrows also evident. Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
20	23	384983, 6616937	1	1-10	Grass, weeds, yam daisy atop loamy sand with pebble inclusions. PH=6.	Nil
			2	10-20	Thin grassroots and occasional small pebble inclusions. Colour change at ~15cm with texture change also to lighter sand. PH=6.5.	Nil
			3	20-30	Light sand with ants, roots and occasional grub inclusions. PH=6.5.	Nil
			4	30-40	Increasing quantity and size of pebbles at around ~35cm. Moisture content increasing with depth. Attributed to downslope seepage. PH=6.5.	Nil
	 PAD 20, Pit 23, Spit 4.				 PAD 20, Pit 23, Spit 4, Northern wall profile.	

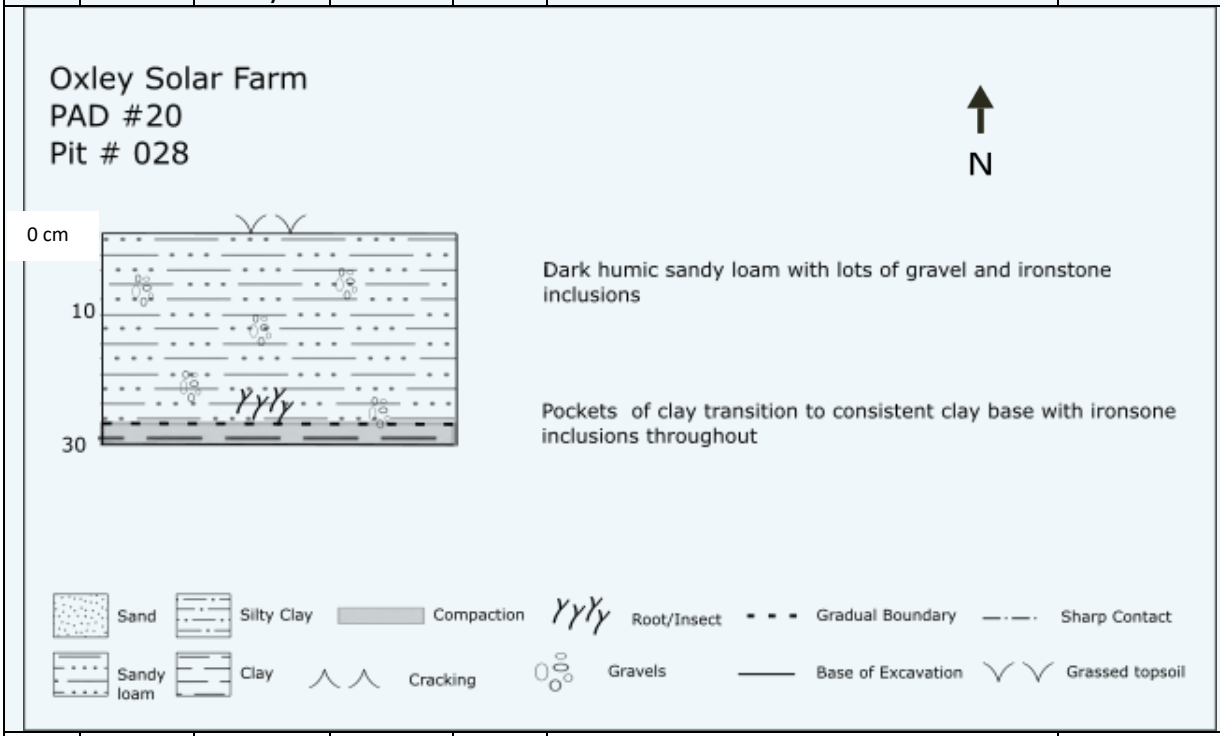
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	24	385023, 6616934	1	1-10	Grass and weed cover. Thin humic layer ~2cm. Grassroots and small pebble inclusions. PH=6.5	Nil
			2	10-20	Grassroots, earthworms. Increasing number of small pebbles ~0.5cm in size. Increasing water content with depth, muddy composition. Loamy sand. PH=6.5.	Nil
			3	20-30	Very wet loamy sand with a high proportion of pebbles increasing in size up to 3cm. Pebbles are ironstone conglomerate and quartz. PH=6.5.	Nil
	 PAD 20, Pit 24, Spit 3.				 PAD 20, Pit 24, Spit 3, Northern wall profile.	

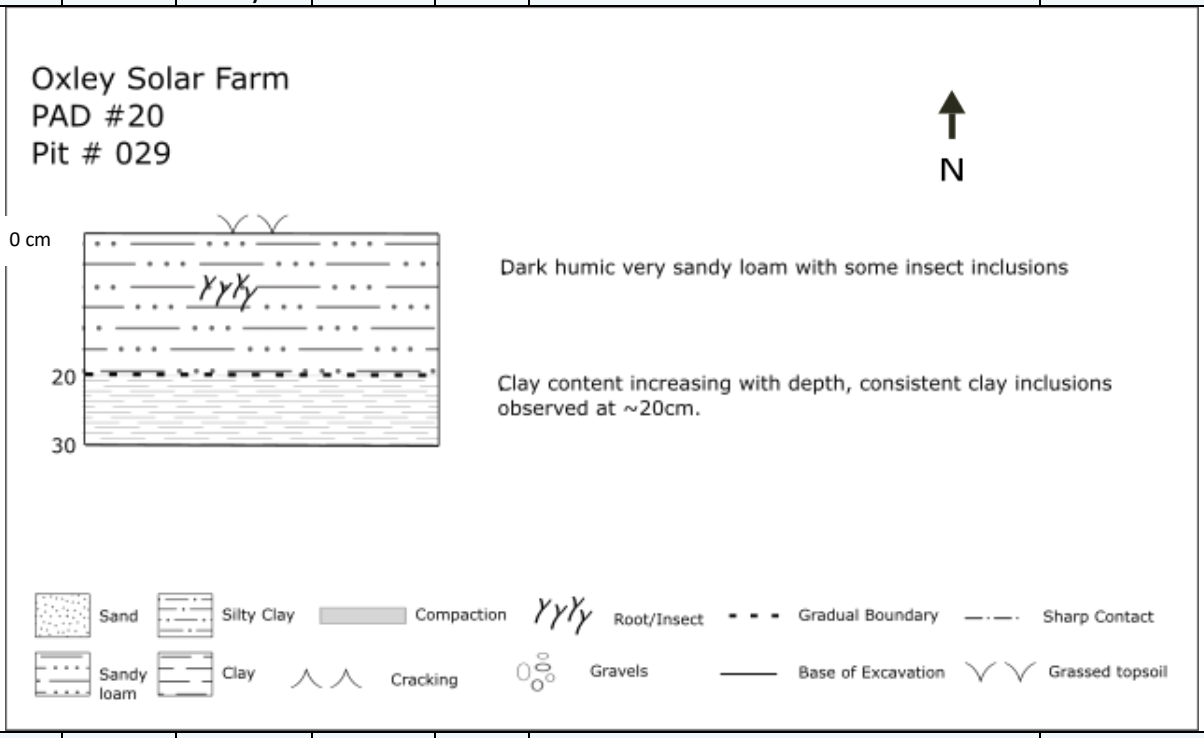
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	25	385065, 6616934	1	1-10	Very grassy and compact with some grass root and worm inclusions. Loamy sand. PH=6.	Nil
			2	10-20	Loamy sand. Few sporadic roots. PH=6.5.	Nil
			3	20-30	Soil starting to get muddy. One earthworm inclusion. Increased moisture content turning the soil to mud. PH=6.5.	Nil
	 PAD 20, Pit 25, Spit 3.				 PAD 20, Pit 25, Spit 3, Northern wall profile.	

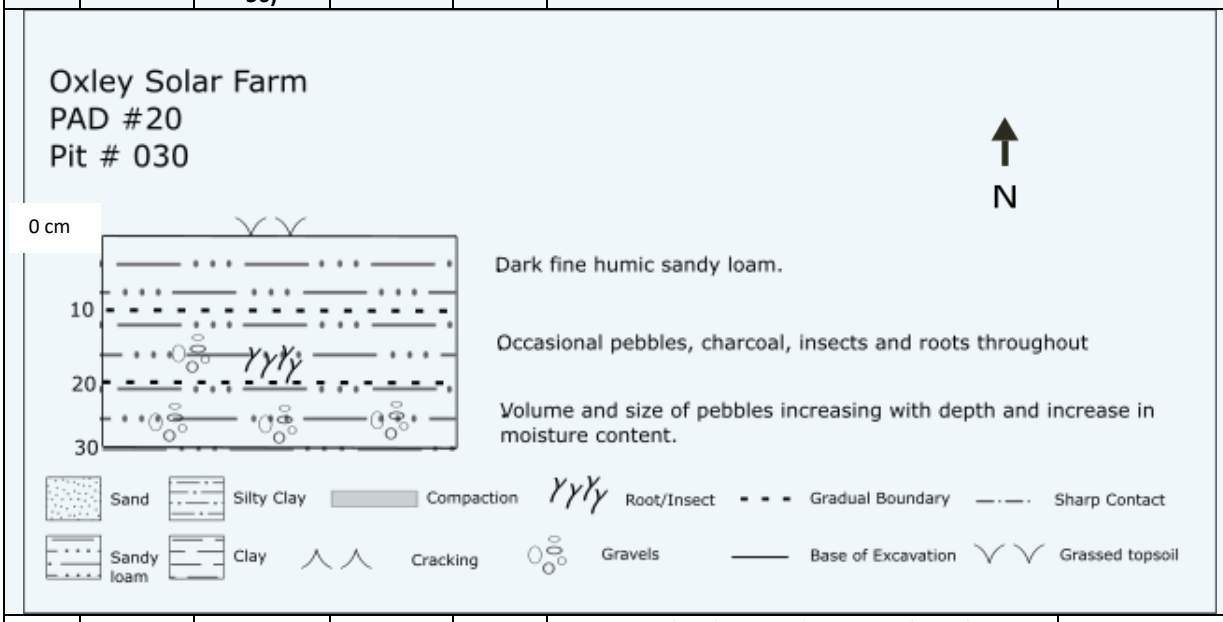
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
							
20	26	385074, 6616847	1	1-10	Grass and grub inclusions throughout. Dark humic sandy loam topsoil. PH=5.	Nil
			2	10-20	Loose friable dark humic sandy loam with occasional ironstone inclusions throughout, particularly in the northwest corner. One fragment of charcoal was observed. PH=5.	Nil
			3	20-30	Pockets of clay transition to mostly clay base with a large block of ironstone inclusions in the northwest corner. Clayey sand to clay at ~30cm.	Nil
	 PAD 20, Pit 26, Spit 3.				 PAD 20, Pit 26, Spit 3, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	27	385034, 6616843	1	1-10	Thick tuft grass atop dark humic sandy loam layer. PH=6.	Nil
			2	10-20	Occasional grubs and lots of ironstone inclusions. PH=5.	Nil
			3	20-30	Several spiders. Gravel density increasing with depth. Clay pockets at ~28m and consistent clay-based a 30-31cm.	Nil
	 PAD 20, Pit 27, Spit 3.				 PAD 20, Pit 27, Spit 3, Northern wall profile.	

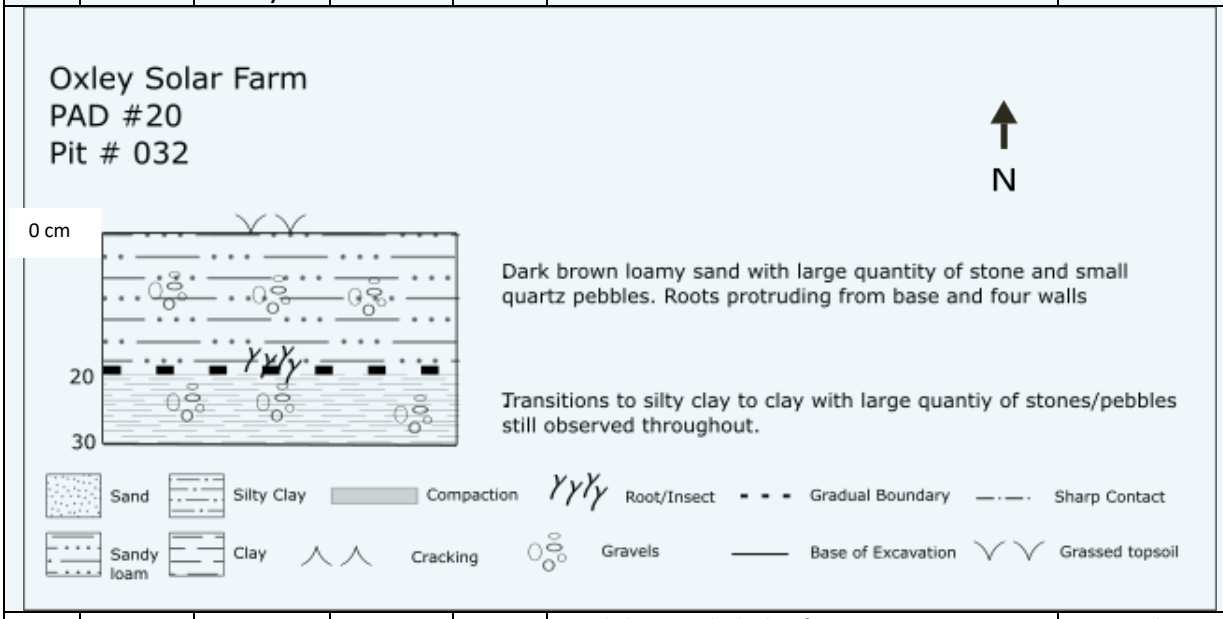
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	28	384996, 6616844	1	1-10	Loamy sand with lots of ironstone inclusions towards the base. PH=5.	Nil
			2	10-20	Loamy sand with gravel to medium-sized rock inclusions.	Nil
			3	20-30	Loamy gritty soil with heaps of small and large ironstone rocks. Sporadic root inclusions towards base and protruding from wall. Clay pockets at ~28cm and clay based at 30cm.	Nil
	 PAD 20, Pit 28, Spit 3.				 PAD 20, Pit 28, Spit 3, Northern wall profile.	

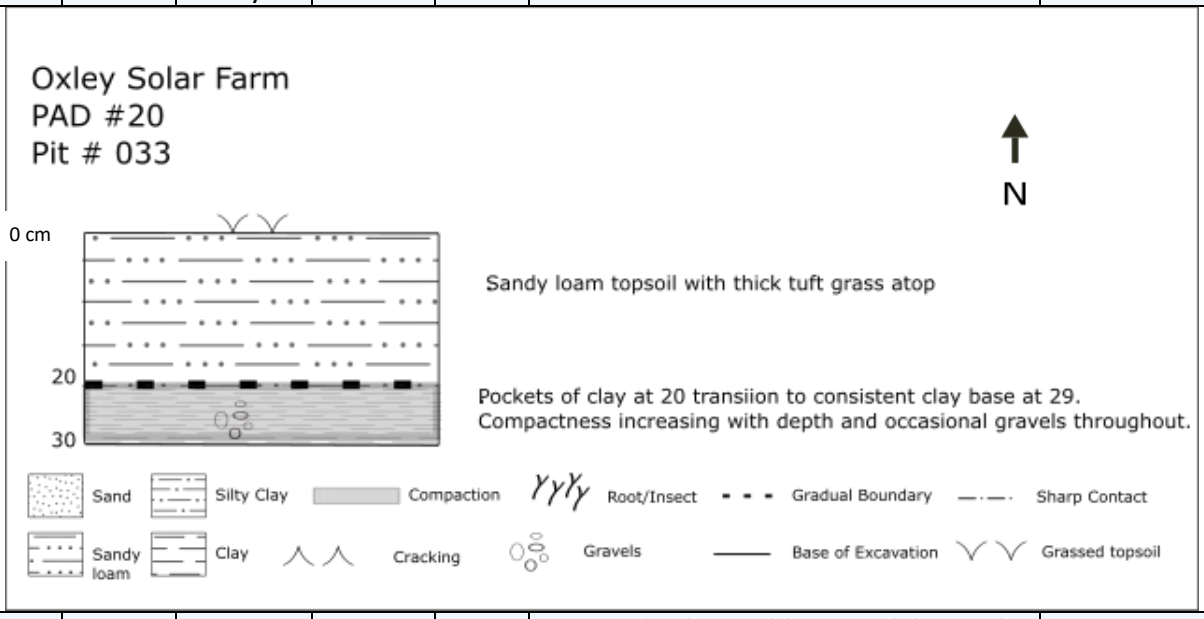
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 028  						
20	29	384955, 6616839	1	1-10	Thick tuft grass interspersed with sandy loam.	Nil
			2	10-20	Sandy loam with insect inclusions throughout.	Nil
			3	20-30	Clay content increasing with depth. Clay base at ~30cm.	Nil
	 PAD 20, Pit 29, Spit 3.				 PAD 20, Pit 29, Spit 3, Northern wall profile.	

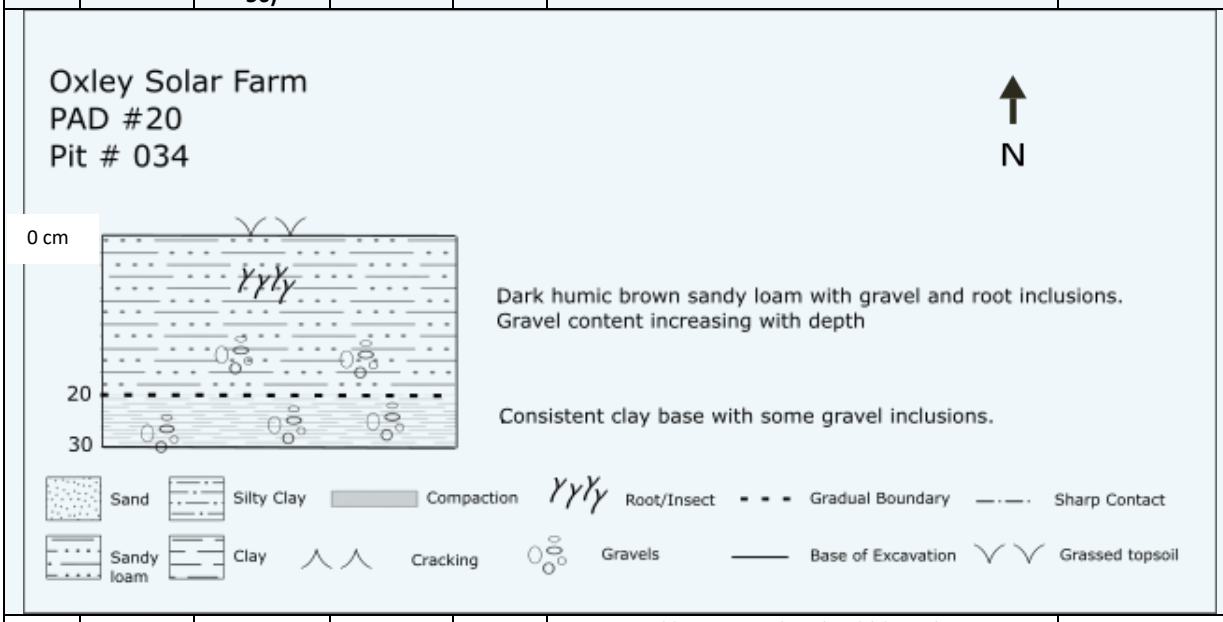
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 029  						
20	30	384914, 6616836	1	1-10	Thick grass cover with a dark humic soil layer to 3cm and loamy sand underlying that. PH=6.	Nil
			2	10-20	Grassroots, earthworms and occasional pebble inclusions up to ~2 cm. Charcoal at 25 cm in the southwest corner. PH=6.	Nil
			3	20-30	Worms, grassroots and increasing volume of pebbles. Moisture content increasing with depth. PH=6.	Nil
	 PAD 20, Pit 30, Spit 3.				 PAD 20, Pit 30, Spit 3, Northern wall profile.	

