



THE NORTHERN ROAD UPGRADE – STAGE 6
Aboriginal Archaeological Salvage Excavation
State Significant Infrastructure Approval (SSI 7127)

Prepared for Transport for NSW

Penrith Local Government Area

May 2021

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Executive Summary

Transport for NSW, formerly Roads and Maritime Services, is undertaking works to upgrade about 16 kilometres of The Northern Road between Mersey Road, Bringelly and Glenmore Parkway, Glenmore Park in south western Sydney, NSW (the project). The upgrade works are being undertaken in stages and are required to improve safety, increase road capacity and cater for expected future traffic growth. The project is designated as Critical State Significant Infrastructure (SSI 7127) and was assessed under Part 5.1 of the NSW *Environmental Planning and Assessment Act 1979*, requiring the approval of the Minister for Planning. In addition, the proposal was referred under the *Environment Protection and Biodiversity Conservation Act 1999* to the Minister for the Environment and Heritage. It was determined that an Environmental Impact Statement (EIS) was required. The Secretary of the NSW Department of Planning and Environment issued Secretary's Environmental Assessment requirements (SEARs) for the project on 28 July 2015 and amended SEARs were issued on 9 March 2016.

TfNSW engaged Kelleher Nightingale Consulting Pty Ltd (KNC) to undertake Aboriginal cultural heritage assessment for the project. Initial assessment included preparation of an Aboriginal archaeological assessment in accordance with Stage 2 of the Roads and Maritime NSW *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* and the requirements of the Office of Environment and Heritage [now Heritage NSW]. A full coverage survey of the project area was carried out in 2015 and 2016 by a team comprising representatives from the Deerubbin Local Aboriginal Land Council, Gandangara Local Aboriginal Land Council and archaeologists from KNC. Preparation of an Aboriginal Cultural Heritage Assessment Report (CHAR) was subsequently undertaken to inform the EIS. The CHAR assessment addressed the Aboriginal heritage requirements identified in the project SEARs. Following preparation of the EIS, the project was approved by the Minister on 30 May 2018.

CHAR recommendations included a salvage excavation program prior to construction works for the 20 Aboriginal sites within the project area exhibiting moderate significance. A management strategy (heritage management plan) was also developed to facilitate the preconstruction mitigation plan, enable the transition to construction and guide the ongoing construction program.

Following project approval, the project was divided into three stages. The central section (named The Northern Road Upgrade Stage 6 or TNR6) is the subject of the current assessment and report. TNR6 was situated in the central part of the main project, from south of Littlefields Road to south of Adams Road, Luddenham. TNR6 at least partially incorporated six Aboriginal archaeological sites, of which five required archaeological salvage excavation for the impacted portions:

- TNR IF 04 (AHIMS 45-5-4808) (no archaeological salvage required)
- **TNR AFT 14 (AHIMS 45-5-4786) (archaeological salvage required)**
- **TNR AFT 16 (AHIMS 45-5-4796) (archaeological salvage required)**
- **TNR AFT 17 (AHIMS 45-5-4787) (archaeological salvage required)**
- **TNR AFT 19 (AHIMS 45-5-4790) (archaeological salvage required)**
- **TNR AFT 20 (AHIMS 45-5-4792) (archaeological salvage required)**

This report documents the findings of the salvage program carried out in accordance with the conditions of project approval for the five archaeological sites which required salvage.

Excavation Results: Phase 1 & Phase 2/3

A total of **2,759** artefacts were recovered during the salvage excavation program, with 265 artefacts from the Phase 1 program and 2,494 artefacts from the Phase 2/3 program. A total of 376 m² was excavated, with 137 m² for the Phase 1 program and 239 m² for the Phase 2/3 program. An analysis of sampling methods was carried out to determine the correlation between artefact densities produced by a 0.25m², 1m² or open area sampling unit at the same location.

Salvage summary data per site

Salvage sample	TNR AFT 14	TNR AFT 16	TNR AFT 17	TNR AFT 19	TNR AFT 20
Phase 1	58 m ²	23 m ²	15 m ²	25 m ²	16 m ²
Phase 2/3	79 m ²	16 m ²	70 m ²	50 m ²	24 m ²
Phase 1 Artefacts	20	8	50	180	7
Phase 2/3 Artefacts	221	14	1,082	1,159	18
Total artefacts	241	22	1,132	1,339	25

Sites located in creekside landscape contexts (TNR AFT 17 and TNR 19) were found to contain higher artefact densities, a greater range of artefact types, and generally better preserved deposit despite some flood effects. Site located on more elevated ridgelines, spurs and crests (TNR AFT 14 and TNR AFT 16) contained fewer artefacts and were found to suffer from erosion which has limited the ability of the remnant A unit soils to conserve Aboriginal objects.

By comparing the artefact count at 0.25m² quads with corresponding 1 m x 1m squares and Phase 2/3 open areas it was possible to evaluate the accuracy of the former sampling strategy. In some cases, it appears that the quad totals are a good indicator of archaeological potential of the surrounding deposit, and that predicting the archaeological potential of the low yielding deposits on the ridgetops is inherently easier because they have a more uniform distribution of zero squares. This correlation was less obvious at creek-side sites which exhibited more variation between the different sampling units. In some cases, it appears that the quad totals are a good indicator of archaeological potential of the surrounding deposit, while at others there is a poor correlation between the number of artefacts at quad squares compared to the corresponding open area. Consequently, the calculation of artefact density based on 0.25 m² excavation units can result in highly inaccurate estimates of the archaeological potential of a deposit. Regarding the size and spacing of the Phase 1 sample units, it appears that 15 m distance between 0.25m² units is nearly always too large to intersect activity areas where quartz and 'other' materials were discarded. This was shown to be the case at all sites. Greater success was had finding artefacts of 'rarer' materials by excavating larger sized Phase 1 units (1 m² sample sizes). At the creek-side sites, these larger units were better at intercepting cores and retouched tools. However, at the ridgetop sites, the size of the Phase 1 units did not improve the chance of finding these 'signature' artefacts.

Overall, the excavations recovered assemblages that were in many respects, typical of the region. Low-moderate density artefact scatters are relatively common throughout the south-west Cumberland Plain. The analysis of the artefact assemblage provides data which builds our understanding of the variety of Cumberland Plain sites. Comparative analysis with sites from the TNR 4 program indicates that elevated sites, situated on ridgetops and crests, display low artefact densities, with little indication of long-term occupation. In contrast, sites situated on lower landform types, such as lower slopes and alluvial terraces, show a more complex occupation. The artefacts resulting from core reduction formed mainly low-medium density assemblages, with isolated patches of high-density only at sites TNR AFT 17 and TNR AFT 19. The peak-density zones at these sites represent silcrete 'workshops' focussed on the production of blade flakes and backed artefacts. Backed artefact production at the creek-side sites also involved the use of other non-silcrete materials such as tuff and quartz, albeit in smaller numbers. The recovery of quartz bipolar cores and cortical fragments indicate that small pebbles were chosen as cores possibly for their portability, with small, thin flakes intended for use.

Comparative analysis with sites from the north-central region of the Cumberland Plain clearly indicates that rationing of silcrete was necessary for the people living on the western fringe. Together with this idea is that people were staying at some locations, such as Cosgroves Creek, for extended periods, further intensifying the need to conserve their stock of lithic materials.

In conclusion, the artefact assemblage from the TNR Stage 6 program represents the discard from at least several periods of occupation of Cosgroves Creek, and ridgelines to the south, during the late Holocene. In all, the range of tools and multiple activity zones suggests that locations within the upper creek catchments on the western fringe of the Cumberland Plain were used as a residential 'base camps', perhaps by more than one family group at a time. Today, Cosgroves Creek is a shallow ephemeral watercourse, however prior to land clearance, the creek channel would have formed a chain-of-ponds that presented an invaluable source of semi-permanent freshwater to people as they travelled between the heavily forested Nepean River corridor and the open rolling plains in the east.

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1 Introduction

1.1 Project Background

Transport for NSW ('TfNSW'), formerly Roads and Maritime Services, is undertaking works to upgrade about 16 kilometres of The Northern Road between Glenmore Parkway and Mersey Road, Bringelly in south western Sydney, NSW (the project). The upgrade works are being undertaken in stages and are required to improve safety, increase road capacity and cater for expected future traffic growth. The project is part of the Western Sydney Infrastructure Plan (WSIP). WSIP involves major road and transport linkages that will capitalise on the economic gains from developing the western Sydney airport site at Badgerys Creek whilst boosting the local economy and liveability of Western Sydney. Additionally, the project would provide better connections for the South West Priority Land Release Area and Western Sydney Priority Growth Area by enhancing the transport corridor through completing the upgrade of The Northern Road. The overall project corridor is shown in Figure 1.

The project is designated as Critical State Significant Infrastructure (SSI 7127) and was assessed under Part 5.1 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), requiring the approval of the Minister for Planning. In addition, the proposal was referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to the Minister for the Environment and Heritage. It was determined that an Environmental Impact Statement (EIS) was required. The Secretary of the NSW Department of Planning and Environment issued Secretary's Environmental Assessment requirements (SEARs) for the project on 28 July 2015 and amended SEARs were issued on 9 March 2016. Following preparation of the EIS, the project was approved by the Minister on 30 May 2018.

1.2 Assessment context

TfNSW engaged Kelleher Nightingale Consulting Pty Ltd (KNC) to undertake Aboriginal cultural heritage assessment for the project. Initial assessment included preparation of an Aboriginal archaeological assessment (KNC 2016) in accordance with Stage 2 of the Roads and Maritime *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (PACHCI) (Roads and Maritime 2011). A full coverage survey of the project area was carried out in 2015 and 2016 by a team comprising representatives from the Deerubbin Local Aboriginal Land Council, Gandangara Local Aboriginal Land Council and archaeologists from KNC.

Preparation of an Aboriginal Cultural Heritage Assessment Report (CHAR) was subsequently undertaken to inform the EIS (KNC 2017). The CHAR assessment addressed the Aboriginal heritage requirements identified in the project SEARs. The objectives of the CHAR combined Aboriginal community consultation with an archaeological investigation in accordance with:

- Secretary's requirements;
- EPBC Act assessment requirements;
- Roads and Maritime PACHCI;
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (OEH 2010a);
- *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011); and
- *Aboriginal cultural heritage consultation requirements for proponents 2010* (OEH 2010b).

Aboriginal cultural heritage assessment for the project was designed to meet the SEARs and the EPBC Act. This included:

- assessment of impacts to Aboriginal heritage (both cultural and archaeological significance);
- consultation with Aboriginal communities, including Deerubbin Local Aboriginal Land Council, Gandangara Local Aboriginal Land Council and registered Aboriginal stakeholders for the project, to assess impacts and develop mitigation measures;
- preparation and consultation on the archaeological assessment methodology. The methodology of assessment was distributed to registered Aboriginal stakeholders, discussed at an Aboriginal focus group meeting resulting in agreement by the stakeholders;
- evaluation of landscape features and potential archaeological significance;
- detailed archaeological assessment of the project to fully identify spatial extent and impacts;
- identification of mitigation and management measures;
- distribution of draft CHAR to Aboriginal stakeholders and an Aboriginal focus group meeting to discuss the CHAR results and agree on appropriate mitigation measures.

Aboriginal archaeological assessment of the project area found 28 Aboriginal archaeological sites within the project boundary. The sites comprised 23 artefact scatters and five isolated artefacts. The spatial extent of Aboriginal archaeology of the project area was topographically well defined and within scientifically well understood soil matrices, which enabled a clear establishment of the presence and significance of archaeological sites within the project boundaries.

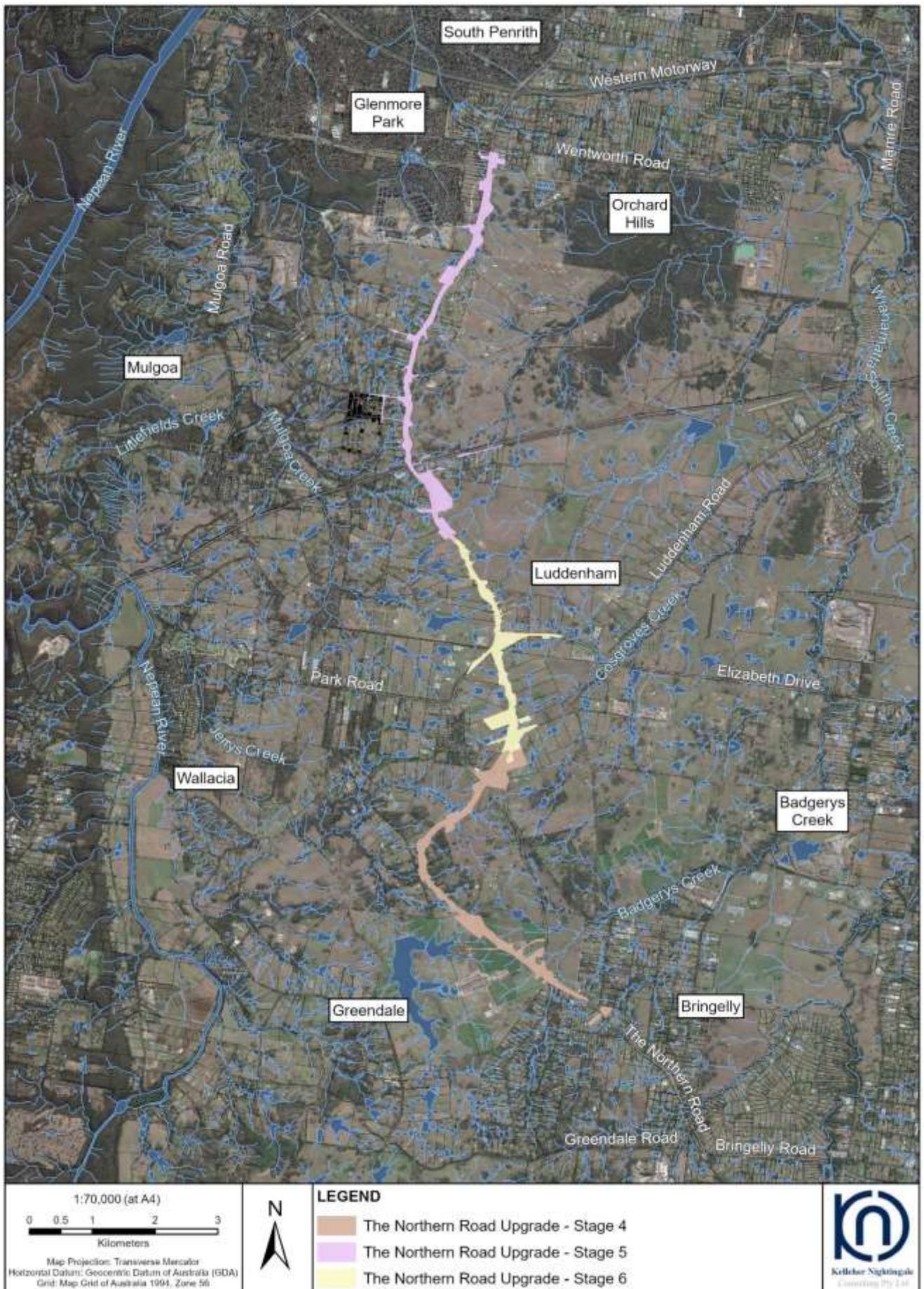


Figure 1. The Northern Road Upgrade (SSI 7127) project area showing staging

Of the 28 Aboriginal archaeological sites affected, it was identified 12 sites would be totally impacted by the proposed works. Design refinement partially reduced the impact to the remaining 16 archaeological sites.