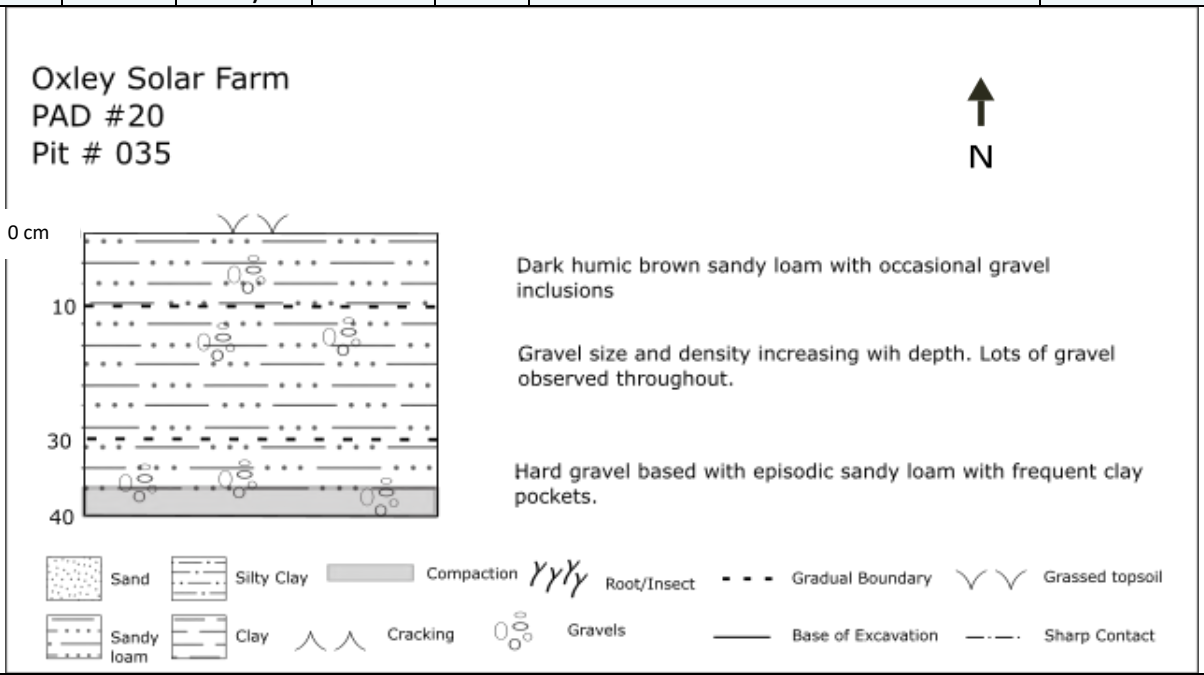
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	31	385122, 6616792	1	1-10	Loamy sand with protruding roots along the southwest wall, lots of earths worms.	Nil
			2	10-20	Soil is very muddy and watery. Sporadic roots were evident on all four walls. Soil turning into silty clay. Close at 20cm for consistent clay base.	Nil
	 PAD 20, Pit 31, Spit 3.				 PAD 20, Pit 31, Spit 3, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 031 N 0 cm 10 20 Dark brown sandy loam. Thick tuft grass and roots throughout. Earth worms evident. Dark brown sticky clay. Ocasional rootlets throughout. Compactness increasing with depth. Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
20	32A	385144, 6616758	1	1-10	Loam sand is very gritty. Large quantity of stone and small quartz pebbles. Roots protruding from the base of spit and sides of all four walls.	Nil
			2	10-20	As above.	Nil
			3	20-30	Soil transitioning into silty clay with a large quantity of stone and pebbles. Few earthworms and roots protruding out of the walls of the pit. Clay at ~30cm.	Nil
	 PAD 20, Pit 32A, Spit 2.				 PAD 20, Pit 32A, Spit 2, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	32B	385157, 6616720	1	1-10	Sandy loam with thick tuft grass. PH=5.	Nil
			2	10-20	Sandy loam clay. PH=5.	Nil
			3	20-30	Clay base at ~29cm. Some gravel inclusions throughout. Compactness increasing with depth.	Nil
Same as Pit 33.						
20	33	385168, 6616683	1	1-10	Sandy loam with thick tuft grass. PH=5.	Nil
			2	10-20	Sandy loam clay. PH=5.	Nil
			3	20-30	Clay base at ~29cm. Some gravel inclusions throughout. Compactness increasing with depth.	Nil
	 PAD 20, Pit 33, Spit 3.				 PAD 20, Pit 33, Spit 3, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	34	384802, 6617180	1	1-10	Occasional grubs in dark humic sandy loam with lots of gravel inclusions. PH=5.	Nil
			2	10-20	Gravel inclusions increasing with depth. Loamy sand. PH=5.	Nil
			3	20-30	Consistent gravel inclusions, rootlets protruding from walls.	Nil
	 PAD 20, Pit 34, Spit 3.				 PAD 20, Pit 34 Spit 3, Northern wall profile.	

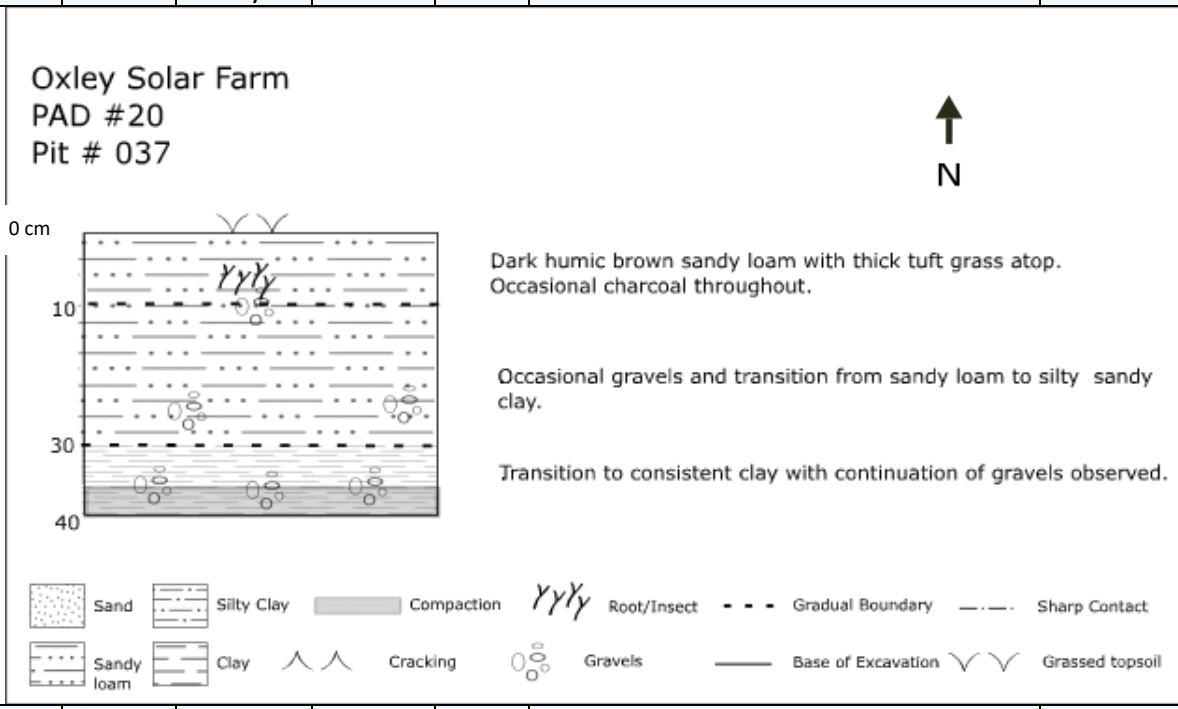
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	35	384842, 6617181	1	1-10	Occasional large gravel and pebble inclusions with pebbles increasing in density at ~8cm. Loamy sand. PH=5.	Nil
			2	10-20	Gravel size and density increasing with depth. Sandy loam.	Nil
			3	20-30	Occasional grub inclusions. Lots of gravel.	Nil
			4	30-40	Hard gravel base layer with episodic sandy loam throughout.	Nil
	 PAD 20, Pit 35, Spit 4.				 PAD 20, Pit 35, Spit 4, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 035  						
20	36	384883, 6617180	1	1-10	Moist dark grey, brown clayey silt with very high gravel content (30%) and pebbles up t 150mm in size. Friable to compact composition. Gravel include quartz, mudstone, basalt and silcrete materials. Grassroots and worms included. Fairly undisturbed apart from compactness due to livestock trampling. PH=6.5	One possible (unlikely) artefact.
			2	10-20	Sandy clay with a transition to loam with very high gravel and pebble content. Friable with few root inclusions,	Several possible (unlikely) materials were collected.
			3	20-30	Transition to greyer, pale sandy silty clay with mottling throughout.	Nil
			4	30-40	As above. PH=7.	Nil
	 PAD 20, Pit 36, Spit 4.				 PAD 20, Pit 36, Spit 4, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 036 N 0 cm 20 40 Moist dark grey brown clayey silt with very high gravek content and some grass roots and insects observes throughout. Compactness evident attributed to livestock damage Gravels continue with depth transition from silty clay to hard clay. Sand Silty Clay Compaction Root/Insect Gradual Boundary Sharp Contact Sandy loam Clay Cracking Gravels Base of Excavation Grassed topsoil						
20	37	384924, 6617180	1	1-10	Thick tuft grass top layer with dark humic topsoil and the occasional charcoal inclusion.	Nil
			2	10-20	Occasional gravels, still dark humic brown sandy loam.	Nil
			3	20-30	As above but transitioning to brown sandy silty clay with continuous gravel inclusions.	Nil
			4	30-40	As above. Clay base at ~40cm.	Nil

PAD 20, Pit 37, Spit 4.

PAD 20, Pit 37, Spit 4, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 037  						
20	38	384961, 6617180	1	1-10	Occasional charcoal throughout. Dark humic brown sandy loam.	Nil
			2	10-20	As above.	Nil
			3	20-30	Moisture content increasing with depth. One or two pebble inclusions PH=5.5	Nil
			4	30-40	Occasional ironstone inclusions. Clay base at ~40cm.	Nil
	 PAD 20, Pit 38, Spit 4.				 PAD 20, Pit 38, Spit 4, Northern wall profile.	

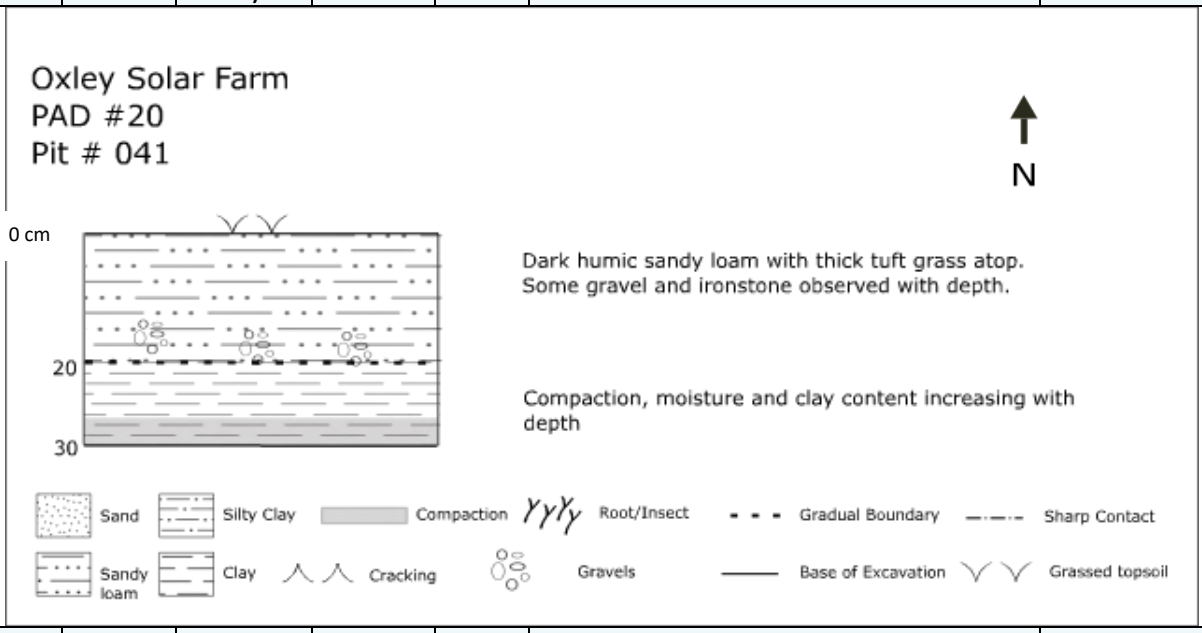
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 038 N 0 cm 10 30 40 Dark humic brown sandy loam with thick tuft grass atop. Occasional charcoal throughout. Occasional gravels and transition from sandy loam to silty sandy clay. Moisture content increasing with depth. Ironstone throughout with consistent clay base at 40. Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
20	39	384874, 6617247	1	1-10	Thick tuft grass inclusions atop dark humic sandy loam.	Nil
			2	10-20	Moisture content increasing with depth. Occasional roots throughout the dark humic sandy loam.	Nil
			3	20-30	Increased moisture again with one or two gravels amongst the sandy loam.	Nil
			4	30-40	Ironstone inclusions at ~35cm. Pockets of clay at 38cm. Stop at 40cm for a consistent clay base. PH=6.5.	Nil
	 PAD 20, Pit 39, Spit 3.				 PAD 20, Pit 39, Spit 4, Northern Wall profile.	

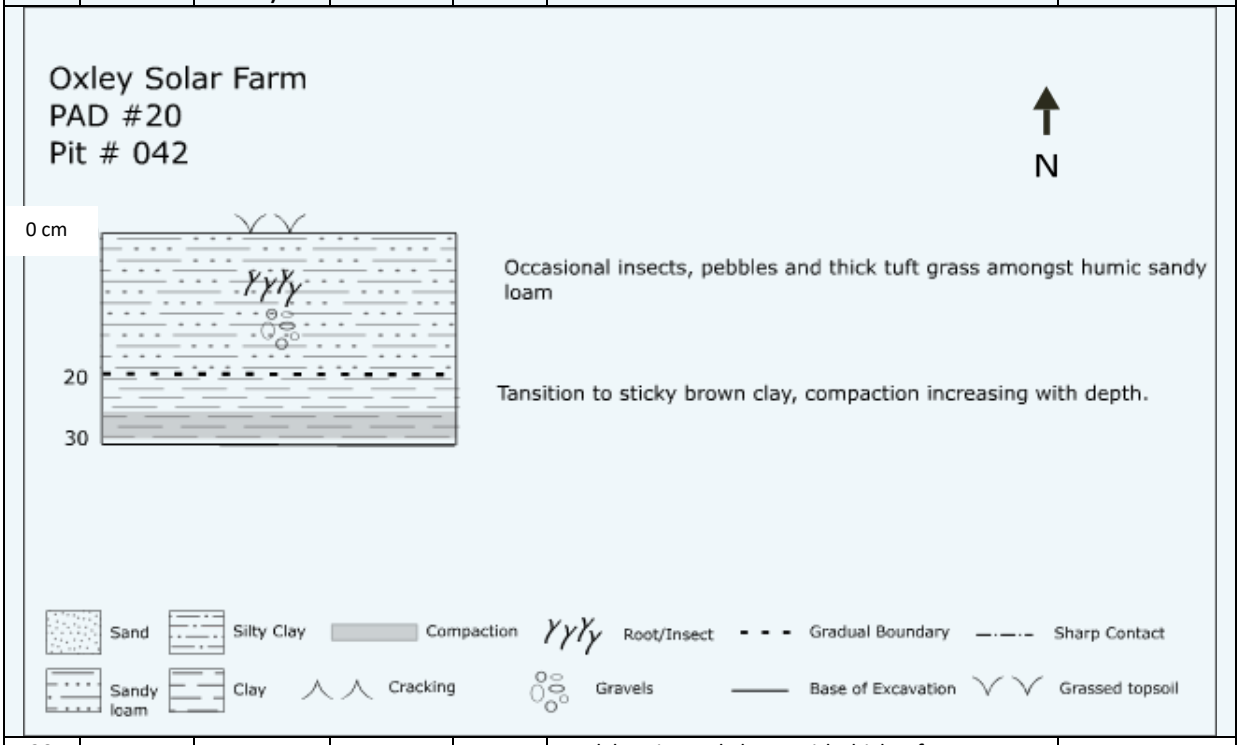
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 039 N 0 cm 10 30 40 Dark humic brown sandy loam with thick tuft grass atop. Occasional gravels and moisture content increasing with depth. Ironstone throughout at 35cm with occassional gravel and consistent clay base at 40. Sand · Silty Clay · Compaction · Root/Insect · Gradual Boundary · Sharp Contact Sandy loam · Clay · Cracking · Gravels · Base of Excavation · Grassed topsoil						
20	40	384877, 6617289	1	1-10	Occasional pebbles, amongst thick tuft grass and sandy loam soils. A slight depression in landform is evident.	Nil
			2	10-20	Gravel content increasing with depth.	Nil
			3	20-30	Clay pockets at ~28cm. Large root in the southeast corner. Pebbles are consistent with the occasional ironstone inclusions evident. Clay at 30cm. PH=6.5.	Nil
	 PAD 20, Pit 40, Spit 2.				 PAD 20, Pit 40, Spit 3, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 040 N 0 cm 20 30 Dark humic brown sandy loam with thick tuft grass atop and occasional gravel throughout increasing with depth. Clay pockets at 25cm with occassional ironstone and consistent pebbles. Sand Silty Clay Compaction Root/Insect Gradual Boundary Sharp Contact Sandy loam Clay Cracking Gravels Base of Excavation Grassed topsoil						
20	41	384877, 6617328	1	1-10	Soft brown clayey silt. Grassroots, some quartz gravels and friable soils.	Nil
			2	10-20	Gravel increasing with quartz pebbles to 20mm. Ironstone nodules to 50mm. A large rock in the northwest corner.	Nil
			3	20-30	Gravel increasing with pale brown sandy clay. Sticky due to	Nil

PAD 20, Pit 41, Spit 3.

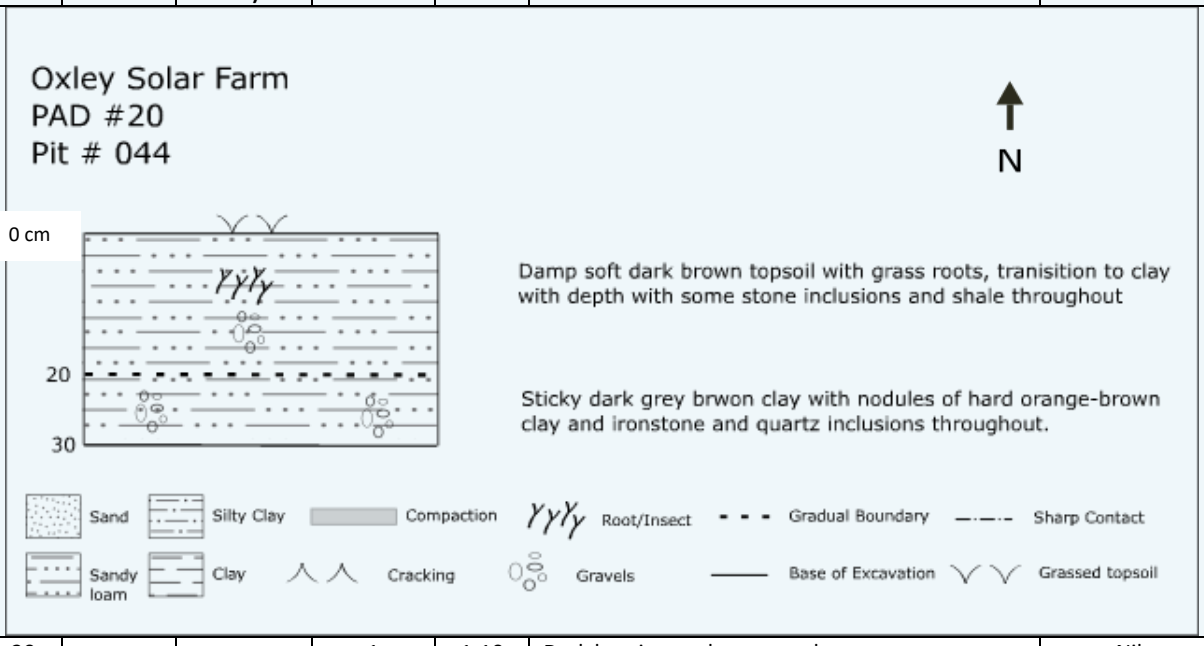
PAD 20, Pit 41, Spit 3, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 041 						
20	42	384880, 6617370	1	1-10	Occasional grub, one or two pebbles, thick tuft grass with a top layer of dark humic sandy loam.	Nil
			2	10-20	Transition to clayey dark brown silty loam.	Nil
			3	20-30	Transition to sticky dark brown clay. PH=5.	Nil
	 PAD 20, Pit 42, Spit 3.				 PAD 20, Pit 42, Spit 3, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
							
20	43	384878, 6617411	1	1-10	Dark humic sandy loam with thick tuft grass. Verigated thistle atop. Occasional grub inclusions throughout.	Nil
			2	10-20	Soil moisture content increasing with depth.	Nil
			3	20-30	Clay pockets at 28cm and occasional grubs throughout. Stop at 30cm for a consistent clay base.	Nil
	 PAD 20, Pit 43, Spit 2.				 PAD 20, Pit 43, Spit 2, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
					Oxley Solar Farm PAD #20 Pit # 043 N 0 cm 20 30 Grass and insect inclusions throughout sandy loam. Clay pockets consistent at 28 and consistent clay base at 30 Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil	
20	44	384877, 6617451	1	1-10	Soft dark brown damp topsoil with grass-root inclusions throughout.	Nil
			2	10-20	As above with a transition to sticky clay. Some stone ironstone and shale inclusions throughout.	Nil
			3	20-30	Sticky dark grey-brown clay with nodules of hard orange, brown clay and ironstone. Some quartz and shale inclusions up to 50mm in size (5%).	Nil
	 PAD 20, Pit 44, Spit 3.				 PAD 20, Pit 44, Spit 3, Northern wall profile.	

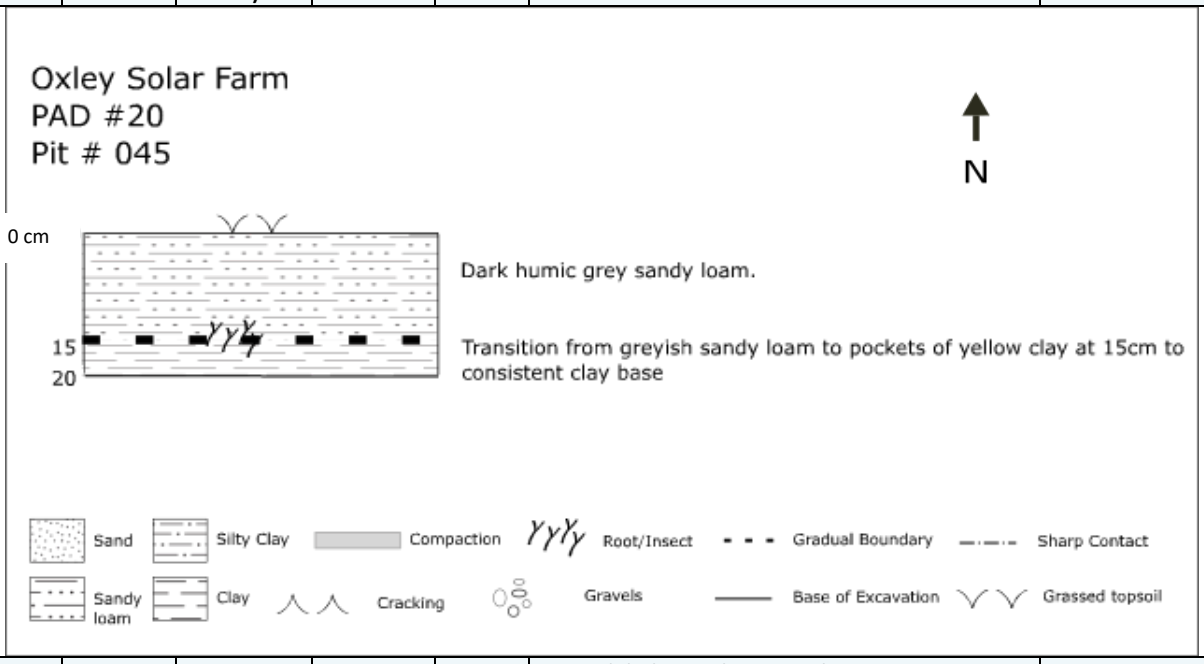
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts



20	45	384876, 6617492	1	1-10	Dark humic grey loamy sand.	Nil
			2	10-20	Transition to greyish sandy loam with pebbles and then yellow clay from ~15cm.	nil

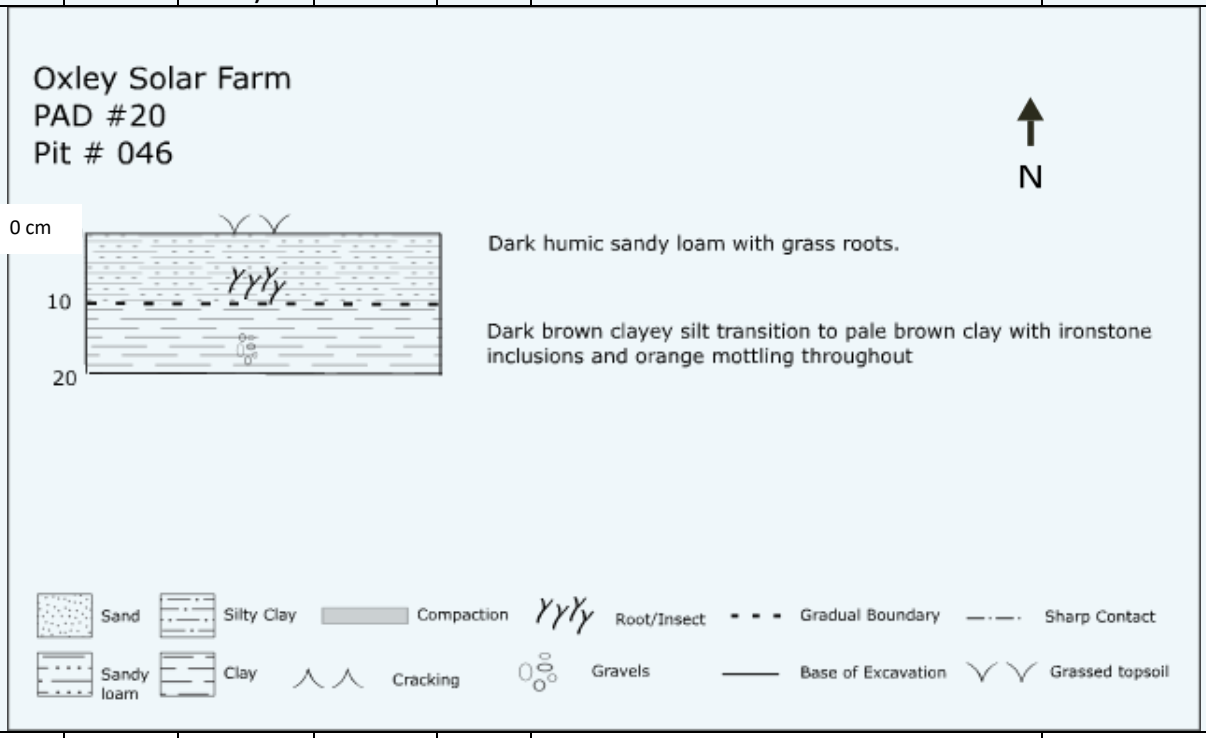
PAD 20, Pit 45, Spit 2.

PAD 20, Pit 45, Spit 2, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	46	384938, 6617495	1	1-10	Topsoil dark grey, brown with grassroots. Damp with few inclusions.	Nil
			2	10-20	Dark grey, brown clayey silt, transition to pale brown clay with ironstone nodule and orange mottling throughout PH=5.	Nil

PAD 20, Pit 46, Spit 2.

PAD 20, Pit 46, Spit 2, Northern wall profile.

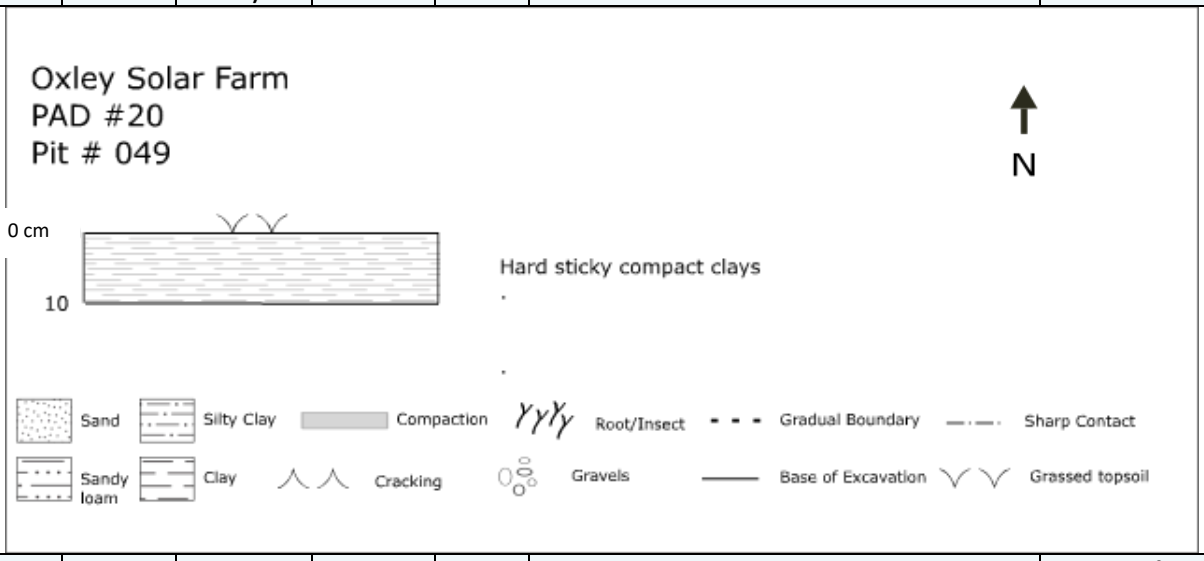
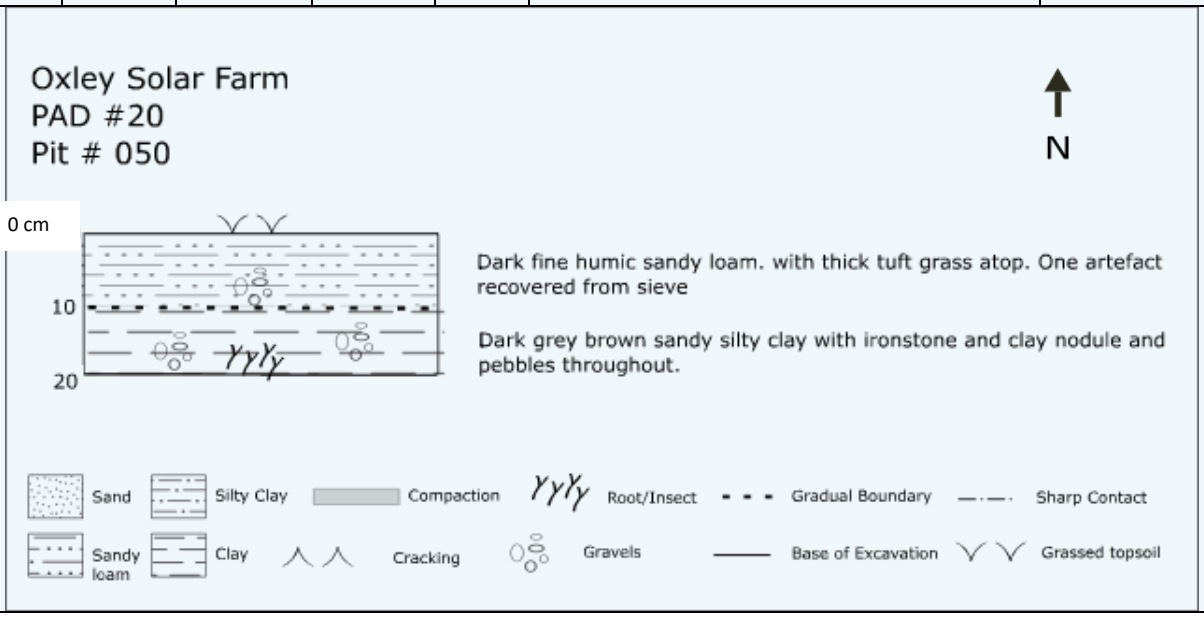
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	47	384943, 6617456	1	1-10	Loamy sand with <5cm cobble inclusions.	Nil
			2	10-20	Pockets of yellow-orange clay at 17cm. Grey clay base with those pockets at 20cm with some medium-sized gravels throughout.	Nil
	 PAD 20, Pit 47, Spit 2.				 PAD 20, Pit 47, Spit 2, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 047 N 0 cm 16 20 Dark humic sandy loam with <5cm cobbles. Pockets of yellow clay at 17cm and consistent grey clay base at 20cm with medium sized gravels throughout. Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
20	48	384940, 6617417	1	1-10	Dark grey, brown clayey silt	Nil
			2	10-20	Transition to pale grey clay with orangey-brown clay and ironstone inclusions. PH=6.	Nil

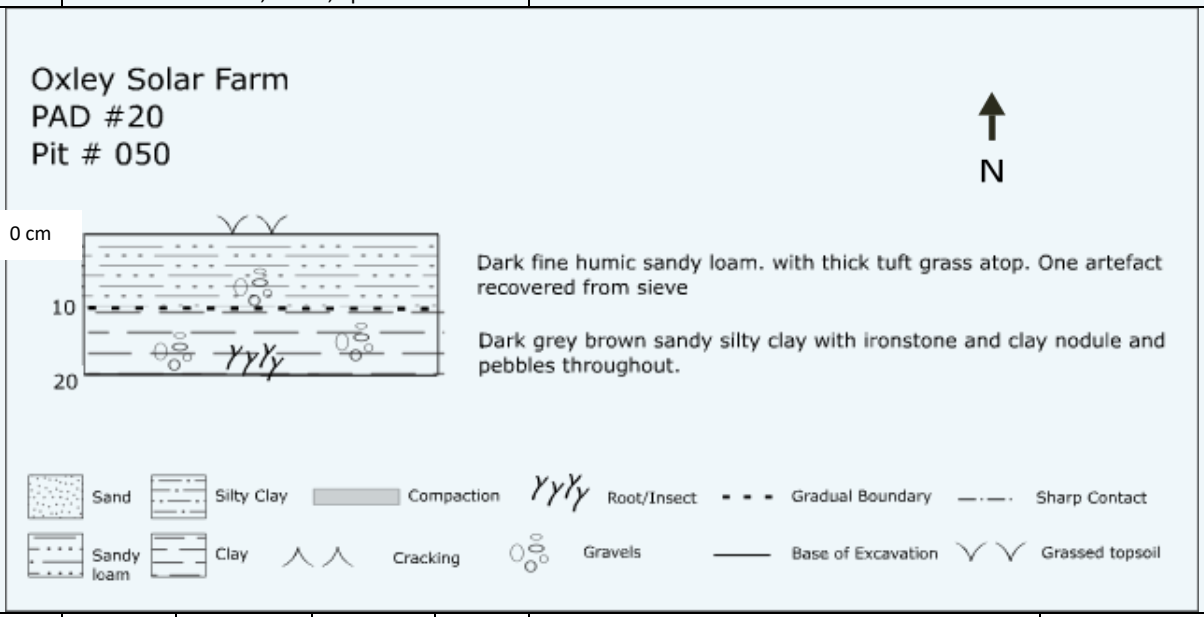
PAD 20, Pit 48, Spit 2.

PAD 20, Pit 48, Spit 2, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #20 Pit # 048 N 0 cm 10 20 Dark humic sandy loam Pockets of clay transition to consistent clay base with ironstone inclusions throughout adding a orange brown colour Sand · Silty Clay · Compaction · Root/Insect · Gradual Boundary · Sharp Contact Sandy loam · Clay · Cracking · Gravels · Base of Excavation · Grassed topsoil						
20	49	384944, 6617378	1	1-10	Hard sticky compact clay.	Nil
 PAD 20, Pit 49, Spit 1.					 PAD 20, Pit 49, Spit 1, Northern wall profile.	

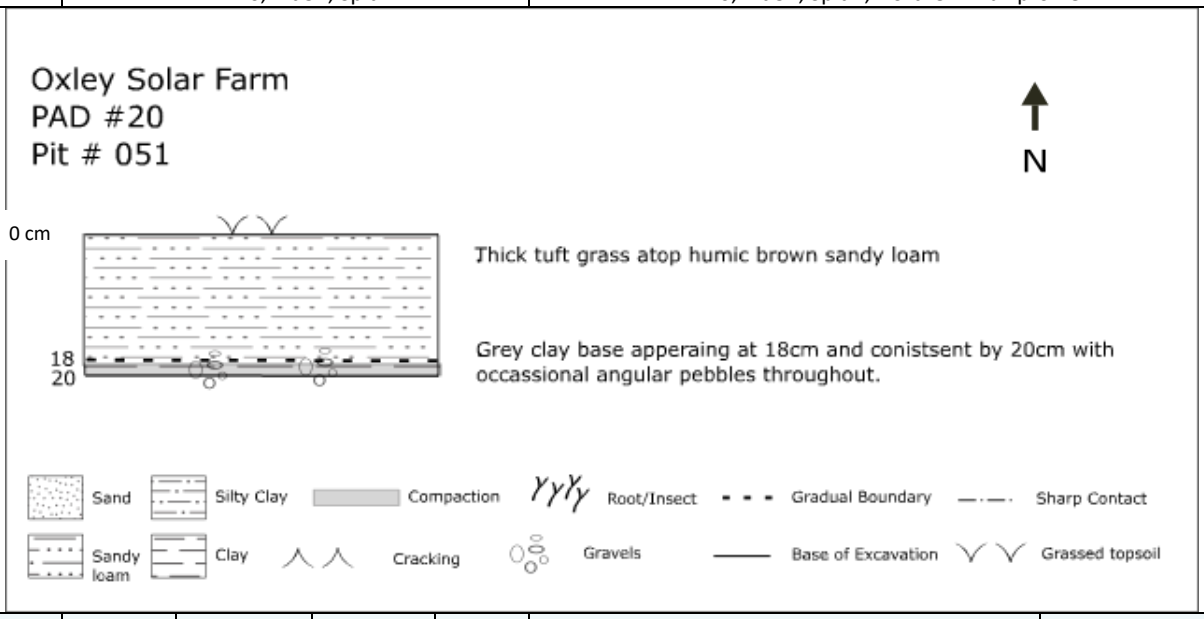
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
20	50	385013, 6617546	1	1-10	Sandy loam with thick tuft grass atop.	One artefact was removed from the sieve (full flake).
			2	10-20	Grey, brown sandy silty clay with ironstone inclusions and clay/shale/mudstone inclusions throughout. Clay base at 20cm.	Nil
						

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 20, Pit 50, Spit 2.				 PAD 20, Pit 50, Spit 2, Northern wall profile.	



20	51	385010, 6617507	1	1-10	Thick tuft grass atop humic black sandy loam. PH=5.	Nil
			2	10-20	Grey clay base appearing at 18cm and consistent by 20cm. Occasional angular pebbles with no artefact diagnostics.	Nil
						

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	PAD 20, Pit 51, Spit 2.				PAD 20, Pit 51, Spit 1, Northern wall profile.	

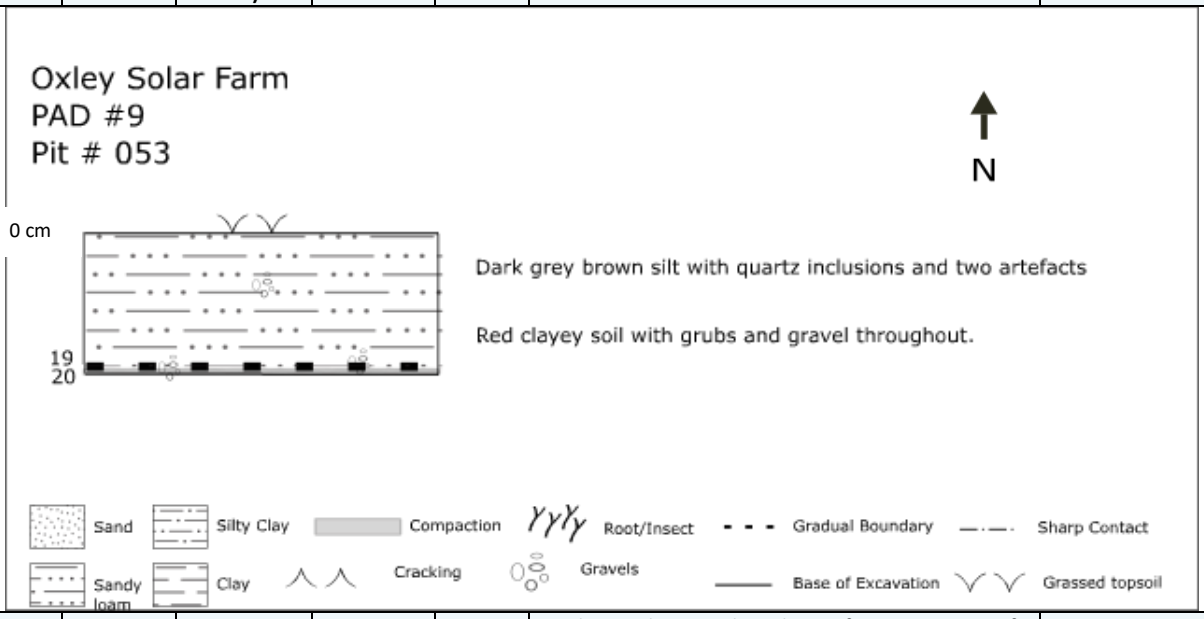


9	52	385151, 6617701	1	1-10	Medium-sized gravels throughout reddish brown loamy sand.	Nil
			2	10-20	More gravel and worms, grubs and charcoal throughout.	Nil

PAD 9, Pit 52, Spit 2.

PAD 20, Pit 52, Spit 2.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
					Oxley Solar Farm PAD #20 Pit # 052 N 0 cm 18 20 Reddish brown loamy sand with medium sized gravel inclusions Gravel, insect and charcoal inclusions. Clay at around 18 and consistent by 20cm Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil	
9	53	385111, 6617699	1	1-10	Dark grey, brown silt with quartz pebble inclusions (8%), up to 20mm in size.	2 artefacts (1 quartz broken flake and 1 silcrete flake)
			2	10-20	A few grubs and lots of gravel. Reddish soil. Clay at 20cm.	Nil
	 PAD 9, Pit 53, Spit 2.				 PAD 9, Pit 53, Pit 2, Northern wall profile.	

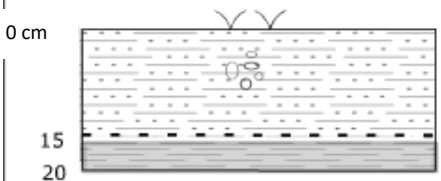
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
								
9	54	385109, 6617739	1	1-10	Dark grey, brown silt with significant amounts of petrified wood fragments (10-20%). Quartz pebble and rootlet inclusions.	Nil
			2	10-20	Transition to grey, brown mottled clay.	Some possible artefacts found, quartz/petrified wood.
	 PAD 9, Pit 54, Spit 2.				 PAD 9, Pit 54, Spit 2, Northern Wall profile.			

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #9 Pit # 054 N 0 cm 10 12 Light brown red sandy loam with lots of gravel and pebbles and some possible artefacts Several possible artefacts and lot of angular rocks. Sticky hard consistent clay at 12cm. Sand Silty Clay Compaction Root/Insect Gradual Boundary Sharp Contact Sandy loam Clay Cracking Gravels Base of Excavation Grassed topsoil						
9	55	385077, 6617762	1	1-5	Humic clay silt topsoil with grass and root inclusions.	Nil
			2	5-10	Dark grey, brown clayey silt. Petrified wood and quartz pebbles (<1%) throughout.	Nil
			3	10-15	Transitioning to orangey-brown mottled clay.	Nil
			4	15-20	Orangey brown mottle clay with few inclusions.	Nil
	 PAD 9, Pit 55, Spit 4.				 PAD 9, Pit 55, Spit 4, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts

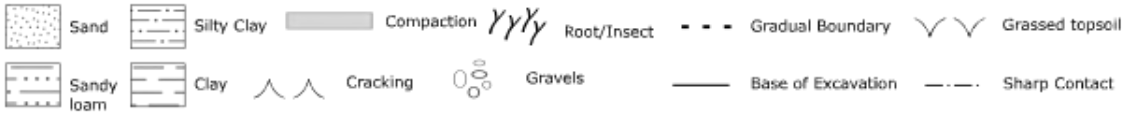
Oxley Solar Farm
PAD #9
Pit # 055

N



Loamy sand topsoil with quartz pebbles and pertrified wood inclusions towards base of spit.