Archaeological and cultural significance of the identified Aboriginal sites was defined by the information exhibited by each site. The range of sites identified an Aboriginal cultural highway where various activities took place in the past. Aboriginal sites with greater levels of significance offer detailed information about the Aboriginal highway along the ridge and specific meeting spots (like the junction of Elizabeth Drive and The Northern Road). Survey and consultation with Aboriginal stakeholders identified 20 Aboriginal archaeological sites of at least moderate significance. The remaining archaeological sites contained disturbed or low value deposits.

Recommendations included a salvage excavation program prior to construction works for the 20 Aboriginal sites exhibiting moderate significance. A management strategy (heritage management plan) was also developed to facilitate the preconstruction mitigation plan, enable the transition to construction and guide the ongoing construction program.

Following project approval, the project was divided into three stages. The central section (named The Northern Road Upgrade Stage 6 or TNR6) is the subject of the current assessment and report (Figures 1 and 2). TNR6 was situated in the central part of the main project, from south of Littlefields Road to south of Adams Road, Luddenham.

TNR6 at least partially incorporated six Aboriginal archaeological sites, of which five required archaeological salvage excavation for the impacted portions:

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- **TNR AFT 14 (AHIMS 45-5-4786) (archaeological salvage required)**
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- **TNR AFT 20 (AHIMS 45-5-4792) (archaeological salvage required)**

This report documents the findings of the salvage program carried out in accordance with the conditions of project approval. Aboriginal archaeological sites are shown in Figure 2.

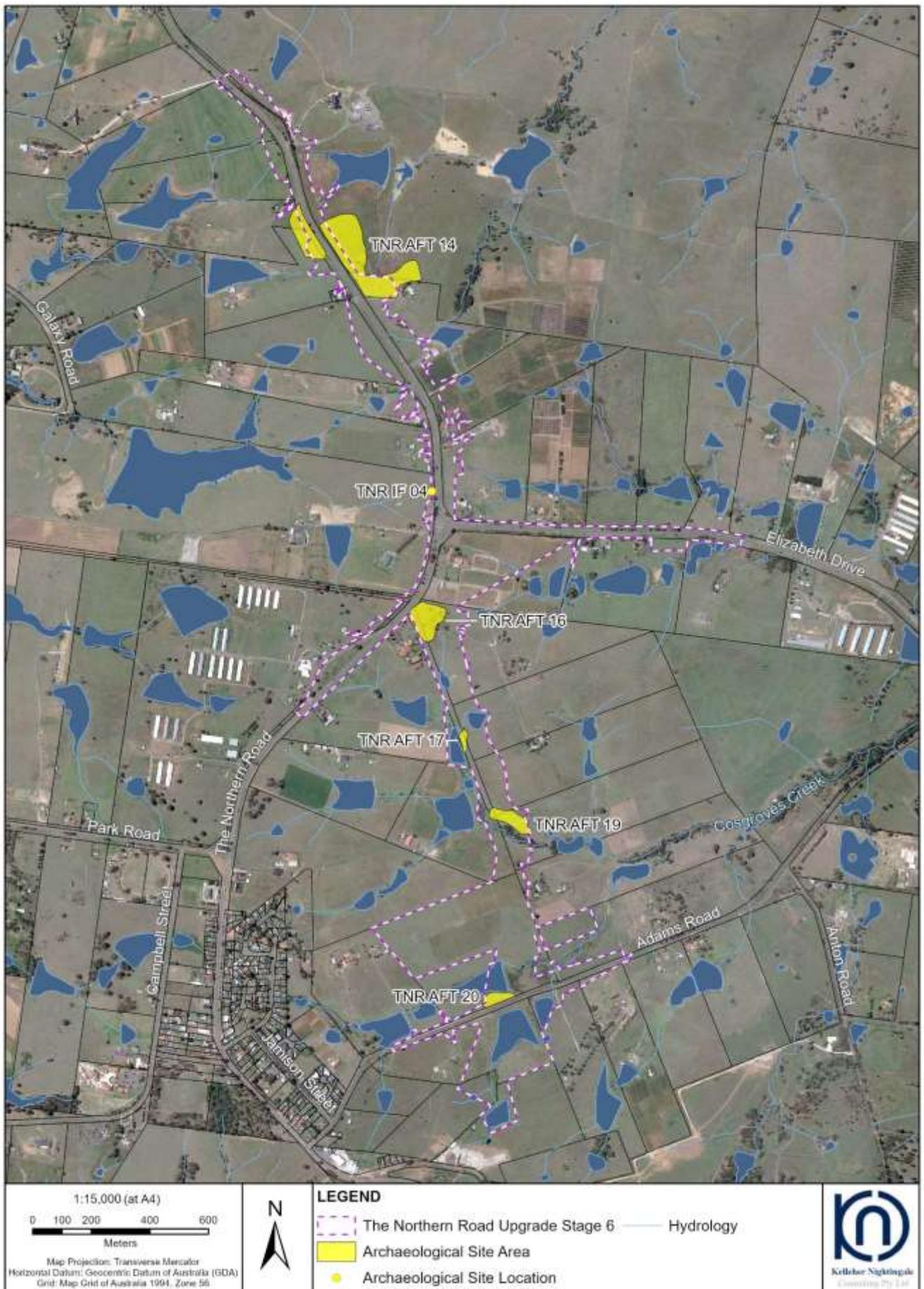


Figure 2. TNR6 project area and Aboriginal archaeological sites

2 Aboriginal Community Involvement

2.1 Stakeholder Consultation

TfNSW is committed to effective consultation with Aboriginal communities regarding activities which may impact on Aboriginal cultural heritage. The TfNSW PACHCI has been developed to provide a consistent means of effective consultation for TfNSW activities across NSW. The PACHCI is compliant with Heritage NSW requirements and guidelines.

Registered Aboriginal stakeholders have been involved in previous assessment of the project and preparation of the CHAR (KNC 2017). The stakeholder registration and consultation process followed the *Aboriginal cultural heritage consultation requirements for proponents 2010* (OEH 2010b) and project SEARs and has been conducted in accordance with the requirements of the PACHCI. Salvage excavation fieldwork was undertaken in partnership with registered Aboriginal stakeholder representatives (site officers).

A full discussion and log of all Aboriginal community consultation is available in the CHAR (KNC 2017).

2.2 Registered Aboriginal Stakeholders

As listed in the CHAR, there are 61 Aboriginal stakeholder groups and individuals registered for consultation on the project. Registered Aboriginal stakeholders are listed in the table below.

Table 1. Registered Aboriginal stakeholders

REGISTERED STAKEHOLDER GROUPS AND INDIVIDUALS			
Group	Representative / Contact	Group	Representative / Contact
A1 Indigenous Services	Carolyn Hickey	Gunjewong Cultural Heritage Aboriginal Corporation	Cherie Carroll Turrise
Aboriginal Archaeology Services	Andrew Williams	Gunyuu	Darlene Hoskins-McKenzie
Amanda Hickey Cultural Services	Amanda Hickey	Kamilaroi-Yankuntjatjara Working Group	Phil Khan
Biamanga	Seli Stoer	Kullila Site Management	Paul Charles
Bidawal	Richard Andy	Liverpool City Councils Aboriginal Consultative Committee	Norma Burrows
Bilinga	Ms Wandai Kirkbright	Munyunga	Suzanne McKenzie
Bilinga	Simalene Carriage	Muragadi Heritage Indigenous Corporation	Jesse Johnson
Corroboree Aboriginal Corporation	Steve Johnson	Murramarang	Roxanne Smith
Cubbitch Barta Native Title Claimants Aboriginal Corporation	Glenda Chalker	Murri Bidgee Mullangari Aboriginal Corporation	Darleen Johnson
Cullendulla	Corey Smith	Murrin	Tarlarra Te-kowhai
Darug Aboriginal Cultural Heritage Assessments	Gordon Morton	Murrumbal	Levi McKenzie-Kirkbright
Darug Aboriginal Land Care	Des Dyer	Murrumbul	Levi McKenzie
Darug Custodian Aboriginal Corporation	Justine Coplin	National Koori Management	Ali Maher
Darug Land Observations	Gordon Workman	Ngarigo	Newton Bond
Darug Land Observations	Jamie Workman	Ngunawal	Dean Delponte
Darug Tribal Aboriginal Corporation	John Riley	Ngunawal	Edward Stewart
Deerubbin LALC	Kevin Cavanagh	Nundagurri	Newton Carriage
Djiringanji	Keith Nye	Rane	Tony Williams
Duncan Falk Consultancy	Duncan Falk	Tharawal LALC	Rebecca Ede
Galaga	Wendy Smith	Thauaira	Shane Carriage
Gandangara LALC	Brad Maybury	Tocomwall	Danny Franks
Gangangarra	Kim Carriage	Walbunja	Hika Te Kowhai
Goobah Developments	Basil Smith	Walgalu	Ronald Stewart

REGISTERED STAKEHOLDER GROUPS AND INDIVIDUALS			
Group	Representative / Contact	Group	Representative / Contact
Gundungurra Tribal Technical Services	Peter Foster	Wandandian	William Bond
Gundungurra Tribal Technical Services	Christopher Payne	Warragil	Aaron Slater
Gundungurra Tribal Technical Services	Larry Hoskins	Warragil Cultural Services	Aaron Slater
Gundungurra Tribal Technical Services	David Bell	Widescope Indigenous Group	Steven Hickey
Gundungurra Tribal Technical Services	Pimmy Johnson Bell	Wingikara	Robert Brown
Gundungurra Tribal Technical Services	Teangi Mereki Foster	Wingikara	Hayley Bell
Gundungurra Tribal Technical Services	Sam Wickman		

*One additional Aboriginal group/individual has registered for consultation on this project and has chosen to withhold their details in accordance with item 4.1.5 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*

2.3 Participation in Archaeological Salvage Excavation Program

Fieldwork took place between December 2018 – March 2019 and September – October 2019.. Representatives from the following registered Aboriginal stakeholder groups were involved in the salvage excavation activities:

- A1 Indigenous Services
- Darug Custodian Aboriginal Corporation
- Deerubbin Local Aboriginal Land Council
- Kamilaroi Yankuntjatjara Working Group
- Muragadi Heritage Indigenous Corporation
- Murri Bidgee Mullangari Aboriginal Corporation

3 Landscape Context

The following chapters provide environmental and landscape analysis from the CHAR (KNC 2017), and an ethnohistorical review and existing archaeological data for the region. As such they refer to the whole of The Northern Road upgrade project area. TNR6 comprises the central portion of the project area.

3.1 Landform, Geology and Soils

The project area is located on the Cumberland Plain, a low lying and gently undulating subregion of the Sydney Basin. The Sydney Basin is a large geological feature stretching from Batemans Bay in the south to Newcastle in the north and Lithgow in the west. The formation of the basin began between 250 to 300 million years ago when river deltas gradually replaced the ocean that had extended as far west as Lithgow (Clark and Jones 1991).

The project area traverses a north-south oriented ridge that forms the watershed separating the catchment areas of South Creek in the east and the Nepean River in the west (Figure 3). The ridge is characterised by gentle to moderately inclined slopes with narrow to broad crests and drainage lines. The eastern side of the project area contains several north-east flowing creeks including Badgerys Creek, Cosgroves Creek and Oaky Creek which join South Creek approximately 7 kilometres to the east. On the western side of the project area, several creeks including Duncans Creek and Mulgoa Creek flow north-west to join the Nepean River approximately 4.5 kilometres to the west.

The basal geology of the project area is dominated by Bringelly Shale (Rwb), part of the Late Triassic Wiannamatta Group of shales common to the Cumberland Plain (Figure 3). Bringelly Shale (Rwb) is composed of shale, carbonaceous claystone, claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff (Clark and Jones 1991) and underlies the crests, slopes and drainage lines of the majority of the project area. More recent Quaternary Alluvium (Qal) is present along the low lying areas adjacent to Badgerys Creek. Quaternary Alluvium (Qal) comprises fine-grained sand, silt and clay that deposited in association with fluvial activity along the various creek corridors. In the north of the project area, a small deposit of Cranebrook Formation geology (Qpc) is present adjacent to Surveyors Creek. Cranebrook Formation (Qpc) geology is characterised by a basal layer of pebble and cobble clast gravels below sand, silt and clay. The gravels comprise clasts of quartz, quartzite, chert, porphyry, granite, hornfels, sandstone and silcrete. Cranebrook Formation geology contains raw material types that were utilised by past Aboriginal people. Areas where these materials were exposed at the surface, such as within creek channels, are likely to have been exploited by past Aboriginal people.

Three principal soil landscapes are present within the project area. The basal geology is overlain by South Creek soils within the immediate vicinity of major creeks, transitioning to Blacktown soils on crests and low rises and Luddenham soils on hills and ridge slopes (Figure 4). The alluvial South Creek soil landscape is characterised by flat landforms with incised channels that are subject to frequent episodes of inundation, erosion and aggradation. The landscape contains deep structured loams and clays overlying bedrock or relict soils. The South Creek soil landscape may retain archaeological deposit but due to its location on active floodplains, integrity of deposit may be compromised due to repeated episodes of erosion and deposition caused by fluvial activity.

The residual Blacktown soil landscape is located on gently undulating rises with broad rounded ridges and crests with gently inclined concave slopes. The landscape is characterised by shallow to moderately deep red and brown podzolic soils on crests grading to yellow podzolic soils on lower slopes and drainage lines. Erosional susceptibility of this soil landscape is relatively low but is increased where surface vegetation is not maintained (Bannerman, Hazleton, and Tille 1989). Blacktown soils are conducive to artefact survivability, however their acid chemistry quickly removes organics and their deflationary tendency often results in a temporal collapse, where archaeological objects from multiple time periods accumulated within a single cultural soil layer.

The erosional Luddenham soil landscape is situated on low rolling to steep hills with narrow convex ridges and crests, moderately inclined slopes and narrow drainage lines. The landscape comprises shallow dark podzolic soils or massive earthy clays on crests, moderately deep red podzolic soils on upper slopes and moderately deep yellow podzolic soils and prairie soils on lower slopes and drainage lines. The Luddenham soil landscape has a high erosional susceptibility with moderate surface movement potential. The steeper hill slopes of the Luddenham Soil Landscapes are subject to minor gully erosion and moderate sheet erosion in areas that have been stripped of vegetation. Aboriginal sites within these areas are likely to be disturbed low density scatters exposed by the eroding landscape. However, landforms and vegetation that create stability for the soil landscape could have preserved Aboriginal sites. The landforms associated with this soil landscape are generally the furthest away from water sources and associated resources. It is therefore likely that these areas were utilised in a different way to other landforms in the project area.

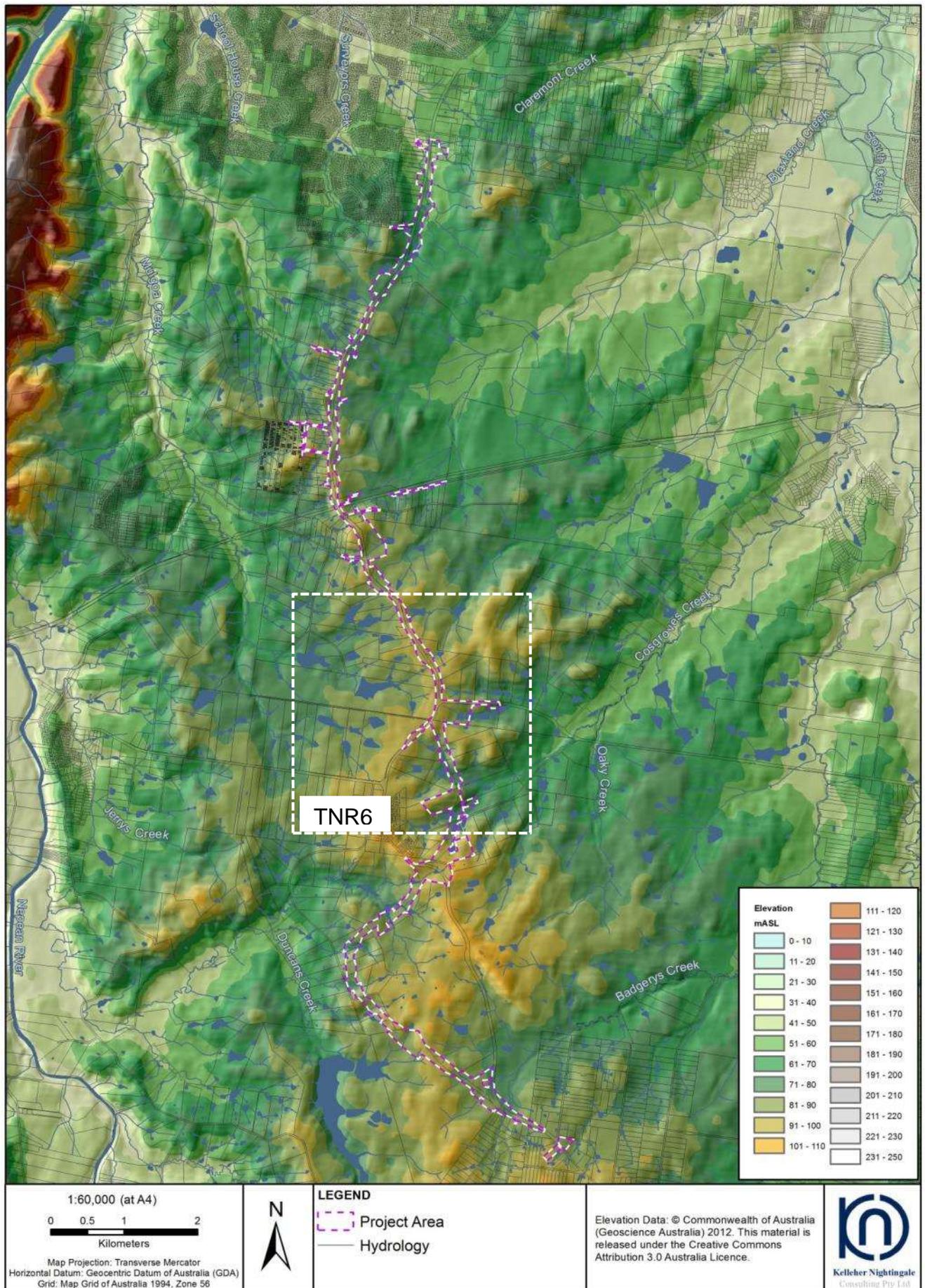


Figure 3. Landforms and elevation of the wider project area

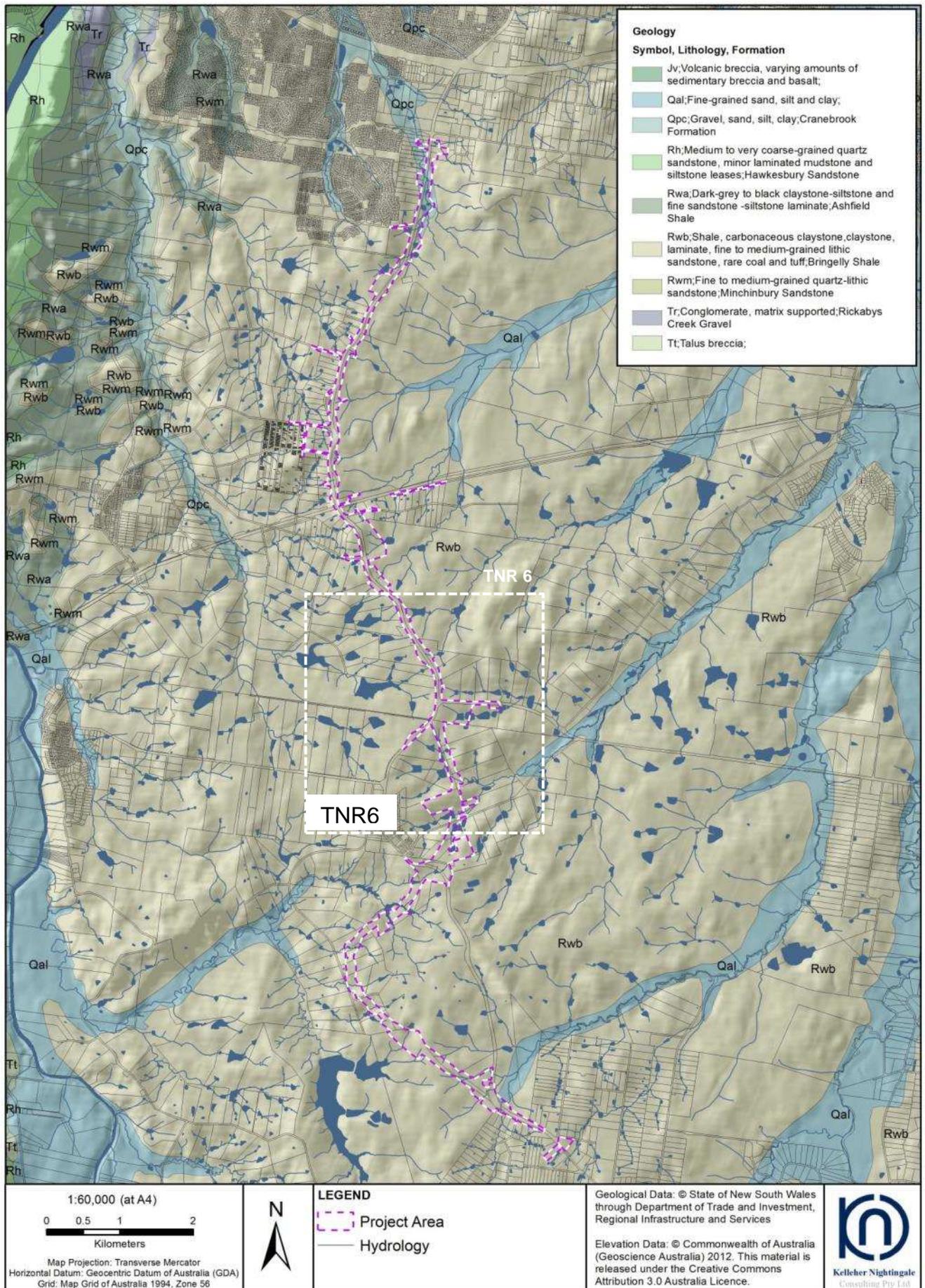


Figure 4. Geology of the wider project area

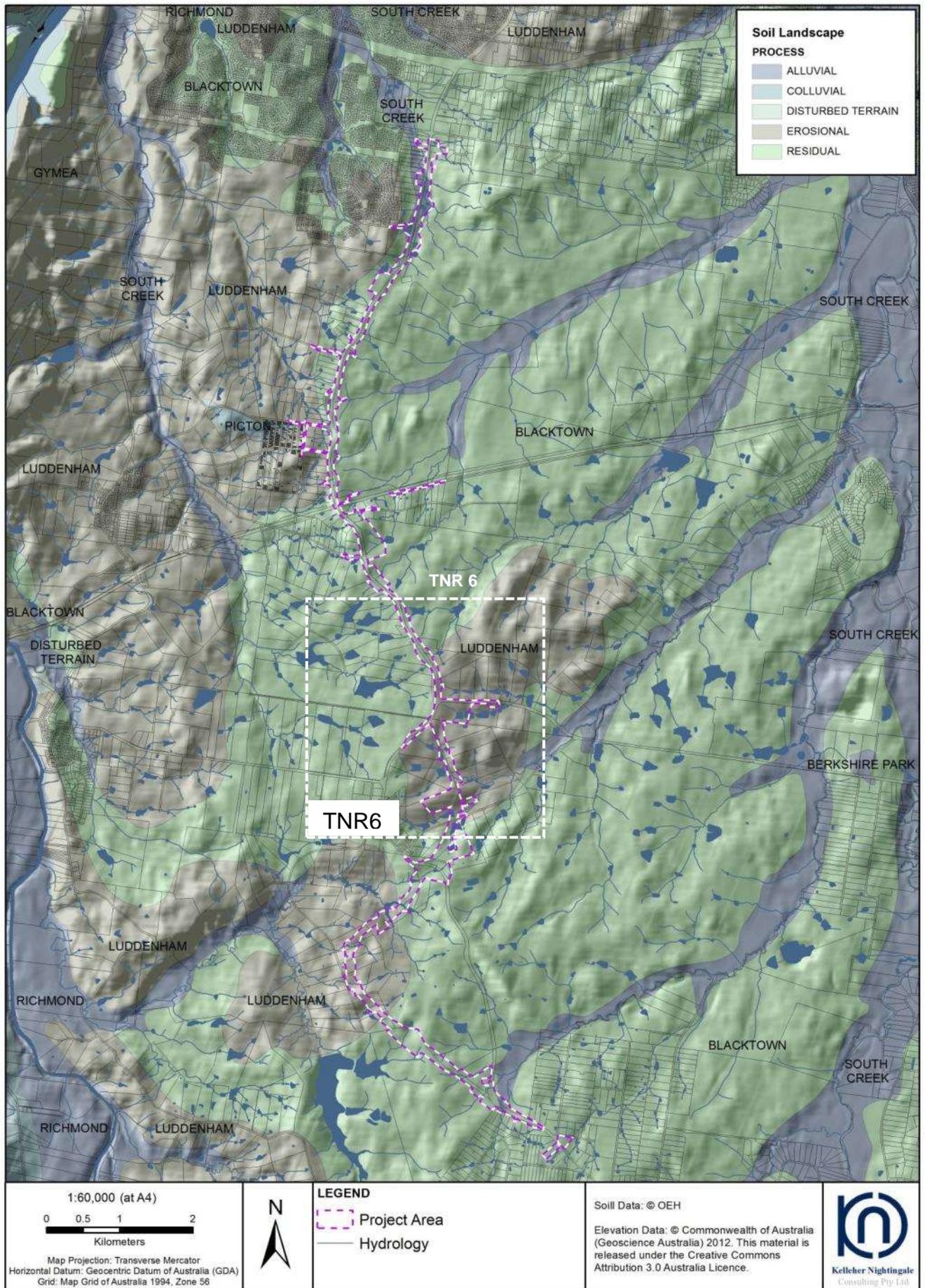


Figure 5. Soil Landscapes of the wider project area

3.2 Vegetation and landuse history

The distribution of native vegetation within the project area has been affected by historic and contemporary European landuse practices in the region. Prior to 1788, a mixture of native vegetation communities would have extended across the entirety of the Cumberland Plain with distribution determined by a combination of factors including soil, terrain and climate. The clearance of native vegetation across most of the project area by European settlers has left only small areas of native vegetation. These areas are classified as Shale Plains Woodlands, Shale Hills Woodland and Alluvial Woodland.

Shale Plains Woodland is the most widely distributed native vegetation community on the Cumberland Plain and generally occurs on flat to gently sloping terrain and low elevation with soils derived from Wianamatta Shale or well drained Holocene Alluvium geology. Shale Plains Woodland is characterised by a canopy dominated by *Eucalyptus moluccana* (grey box) and *E. tereticornis* (forest red gum), a shrub stratum dominated by *Bursaria spinose* (blackthorn) and a ground stratum comprising a mixture of grasses.

Shale Hills Woodland generally occurs on higher elevations and steeper terrain than Shale Plains Woodland with soils derived from Wianamatta Shale geology. Shale Hills Woodland is characterised by a canopy dominated by *E. moluccana* (grey box) and *E. tereticornis* (forest red gum), a small tree stratum of *Acacia implexa* (lightwood) and commonly occurring *Eucalyptus* species, a shrub stratum dominated by *Bursaria spinose* (blackthorn) and a ground stratum of grasses and herbs.

Alluvial Woodland is found adjacent to or near minor watercourses with draining soils derived from Wianamatta Shale geology. Alluvial Woodland commonly includes an upper tree stratum of *E. amplifolia* (cabbage gum) and *E. tereticornis* (forest red gum), a small tree stratum of *Acacia parramattensis* (Parramatta green wattle) and *Casuarina glauca* (swamp she-oak), an often sparse shrub stratum of dominated by *Bursaria spinose* (blackthorn) and an often dense ground stratum of grasses.

Landuse practices have had a variable impact on the landscape within the wider TNR upgrade project area. The project area is predominantly cleared of native vegetation and utilised for grazing cattle and cultivating crops. Several large dams have been constructed throughout the area within former creek channels, altering the area's hydrology and drainage patterns. Several residential and agricultural structures are also present. The landscape within the areas of urban expansion at Glenmore Park and the township of Luddenham contain low density residential and commercial structures with associated utilities and infrastructure.

A portion of the project area is located within Australian Department of Defence lands that contain several sealed and unsealed roads, a graded perimeter track, various buildings, dams and a landscaped golf course.