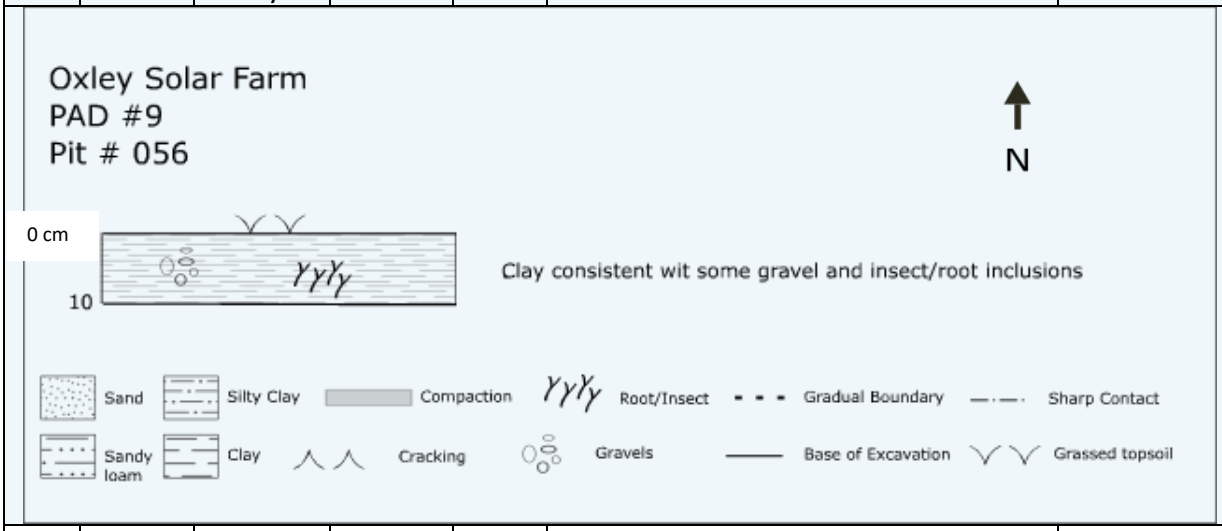
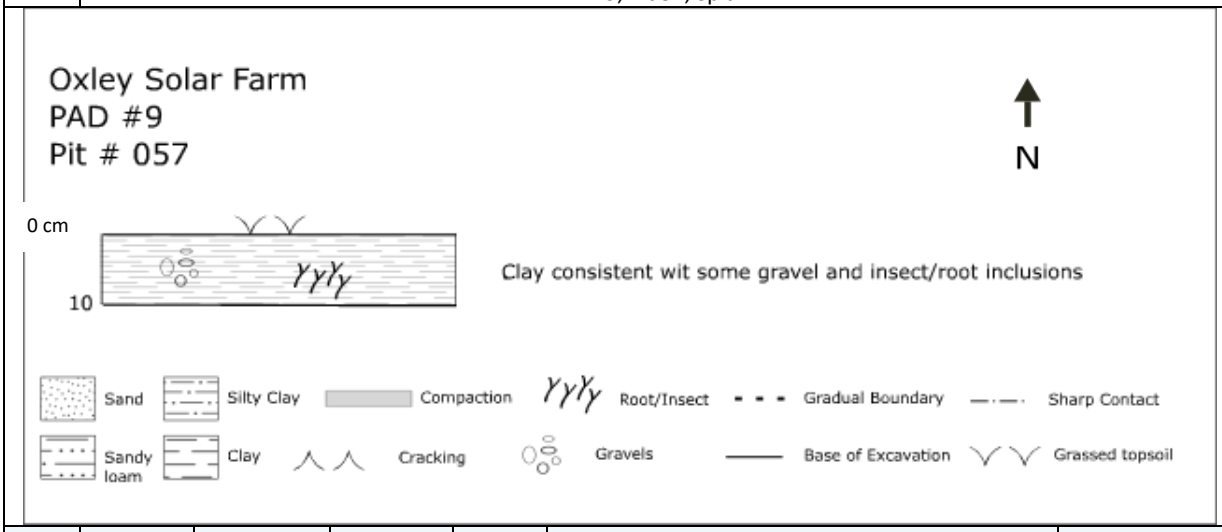
Transition to orange brown mottles clay with few inclusions and increasing moisture content with depth.

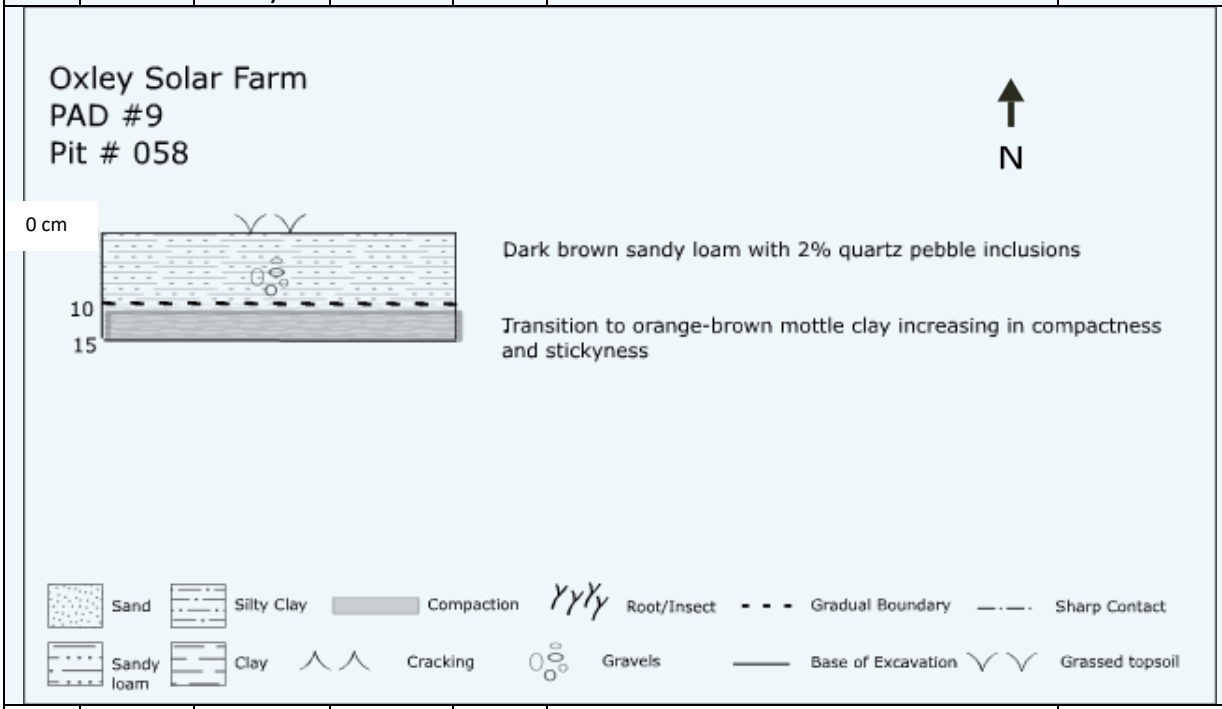


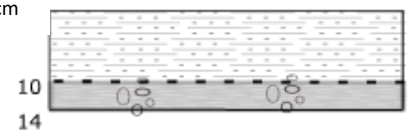
9	56	385078, 6617802	1	1-10	Sandy loam quickly transition to hard clay base. With insect and gravel inclusions throughout.	Nil

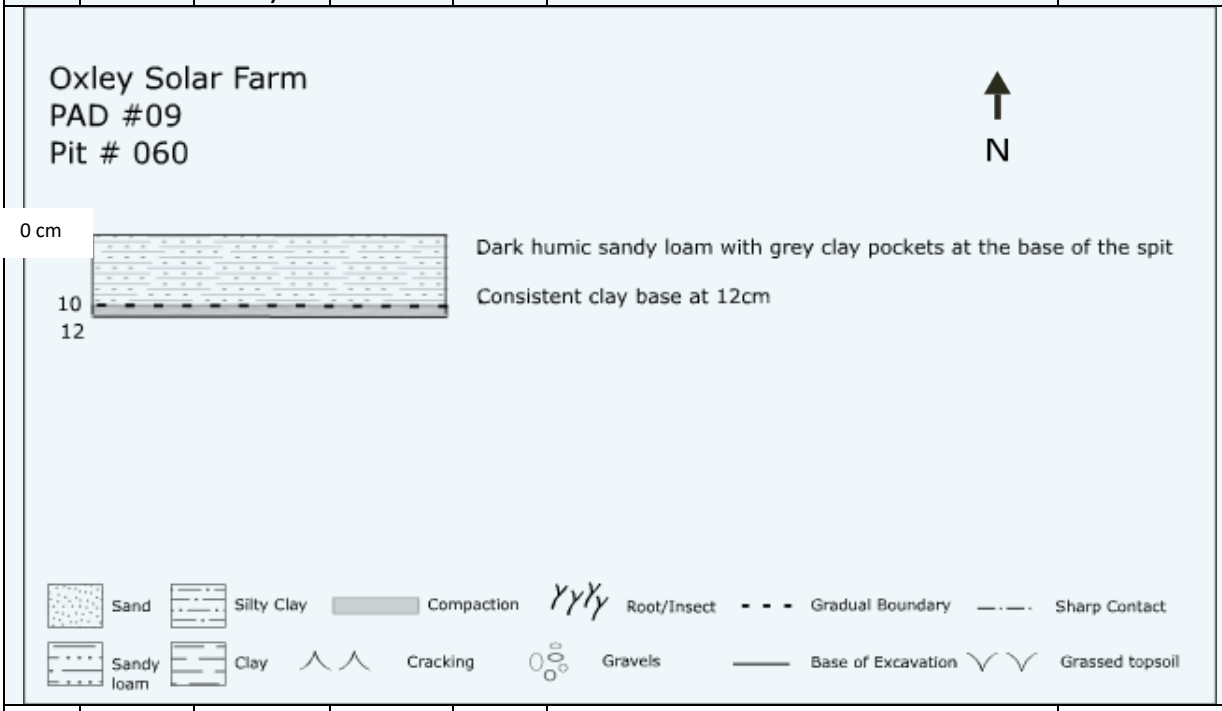
PAD 9, Pit 56, Spit 1.

PAD 9, Pit 56, Spit 1, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
9	57	385079, 6617842	1	1-10	Sandy loam quickly transition to hard clay base. With insect and gravel inclusions throughout.	Nil
					 PAD 9, Pit 57, Spit 1.	
						
9	58	385109, 6617717	1	1-10	Dark grey, brown silty sand with quartz pebble inclusions (2%)	Nil
			2	10-15	Transition into orange, brown mottled clay. PH=6.	Nil

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
							
9	59	385130, 6617719	1	1-10	Dark humic sandy loam with grey clay pockets present towards the base of the spit.	Nil
			2	10-15	Continued down to confirm sterile clay and a consistent clay base was apparent at 13-14cm. Small gravel inclusions throughout.	Nil
	 PAD 9, Pit 59, Spit 2.				 PAD 9, Pit 59, Spit 2, Northern wall profile.		

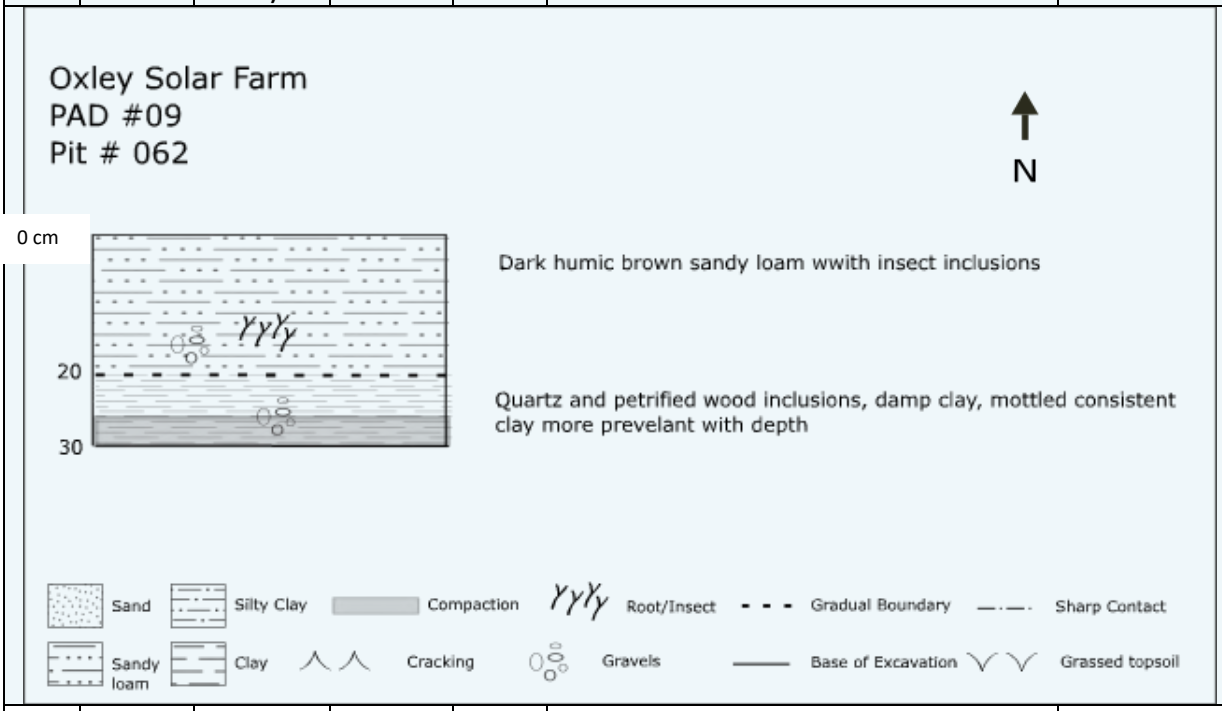
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #09 Pit # 059 N 0 cm 10 14  Dark humic sandy loam witg grey clay pockets at the base of the spit Consistent clay base at 13-14cm with small gravels observed throughout..  						
9	60	385131, 6617739	1	1-10	Sandy loam with occasional worms throughout. Thick grey clay at 12cm.	Nil
			2	10-20	Consistent clay base 13cm onwards.	Nil
	 PAD 9, Pit 60, Spit 2.				 PAD 9, Pit 60, Spit 2, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
								
9	61	385054, 6617822	1	1-10	Dark humic sandy loam with pockets of grey clay.	3 possible artefacts.
			2	10-20	Consistent grey clay base at 20cm. Occasional angular rocks with depth but nothing artefactual	Nil
	 PAD 9, Pit 61, Spit 2.				 PAD 9, Pit 61, Spit 1, Northern wall profile.	

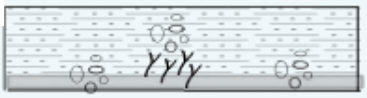
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #09 Pit # 061 N 0 cm 10 20 Dark humic brown sandy loam with thick tuft grass atop. Occasional angular gravels throughout but otherwise consistent grey clay base. Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
9	62	385023, 6617848	1	1-10	Dark humic sandy loam with clayey inclusions.	Nil
			2	10-20	As above. Dark grey, brown sandy clayey silt with few inclusions.	Nil
			3	20-30	Transition to pale brown clay with quartz and petrified wood inclusion. Very damp and changed to mottled clay with big orange clay nodules towards the base of the spit.	Nil

PAD 9, Pit 62, Spit 3.

PAD 9, Pit 62, Spit 3, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
9	63	385042, 6617883	1	1-10	Dak grey, brown clayey loam with roots and inclusions of rock and quartz up to 30mm in size up to 5%.	Nil
			2	10-20	Continuation of above. High content of gravel/pebbles with angular sandstone inclusions up to 100mm in size, 20%.	Nil
			3	20-30	Transitioning into darker grey, brown with orange clay nodules. PH=6.5.	Nil
	 PAD 9, Pit 63, Spit 3.				 PAD 9, Pit 63, Spit 3, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #09 Pit # 063 N 0 cm 20 30 Dark humic brown sandy loam wwith insect and root inclusions of petrified wood and quartz, some sandstone wit depth up to 100mm in size and gravel content increasing with depth. Transition to paler grey-brown clay with orange clay nodules throughout Sand Silty Clay Compaction Root/Insect Gradual Boundary Sharp Contact Sandy loam Clay Cracking Gravels Base of Excavation Grassed topsoil						
9	64	385009, 6617907	1	1-10	Occasional gravels throughout, dark humic sandy loam. Pockets of yellow clay protruding from base of spit.	Nil
			2	10-15	Big pockets of yellow clay at 11cm and occasional grubs and gravels. Consistent clay by 15cm.	Nil
	 PAD 9, Pit 64, Spit 2.				 PAD 9, Pit 64, Sit 1, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #09 Pit # 064 N 0 cm 10 12  Occasional gravels throughout dark humic sandy loam with pockets of clay protruding from the base of the spit Big pockets of yellow clay at 11 and grubs and gravel throughout.  						
9	65	384562, 6617980	1	1-10	Thick tuft grass atop dark humic sandy loam.	Nil
			2	10-15	Pockets of yellow clay at 12cm which continues with depth. Consistent great clay base at 14cm.	Nil
	 PAD 12, Pit 65, Spit 2.				 PAD 12, Pit 65, Spit 2, Northern wall profile.		

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
					Oxley Solar Farm PAD #12 Pit # 065 N 0 cm 10 14 Thick tuft grass topsoil underlain by dark humic loamy sand. Pockets of yellow clay at 12cm continue to transition to grey consistent clay base by 14cm Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil	
12	66	384530, 6618007	1	1-5	Large angular rocks within orangey brown clayey silt. Root and worm inclusions throughout. Decomposing sandstone also noted throughout up to 20cm in size.	Nil
			2	5-10	As above. PH-=6.5.	Nil
			3	10-15	Ad above.	Nil
			4	15-20	As above. Transitions to pale grey, brown clay.	Nil
			5	20-25	Clay mottling orange, brown with grey shaley nodules.	Nil
			6	25-30	Transition to sticky brown clay.	Nil

PAD 12, Pit 66, Spit 6.

PAD 12, Pit 66, Spit 6, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #12 Pit # 066 N 0 cm 15 30 Large angular rocks (50%) within dark grey brown sandy loam with stone and sandstone throughout. Transition onto pale grey-brown clay filled with same rocks as above with change to orange brown yellow clay with shale nodules with depth Sand · Silty Clay · Compaction · Root/Insect · Gradual Boundary · Sharp Contact Sandy loam · Clay · Cracking · Gravels · Base of Excavation · Grassed topsoil						
12	67	384482, 6618043	1	1-10	A couple of grubs observed, lots of gravel, light brown sandy loam.	Nil
			2	10-20	Larger angular rock (5-10cm).	Nil
			3	20-25	Yellow cream clay base layer with some gravels atop.	Nil

PAD 12, Pit 67, Spit 3.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #12 Pit # 067 N 0 cm 20 26 Light brown sandy loam with occasional grubs and large angular rocks (5-10cm) obsereved towards lower end of spit. Yellow cream clay base later with some gravels throughout. Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact, Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
12	68	384514, 6618072	1	1-10	Dark grey, brown clayey silt with 10% sandstone inclusions (up to 5cm in size). PH=6.	Nil
			2	10-20	As above but less than 5% stone.	Nil
			3	20-30	Transition to paler grey, brown sticky clay with minor orange mottling. PH=7.	Nil

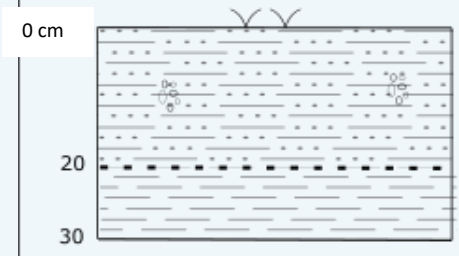
PAD 12, Pit 68, Spit 3.


PAD12, Pit 68, Spit 3, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts

Oxley Solar Farm
PAD #12
Pit # 068

N



Dark humic sandy loam with 10% sandstone inclusions up to 5cm in size including decomposing sandstone.

Transition to paler grey brown sticky clay with minor orange mottling

12	69	384449, 6618064	1	1-10	Dark humic sandy loam with occasional gravels.	Nil
			2	10-20	Yellow pockets of clay at 11cm and consistent yellow brown clay base at 20cm.	Nil

PAD12, Pit 69, Spit 2.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #12 Pit # 069 N 0 cm 10 20 Dark humic sandy loam with occasional gravels. Yellow pockets of clay consistent at 16cm with yellow brown clay base layer at 20cm. Sand, Silty Clay, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
12	70	384477, 6618095	1	1-10	Dark grey, brown clayey silt with 40% inclusions of angular sandstone up to 10cm in size.	Nil
			2	10-20	As above.	Nil
			3	20-25	Sandstone boulders evident throughout base.	Nil

PAD 12, Pit 70, Spit 3.

PAD 12, Pit 70, Spit 3, Northern wall profile.