Construction activities within other (public and private) road corridors and the Warragamba-Prospect water pipeline easement have modified the landscape by creating cuttings and artificial embankments in addition to modifying the course of several waterways. The project area also contains several above and below ground utility corridors.



Plate 1. Environment of site TNR AFT 14, view north-west



Plate 2. Environment of site TNR AFT 16, located on an upper slope, view east.



Plate 3. Environment of TNR AFT 17, view north-east across a shallow tributary of Cosgroves Creek.



Plate 4. Environment of site TNR AFT 19, view north-east.

4 Cultural and Archaeological Context

4.1 Conflict with Europeans and the Dispossession of Land

The sites excavated for the current project fall within estates granted in the early nineteenth century to merchants and pastoralists such as Jamison, Blaxland, and Wentworth. Today, the presence of Aboriginal archaeological sites at numerous locations on the estates is testament to the fact that Aboriginal people had lived there for thousands of years. It is implausible that in the early nineteenth century, the local Aboriginal people would have surrendered ownership of these lands easily. Although no records of coercion or conflict with Aboriginal people have survived for these holdings, this does not mean that it did not occur. Elsewhere on the Cumberland Plain, the uptake of pastoral estates involved violent resistance from the original inhabitants. Several estates were granted in 1816, the same year as the Appin Massacre, in which at least 14 men, women and children were killed after being forced over a cliff at Cataract Gorge, 35 kilometres to the south of Leppington. This tragic event marked a culmination in aggression towards the local Aboriginal people, in this case the Muringong clan and Gandangarra men. Only weeks prior to the Appin Massacre, Muringong and Gandangarra men had stolen goods and attacked dwellings at several farms on the Nepean River, west of Bringelly. The Muringong and Gandangarra were trying to defend their land and the resources required to support their basic survival (Karskens 2009: 504-510).

At the time of contact, the Cumberland Plain would have been characterised by open grassy woodland of Grey Box and Red Gum. Before the effects of erosion and land use change took their toll, the creek systems would in many cases have formed chains of ponds and been an integral part of a rich and productive Country. The vegetation encountered by Europeans would have been shaped by both natural and human managed fire regimes. Early descriptions refer to the Cumberland Plain as having been “park like”, and well suited to agriculture and settlement.

The indigenous names for the landforms and waterways of the south-west Cumberland Plain were erased after the taking of the land from the Aboriginal inhabitants. In the first two to three decades after declaration of the Colony of New South Wales even landscape features such as creeks and hills, which undoubtedly had Aboriginal names, were given European names instead. The omission of Aboriginal place names on the early parish maps represents a deliberate act of denial of prior Aboriginal ownership of the land.

4.2 Local Clans and Tribal Territories

Early historical observations described the Cumberland Plain as a mosaic of Aboriginal groups. These groups were described as ‘tribes’ in many historical observations, when in fact they were more likely small territorial clans or local clans consisting of extended family groups, forming larger land-using bands linked through marriage and communal participation in subsistence gathering activities (Attenbrow 2002:22, Brook and Kohen 1991:2).

In the early 20th Century, anthropologist/linguist R H Matthews noted that “the Dharuk speaking people adjoined the Thurrawal on the north, extending along the coast to the Hawkesbury River, and inland to what are now Windsor, Penrith, Campbelltown, and intervening towns” (Matthews 1901:155 [in Attenbrow 2002: 32]). The Darug language was divided between coastal and hinterland dialects and spread from Port Jackson west to the Cumberland Plain, the Gundungurra language was predominantly associated with the hinterland and spread from the southern Cumberland Plain across the southern Blue Mountains and the Dharawal language was largely associated with coastal groups and spread from Botany Bay south to the Shoalhaven River and west to the Georges River area (Attenbrow 2002:34).

The Muringong and ‘Cobbiti Barta’ clans occupied the Camden region. The precise tribal boundaries of each of these clan groups is unknown. It is unlikely that their territory extended as far north as Leppington, which places the Northern Road beyond their northern boundary. To the north-west of Leppington was the Mulgoa clan territory, near the confluence of Kemps Creek and South Creek, while the Cabrogal were to the east, in the vicinity of Liverpool. The two latter groups were also clans of the Darug language group.

4.3 Historical Accounts of Cultural Practices and Connections Across Country

Based on our current understanding, Aboriginal clans would have been made up of several smaller groups ranging in size from nuclear families to up to 50 people, who would come together into much larger groups for events such as initiations or ceremonies. Smaller family groups would have hunted, fished, and moved across the lands of neighbouring clan groupings. These neighbouring clan groupings were part of the larger Aboriginal community of the Cumberland Plain. People were mobile throughout the landscape, occasionally travelling long distances for ceremonies and meetings.

The cultural resilience of the clans in the south-west Cumberland Plain is revealed in the accounts of early settlers describing corroborees that continued to be practiced, despite the dispossession of Aboriginal people from their traditional lands. The Macarthurs documented corroborees taking place on their property at Camden.

They were also recorded as occurring at Denham Court, just five kilometres east of Leppington (Liston 1988: 24). In the 1820s, Rev. James Hassall noted that there were corroborees taking place on his property, Denbigh Estate, nearby to the Northern Road. Aboriginal people worked at Denbigh in the 1820s to help burn off excess timber on the property and to clear land for farming activities (GML 2007).

It is likely that Aboriginal people were able to maintain connections and access to Country through labour such as this. This transformation of the landscape also had the effect of removing resources and valued places that had sustained Aboriginal people's lives for thousands of years. Joseph Mason, a convict employed on a property north of Cobbitty between 1831 to 1837, graphically described the impacts of European land clearing and agriculture and the maintenance of Aboriginal cultural practices:

"I saw large fields of corn growing before I left it on the very spot where the first year, I was there I witnessed the feats of the blacks called a corroboree performed by night in the thick and gloomy forest"

Corroborees were an important means by which different clans could meet and socialise. Some Aboriginal groups travelled from far afield to attend corroborees at Camden. The following quote is from the journal of Reverend Backhouse, a Quaker missionary who, in 1836, travelled through the region with fellow missionary, George Walker. The two men shared a fascination for Aboriginal culture and described an extensive ceremonial network that linked Aboriginal people from the Camden/Cowpastures region to groups from the Southern Highlands and the South Coast.

"The Kangaroo Valley is a place of resort for the Blacks, three tribes of whom are now upon it...One of the tribes here had in it forty men. The three tribes were from Shoal Haven, Bong and belonging to the Kangaroo-Ground. They are all about to visit the Cow Pastures to learn a new song! an object for which they sometimes travel far." (Rev. Backhouse 1836 cited in Waters 2013:120)

The Narellan district, 13 km south-west of Leppington, is thought by some researchers to be near the meeting of boundaries of Dharawal, Darug and Gandangarra speaking people (Haglund 1989). The creek and river valleys north and south of Narellan may have served as 'travel corridors' linking the northern Cumberland Plain, the Cowpastures/Camden area and the Illawarra region further south (Haglund 1989). A significant landscape feature of the Narellan district is Mount Annan, which is known as an important traditional meeting place for specialised law/lore making ceremonies. These ceremonies were not only for local inhabitants of the Dharawal and Cubbitch Barta, but for Aboriginal groups from far across the Cumberland Plain and South Coast of New South Wales.

4.4 Archaeological Context - Tools and Resources

Specific associations between stone artefact types and clan groups have not been documented for the wider Sydney region. Clan groups used similar tools as they were performing the same day-to-day tasks. There are however some known variations in the 'tool kit' between coastal and inland groups (e.g. Eora/Darug). Historical accounts have described how spears from inland groups could be distinguished from the spears of people who lived near the coast, through different use of stone or shell for spear barbs.

When freshly knapped, many stone artefact materials break with a durable sharp edge. Previously excavated assemblages from the Cumberland Plain contain a range of raw materials. Those which were commonly used to make spear barbs were silcrete, silicified tuff, chert and quartz. Barbed spears were a significant weapon across mainland South East Australia, with backed stone artefacts thought to have been used as spear barbs from at least the mid-Holocene period.

At the time of European settlement, the Cumberland Plain contained around 1000 km² of woodlands and forests. This would have been a rich and productive landscape for Aboriginal people. Abundant native fauna would have inhabited extensive grassy woodlands as well as tall ironbark and turpentine forests, dry rainforests and floodplain communities. Reptiles such as snakes and goannas were profuse. Mammals such as echidnas, quolls, phascogales, bandicoots, koalas, possums, gliders, bettongs, wallabies and kangaroos would have all been plentiful, along with emus and a vast array of birds. The hunting of kangaroo and wallaby was undertaken by burning large tracts of land. Along the rivers and creeks, traps and snares were set for ducks and decoys were used for snaring birds. Possums and gliders were particularly common in the forests and woodland areas. These were hunted in several ways, including smoking out the animal by lighting a fire in the base of a hollow tree as well as cutting toe-holds in tree trunks to gain access to animal hollows and birds' nests (Kohen 1993:10; Tench 1793:82).

Not only were food resources plentiful throughout the area, so too were stone sources. In the context of the Sydney Basin, the Cumberland Plain was a region where stone materials were abundant. Today, surviving artefacts generally occur as open camp sites, surface scatters or isolated finds. Most are made of silcrete, a stone which occurs in association with the St Mary's Geological Formation. Silcrete is a brittle and resistant material consisting of detrital quartz grains embedded in a replaced clay matrix. When fractured, it breaks through the quartz grains, making it ideal to produce stone tools with durable sharp edges. Sources of silcrete occur across the Cumberland Plain, often as outcrops on ridgelines.

Other stone materials available across the region were silicified tuff, chert, petrified wood, quartz, basalt, hornfels and quartzite, primarily sourced from creek or river gravels. Sandstone formations located along the Parramatta and Georges Rivers, were known to contain quartz and chert sources. However, the ubiquitous occurrence of silcrete artefacts at open sites indicates it was the most accessible stone material available to Aboriginal people in the region.

Flaked stone was used for many different purposes. It was essential to produce hunting gear, shields, weapons, utensils and for day to day activities, such as animal butchery, hide working, plant food preparation and craft work. The size and shape of individual flaked stone artefacts generally prescribed their particular use. At one end of the spectrum were the larger implements which were indispensable for heavy duty chopping and scraping. At the other end were smaller implements which were crucial to precision carving, piercing and incision. Certain flaked stone was also reserved for special ceremonial practices, such as scarification. As mentioned above, the Cumberland Plain was a region where stone materials were easy to come by. In most cases, an implement was selected, for immediate use, from a mass of freshly knapped stone on the basis that it possessed a suitably sharp edge and fitted the hand well. This approach to tool production was well adapted to a highly mobile hunter-gatherer lifestyle. Importantly, people were not wasteful of stone resources. Some of the larger flaked stone implements were recycled, possibly years, or even generations, after they were discarded. For example, cores were reused as choppers, axes recycled as anvils and smaller implements were made from the fragments of larger ones. However, the secondary modification (retouch) of the working edge of an implement was undertaken infrequently and it is assumed that many unmodified flaked stone implements (i.e. flakes and flake fragments) were discarded after use with little or no detectable damage to their edges.

4.5 Regional Archaeology

There are thousands of known occupation sites across the Sydney Basin. Approximately 121 radiocarbon determinations have been obtained, with a good percentage of these derived from open site contexts. The wider Sydney region has been occupied by Aboriginal people from at least the late Pleistocene, if not earlier. Sites with older pre-Bondaian artefacts are widely distributed across the Cumberland Plain (White 2017). The artefacts found from this time include tools made from locally-sourced tuff and chert, as well as pieces produced from the tool-making process (cores, flakes and flake fragments). There is also a suggestion that there are changes in the type of tools people were using over this period, probably in response to environmental change.

In Sydney, people continued their gradual movement towards the higher ground of the plateaux and ridgetops as the coastline of the glacial period was replaced with the familiar present-day Sydney shoreline of sandstone cliffs and small coves by around 6,500 years before present (BP). Sites in western Sydney are known to have been occupied and new types of tools start to appear in assemblages around this time. Excavations from sites of this age have recovered backed artefacts - tools known as Bondi points, geometric microliths, eloueras and other types of retouched flakes. About two thousand years later, these tools become very common in sites throughout Sydney, both along the coast and in the hinterland. The surge in backed artefact production seems to be associated with the shift towards locally available stone (silcrete) and the process of heat treatment.

Another technological change now was the use of ground edge axes. These artefacts appear in the Sydney Basin from 4,500-4,000 years before present (BP), (Attenbrow 2002: 155). The axes were made of tough stone such as basalt or hornfels and used to cut toe holes in trees (to hunt possums), as well as to remove bark for the manufacture of canoes, shelters, clubs and containers. Sometime between 3,000 and 1,000 years BP there was a phase when the climate was cooler and dryer. The boundaries of vegetation communities would have altered during this time, with a reduction in rainforest and an increase in woodlands. After c.1,000 years BP, there was an increase in average temperature and rainfall until it reached the conditions experienced today (Attenbrow 2002: 153-155). It is thought that population increase during the mid-Holocene may have triggered social or behavioural change, such as:

- a decrease in residential mobility, with occupation of smaller territories on a more permanent basis; and
- an increase in logistical pre-equipping (McDonald 2008: 40).

From 1,500-1,400 years BP backed artefacts decline in frequency in some parts of the Sydney Basin. During this period, ground edge hatchets increase in frequency across the region. The decline in backed artefacts is most notable in the rockshelter assemblages of the sandstone country and the middens in coastal zone. This contrasts with the Cumberland Plain where microblade production appears to have continued to at least 340 years ago. These changes may have been associated with:

- further restrictions to clan or language group boundaries affecting access to raw material sources involving trading networks or direct access arrangements; and
- alteration of subsistence patterns involving the use of backed artefacts (Attenbrow 2002: 156).

At some places on the Cumberland Plain, backed artefact production was intensive. Microblade technologies involve the flaking of medium to small sized cores to produce bladelets which were often segmented and retouched (backed) to make a variety of shapes, such as Bondi points and geometric microliths. Backed artefacts were a versatile implement (Attenbrow *et al* 2009). There is evidence to suggest that backing was likely to have been undertaken to blunt the tool edge for hafting onto spears. In this way, the tools formed expendable components of composite tools (Holdaway and

Stern 2004: 17 & 259). Starch residue has also been detected on the blades of some backed artefacts, suggesting they may also have been used as hand-held implements to process plant material (McDonald 2008: 38).

On the Cumberland Plain, the large quantities of discarded silcrete and backed artefacts at many sites suggest that stone conservation was not a key motivation in the use of microblade technology (McDonald 2008:40). The process of heat treatment played a major role in the creation of the silcrete debris at sites. Heat treatment improved the flaking quality of silcrete, thereby increasing functional local availability of the stone. The process assisted the fracturing of larger cobbles into smaller pieces for flaking. The approach also resulted in the production of large amounts of heat shatter debris, which can have the effect of swamping assemblages. Consequently, the few artefacts that individuals brought to a site as part of their personal equipment, which might show evidence of resharpening, would nearly always form a minority of the assemblage (see the discussion of Kuhn 1995 in Holdaway and Stern 2004: 80).