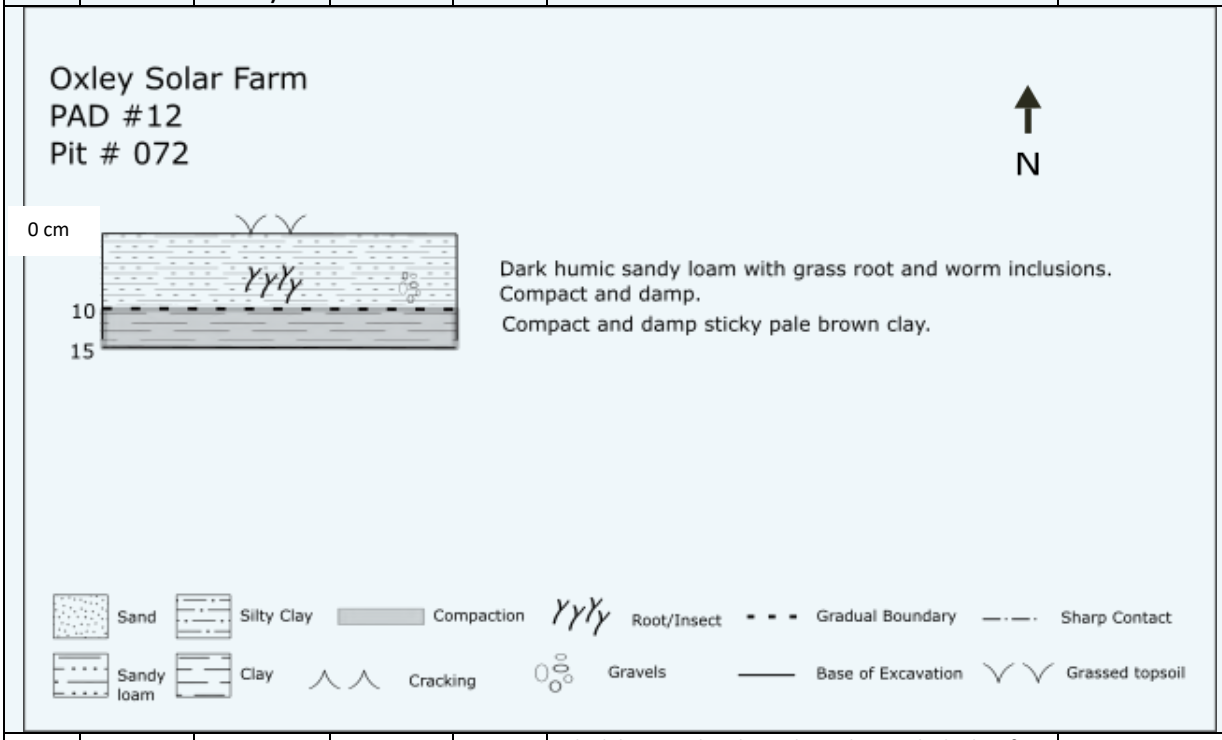
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #12 Pit # 070 N 0 cm 25 Dark grey brown sandy loam with 40% inclusions of angular sandstone up to 10cm in size. Sandstone boulders evident towards base of spit with increased clay and compactness in soil with depth. Sand Silty Clay Compaction Root/Insect Gradual Boundary Sharp Contact Sandy loam Clay Cracking Gravels Base of Excavation Grassed topsoil						
12	71	384424, 6618097	1	1-10	Sandy loam with clay inclusions. Clay content increasing with depth.	Nil
			2	10-15	Larger medium sized rocks throughout. Fairly sticky compact clay transitions to a hard clay base.	Nil

PAD 12, Pit 71, Spit 2.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #12 Pit # 071 N 0 cm 10 15 Dark humic sandy loam with clay content increasing with depth. Medium sized angular rocks throughout with episodic fairly sticky compact clay transitioning to a hard clay base. Sand Silty Clay Compaction Root/Insect Gradual Boundary Sharp Contact Sandy loam Clay Cracking Gravels Base of Excavation Grassed topsoil						
12	72	384470, 6618139	1	1-10	Grass and roots atop a dark brown to black silty clay. Compact and damp, 'flood mud' from drainage line. PH=6.	Nil
			2	10-15	As above. Compact and sticky.	Nil

PAD 12, Pit 72, Spit 2.

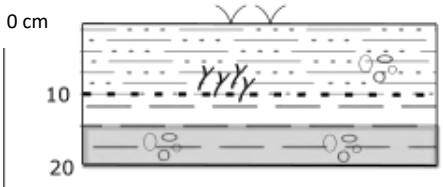
PAD 12, Pit 72, Spit 2, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
12	73	384407, 6618132	1	1-10	Black humic silty clayey loam beneath thick tuft grass with occasional pebbles.	Nil
			2	10-20	Dark humic black soil with clay content increasing with depth and large rock inclusions throughout.	Nil
	 PAD 12, Pit 73, Spit 1.				 PAD 12, Pit 73, Spit 1, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts

Oxley Solar Farm
PAD #12
Pit # 073

N



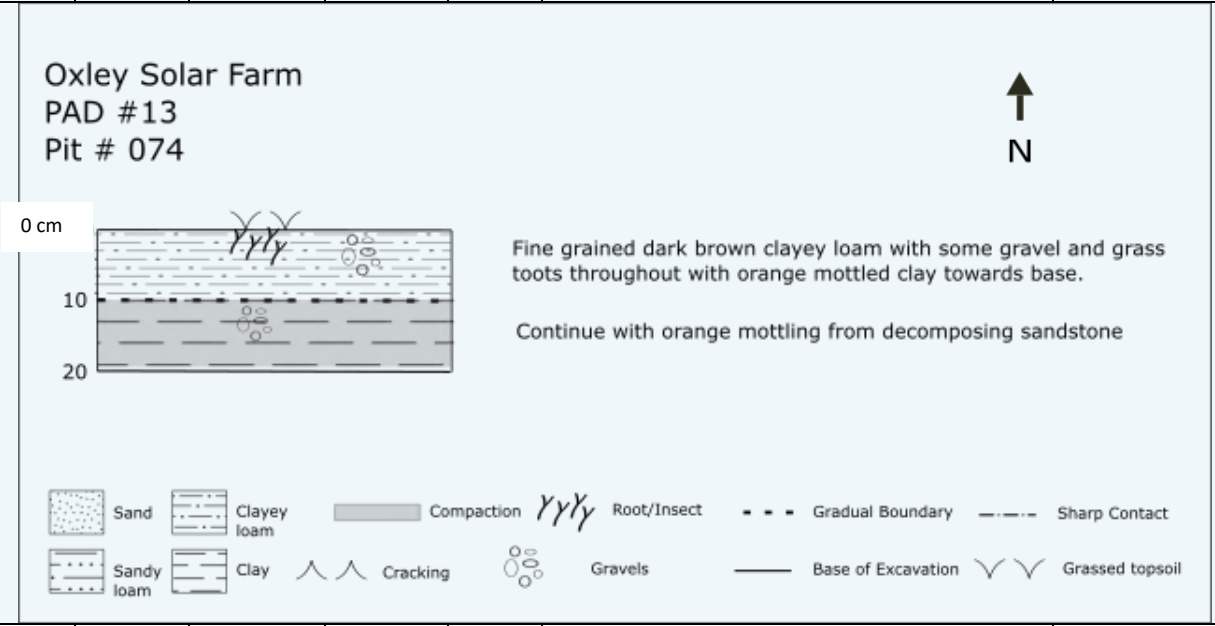
Dark humic very sticly clay. Thick tuft grass with occasional pebbles throughout

Dark humic black soil with clay content and large rocks increasing with depth

13	74	384785, 6618276	1	1-5	Fine-grained dark grey, brown clayey loam. 1% gravel (<5mm), sticky soil with few grass roots evident throughout.	Nil
			2	5-10	As above but transitioning to orange mottled clay (only 1% base) very sticky.	Nil
			3	10-15	Continue as above with orange mottling from decomposing sandstone observed.	Nil
			4	15-20	As above, 100% decomposing stone.	Nil

PAD 13, Pit 74, Spit 4.

PAD 13, Pit 74, Spit 4, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
13	75	384804, 6618283	1	1-10	Grassy topsoil but soft soil due to frost. Sporadic roots.	Nil.
			2	10-20	Sporadic roots protruding from all walls with some worms throughout. Moist soil with degrading ironstone throughout. Some insects throughout.	Nil.

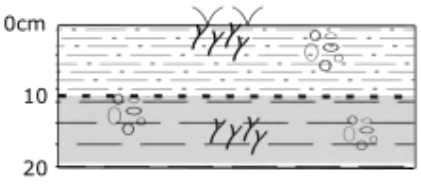
PAD 13, Pit 75, Spit 2.

PAD 13, Pit 75, Spit 2, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts

Oxley Solar Farm
PAD #13
Pit # 075

N



Grassy topsoil but soft soil due to frost. Sporadic roots.

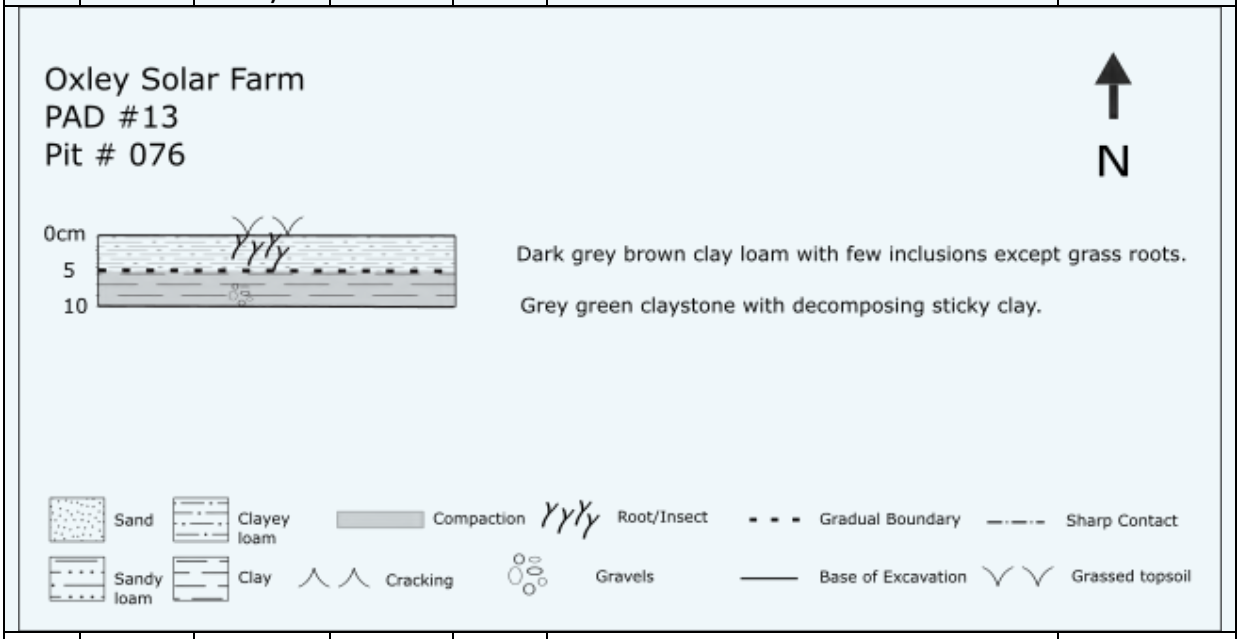
Sporadic roots protruding from all walls with some worms throughout. Moist soil with degrading ironstone and insects throughout.

13	76	384824, 6618290	1	1-5	Topsoil dark grey, brown, clay loam with few inclusions except grass roots.	Nil
			2	5-10	On to grey green claystone with decomposing sticky clay.	Nil


PAD 13, Pit 76, Spit 2

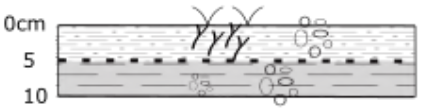

PAD 13, Pit 76, Spit 2, Northern wall profile

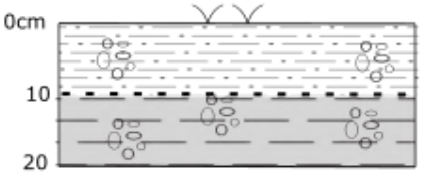
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts

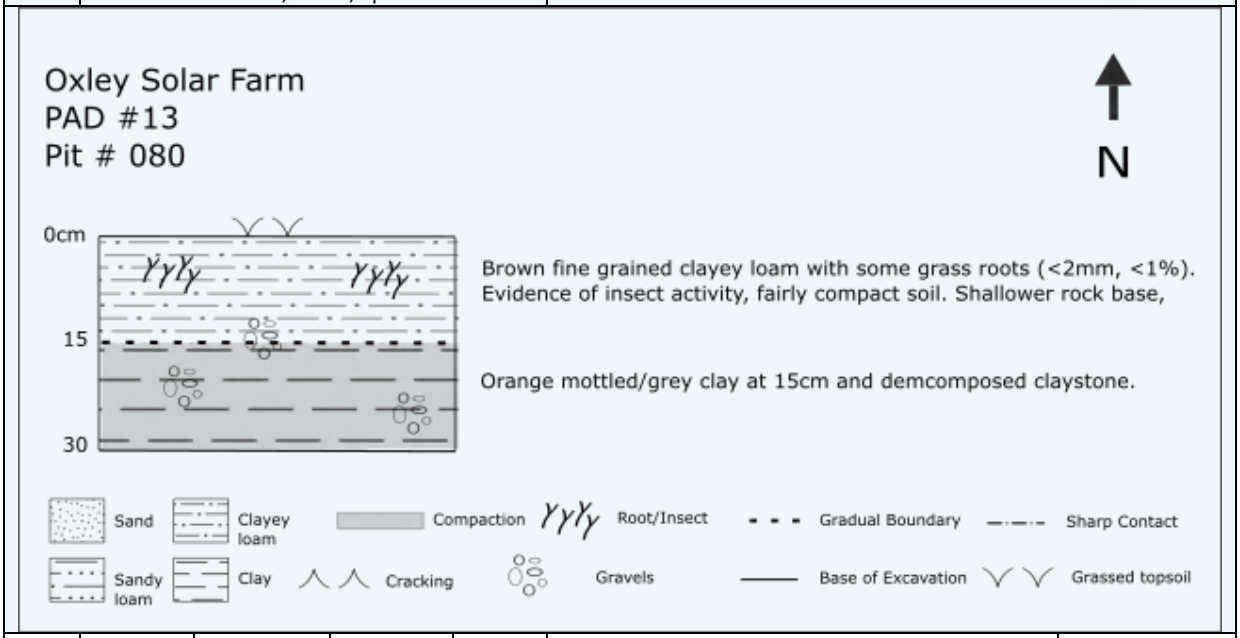


13	77	384845, 6618293	1	1-10	Dark grey, brown clayey loam with small gravel inclusions (5%) <5mm. Some grass roots <5%, <3mm thick. Fine gavel. One large piece of stone - friable/claystone. Transitions to some orange mottling and then clay base with decomposing sandstone at base of spit.	Nil

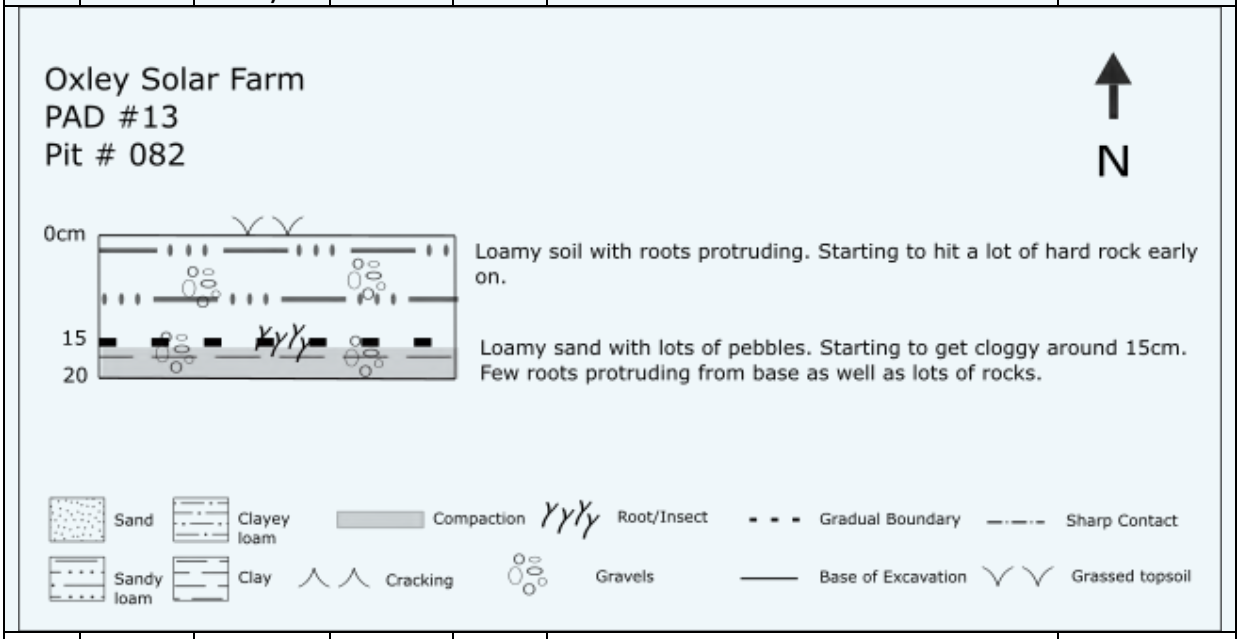

PAD 13, Pit 77, Spit 1.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #13 Pit # 077 N  Dark grey brown clay loam with small gravel inclusions (5%, <5mm,) some grass roots (5%), <3mm thick) and fine gravel. One large piece of stone. Friable claystone. Appearance of some orange mottling and transition to orange clay, sticky and decomposing claystone/sandstone..  						
13	78	384862, 6618270	1	1-10	Compact, lots of roots within clayey loam. Some insects present throughout, sandstone and quartz.	Nil
			2	10-20	As above.	1 possible artefact.
			3	20-30	Compacted and degraded soil/sandstone. One jasper rock (non-artefactual), loamy clay transitions to clay with few pebbles.	Nil
	 PAD 13, Pit 78, Spit 3				 PAD 13, Pit 78, Spit 3, Northern wall profile	
13	79	384930, 6618245	1	1-10	Fine grained clayey loam with dark brown to brown soil. Very high rock content (40%), up to 10cm in size with breakable claystone nodule inclusions.	Nil.
			2	10-20	Transition into yellow claystone, very breakable, to continue digging would be quarrying.	Nil.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 13, Pit 79, Spit 2.				 PAD 13, Pit 79, Spit 2, Northern wall profile.	
	Oxley Solar Farm PAD #13 Pit # 079 N  Fine grained clayey loam with dark brown to brown soil. Very high rock content (40%), up to 10cm in size with breakable claystone nodule inclusions. CTransition into yellow claystone, very breakable, to continue digging through would be quarrying. 					
13	80	384909, 6618239	1	1-10	Brown fine grained clayey loam with no gravel inclusions but some grass roots at <2mm (<1%). Evidence of insect activity, fairly compact soil, the soil here is drier than those to the north likely because of a shallower rock base.	Nil
			2	10-20	Brown fine grained clayey silt appearance of orange mottled clay/ grey clay and decomposed soils at approximately 15cm depth.	Nil
			3	20-30	At approximately 25cm appearance of some of the decomposed claystone.	Nil

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 13, Pit 80, Spit 3				 PAD 13, Pit 80, Spit 3, Northern wall profile	
						
13	81	384888, 6618235	1	1-10	Grassy topsoil but staring to hit rock and ironstone at 2cm. Sporadic roots on all four walls. Loamy topsoil going onto degraded rocks.	Nil.
	 PAD 13, Pit 81, Spit 1					

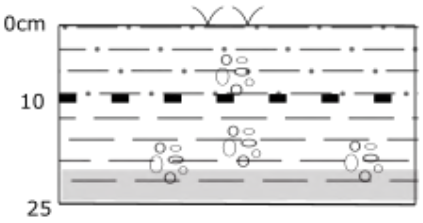
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #13 Pit # 081 N 0cm 7 Grassy, then lots of rock at ironstone at 2cm. Sporadic roots on all four walls. Sandy loam topsoil and then onto consistent deomposed rocks. Sand · Clayey loam · Compaction · Root/Insect · Gradual Boundary · Sharp Contact Sandy loam · Clay · Cracking · Gravels · Base of Excavation · Grassed topsoil						
13	82	384870, 6618228	1	1-10	Loamy soil with roots protruding. Starting to hit of lot of hard rock.	2 artefacts, basalt flake and quartz flake.
			2	10-20	Loamy sand, lot of pebbles. Starting to get cloggy around the 15cm mark. Few roots protruding towards the base of spit, lots of rocks at base.	Nil
	 PAD 13, Pit 82, Spit 2				 PAD 13, Pit 82, Spit 2, Northern wall profile	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
13	83	384855, 6618223	1	1-10	Dark grey, brown moist clayey loam, fine-grained. <1% pebble inclusions.	Nil
			2	10-20	Transition to grey clayey silt with yellow-orange cobbles, plus inclusions of yellow/grey-green decomposing sandstone/claystone. Compact at 20cm. Digging include breaking up lots of stone, however the stone content still isn't as high as those on the eastern end.	Nil
			3	20-25	Decomposing claystone content increasing until 25cm. All digging includes breaking up stone material. Still a small amount of clayey silt but 90% stone.	Nil
	 PAD 13, Pit 83, Spit 3				 PAD 13, Pit 83, Spit 3, Northern wall profile	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts

Oxley Solar Farm
PAD #13
Pit # 083

N



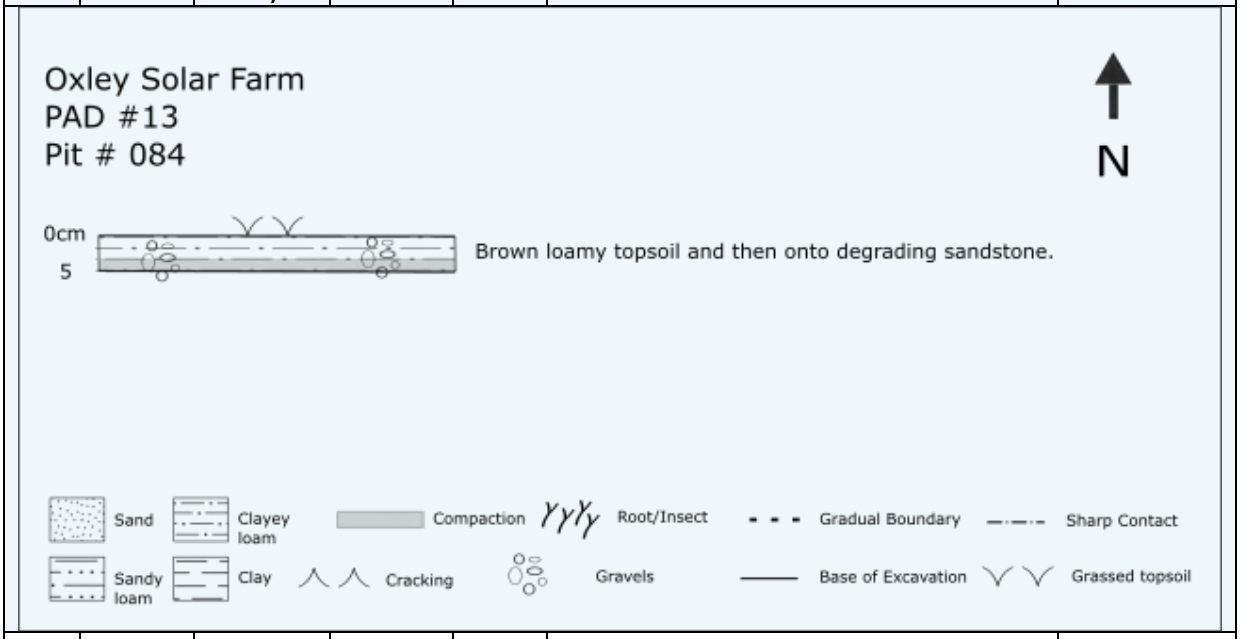
Dark grey brown moist clayey loam, fine-grained with <1% pebble inclusions.

Transition to grey claeyey silt with inclusions of yellow grey/green decomposing sandstone. Lots of stone. Transitions to 90% stone interspersed with clay.

13	84	384695, 6618244	1	1-5	Brown loamy topsoil and then onto degrading sandstone.	Nil

PAD 13, Pit 84, Spit 1.

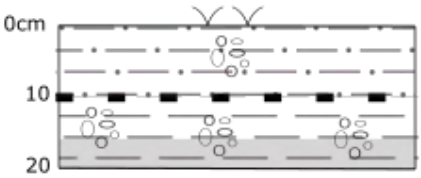
PAD 13, Pit 84, Spit 1, Northern wall profile.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
13	85	384658, 6618230	1	1-10	Dark grey, brown sticky clayey loam. Very damp with 1% inclusions of decomposed sandstone/claystone (<20mm in size).	Nil
			2	10-20	From approximately 10cm appearance of orange yellow decomposing sandstone increasing with depth. At approximately 20cm about 80% of content is decomposing sandstone and claystone.	Nil
	 PAD 13, Pit 85, Spit 2.				 PAD 13, Pit 85, Spit 25, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts

Oxley Solar Farm
PAD #13
Pit # 085

N



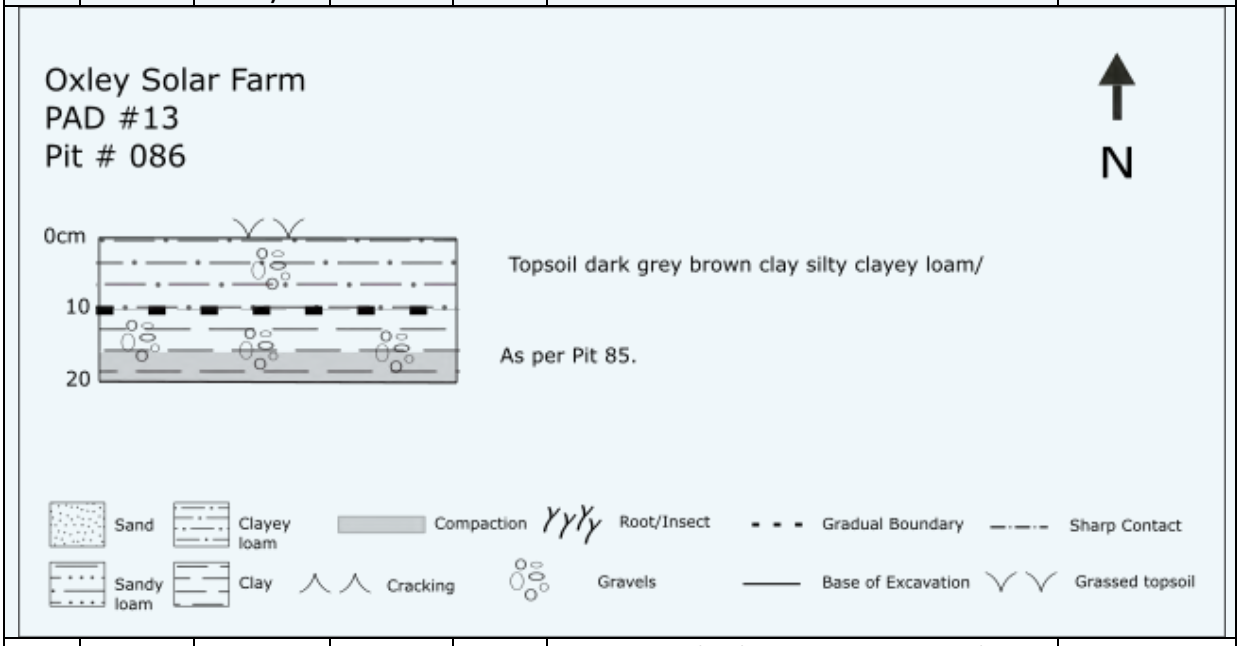
Dark grey brown stickey clayey loam. Very damp with 1% inclusions iof decomposed sandstone/claystone (<20mm in size).

From approximately 10cm appearance of orange yellow decomposing sandstone increasing with depth. At 20cm about 80% of content is decomposing sandstone and claystone.

13	86	384655, 6618191	1	1-10	Topsoil dark grey, brown clay silty loam	Nil
			2	10-20	As per pit 85.	Nil

PAD 13, Pit 86, Spit 2

PAD 13, Pit 86, Spit 2, Northern wall profile

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
13	87	384692, 6618201	1	1-10	Loamy top soil with worms, grass roots and carrots throughout. Soil getting moist and then onto degraded sandstone.	Nil
	 PAD 13, Pit 87, Spit 1				 PAD 13, Pit 87, Spit 1, Northern wall profile	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #13 Pit # 087 N 0cm 10 Loamy topsoil with worms, grass roots and carrots throughout. Soil getting moist and then onto degraded sandstone. Sand, Clayey loam, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
13	88	384683, 6618163	1	1-10	Removal of grass, brown loamy topsoil, worms, degraded sandstone, grass roots	Nil

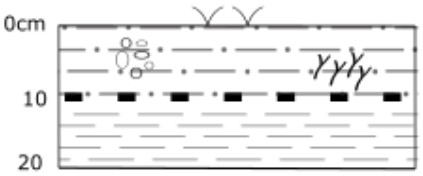
PAD 13, Pit 88, Spit 1.

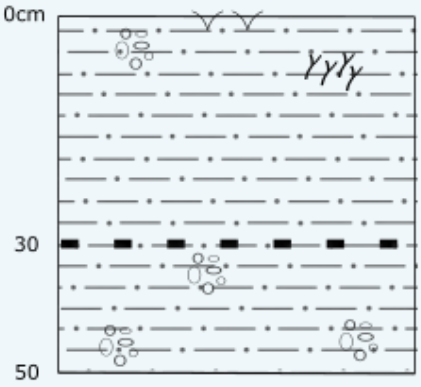
PAD 13, Pit 88, Spit 1, Northern wall profile.

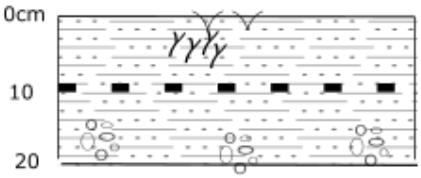
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #13 Pit # 088 N 0cm 10 Removal of grass, brown loamy tppsoil, worms, degraded sandstone and grass roots. Sand, Clayey loam, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
13	89	384615, 6618435	1	1-10	Fine grained grey brown clayey loam to clayey silt. Grass roots <2mm, <1% worms throughout. No stone inclusions.	Nil
			2	10-20	At approximately 15-18cm, hit sticky grey, orange mottled clay with no stone inclusions.	nil
	 PAD 13, Pit 89, Spit 2				 PAD 13, Pit 89, Spit 2, Northern wall profile	

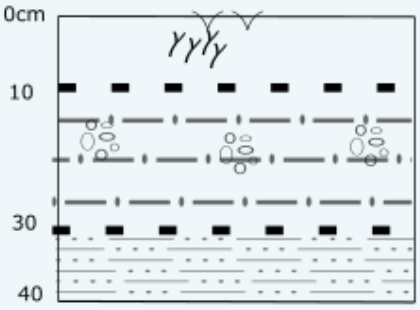
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #13 Pit # 089 N 0cm 15 20 Fine grained grey brown clayey loam to clayey silt. Grass roots <2mm 1% worms throughout. At approximately 15-18cm hit sticky grey orange mottled clay. Sand, Clayey loam, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
13	90	384652, 6618416	1	1-10	Clayey dark grey, brown loam transitions into clayey silt. Roots 5%, less than 2mm in size. Transition to crumbly decomposing sandstone. Four some rounded pieces of basalt.	Nil
			2	10-18	Decomposing sandstone as per pits to the south.	Nil
	 PAD 13, Pit 90, Spit 2				 PAD 13, Pit 90, Spit 2, Northern wall profile	

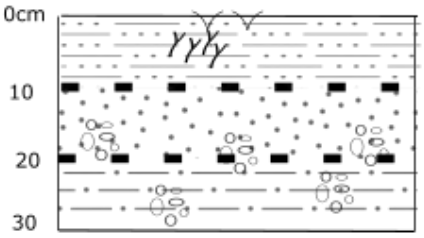
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #13 Pit # 090 N 0cm 10 18 Clayey dark grey brown loam transitions to clayey silt. Roots 5%, less than 2mm in size.Transition to crumbly decomposing sandstone. Rounded pieces of basalt. Decomposing sandstone as per pits to the south. Sand, Clayey loam, Compaction, Root/Insect, Gradual Boundary, Sharp Contact Sandy loam, Clay, Cracking, Gravels, Base of Excavation, Grassed topsoil						
13	91	384641, 6618374	1	1-10	Brownish grey loam with some clay present throughout. Worms, grubs, beetles and bits of stone.	Nil
			2	10-20	As above. Coming down onto a clay mixed base.	Nil.
	 PAD 13, Pit 91, Spit 2				 PAD 13, Pit 91, Spit 2, Northern wall profile	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #13 Pit # 091 N  Brownis grey loam with some clay present throughout. Worms, grubs, beetles and bits of stone. As above. Coming down onto a clay mixed base.  						
10	92	385479, 6616898	1	1-10	Thick tuft grass onto light brown loamy soil. Then just below is sandy gritty soil with insect and grass inclusions. PH =6.5.	Nil
			2	10-20	Sandy soil, moist, not compact, quite easy to dig, cicada but rows of grass roots. Soil colour is orange, brown. PH=6.	Nil
			3	20-30	As above.	Nil
			4	30-40	At the base of spit 4 ironstone is more prevalent but the rest is as above.	Nil
			5	40-50	Ironstone more prevalent especially at base quite moist, larger ironstone pieces determined to constitute base of spit.	Nil
	 PAD 10, Pit 92, Spit 5				 PAD 10, Pit 92, Spit 5	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #10 Pit # 092  Thick tuft grass onto light brown loamy soil. Sandy gritty soil below with insect and grass inclusions. Transitions to moist orange brown soil near base. Based of spit 4 has a prevelance of ironstone, with large ironstone pieces towars the base of the spit and increased moisture.  						
10	93	385504, 6616874	1	1-10	Dark brown sandy silty loam with grass roots <2%, <2mm in size, few to no inclusions.	Nil
			2	10-20	At approximately 12cm layer of ironstone, conglomerate pebbles approximately 2-5mm in size, 5% content. This continues to increase and at 20cm appears to constitute 90% of the content.	Nil
	 PAD 10, Pit 93, Spit 2				 PAD 10, Pit 93, Spit2, Northern wall profile	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #10 Pit # 093  Dark brown sandy silty loam with grass inclusions <2%, <2mm in size, few to no inclusions. At approximately 12cm, layer of ironstone conglomerate pebbles approximately 2-5mm in size, 5% content. This continues to increase at 20cm and constitutes 90% of the content.  						
10	94	385545, 6616872	1	1-10	Sandy silty dark brown loam with no stone inclusions in top layer but roots etc present <2%.	Nil
			2	10-20	Transition to pale brown sandy silt with one possible mudstone pebble approximately 5cm in size at approximately 15cm.	Nil
			3	20-30	1 large cobble ~20cm in size (mudstone). High moisture content, pale brown sandy silt.	Nil
			4	30-40	Moisture content increasing to become mud, pale brown sandy silt.	Nil
	 PAD 10, Pit 94, Spit 4.				 PAD 10, Pit 94, Spit 4, Northern wall profile.	

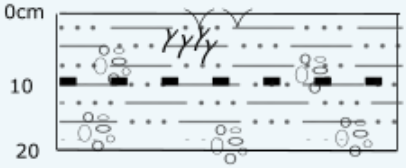
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #10 Pit # 094  Sandy silt dark brown loam with no stone inclusions in top layer but roots etc present <2%. Transition to pale brown sandy silt with one possible mudstone pebble approximately 5cm in size at approximately 15cm. High moisture. Moisture content increasing to become mud, pale brown sandy silt.  						
10	95	385624, 6616873	1	1-10	Dark brown silty sand, coarse grained with no stone inclusions, roots <2%, <2mm.	Nil
			2	10-20	As above, and then transitioning to pale brown coarse-grained sand and regular small river pebbles.	Nil
			3	20-30	As above, moisture content increasing, Ironstone or decomposing granite appearing at about 25cm, orange/dark brown.	Nil.
	 PAD 10, Pit 95, Spit 3				 PAD 10, Pit 95, Spit 3, Northern wall profile	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #10 Pit # 095 N  Dark brown silty sandy loam with coarse grains and root inclusions <2%, <2mm. As above, and then tranisitiong to pale brown coarse-grained sand and regular small river pebbles. As above. Moisture content increasing. Ironstone or decomposing granite appearing at about 25cm, orange dark/brown colout.  						
7	96	385483, 6617382	1	1-10	Topsoil approximately 2-3cm, depth comprising sandy silty loam (dark grey, brown) then transition to pale brown sandy silt with 60-80% ironstone.	Nil
			2	10-20	Moisture increasing, ironstone continues.	Nil
	 PAD 7, Pit 96, Spit 2				 PAD 7, Pit 96, Spit 2, Northern wall profile	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts

Oxley Solar Farm
PAD #7
Pit # 096

N



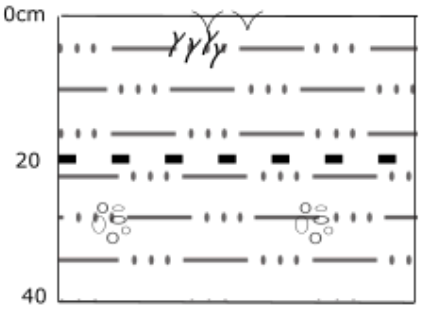
Sandy silty loam (dark grey brown) then transition to pale brown sandy silt with 60-80% ironstone.

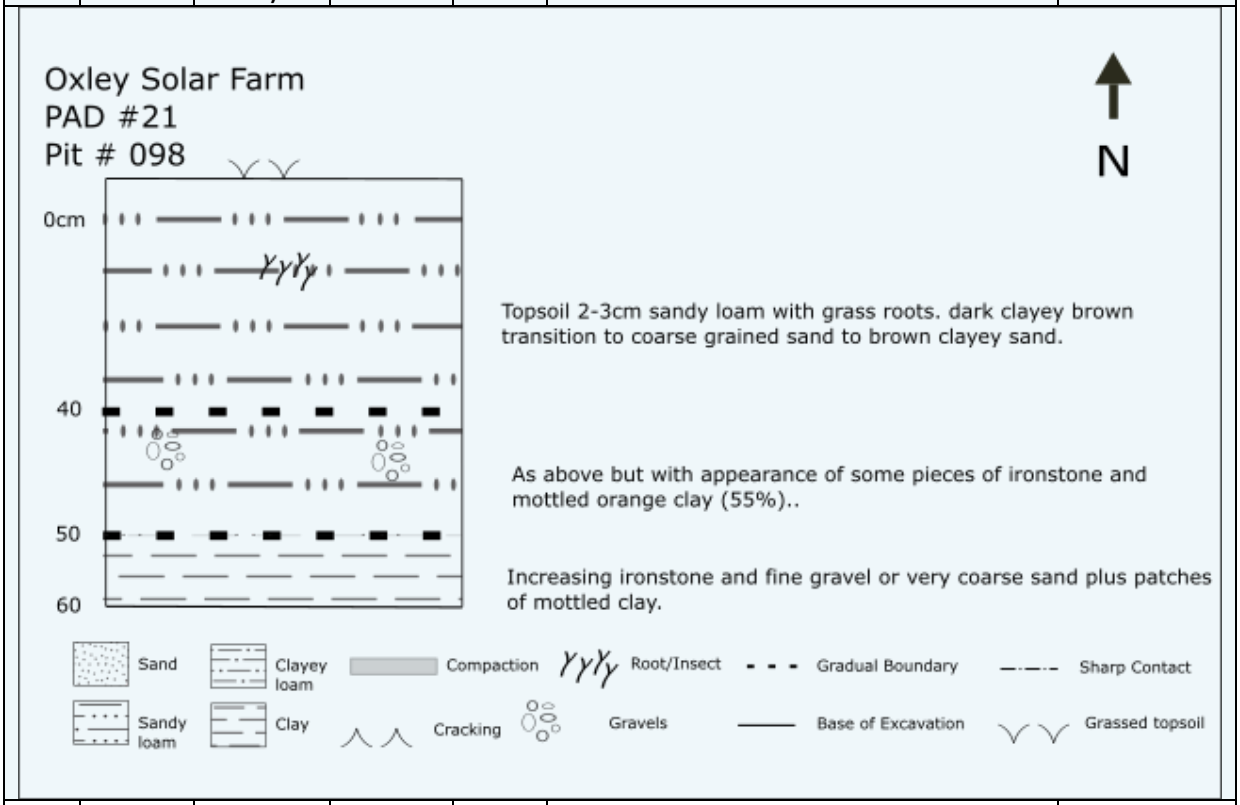
Moisture increasing, ironstone continues

21	97	385944, 6616229	1	1-10	Sandy soil with worm and grass inclusions, gritty in texture. Soil is moist.	Nil
			2	10-20	Sandy gritty loam with the same context as above.	Nil
			3	20-30	As above. Signs of ironstone.	Nil
			4	30-40	Very moist. As above.	Nil

PAD 21, Pit 97, Spit 1

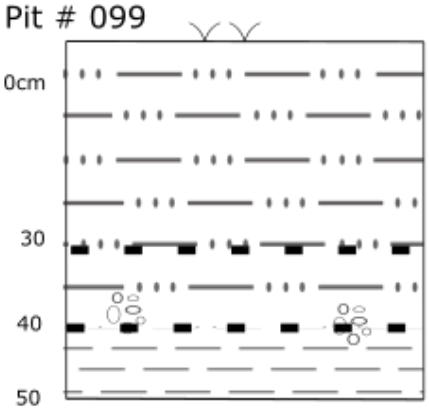
PAD 21, Pit 97, Spit 1, Northern wall profile

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #21 Pit # 097  Sandy soil with worm and grass inclusions, moist soil. Very moist, signs of ironstone throughout.  						
21	98	385923, 6616227	1	1-10	Topsoil 2-3cm sandy loam with grass roots. Dark grey clayey brown transition to coarse grained sand to brown clayey sand with no stone or root inclusions.	Nil
			2	10-20	Continued as above with coarse clayey brown sand.	Nil
			3	20-30	As above.	Nil
			4	30-40	As above.	Nil
			5	40-50	As above but with appearance of some pieces of ironstone and mottle orange clay (<55%).	Nil
			6	50-60	Increasing ironstone and fine gravel or very coarse sand plus patches of mottled clay.	Nil
	 PAD 21, Pit 98, Spit 6.				 PAD 21, Pit 98, Spit 6, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
21	99	385964, 6616230	1	1-10	Dark grey, brown sandy silty loam with high clay content as per pits 97 and 98. Transition to coarse silty sand.	Nil
			2	10-20	Coarse brown silty sand with no stone or root inclusions.	Nil
			3	20-30	As above.	Nil
			4	30-40	As above, grains becoming coarser at about 40cm. Increase in iron rich ironstone - orangey colour.	Nil
			5	40-50	As above. Ironstone and clay at base of spit.	Nil
	 PAD 21, Pit 99, Spit 5				 PAD 21, Pit 99, Spit 5, Northern wall profile	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts

Oxley Solar Farm
PAD #21
Pit # 099

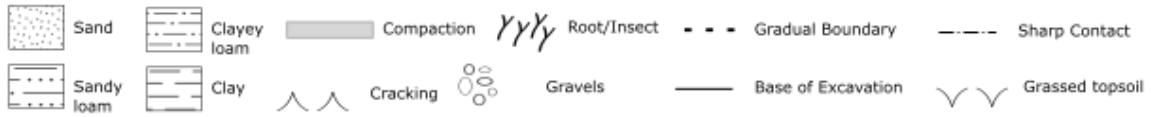


N

Dark grey brown sandy silty loam with high clay content as per Pits 97 and 98. Transition to coarse silty sand.

As above, grains becoming coarser at about 40cm. Increase in iron rich ironstone - orangey colour.