4.6 Radiocarbon ages for Cumberland Plain archaeological sites

Deep alluvial and sand deposits (>1m depth) associated with the Nepean River have yielded artefacts of great antiquity. The Cranebrook Formation is a deposit within the alluvial margin of the Nepean River, north of Penrith, which has yielded artefacts dating to >40,000 BP (Nanson *et al* 1987 & Williams *et al* 2017). The site with the earliest agreed occupation date in Sydney is a rockshelter known as Shaws Creek K2, located just to the west of the Nepean River near present-day Castlereagh. Radiocarbon dating from near the bottom of the archaeological deposit in the shelter returned a date of around 14,700 years ago (Nanson *et al* 1987). Deep deposits adjacent to the Hawkesbury River at Pitt Town have yielded artefacts dating to the terminal Pleistocene, with peak artefact numbers for the two lowest assemblages centred on c. 15,000 BP and c. 11,000 BP (Williams *et al* 2012). Archaeologists working at Parramatta, on the eastern boundary of the Cumberland Plain, have recovered five charcoal samples from a deep sand deposit. Current dating of this site indicates that it is the one of the earliest in the Sydney Basin (JMCHM 2005a).

Archaeological excavations across the north-central Cumberland Plain have recovered numerous charcoal samples related to past Aboriginal occupation. The AustArch 3 database, available online, lists the radiocarbon ages for eight (8) sites, located in the northern Cumberland Plain. These samples have returned radiocarbon ages which span a wide breadth of time, from 330 to 5900 years BP. Some sites have multiple dates, while others have only a single date. Importantly, the presence of a single date does not discount repeated occupation at a location and is instead more reflective of the lack of charcoal samples suitable for radiocarbon dating.

Some of the most recent radiocarbon ages are for a series of hearths at Parklea (Balme *et al* 2001), which were dated to between 330 and 1030 years BP. Several other sites fall within this age range, including Second Ponds Creek 5 (Kohen 1984) and Parklea PK/CD 1+2 (McDonald *et al* 1994). Currently the earliest dates for the north-central Cumberland Plain are based on single charcoal samples obtained from sites located on the same creek system (OWR 7 and RH/CD 7). These samples place earliest occupation of Second Ponds Creek at between 4000 and 4600 years BP (McDonald *et al* 1994). More recently, a series of radiocarbon dates, between 570 BP and 4400 years BP, have been obtained for five sites during salvage excavations for the Sydney Metro Northwest project at Rouse Hill (KNC 2015). At Eastern Creek, the earliest age obtained for occupation is 5900 years BP (McDonald 1993 cit. Barton 1996). A series of five charcoal samples, obtained from a site located on the creek flat at Second Ponds Creek (Rouse Hill RH/SP12 South), confirms that some sections of the landscape were revisited over time with dates in a range of between $3,351 \pm 40$ years BP and $3,010 \pm 30$ years BP (JMCHM 2005b).

4.7 Comparative dataset

The CHAR for the current project was undertaken by KNC and describes artefact scatters recorded within or in close vicinity to the study area (KNC 2017). The Cumberland Plain has been subject to an increasing number of archaeological investigations over the past three decades, ranging from archaeological field survey to test and salvage excavations. This is primarily due to the rapid urbanisation and development of Sydney's west and southwest to accommodate the needs of the region's growing population.

Two projects provide data for the comparative analysis presented in this report. These are: The Northern Road Stage 4 (KNC 2020 *in prep*) and archaeological salvage excavations conducted for the M4 Smart Motorway Project (KNC 2019). The Northern Road Stage 4 sites include: TNR AFT 22, AFT 24, AFT 26, & AFT 27, which could be considered a 'site complex' located on the more elevated terrain that divides the upper catchments of Duncans Creek and Cosgroves Creek. Sites TNR AFT 29, AFT 30 and AFT 31 were located 1 km south-west of this group, on spur crests and slopes adjacent to minor headwaters of Duncans Creek. The southernmost sites in the TNR4 group were B54 & B6, located on a lower slope and alluvial terraces adjacent to the main channel of Badgerys Creek. The M4 sites included SC1 and SC2, located on alluvial terraces and lower slopes in close proximity to South Creek, approximately 10-15km to the north-east of the TNR 6 project area, and Clyburn Avenue located on an upper slope/ridgeline 10km to the northwest.

4.8 Predictions

Predicting the locations where artefacts are likely to occur in the landscape can assist archaeologists in making decisions about where to excavate and/or define conservation zones. Predictive modelling is based on the analysis of the location of known sites. The patterns in the distribution of sites across an entire landscape, such as the Cumberland Plain, are extrapolated from this analysis. In most cases, artefact numbers and artefact densities form the main indices which, in combination, define the archaeological potential of landforms. Predictive statements made by archaeologists in the 1980s were based on a smaller sample of known site locations than exists today. More recent studies present a refinement of the earlier generalised statements.

The interpretation of the distribution of artefact assemblages has been heavily influenced by the ethno archaeological studies of indigenous peoples in Africa and North America (e.g. Binford 1980 & 1983). In Australia, the picture presented by these studies has been contextualised through reference to local ethno-historical records. Currently, a broad model is put forward of the possible foraging and logistical ranges of traditional peoples. In open landscapes, such as the Cumberland Plain, it is understood that foragers travelled from resource to resource and rarely placed campsites in specific locations of previous use. The differential accumulation of artefacts over time was the result of a strategic approach to landscape use. Aboriginal groups would “map on” to food, water, and stone sources. Over time, areas would have seen successive use by generations resulting in an accumulation of artefacts in the more favoured locations, such as land near major creeklines, rivers or estuaries (see Holdaway and Stern 2004: 72).

A variation on this model is that Aboriginal people established residential areas or base camps and travelled from these into the landscape. This depicts traditional Aboriginal groups as more like ‘collectors’ (after Binford 1980). It is not known what length of time Aboriginal groups may have occupied a base camp. The period may have varied from days to weeks. However, it is likely subsistence ranges were defined on seasonal cycles. The characteristics used to define a base camp, are:

- a high to very high number of flaked stone consisting of a range of artefact types and raw materials, and;
- dense spatial patterning of artefacts, with overlapping events, from activities such as knapping, tool maintenance, heat treatment and food preparation.

Under this model, sites with smaller sized assemblages have been interpreted as short term or ‘satellite’ activity camp sites. These often represent isolated events associated with stone extraction, tool maintenance or hunting. These secondary sites are usually characterised by intensive and spatially well-defined knapping floors. Elsewhere, it has been shown that the range and proportions of raw materials at secondary activity areas is often more selective.

The sites that are the subject of the current investigation are situated in two environments –creek terraces and lower slopes adjacent to watercourses and elevated landscapes in the upper creek catchments Of Mulgoa Creek (to the west) and Cosgroves Creek (to the east). Low ridgelines separate the watercourses on the east and west sides of The Northern Road. Those to the west flow to the Nepean River south of Penrith while those to the east join the South Creek catchment, which reaches the Hawkesbury River at Windsor. It is likely that the subsistence strategies adopted by the people occupying this area were aligned to the local ecosystems along the margins of these swampy watercourses and across the low ridgelines where the environment was dryer.

On the Cumberland Plain, significant archaeological deposits are likely to exist on relatively stable landforms in proximity to water sources. The best archaeology (statistically) will be located at the margins of elevated features, which exhibit the optimum combination of archaeological activity and soil stability – close to water sources and stone sources but high enough not to be decimated by flooding. The terraces and lower slopes at sites TNR AFT 17, AFT 19 and AFT 20 meet these characteristics. Their short distance from the watercourse means that the archaeological deposits could be substantial in terms of the number of artefacts that they contain. There is less potential for substantial artefact samples to be present at sites within the upper creek catchments due to the distance from reliable water sources.

Across the Cumberland Plain, a more dispersed occupation pattern has been shown to have occurred away from the major creeklines. Sites located within these ‘intermediate’ zones are not expected to yield high density artefact deposits. However, they provide an indication as to distribution of past cultural activities away from the major creek corridors. Compared to the more permanent channels of ponds that existed along South Creek, the activity within the upper catchments, would have involved infrequent shorter term ‘stop-overs’, especially during periods of drought.

Overall, the average artefact density for assemblages recovered from intermediate environmental contexts, is likely to be less than those recovered from sites located adjacent to major creeks. The density of artefacts on the upper reaches of Mulgoa Creek and Cosgroves Creek would be mainly characteristic of secondary activity areas (satellite camps). This would consist of discrete spatial patterning of artefacts, with occasional overlapping events, from activities such as knapping, tool maintenance, heat treatment, craft activities and food preparation. We would expect to see a more limited range of artefact types, compared to the larger assemblages recovered from major creek corridors.

More specifically, the stone assemblages within the study area may have the following general characteristics:

- The dominant raw material will be silcrete. Silicified tuff and quartz would form a minor component of the assemblage.
- There may be evidence for the primary reduction of silcrete cobbles, which occur widely across the western Cumberland Plain. This evidence may include relatively large sized cores and flaked stone, some with cortex.
- There may be evidence for the heat treatment of silcrete. This evidence would include heat shatter, red silcrete flaked stone with shatter or crenate surfaces and concentrations of charcoal.
- There may be evidence of the reduction of cores using microblade flaking technologies and the production of backed blades, however, the proportion of exhausted microblade cores (e.g. asymmetric alternating) would be lower, compared to sites located adjacent to major creeks.
- There would be a very low presence of the bipolar technique.
- Retouched flakes and tools would make up a small minority of the assemblage.
- Ground edge implements would be very rare and may occur as fragments as well as complete axe heads.
- The density and distribution of artefacts should be characteristic of a secondary activity area. This would consist of defined clusters with moderate to high artefact density, separated by broad areas with a low to very low density of artefacts.
- The artefact assemblages would be contained within the top 20 to 35 cm of soil. There would be evidence of bioturbation, which would have caused the movement of artefacts through the regolith profile. The assemblage would not show vertical stratigraphic integrity. However, the artefact assemblage is likely to retain horizontal integrity, with areas of artefact clustering evident.

5 Methodology

5.1 Research Aims

The main aims of the proposed salvage excavation program are:

- ◆ To salvage a representative sample of the identified archaeological sites prior to development impact.
- ◆ To analyse the salvaged archaeological material to gain and conserve knowledge and understanding of the scientific and cultural information exhibited by the activities associated with landforms along Redbank Creek.

The further scientific aim of the salvage excavation program would be to determine the subsurface integrity, extent, spatial distribution and nature of the cultural deposit and the specific types of associated archaeological/cultural activities.

- ◆ Determining the integrity of the deposit involves assessing the degree of disturbance which is present.
- ◆ Determining the statistical extent of the sites and/or activity areas involves identifying the boundaries associated with the identified archaeological deposit.
- ◆ Assessing the spatial distribution involves identifying the presence/absence of archaeological material across the identified archaeological sites.
- ◆ The nature of the sites refers to the type of activities indicated by the artefactual material (e.g. primary production, domestic knapping, hunting camps). The goal would be to retrieve entire assemblages from specific activities if such activities were present.
- ◆ Retrieved assemblages would be compared with the results from other relevant archaeological projects in order to assess significance.

5.2 Research Questions

The results of the proposed salvage excavation would increase our understanding of subsurface archaeology of the project area, specifically related to the large scale connectivity between sites along and near the ridge associated with The Northern Road. Research will focus on identifying a range of activity areas, which characterised the larger landscape of the ridge and sites across the range of landforms present within the project area addressing questions about past activity events and survivability of the deposit. In addition, assessment techniques will address how natural processes and modern land use practices impact on archaeological sites within the local area. This information is of critical importance for determining empirical scientific value.

Question 1: What cultural activities are archaeologically identifiable across the project area and what is the effect of natural and human disturbance on the preservation of these Aboriginal archaeological sites?

What can we expect?

It is anticipated that differences in stone tool assemblages may be related to different cultural activities (e.g. primary reduction vs maintenance flaking). Results from the test excavation program indicate that the sites may display assemblages with different characteristics, possibly representing different activities or site uses. The science of archaeology is paramount to any research question and it is important to stress that the goal for the salvage program for all excavated sites is straight forward: to retrieve a viable sample for comparative analysis using established techniques (see Field Methods below). In this regard interpretation would not precede data collection. The proposed archaeological program would systematically sample the relevant areas using standard techniques with the outcome being a viable, robust and comparable sample. Analysis of the sample would follow, and interpretations would be made distinctly separate from the results.

Question 2: Based on a statistical suitable sample - do variations in the lithic assemblage represent cultural activities, raw material sourcing or combinations of cultural and environmental factors?

5.3 Field Methods and Excavation Techniques

Salvage Program

The goal of the field excavation program is to recover significant assemblages of artefacts and investigate the geomorphic processes that contribute to site taphonomy. To achieve the most robust and comparable result, KNC advocates open area salvage excavation. The first phase in open area salvage is to establish the statistical boundaries of the previously identified archaeological deposit. This approach is designed to salvage the spatial properties of the site as shown in the lithic continuum. In other words, recording the spread of activities across the site/landscape.

5.3.1 Phase 1

A series of 1 x 1 metre squares are excavated on a transect grid overlain on each site to mark the spread of lithics and related geomorphic activity. Geocentric Datum of Australia 1994 (GDA94) coordinates would be recorded for each square to enable three dimensional modelling. Statistical salvage following this method is highly beneficial because it creates a robust inter-site sample, sufficiently random, critical for regional comparative analysis. No other method is as efficient or effective.

Each Phase 1 square location was given a numeric identifier (S1, S2, S3 etc).

First Quadrant

The initial excavation unit at each 1 m² Phase 1 square location will involve the excavation of a 50 cm x 50 cm test unit (TU) in the northwest quadrant of the 1 m². The remaining three quadrants will be excavated in accordance with general salvage excavation methodology (below). The results of the first quadrant will be used to investigate the effectiveness of a 50cm x 50cm 0.25m² sample size vs. a standard 1m x 1m square.

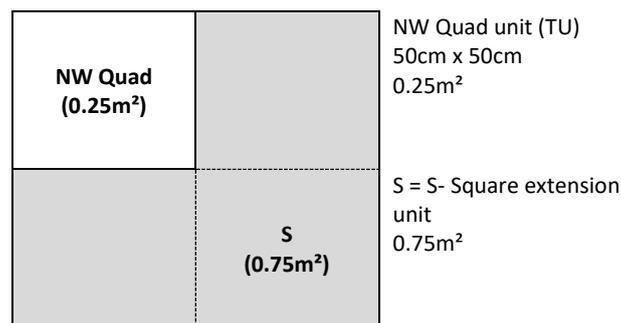


Figure 6. Layout of NW quad and corresponding S-square extension

Together, the quad unit and extension S-square make up a 1 m² Phase 1 square. Unless specifically referring to the NW Quad Unit, completed squares are generally referred to as Phase 1 within the analysis.