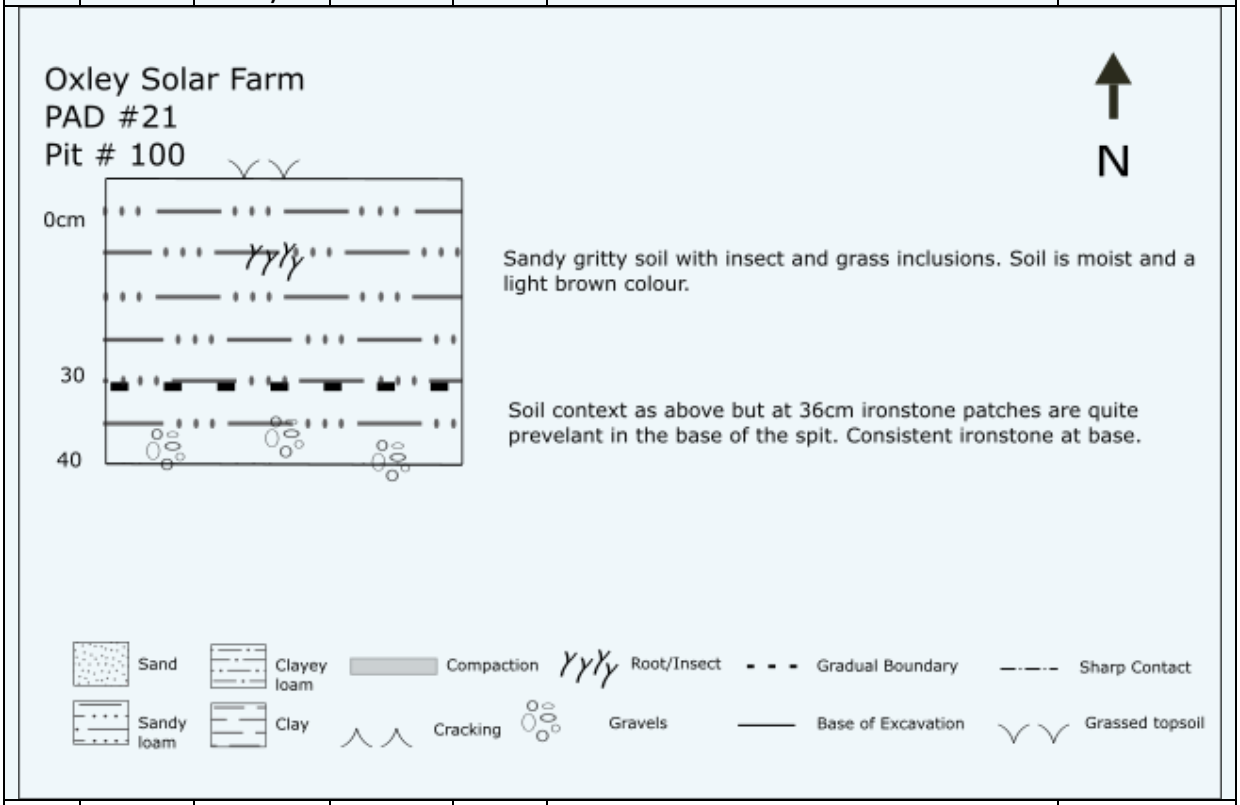
As above. Ironstone and clay at base of spit.

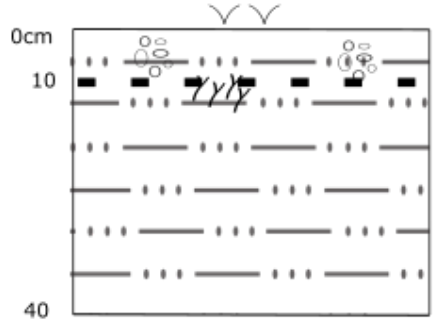


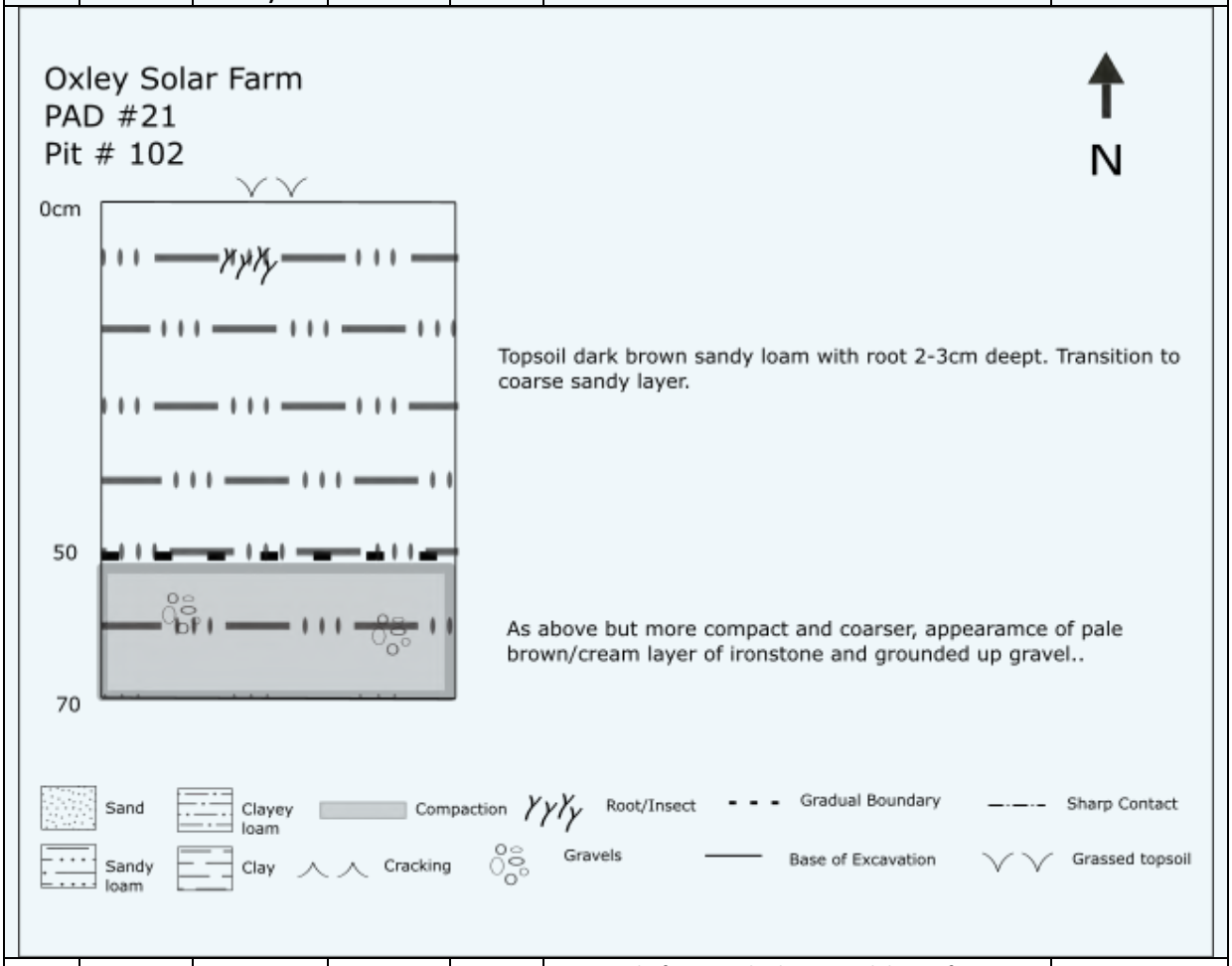
21	100	385985, 6616231	1	1-10	Sandy gritty soil with insect and grass inclusions. Soil is moist and a light brown colour.	Nil
			2	10-20	Light brown soil continues, gritty in texture, moist with grass root inclusions.	Nil
			3	20-30	As above.	Nil
			4	30-40	Soil context as above but at 36cm ironstone patches are quite prevalent in the base of the spit. Consistent ironstone at base.	Nil

PAD 21, Pit 100, Spit 4

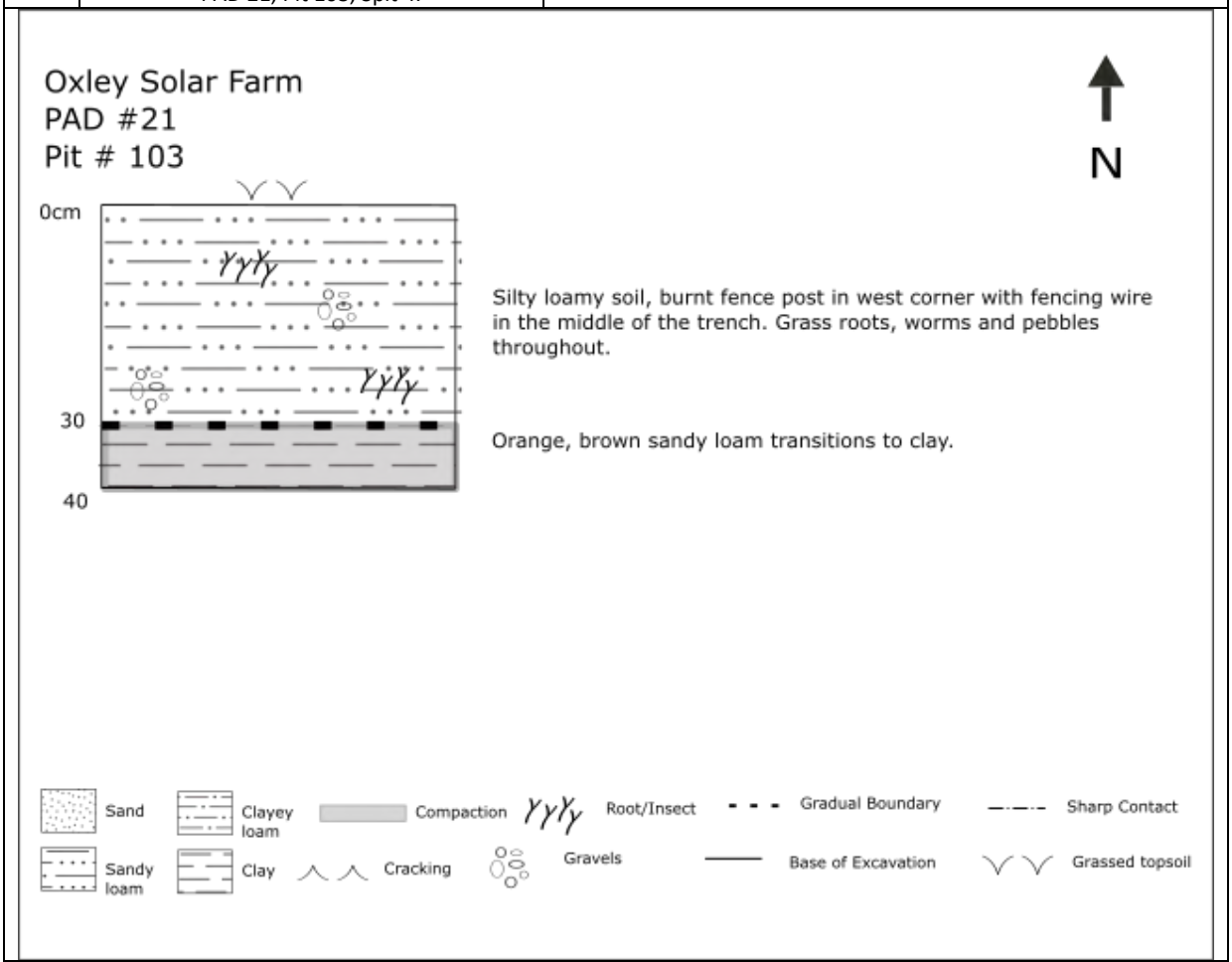
PAD 21, Pit 100, Spit 4, Northern wall profile

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
21	101	386067, 6616232	1	1-10	Brown silty sandy, less clayey than pits 98 and 99. Some grass roots <2mm (>2%), no rocks, transition to silty sand coarse gravel brown gravel at about 6cm.	Nil
			2	10-20	Coarse grained brown silty sand continues. No inclusions of stone. One root of 2cm in size at 20cm in depth.	Nil
			3	20-30	As above. No inclusions.	Nil
			4	30-40	As above. No inclusions.	Nil
	 PAD 21, Pit 101, Spit 4.				 PAD 21, Pit 101, Spit 4, Northern wall profile.	

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #21 Pit # 101  N Brown silty sand, less clayey than Pits 98 and 99. Some grass roots <2mm (>@%), no rocks, transition to silty sand, coarse gravel at about 6cm. As above. No inclusions apart from one root at 20cm..  						
21	102	386069, 6616211	1	1-10	Topsoil dark brown sandy loam with root 2-3cm deep. Transition to same coarse sandy layer per pit 98,99,101.	Nil
			2	10-20	As above.	Nil
			3	20-30	Becoming coarser, fine gravel or red coarse sand.	Nil
			4	30-40	As above.	Nil
			5	40-50	As above.	Nil
			6	50-60	More compact and coarser.	Nil
			7	60-70	Appearance of pale brown/cream layer of ironstone, grounded up gravel.	Nil
	 PAD 21, Pit 102, Spit 7				 PAD 21, Pit 102, Spit 7, Northern wall profile	

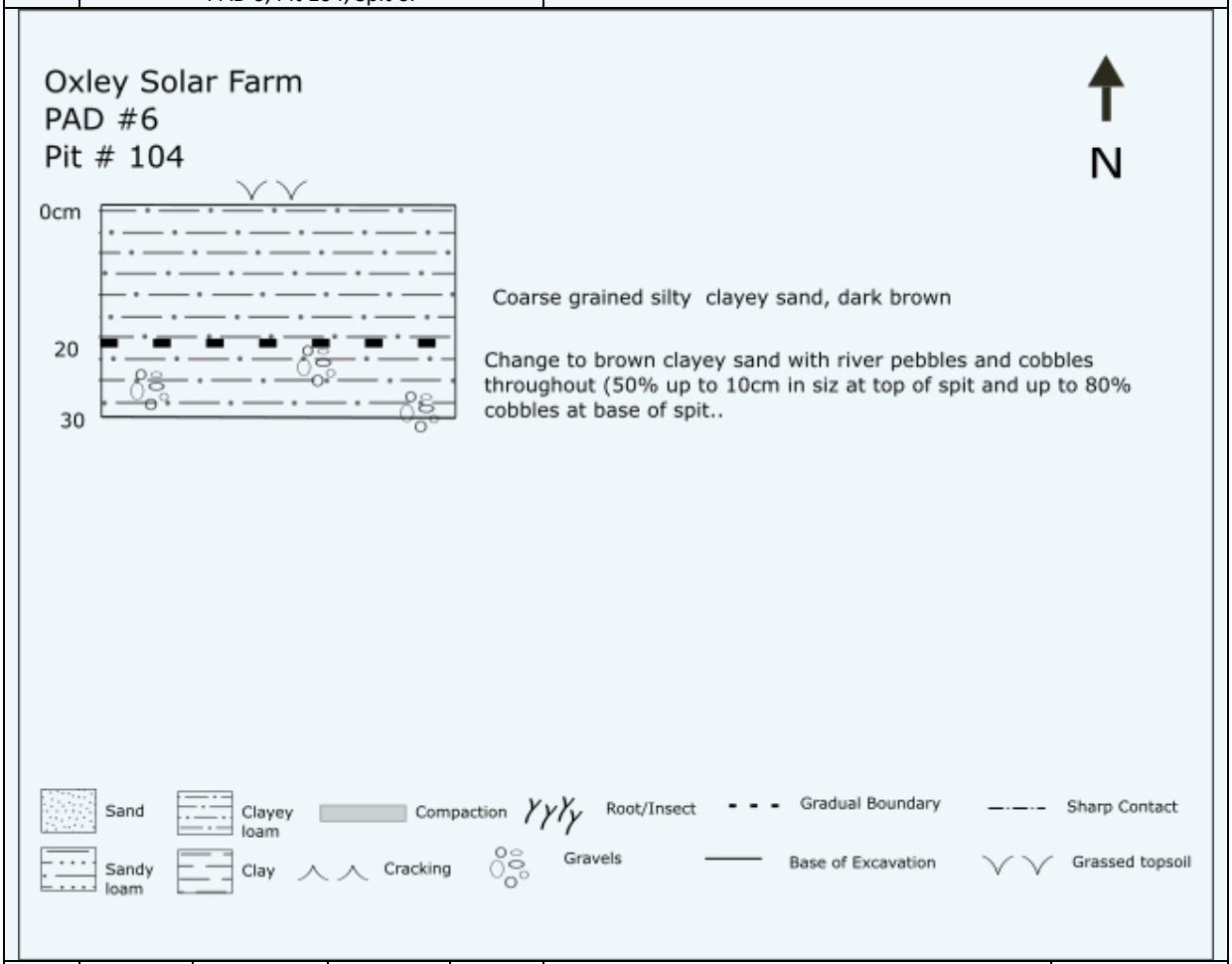
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
						
21	103	386256, 6616345	1	1-10	Removal of grass, silty loamy soil, burnt fence post in west corner with fencing wire in the middle of the trench. Grass roots and worms throughout.	Nil
			2	10-20	Light brown sandy soil, gritty small quartz pebble inclusions with grass roots.	Nil
			3	20-30	Light brown sandy soil, gritty, small to medium quartz inclusions, worms, soil colour change from light brown to orange brownish in colour.	Nil
			4	30-40	Orange, brown sandy soil which transitions into clay. PH=6.5	Nil

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 21, Pit 103, Spit 4.				 PAD 21, Pit 103, Spit 4, Northern wall profile.	

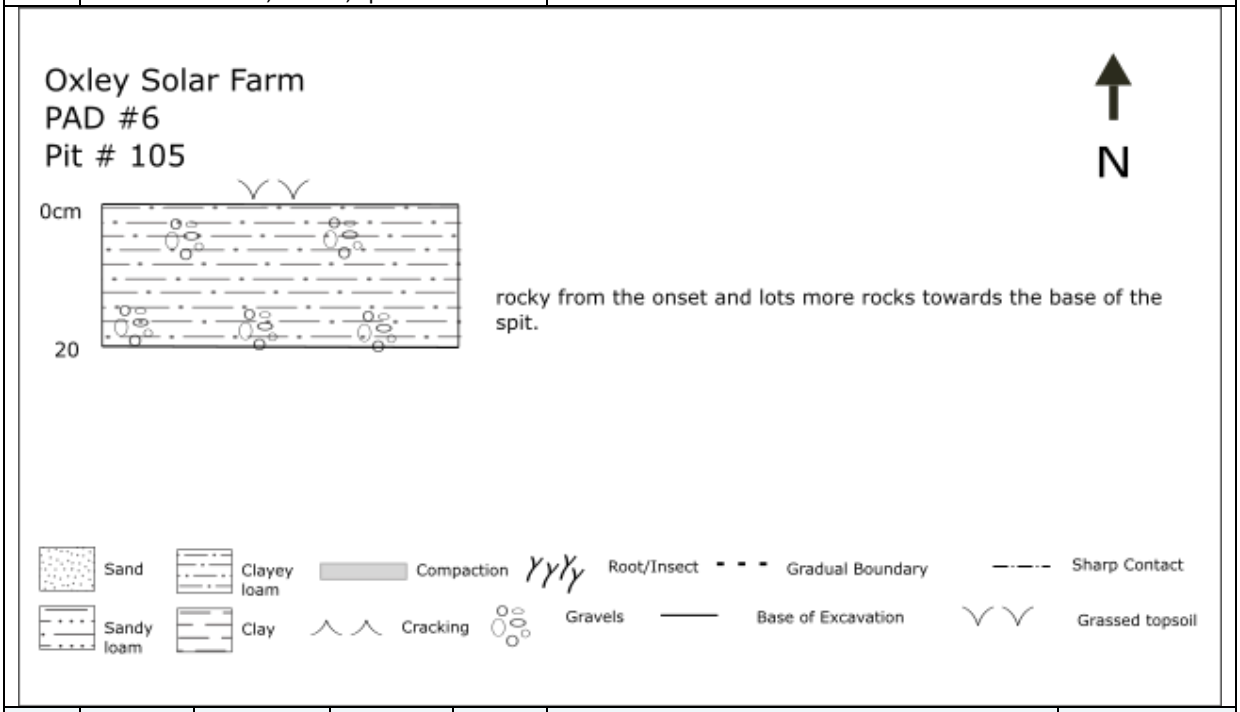


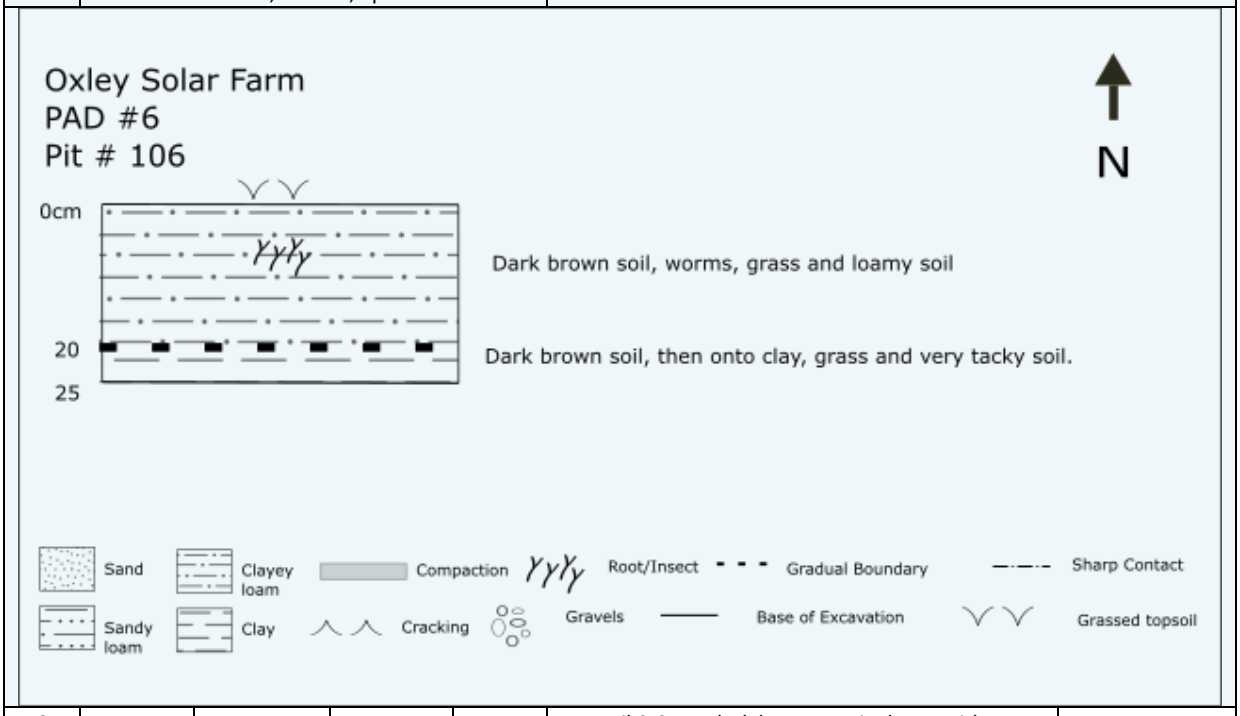
6	104	386037, 6615991	1	1-5	Coarse grained silty clayey sand, dark brown.	Nil
			2	5-10	As above.	Nil
			3	10-15	As above.	Nil
			4	15-20	As above.	Nil
			5	20-25	Change to grey, brown clayey sand with river pebbles and cobbles throughout (50% up to 10cm in size).	Nil
			6	25-30	As above, hard cobbles increase to 80%.	Nil

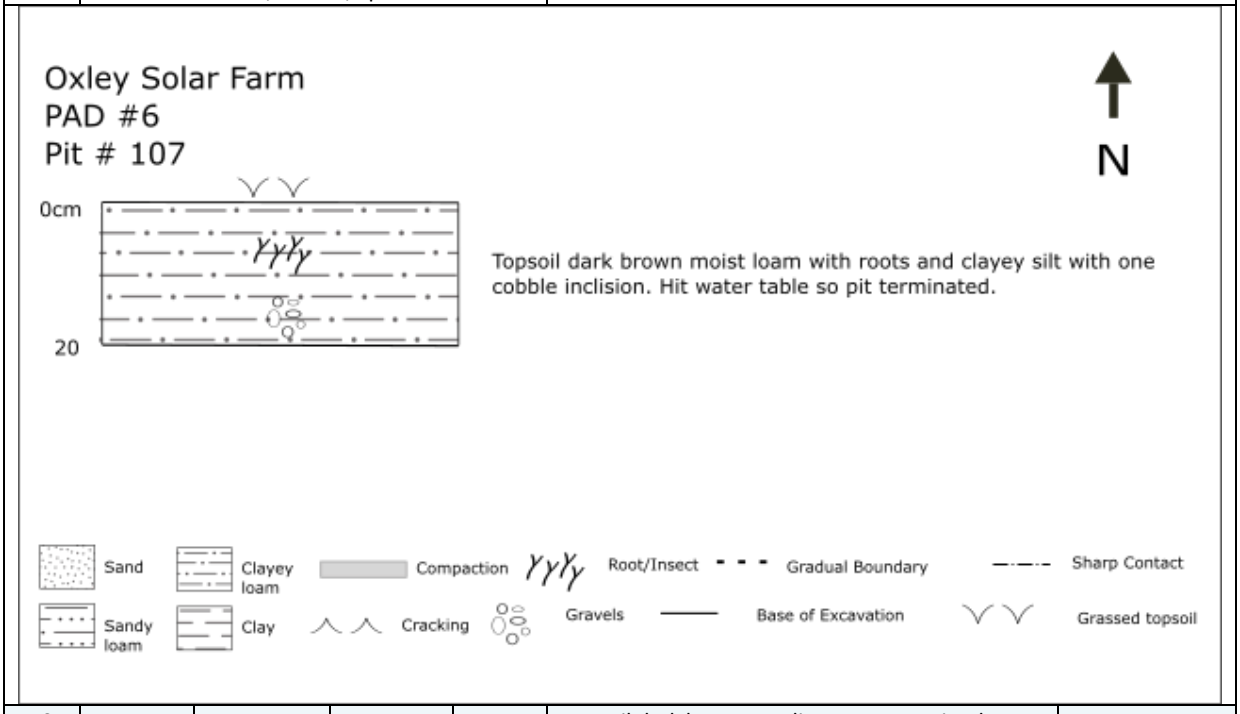
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 6, Pit 104, Spit 6.				 PAD 6, Pit 104, Spit 6.	