Phase 1 squares would be hand excavated in stratigraphic units (Unit A, Unit B, etc.). Squares would be excavated until the basal layer or culturally sterile deposit is reached (usually 25-35 centimetres). All excavated deposit would be wet sieved using nested 5.0 millimetre sieves and 2.5 millimetre meshes. The location of each excavated square would be identified on a surveyed plan of the site. Stratigraphic sections detailing the stratigraphy and features within the excavated deposit would be drawn and all squares would be photographed. The stratigraphy of all excavated areas would be fully documented and appropriate records archived.

5.3.2 Phase 2/3 open area

Phase 2 expansion

Where information bearing deposits are identified at Phase 1, a series of 8 x 1 m² expansion squares (3 x 3 metre area, including original Phase 1 square) would be excavated around those deposits. Information bearing deposits are identified by triggers such as:

- significant quantities of artefacts
- objects exhibiting a range of diagnostic characteristics
- variations in raw material
- unusual artefacts
- soil horizons with good condition and integrity
- chronological material and/or taphonomic indicators.

In this context chronologic material is anything that can be used to date artefacts or deposit: charcoal or charcoal bearing deposit (e.g. hearth ash), sandy deposit, gravels (e.g. aluminium feldspar). It is anticipated that approximately two 9 m² excavation areas would be undertaken at each of the salvaged sites. 9 m² excavations would only be undertaken where Phase 2 excavations are required (based on triggers above). A full 9 m² area would be excavated in all instances where Phase 2 investigations are undertaken.

Phase 3 expansion

Open area salvage of significant deposit follows the Phase 2 expansion squares and would expand to encompass entire activity areas. Phase 3 excavations are required where the Phase 2 triggers are found to extend beyond the 3 x 3 metre Phase 2 excavation area. The location of Phase 3 open area investigations would be based on Phase 1 and 2 results. Phase 2/3 open area expansions are considered together in the analysis of the salvage results.

5.4 Field Notes & Artefact Analysis

The location of each excavated square was identified on a surveyed plan of the site. Drawings detailing the stratigraphy and features within the excavated deposit were created and sample squares were photographed. Soil and charcoal samples were also collected from some squares and/or features.

The stratigraphy of all excavated areas was fully documented. Artefact distributions and associations were used to inform the interpretation of site use, antiquity, and significance. The current excavation program yielded a relatively large artefact collection (known as an 'assemblage') and provides a powerful and definitive sample of the Aboriginal archaeology of the region. However, the real value lies in the information that these artefacts contain and the story they can tell.

Detailed (laboratory) analysis entailed recording several characteristics for each individual artefact. Stone artefact raw materials were examined through a hand lens (x 10 magnification) with raw material categories described in below. Artefact attributes were chosen in accordance with the research aims and were derived from Andrevsky (1998), Cotterell and Kamminga (1987), Hiscock (1993), Holdaway and Stern (2004) and Kamminga (1982). Each artefact was recorded in database form, suitable for comparative analysis on a local and regional basis. Artefact distribution plots and contour density graphs have been used to illustrate the distribution of artefacts with the open areas. By examining this distribution, we can shed light on how Aboriginal people organised their activities at a camp site or work area. The absence of artefact concentrations might indicate that fluvial processes have impacted the site area, causing artefact movement.



Plate 5. Phase 1 excavation at site AFT 14.



Plate 6. Phase 2/3 excavation at site AFT 17.



Plate 7. Phase 2/3 excavation at site AFT 20.



Plate 8. Recording profiles at completion of Phase 2/3.

5.5 Description of Lithic Materials

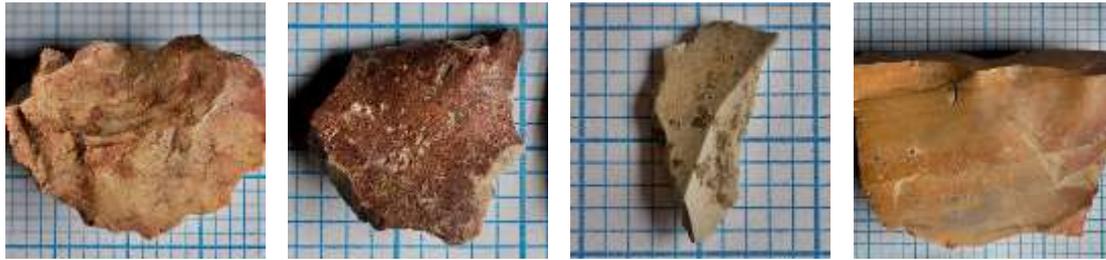


Figure 7. Silcrete and silicified tuff (tuff) artefacts

Silcrete: A brittle and resistant material consisting of fine detrital quartz grains embedded in a replaced clay matrix. Variation in colour can arise from heating, primarily noted by red colouration, although partial heating can create a mixture of colours within the same material. Silcrete occurs at ridgetop outcrops in association with the St Marys Formation 15-20 km west of the study area. The material can also be found in Rickabys Creek Gravels and Cranebrook Formation gravels and along the major creeks of the Cumberland Plain. Some artefacts have smooth cobble cortex, occasionally with ring cracks, although a rough grey weathered cortical surface also occurs. Many silcrete artefacts were discoloured dark grey and have heat fractured surfaces.

Silicified tuff (tuff): A tough fine-grained rock formed of fragments deposited by volcanic processes and re-deposited in sedimentary contexts as stone. The cortex was smooth and generally rounded, suggesting a cobble source, probably from stream beds. Silicified tuff is highly variable in terms of colour, although this is likely due to variation in weathering rather than different material. The weathering has likely made the material more susceptible to breakage. Some silicified tuff artefacts had crenate fracture surfaces and dark grey discolouration from being exposed to fire.

“Other silicious” included fine grain silicious materials which were individually present in low numbers such as chert, petrified wood and an unidentified fine grain silicious (FGS). These materials were sourced from stream gravels, such as gravel beds in the Nepean/Hawkesbury River approximately 5 kilometres to the west or Rickabys Creek Gravels c.10-15 km north of the study area.



Figure 8. Igneous, medium grain, quartzite, and quartz artefacts.

Igneous & Metamorphic: Tough and resistant rocks (generally basalt and hornfels) available as cobbles in gravel deposits of the Nepean/Hawkesbury River.

Quartz is a crystallized form of silica. It is transparent or translucent. Examples were milky white or clear. The cortex was smooth and characteristic of pebbles or small cobbles. Sourced from stream gravels along the Hawkesbury and Nepean Rivers or in pebble lenses of sandstone formations situated west of the study area.

Quartzite & Medium Grain (MG) are medium or coarse-grained metamorphic rock available as cobbles in gravel deposits of the Nepean/Hawkesbury River.

Table 2. Artefact attributes recorded

Attribute	Flake	Flake fragment	Angular fragment	Backed artefact	Other Retouch	Ground stone	Core
Site code, material, cortex, weight, retouch and usewear.	•	•	•	•	•	•	•
Maximum dimension (size range).	•	•	•	•	•	•	•
Length, width, thickness.	•			•	•	•	•
Flake shape, platform & termination	•			•	•	•	

6 Phase 1 Excavation Results

6.1 Overview

The excavation of each Phase 1 sample unit occurred in two steps. The first step involved the excavation of a 50 cm x 50 cm quad in the north west corner of a 1m x 1m 'S-square'. The second step involved the extension of the quad unit to complete the excavation of the S-square.

The total number of quad units was 137 (34.25 m²), distributed between the five salvage sites. The total number of artefacts recovered from all the quad units was 66. The combined totals of quad units and S-square extension units was 137 m², yielding 265 artefacts.

The artefacts recovered from the Phase 1 salvage were typically of silcrete (70.9%), tuff (14.7%) and quartz (9.1%). Lesser quantities of chert artefacts were recovered (3.8%). The least frequent (<1%) materials were quartzite and silicified wood. Most of the artefacts (97%) were debitage, which consisted of flakes, flake fragments or angular fragments. A total of 8 cores were recovered, including 2 bipolar cores and one core tool. Artefacts with retouch or usewear (including backing retouch) made up 3.4% (n=9) of the assemblage. A total of two backed artefacts were recovered. These were broken distal portions of backed blades (tips missing) made of silcrete.

TNR Stage 6 - Phase 1 Salvage Excavation Quick Reference Guide	
List of sites	
TNR AFT 14, TNR AFT 16, TNR AFT 17, TNR AFT 19, TNR AFT 20.	
Quad units (50 cm x 50 cm)	
Total quad units: 137 units (34.25 m ²) Total artefacts: 66	
Extension square	
Total S-square units: 137 units (102.75 m ²) Total artefacts: 199	
Total Phase 1 sample	
Quad + S-extension units: 137 m ² Total number artefacts: 265	

6.2 Phase 1: List of Sites & Number of Excavation Units

A total of five (5) sites were subject to Phase 1 salvage excavation. Previous assessment determined that these sites had good potential to yield assemblages that may increase our understanding of Aboriginal activities in a transitional landscape between the Cumberland Plain and Nepean River (KNC 2017). The sites are listed in the table below in the order of their location within the road upgrade corridor from north to south.

The Phase 1 units were excavated on a transect grid overlain on each site. The grid was positioned to ensure that transects intersected different landforms, including creek terrace, lower slope, mid slope, upper slope, and crest. All transects were orientated to a site 'north-south' and placed at regular intervals. At most sites, Phase 1 excavation units were placed along two or three transects and staggered at regular intervals along the transects. The number of Phase 1 squares excavated at each site ranged from 15 at TNR AFT 17 to 58 at TNR AFT 14 (Table 3). The latter site had a larger footprint than the former; hence the higher number of squares. Other factors that affected the number of squares excavated at each location were the extent of construction impact, degree of disturbance, geomorphology, and archaeological potential of the soil matrix. Figures provided in the chapters describing the Phase 2/3 program show the layout of the Phase 1 squares at each site.

Table 3. Phase 1: Sites & corresponding number of excavation units

Site	NW Quad units (0.25 m ²)		S-square extension (0.75m ²)		Total Phase 1 salvage (1 m ²)*	
	Number	Area (m ²)	Number	Area (m ²)	Number	Area (m ²)
TNR AFT 14	58	14.5 m ²	58	43.5 m ²	58	58 m ²
TNR AFT 16	23	5.75 m ²	23	17.25 m ²	23	23 m ²
TNR AFT 17	15	3.75 m ²	15	11.25 m ²	15	15 m ²
TNR AFT 19	25	6.25 m ²	25	18.75 m ²	25	25 m ²
TNR AFT 20	16	4 m ²	16	12 m ²	16	16 m ²
Total	137	34.25 m²	137	102.75 m²	137	137 m²

*Total Phase 1 salvage = NW Quad unit + S-square extension



Plate 9. Phase 1 transect parallel to the Northern Rd.



Plate 10. Removal of NW quad unit.



Plate 11. Completion of excavation of NW quad unit.



Plate 12. Commencing the removal of S-square.



Plate 13. Removal of S-square in progress.



Plate 14. Phase 1 unit at completion of excavation.

6.3 Phase 1: Landforms, Soils and Stratigraphy

The topography of the TNR 6 upgrade corridor is characterised by gentle to moderately inclined slopes, rounded crests, and creek flats at the headwaters of several major creek systems. The minor tributaries that occur along the upgrade corridor drain from the ridgeline and slopes that divide the South Creek Catchment to the east and the Mulgoa Creek Catchment to the west.

At TNR AFT 14 (AFT 14), the upgrade corridor intercepts the headwaters of an unnamed creek which drains north west to Mulgoa Creek, running in a north-westerly direction for approximately ten kilometres to its junction with the Nepean River. AFT 14 was situated on a high point (90-100 m AHD) with a view to the Blue Mountains and a gentle gradient.

TNR AFT 16 (AFT 16) was situated approximately one kilometre south of AFT 14, south of Elizabeth Drive. The topography for this section of the upgrade corridor consists of slopes with gradual to moderate gradient and elevation of approximately 100 m AHD at a crest which overlooks the upper reaches of Cosgroves Creek to the east and Mulgoa Creek to the west.

TNR AFT 17 (AFT 17), TNR AFT 19 (AFT 19) and TNR AFT 20 (AFT 20) were situated between 300 metres and 1.2 kilometres south of AFT 16, adjacent to first and second order streams at the headwaters of Cosgroves Creek, with elevation at 80-90 m AHD. AFT 19 was situated at Cosgroves Creek, 200 metres downstream of AFT 17, near the junction of two first order streams. Site TNR AFT 20 (AFT 20) was situated approximately 500 metres south of AFT 19, on the foot slopes adjacent to a second order stream.

A-unit soils were deepest at sites AFT 17, AFT 19 and AFT 20 where Phase 1 transects intersected alluvial soils associated with Cosgroves Creek. In contrast, shallow A-unit soils were encountered on the slopes and crests of the hills and ridges at sites AFT 14 and AFT 16. All the sites were on landforms that had undergone some level of disturbance, primarily erosion of the A-unit soils caused by vegetation clearance and stock grazing. This was especially evident at the ridgetop sites AFT 14 & AFT 16 and the creek-side site AFT 20. On the crests the topsoil had been heavily degraded by sheet erosion in some areas. Where the A-unit was retained, it consisted of heavily compacted pale reddish-brown silty clay with high clay content. The best examples of intact deposits were at sites AFT 17 and AFT 19, where some squares had A unit depths of 40-50 cm. In these cases, the A-unit consisted of greyish-brown sandy clay loam overlying a pale grey-brown, bleached loam. However, the stratification of the deposit at these sites was not well-defined, with no definitive boundary to the artefact horizons, largely due to bioturbation. The uniform sediment across all sites is proof that biologic processes have been active, with earthworms and ants continuously mixing and displacing the sediment. The time it takes for the upper 30 cm of soils in the Sydney region to be turned-over is estimated to be just 430 years (Humphreys, 1981 *in* Balek 2002). Archaeologically, this manifests as a 'mixed' artefact assemblage. Bioturbation has also caused the downward movement of smaller and lighter artefacts through the profile.

A summary is provided below of the topography and stratigraphy at each site. The individual Phase 1 squares are listed in Table 4, with artefact count, depth of the A-unit and nature of disturbance. The squares that were selected for Phase 2/3 open area salvage are shaded pink in Table 4. This is followed by a series of photographs of representative soil profiles for each site (Figure 9).



Plate 15. View west from AFT 14 showing the shallow soils and gentle gradient of the ridge crest.

TNR AFT 14

Landform & Soil Landscape: Situated on upper slope & crest of a ridgeline separating Blaxland Creek and Mulgoa Creek within Blacktown/Luddenham Soil Landscapes.