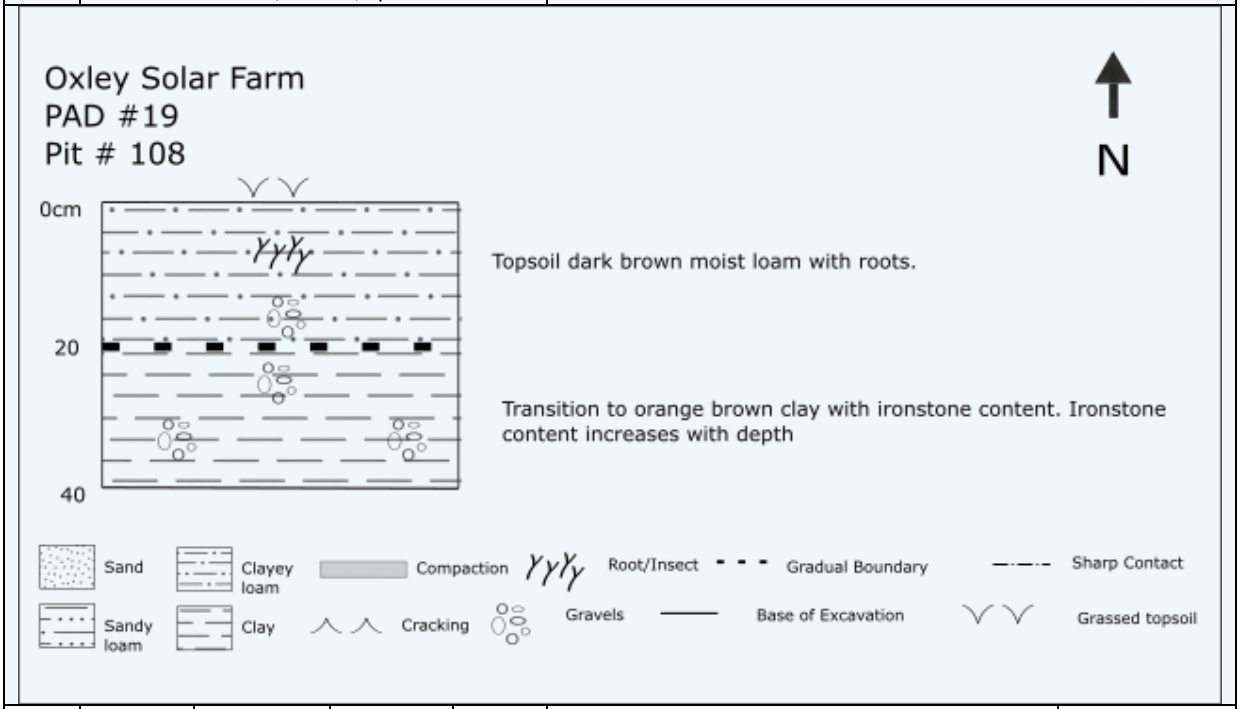


6	105	386000, 6615987	1	1-10	Rocky from the onset, same as spit 3 of pit 104.	Nil
			2	10-20	Lots of rocks towards base of spit.	Nil

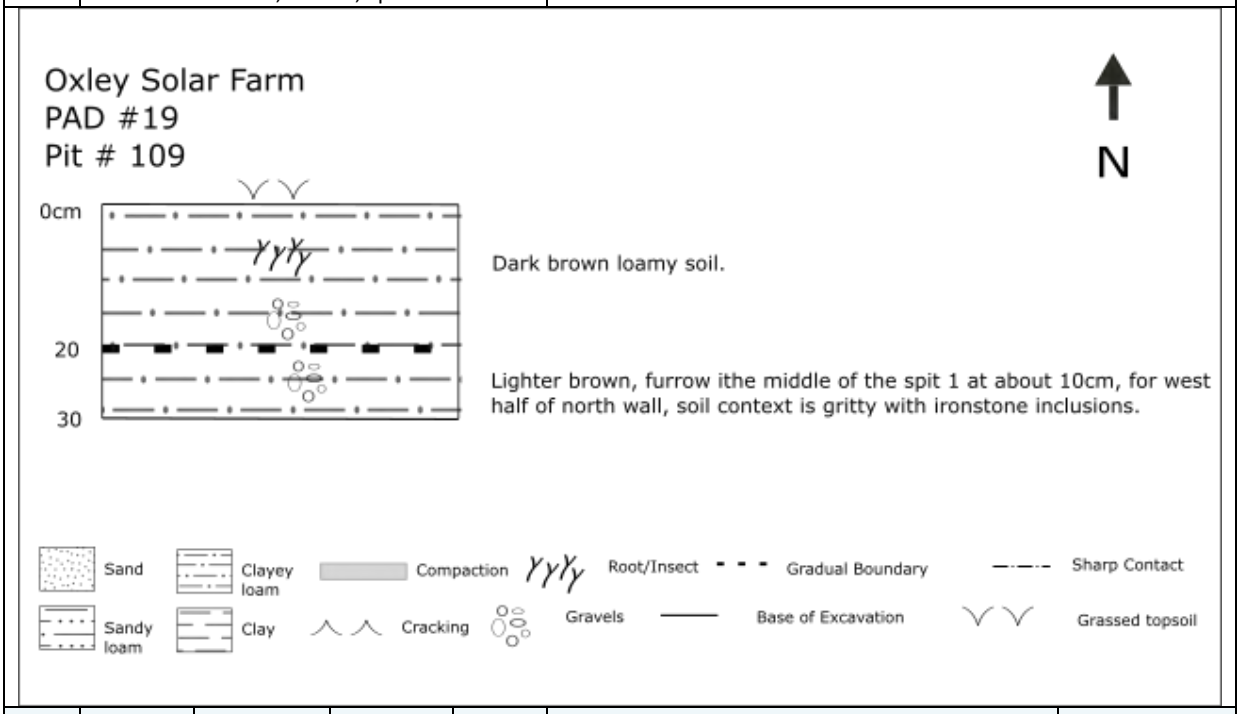
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 6, Pit 105, Spit 2.				 PAD 6, Pit 105, Spit 2, Northern wall profile.	
						
6	106	385918, 6616010	1	1-10	Dark brown soil, worms, grass, moist brown loamy soil.	Nil.
			2	10-20	As above.	Nil.
			3	20-25	Dark brown soil, then onto clay, worms, grass, very tacky.	Nil.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 6, Pit 106, Spit 3				 PAD 6, Pit 106, Spit 3, Northern wall profile	
						
6	107	385915, 6616057	1	1-10	Topsoil 2-3cm, dark brown moist loam with roots transitions to clayey silt which is very wet with one small cobble inclusion. PH=6.	Nil.
			2	10-20	As above and then hit water table so pit was terminated. PH=6.5.	Nil.

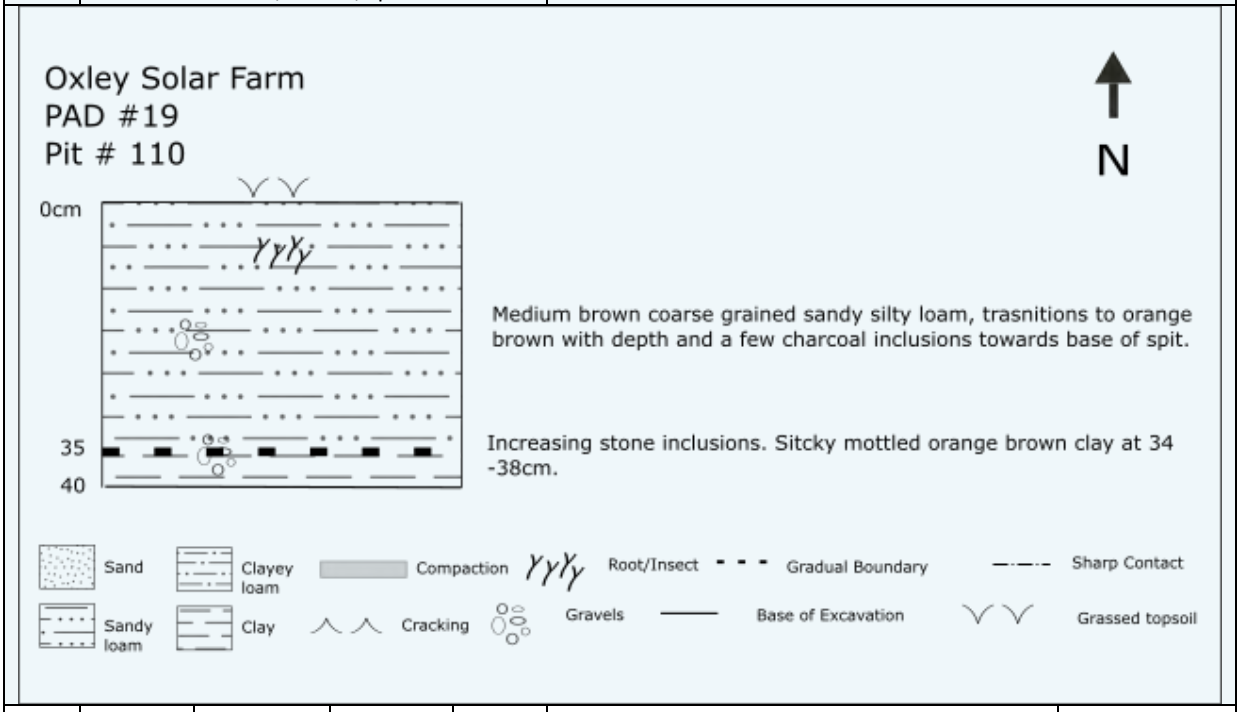
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 6, Pit 107, Spit 2.				 PAD 6, Pit 107, Spit 2, Northern wall profile.	
						
19	108	386402, 6614954	1	1-10	Topsoil dark brown medium coarse grained sandy silty loam with grass root inclusions. PH=6.	Nil.
			2	10-20	As above, some small stone pebble inclusions (<2%, <2mm).	Nil.
			3	20-30	Transition to orange, brown clay with high ironstone content. PH=6.5.	Nil.
			4	30-40	Ironstone increasing.	Nil.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 19, Pit 108, Spit 4				 PAD 19, Pit 108, Spit 4, Northern wall profile	
						
19	109	386408, 6614927	1	1-10	Dark brown loamy soil, grass roots, change in soil colour for spit 2. PH=6.	Nil.
			2	10-20	Appears to be a furrow in the middle of the spit, soil context is gritty with ironstone inclusions. PH=6.5.	Nil.
			3	20-27	As above.	Nil.

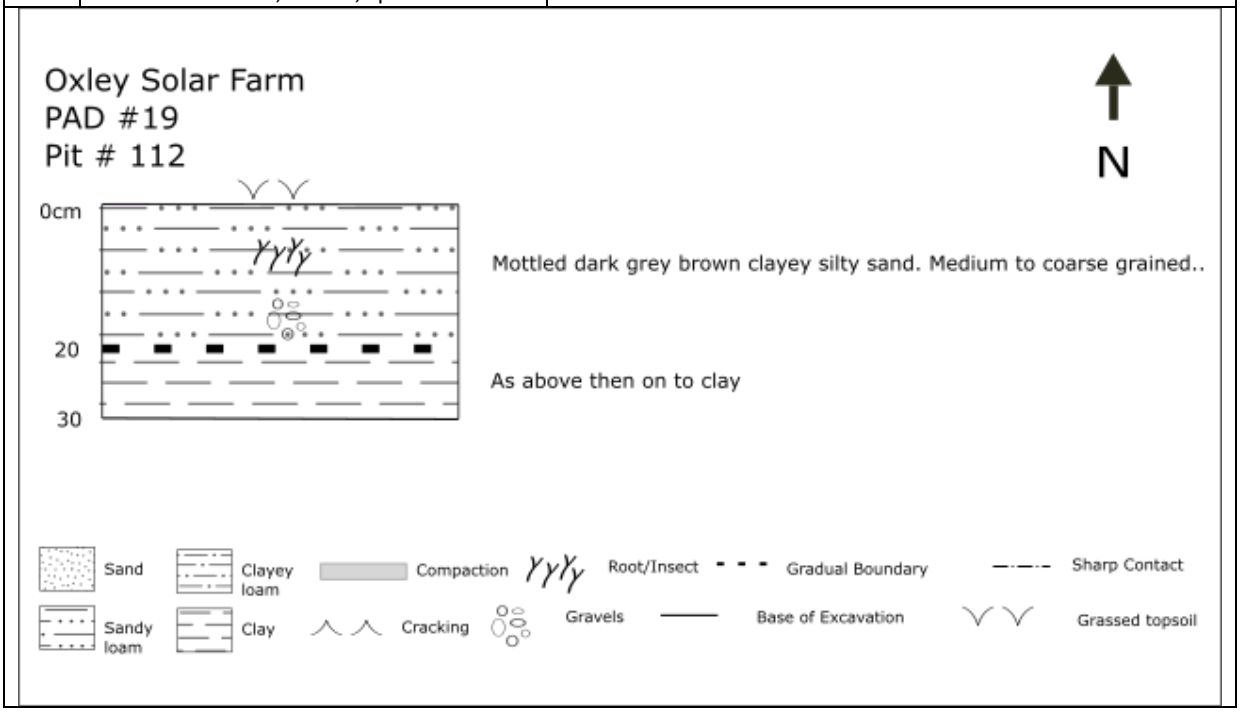
PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 19, Pit 109, Spit 3				 PAD 19, Pit 109, Spit 3, Northern wall profile	

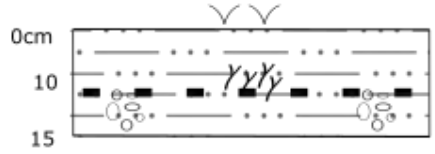
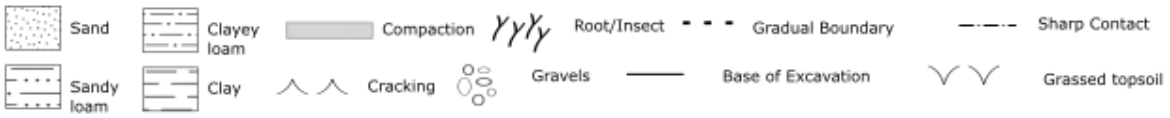


19	110	386437, 6614924	1	1-10	Medium brown to coarse grained sandy silty loam with grass roots and no stone inclusions. PH=6.5.	Nil.
			2	10-20	Transition to orangey brown compact silty sand, medium to coarse grained. No stone inclusions.	1 silcrete artefact.
			3	20-30	As above, transition to orangey brown silty sand with flecks of charcoal (<1%). PH=6.5.	Nil.
			4	30-40	As above increasing stone inclusions (2%, <2mm). At approximately 34-38cm hit sticky mottled orange, brown clay. PH=6.5.	Nil.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 19, Pit 110, Spit 4				 PAD 19, Pit 110, Spit 4, Northern wall profile	
						
19	111	386481, 6614848	1	1-10	Removal of grass, light brown soil, worms, grass roots, soil is loamy.	Nil.
			2	10-15	Soil context is a light brown loam with ironstone and grass root inclusions. Onto ironstone bed at the base of the spit.	Nil.

PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
	 PAD 19, Pit 111, Spit 2				 PAD 19, Pit 111, Spit 2, Northern wall profile	



PAD	Pit no	Grid Reference (GDA 94 MGA Zone 56)	Spit number	Depth (cm)	Soil Description	Artefacts
Oxley Solar Farm PAD #19 Pit # 111  Light brown sandy loam with root and insect inclusions Onto ironston concentration at base of spit N  						
19	112	386427, 6614924	1	1-10	Mottled dark grey, brown clayey silty sand. Medium to coarse grained. At just under 10cm, transition to same orangey brown silty sand as in pit 110. PH=6.	Nil.
			2	10-20	As above, orangey brown silty sand. PH=6.5	Nil
			3	20-30	As above and then onto clay.	Nil.
	 PAD 19, Pit 112, Spit 3.				 PAD 19, Pit 112, Spit 3, Northern wall profile.	

Appendix C Subsurface Stone Artefacts

#	PAD	Pit #	Spit #	Depth (cm)	Type	Material	Colour	Size Class	Length mm	Width mm	Thickness	Platform surface	Platform Type	Termination	Reduction stage	Notes
1	13	78	2	10 to 20	Distal flake fragment	Quartz	White grey	<20mm	15	14	9	n/a	n/a	Hinge	Tertiary	
2	19	109	2	10 to 20	Flake	Silcrete	Red-brown	<40mm	34	17	7	Crushed	Focal	Feather	Tertiary	
3	19	110	2	10 to 20	Distal flake fragment	Silcrete	Grey	<30mm	13	23	8	n/a	n/a	Hinge	Secondary	Cortex 10% on left lateral side. 2 neg flake scars on distal surfaces Retouched on the right lateral and distal (dorsal surface)
4	13	82	1	0 to 10	Flake	Quartz	Milky	<20mm	13	14	4	Crushed	Focal	Axial	Tertiary	
5	13	82	1	0 to 10	Proximal flake fragment	Greywacke/basalt	Dark grey	<40mm	31	24	8	Faceted	Broad	n/a	Tertiary	
6	21	103	3	20 to 30	Flake	Quartz	Yellow/milky	<20mm	15	11	4	Crushed	Focal	Axial	Tertiary	
7	9	52	2	10 to 20	Broken flake	Chert	Grey speckled		18	4	2	Hertzian	Broad	Broken	Tertiary	
8	17	5	3	10 to 20	Flake	Greywacke/basalt	grey		13	7	1	Dihedral	n/a	Broken	Secondary	
9	20	50	1	0 to 10	Flake	Chert			28	21	7		Broad	Feather	Tertiary	
10	17	4	5	35 to 45	Flaked piece	Chert	Speckled grey		29			n/a	n/a		Tertiary	
11	9	61	1	0 to 10	Flake	Quartz	Translucent white		42	30	13		Broad	crushed		
12	9	61	1	0 to 10	Broken flake	Petrified wood	Grey/white		15							
13	9	61	1	0 to 10	Flake	Quartz							Focal	Feather		
14	9	53	1	0 to 10	Micro core	Chert	Orange cream brown		20							7 flake scares
15	9	53	1	0 to 10	Flaked pieces	Crenulated tuff			16							
16	9	54	1	0 to 10	Flake	Chert	Grey		17	7	2		Bending	Feather		

#	PAD	Pit #	Spit #	Depth (cm)	Type	Material	Colour	Size Class	Length mm	Width mm	Thickness	Platform surface	Platform Type	Termination	Reduction stage	Notes
17	9	54	1	0 to 10	Distal flake fragment	Chert	White grey		23					Feather		
18	9	54	1	0 to 10	Flake	Silcrete			26	6	3			Feather		
19	9	54	1	0 to 10	Flaked piece	Silcrete										
20	9	54	1	0 to 10	Flaked piece	Silcrete										

Appendix D Unexpected finds procedure

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.

Unexpected discovery of 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.

Appendix E NGH (2021) ACHA for OSF