Unit 1: 0-2cm undulating surface with loose brown topsoil and grass roots and some gravel. 2cm-base pale yellowish brown silty clay with high percentage Fe/Mn nodules (less than 3-10 cm). Moderately compacted, frequent inclusions of charcoal nodules.

Basal unit: Compacted yellowish brown clay with high percentage Fe/Mn nodules (less than 6-20 cm).

Disturbance: Shallow to very shallow deposit across the slope and crest. Heavily eroded residual soil with bioturbation. Relatively shallow soil profiles compared to AFT 19.

TNR AFT 16

Landform & Soil Landscape: Situated on a ridge crest overlooking an east flowing tributary of Cosgroves Creek approximately 210 metres to the north-east and within Blacktown/Luddenham Soil Landscapes.

Unit 1: 0-2cm undulating surface with loose brown topsoil and grass roots and some gravel.

Unit 2: 2cm-base (6-24cm) pale yellowish brown silty clay with high percentage Fe/Mn nodules (less than 3-10 cm). Moderately compacted, frequent inclusions of charcoal nodules.

Basal unit: Red brown compact clay with fine Fe/Mn nodules. Munsell: 5YR 5/4 reddish brown).

Disturbance: All bioturbated with homogenous mixed soil profiles at most squares. Relatively shallow soil profiles compared to AFT 19.

TNR AFT 17

Landform & Soil Landscape: Lower (toe) slope adjacent to tributary of Cosgroves Ck within Blacktown/South Creek Soil Landscapes.

Unit 1: 0-25cm pale brown silty loam with low compaction. Munsell: 7.5YR 4/2 brown - 7.5YR 6/2 brown.

Unit 2: 25-50 cm pale grey-brown, silty loam with abundant Fe/Mn nodules (less than 3 mm) with moderate compaction and increasing clay content near the transition to the basal clay. Munsell 7.5YR 6/2 pinkish-grey.

Basal unit: Yellowish-brown light clay. Munsell: 10YR 5/8 yellowish-brown – 10YR 7/8 yellowish-brown.

Disturbance: Mainly homogenous soils with bioturbation throughout. Some signs that the top 10 cm is recent or disturbed with redeposited clay and historical items found to this depth. Largely intact soil profile at S40 (OA5) with unit 1 and unit 2 discernible.

TNR AFT 19

Landform & Soil Landscape: Situated on an elevated terrace adjacent to the northern bank of Cosgroves Creek and the junction of several tributaries within Blacktown Soil Landscape.

Unit 1: 0-5cm brown/grey humic layer with extensive grass root system

5-20cm pale brown bleached silty loam with clay, ironstone and charcoal inclusions. Diffuse boundary to Unit 2

Unit 2: 20cm – base (35-47cm) orange-brown silty clay. Increasing clay to base

Basal unit: Compacted orange-brown clay.

Disturbance: Relatively deep soil profile across the creek flat and terrace, compared to AFT 14, AFT 16 and AFT 20.

TNR AFT 20

Landform & Soil Landscape: Situated on a lower slope adjacent to an east flowing tributary of Cosgroves Creek within Blacktown Soil Landscape.

Unit 1: 0-9cm orange-brown silty loam, infrequent iron manganese nodules and grass roots. Defined boundary to; 9-20cm orange-brown silty loam with increasing yellow/orange clay content. High concentration of iron manganese nodules between 14-19cm

Unit 2: 20-24cm mottled orange brown and pale yellow silty clay with regular FeMg nodules and diffuse boundary to base.

Basal unit: Compacted orange-brown clay to red clay.

Disturbance: Relatively homogenous deposit across the slope with bioturbation.

Table 4. TNR 6 Phase 1 soil profiles. S-squares selected for Phase 2/3 expansion are shaded pink. *Backed artefact/s recovered

Site	S-Square	Easting	Northing	NW quad unit artefact count	S-Square extension artefact count	Total artefact count (1 m ²)	Min/max end depths
TNR AFT 14	S1	850	320	0	0	0	10-14 cm
TNR AFT 14	S2	850	335	0	0	0	7-13 cm
TNR AFT 14	S3	850	350	0	0	0	15 cm
TNR AFT 14	S4	849	365	0	0	0	12-20 cm
TNR AFT 14	S5	850	380	0	1	1	11-23 cm
TNR AFT 14	S6	850	395	0	1	1	13-18 cm
TNR AFT 14	S7	835	300	0	1	1	13-30 cm
TNR AFT 14	S8	835	330	0	0	0	11-15 cm
TNR AFT 14	S9	835	345	0	0	0	14-22 cm
TNR AFT 14	S10	835	360	0	0	0	15-18 cm
TNR AFT 14	S11	835	375	0	0	0	18-20 cm
TNR AFT 14	S12	835	390	0	0	0	14-16 cm
TNR AFT 14	S13	835	405	0	0	0	13-23 cm
TNR AFT 14	S14	865	310	0	0	0	14-18 cm
TNR AFT 14	S15	865	325	0	0	0	9-16 cm
TNR AFT 14	S16	865	340	0	0	0	13-16 cm
TNR AFT 14	S17	865	355	0	0	0	10-15 cm
TNR AFT 14	S18	865	370	0	2	2	18-25 cm
TNR AFT 14	S19	865	385	0	0	0	18-20 cm
TNR AFT 14	S20	880	302	0	0	0	5-9 cm
TNR AFT 14	S21	880	315	0	0	0	13-18 cm
TNR AFT 14	S22	880	330	0	0	0	14-18 cm

Site	S-Square	Easting	Northing	NW quad unit artefact count	S-Square extension artefact count	Total artefact count (1 m ²)	Min/max end depths
TNR AFT 14	S23	880	344	0	0	0	10-17 cm
TNR AFT 14	S24	880	360	0	0	0	14-18 cm
TNR AFT 14	S25	880	375	0	0	0	13-18 cm
TNR AFT 14	S26	895	305	0	0	0	10-11 cm
TNR AFT 14	S27	895	320	0	0	0	8-11 cm
TNR AFT 14	S28	895	335	0	0	0	15-19 cm
TNR AFT 14	S29	895	350	1	0	1	15-18 cm
TNR AFT 14	S30	909	340	0	0	0	14-17 cm
TNR AFT 14	S80	745	415	0	0	0	9-21 cm
TNR AFT 14	S81	745	430	0	0	0	15-20 cm
TNR AFT 14	S82	745	444	0	0	0	10-23 cm
TNR AFT 14	S83	745	460	1	0	1	17-21 cm
TNR AFT 14	S84	745	475	0	0	0	17-20 cm
TNR AFT 14	S85	745	490	0	0	0	21-28 cm
TNR AFT 14	S86	745	505	0	3	3	20-24 cm
TNR AFT 14	S87	745	520	0	0	0	3-22 cm
TNR AFT 14	S88	745	535	0	1	1	13-16 cm
TNR AFT 14	S89	745	550	0	0	0	15-20 cm
TNR AFT 14	S90	760	405	0	0	0	13-20 cm
TNR AFT 14	S91	760	420	0	0	0	15-20 cm
TNR AFT 14	S92	760	435	0	1	1	16-21 cm
TNR AFT 14	S93	760	450	0	1	1	8-15 cm
TNR AFT 14	S94	760	465	0	0	0	10-19 cm
TNR AFT 14	S95	760	480	0	2	2	17-21 cm
TNR AFT 14	S96	760	495	0	0	0	13-20 cm
TNR AFT 14	S97	760	510	0	0	0	10-18 cm
TNR AFT 14	S98	760	525	0	0	0	9-12 cm
TNR AFT 14	S99	760	540	0	0	0	10-20 cm
TNR AFT 14	S100	650	480	0	0	0	17-20 cm
TNR AFT 14	S101	650	495	0	0	0	16-23 cm
TNR AFT 14	S102	650	510	0	0	0	22-29 cm
TNR AFT 14	S103	650	525	0	1	1	17-20 cm
TNR AFT 14	S104	650	540	0	2	2	22-26 cm
TNR AFT 14	S105	650	555	2	0	2	24-26 cm
TNR AFT 14	S106	650	585	0	0	0	24-28 cm
TNR AFT 14	S107	650	600	0	0	0	10-20
TNR AFT 16	S17	015	140	0	0	0	20-26 cm
TNR AFT 16	S18	015	155	0	0	0	13-20 cm
TNR AFT 16	S19	015	170	0	0	0	22-27 cm
TNR AFT 16	S20	015	185	0	0	0	12-16 cm
TNR AFT 16	S21	015	200	0	0	0	7-16 cm
TNR AFT 16	S22	000	150	1	0	1	13-18 cm
TNR AFT 16	S23	985	205	0	0	0	6-13 cm
TNR AFT 16	S24	000	195	0	0	0	12-13 cm
TNR AFT 16	S25	030	175	0	0	0	19-25 cm
TNR AFT 16	S26	030	235	0	0	0	10-18 cm
TNR AFT 16	S27	030	250	1	0	1	17-20 cm
TNR AFT 16	S28	015	230	0	1	1	19-24 cm
TNR AFT 16	S29	015	260	0	0	0	7-10 cm
TNR AFT 16	S30	000	240	0	0	0	17-20 cm
TNR AFT 16	S31	975	250	0	0	0	17-20 cm
TNR AFT 16	S32	000	270	0	0	0	9-13 cm
TNR AFT 16	S33	985	236	1	1	2	16-24 cm
TNR AFT 16	S34	985	250	0	0	0	14-20 cm
TNR AFT 16	S35	985	220	0	0	0	17-19 cm
TNR AFT 16	S36	000	230	0	3	3	22-26 cm
TNR AFT 16	S37	014	245	0	0	0	18-24 cm
TNR AFT 16	S38	030	145	0	0	0	14-16 cm

Site	S-Square	Easting	Northing	NW quad unit artefact count	S-Square extension artefact count	Total artefact count (1 m ²)	Min/max end depths
TNR AFT 16	S39	060	215	0	0	0	6-14 cm
TNR AFT 17	S40	140	815	0	14	14	34-44 cm
TNR AFT 17	S41	140	800	1	3	4	45-57 cm
TNR AFT 17	S42	140	785	0	0	0	49-54 cm
TNR AFT 17	S43	140	770	0	3	3	42-50 cm
TNR AFT 17	S44	155	810	0	0	0	32-37 cm
TNR AFT 17	S45	155	795	1	2	3	27-32 cm
TNR AFT 17	S46	155	780	0	0	0	31-38 cm
TNR AFT 17	S47	140	845	0	2	2	26-30 cm
TNR AFT 17	S48	155	815	0	0	0	34-36 cm
TNR AFT 17	S49	147	815	0	2	2	24-29 cm
TNR AFT 17	S50	140	808	3	8	11	44-52 cm
TNR AFT 17	S51	147	808	1	3	4	27-29 cm
TNR AFT 17	S52	147	800	4	2	6	23-28 cm
TNR AFT 17	S53	140	852	0	1	1	20-30 cm
TNR AFT 17	S54	135	755	0	0	0	31-35 cm
TNR AFT 19	S55	250	515	1	5	6	55-62 cm
TNR AFT 19	S56	305	530	1	0	1	26-32 cm
TNR AFT 19	S57	270	515	1	3	4	47-50 cm
TNR AFT 19	S58	280	515	1	7	8	34-40 cm
TNR AFT 19	S59	290	515	1	1	2	24-33 cm
TNR AFT 19	S60	300	515	0	3	3	39-44 cm
TNR AFT 19	S61	310	515	0	1	1	22-28 cm
TNR AFT 19	S62	340	515	1	4	5	29-34 cm
TNR AFT 19	S63	350	515	3	4	7	36-40 cm
TNR AFT 19	S64	360	515	0	4	4	26-34 cm
TNR AFT 19	S65	370	515	0	1	1	30-33 cm
TNR AFT 19	S66	365	530	15	61	76*	45-47 cm
TNR AFT 19	S67	355	530	2	0	2	32-34 cm
TNR AFT 19	S68	345	530	3	9	12	40-42 cm
TNR AFT 19	S69	335	530	0	5	5	22-23 cm
TNR AFT 19	S70	295	530	0	1	1	27-31 cm
TNR AFT 19	S71	297.5	522.5	1	3	4	28-34 cm
TNR AFT 19	S72	362.5	537.5	1	7	8	23-27 cm
TNR AFT 19	S73	352.5	537.5	1	0	1*	17-20 cm
TNR AFT 19	S74	342.5	537.5	1	0	1	25-26 cm
TNR AFT 19	S75	357.5	522.5	10	8	18	45-55 cm
TNR AFT 19	S76	347.5	522.5	1	3	4	33-37 cm
TNR AFT 19	S77	227.5	522.5	0	1	1	20-23 cm
TNR AFT 19	S78	285	530	0	4	4	30-38 cm
TNR AFT 19	S79	367.5	522.5	1	0	1	35-47 cm
TNR AFT 20	S1	255	923	0	0	0	28-33 cm
TNR AFT 20	S2	255	908	0	0	0	15-20 cm
TNR AFT 20	S3	270	918	0	0	0	19-20 cm
TNR AFT 20	S4	270	903	0	0	0	10-15 cm
TNR AFT 20	S5	240	913	0	0	0	24-28 cm
TNR AFT 20	S6	240	898	1	0	1	16-21 cm
TNR AFT 20	S7	285	913	0	0	0	16-21 cm
TNR AFT 20	S8	300	909	1	0	1	15-18 cm
TNR AFT 20	S9	240	923	0	2	2	28-30 cm
TNR AFT 20	S10	225	918	0	0	0	24-30 cm
TNR AFT 20	S11	225	903	0	0	0	39-44 cm
TNR AFT 20	S12	225	888	1	0	1	23-25 cm
TNR AFT 20	S13	210	873	0	1	1	30-33 cm
TNR AFT 20	S14	315	915	0	0	0	21-24 cm
TNR AFT 20	S15	255	893	0	0	0	9-12 cm
TNR AFT 20	S16	285	923	1	0	1	18-24 cm
Total 137 Phase 1 units				66 artefacts	199 artefacts	265 artefacts	-



Figure 9. Phase 1 representative soil profiles

6.4 Phase 1: Artefact Counts & Mean Densities

The Phase 1 salvage yielded a total of 265 artefacts. This total includes 66 artefacts from the quad units and 199 from the extension squares (Table 5). Most artefacts (86.8%) were recovered from two sites near tributaries of Cosgroves Creek (AFT 17 and AFT 19), with a combined total of 230 artefacts and mean density of between 3.3/m² and 7.2/m². In contrast, the ridgetop sites (AFT 14 and AFT 16) had a combined total of 28 artefacts and mean density of 0.3/m².

Table 5. Phase 1: Artefact counts and density per site

Environment	Site	No. 1 m ² units	Mean artefact density ¹	Artefact total		
				NW Quad	S-square ext.	Total
Ridgetop	AFT 14	58	0.3/m ²	4	16	20
	AFT 16	23	0.3/m ²	3	5	8
	Total	81	0.3/m²	7	21	28 (10.6%)
Cosgroves Creek	AFT 17	15	3.3/m ²	10	40	50
	AFT 19	25	7.2/m ²	45	135	180
	AFT 20	16	0.4/m ²	4	3	7
	Total	56	4.2/m²	59	178	237 (89.4%)
Phase 1 Total		137	1.9/m²	66	199	265

1. Mean density calculated for the 1m² Phase 1 unit.

The highest yielding quad unit was at AFT 19 (TU66) with 15 artefacts. The corresponding S-extension square yielded a further 61 artefacts, making a total of 76 artefacts for the 1 m². Site AFT 19 also produced the second highest yielding quad unit (TU75) with 10 artefacts. The remainder of the positive yielding quad units had fewer than four artefacts each (n=30 quad units). Four Phase 1 squares (1 m²) yielded between 11 and 18 artefacts each. These were at sites AFT 17 and AFT 19; however, these totals were not common. By far, the largest proportion of artefact bearing Phase 1 squares (1 m²) had fewer than ten artefacts each (n=55 squares) (Table 6).

'Zero' sample units were encountered at all sites, with 76.7% of quad units and 66.4% of extension S-squares producing negative results (Table 6). Most (71.4%) of the zero quads were at ridgetop sites AFT 14 and AFT 16. Zero squares were also encountered at Cosgroves Creek, albeit less frequently than the ridgetop sites. At the creek-side sites, 32.1% of 1 m² units and 53.6% of quad units produced negative results. While, at the ridgetop sites, 92.6% of quad squares and 76.5% of 1 m² produced negative results. The highest proportion (78.3%) of zero squares (1 m²) was at ridgetop site AFT 16. The artefact totals for all the ridgetop sites were low (Table 5). This is due to a combination of factors, including shallow soils; heavy sheet erosion; poor survival of artefact bearing deposits; and location within an 'intermediate' resource zone where drinking water was limited.

Table 6. Phase 1: Number of zero squares compared to artefact yielding squares.

Enviro.	Site	Unit	Zero squares		<10 artefacts		10-50 artefacts		50+ artefacts	
			Count	%	Count	%	Count	%	Count	%
Ridgetop	AFT 14 (58 units)	NW Quad	55	94.8	3	5.2	0	-	0	-
		S-square ext.	47	81.0	11	19.0	0	-	0	-
		1 m ² units	44	75.9	14	24.1	0	-	0	-
	AFT 16 (23 units)	NW Quad	20	87.0	3	13.0	0	-	0	-
		S-square ext.	20	87.0	3	13.0	0	-	0	-
		1 m ² units	18	78.3	5	21.7	0	-	0	-
All ridge-top sites (81 units)	NW Quad	75	92.6	6	7.4	0	-	0	-	
	S-square ext.	67	82.7	14	17.3	0	-	0	-	
	1 m ² units	62	76.5	19	23.5	0	-	0	-	
Creek-side	AFT 17 (15 units)	NW Quad	10	66.7	5	33.3	0	-	0	-
		S-square ext.	5	33.3	9	60.0	1	6.7	0	-
		1 m ² units	5	33.3	8	53.3	2	13.3	0	-
	AFT 19 (25 units)	NW Quad	8	32.0	15	60.0	2	8.0	0	-
		S-square ext.	5	20.0	19	76.0	0	-	1	4.0
		1 m ² units	3	12.0	19	76.0	2	8.0	1	4.0
	AFT 20 (16 units)	NW Quad	12	75.0	4	25.0	0	-	0	-
		S-square ext.	14	87.5	2	12.5	0	-	0	-
		1 m ² units	10	62.5	6	37.5	0	-	0	-
All creek-side sites (56 units)	NW Quad	30	53.6	24	42.9	2	3.6	0	-	
	S-square ext.	24	42.9	30	53.6	1	1.8	1	1.8	
	1 m ² units	18	32.1	33	59.0	4	7.1	1	1.8	
ALL SITES TOTAL (137 units)	NW quads	105	76.7	30	21.9	2	1.5	0	-	
	S-square ext.	91	66.4	44	32.1	1	0.7	1	0.7	
	1 m ² units	80	58.4	52	38.0	4	2.9	1	0.7	

Table 7. Phase 1: Number of sample units (1 m²) x depth of A-unit soil.

Landscape	Depth of A-unit soil	Zero artefacts		1-10 artefacts		10+ artefacts	
		Count	%	Count	%	Count	%
Ridge-top sites (81 units)	< 10 cm	2	2.5	0	-	0	-
	10-14 cm	10	12.3	0	-	0	-
	15-19 cm	23	28.4	4	5.0	0	-
	20-25 cm	22	27.1	11	13.6	0	-
	25+ cm	6	7.4	3	3.7	0	-
	Sub-Total	63	77.8	18	22.2	0	-
Creek-side sites (56 units)	< 10 cm	0	-	0	-	0	-
	10-14 cm	2	3.6	0	-	0	-
	15-19 cm	2	3.6	1	1.8	0	-
	20-25 cm	2	3.6	6	10.7	0	-
	25+ cm	9	16.1	29	51.8	5	8.9
	Sub-Total	15	26.8	36	64.3	5	8.9
All sites	77	56.2	55	40.1	5	3.6	

6.5 Phase 1: Comparing Quad Units & Extension Squares

By comparing the artefact counts at quad units with corresponding S-extension squares we can examine the efficacy of these sampling strategies. In creek-side contexts, the results indicate that there is variation between the number of artefacts at the quad units compared to the extension squares. The disparity between the differently sized sample units is most apparent where relatively intact 'pockets' of archaeological deposit are preserved in disturbed alluvial contexts. For example, quad unit TU40, situated on the creek-flat at AFT 17, produced zero artefacts, with the corresponding extension square yielding 14 artefacts. Another seven squares had a medium or poor correlation between artefact totals, representing 14.3% of the creek-side sample units (Table 8).

At ridgetops, there is more uniformity in the artefact totals for the different sampling units. In this case, negative results for quad units excavated on the upper slopes and crests correlated with negative or exceptionally low artefact numbers at the corresponding extension squares (Table 8). Undoubtedly, heavy erosion of the ridgetop soils has contributed to this result. Erosion has dispersed artefact bearing deposits, with 43.4% 'zero' squares (1m²) having A-unit soils that were less than 20 cm depth (Table 7).

More than half of all creek-side quad units yielded zero totals (n=30, 60.7%), with 42.9% (n=14) of corresponding extension squares producing zero artefacts (Table 6). In contrast, 92.6% of ridgetop quad units had zero totals, with 82.7% of the corresponding extension squares yielding zero artefacts. This translates to a higher mean artefact density for the creek-side sites (4.2/m²) compared to the ridgetop sites (0.3/m²) (Table 5). Negative results at the quad units excavated on the upper slopes and crests correlated with negative or exceptionally low artefact numbers at the corresponding extension squares. This correlation was less obvious at creek-side sites which exhibited more variation between the different sampling units.

The highest artefact yielding 1 m² Phase 1 unit was at AFT 19 (S66) with 76 artefacts. Site AFT 19 also produced the second highest yielding 1 m² square (S75) with 18 artefacts. The quad unit for this square yielded ten artefacts and shows that, in some cases, there is a reasonable correlation between the number of artefacts in quad squares compared to the corresponding extension square. However, zero totals at quad squares placed in alluvial contexts, does not automatically equate to zero or low artefact totals at corresponding extension squares. For instance, a total of 13 'zero' quad units had corresponding extension squares that produced positive results (Table 8). In most cases the difference between the zero quad unit and extension square was fewer than five artefacts, while at S40 the difference was 14 artefacts. The correlation between quad units and extension squares is illustrated in Figure 10.

Table 8. Phase 1: Artefact totals at quad units & corresponding extension squares.

Site	Strong correlation*		Medium correlation*		Poor correlation*		No correlation*	
	Count	%	Count	%	Count	%	Count	%
AFT 14	58	100	0	-	0	-	0	-
AFT 16	23	100	0	-	0	-	0	-
Sub-Total	81	100	0	-	0	-	0	-
AFT 17	13	86.7	1	6.7	1	6.7	0	-
AFT 19	19	76.0	6	24.0	0	-	0	-
AFT 20	16	100	0	-	0	-	0	-
Sub-Total	48	85.7	7	12.5	1	1.8	0	-
All sites	129	94.2	7	5.1	1	0.7	0	-

*Strong correlation is when the difference between the quad unit and extension square is less than five artefacts. A medium correlation is when the difference is five to nine artefacts. A poor correlation is when the difference is 10 to 19 artefacts. No correlation is when the difference between quad unit and extension square is 20 artefacts or more.

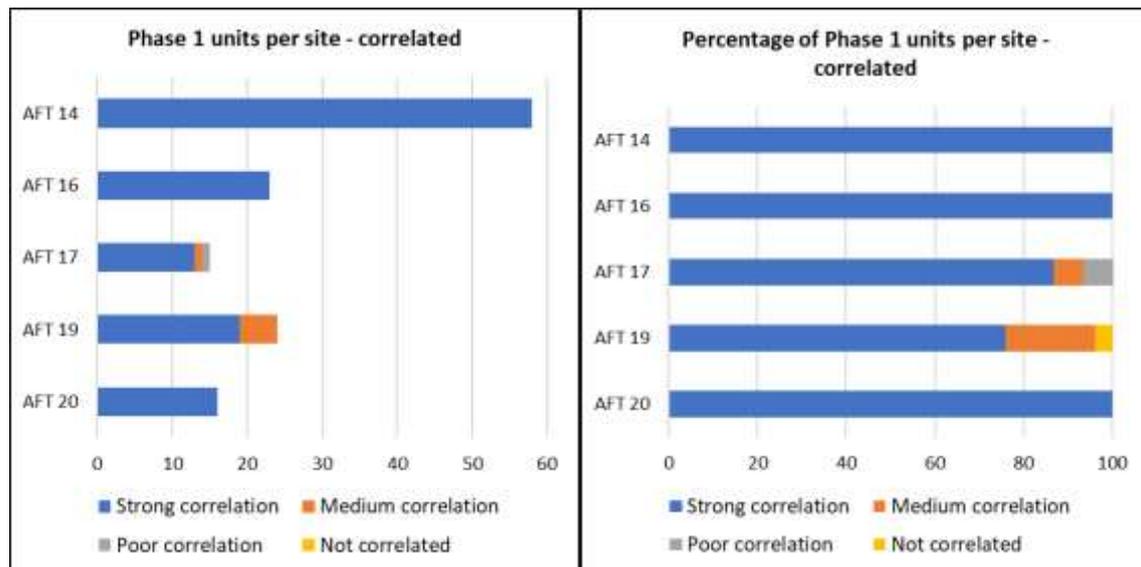


Figure 10. Phase 1 Artefact counts at quad units correlated with corresponding extension squares.

6.6 Phase 1: Lithic Materials

Silcrete was the most common lithic material in the Phase 1 assemblage (70.9%), followed by tuff (14.7%). The total weight of the Phase 1 assemblage was 366.5 g (Table 11). The mean weight of silcrete artefacts was 1.3 g, which was slightly less than the average weight of Tuff artefacts (1.5 g). Most quartz artefacts (n=24) were small; however, the average weight was relatively high (1.7 g), mainly due to the presence of a quartz core (16.29 g). Artefacts of 'other' materials were very limited in number (n=2), with the average weight being 0.3 g.

Site AFT 19 had the highest proportion of silcrete in the 1 m² units (75%) followed by AFT 17 (70%) and AFT 14 (60%). The creek-side assemblages combined had more silcrete (73%) compared to the ridgetop sites (53.6%) (Table 9). More than half of all Phase 1 sampling units at the creek-side sites yielded silcrete artefacts compared to just 12.3% of the ridgetop sites (Table 10). Sites AFT 16 and AFT 20 had low mean artefact densities, with silcrete less than 50%.

Overall, more quad units yielded tuff and/or chert (n=16 quads) compared to silcrete (n=13 quads). This was most apparent at sites AFT 17 and AFT 19, where 8 quads yielded silcrete, compared to 14 quads that yielded tuff and/or chert (Table 10). These results are consistent with assemblages from across the Cumberland Plain where tuff and chert manifest as low density background scatters. Knapping floors of tuff and chert have fewer artefacts compared to silcrete. The spatial distribution of silcrete, tends to manifest as more tightly clustered knapping floors, often overlapping one another. At ridgetops, clusters of all materials occur less frequently and are separated by large zones of barren deposit, which means they are unlikely to be intersected by excavation programs that employ widely spaced sample units.

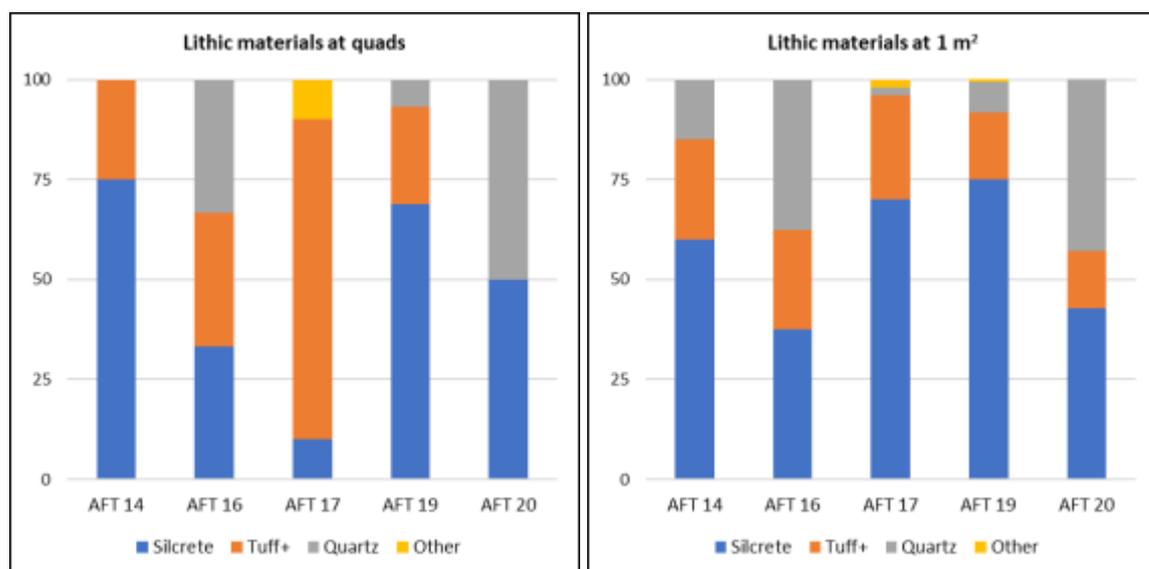


Figure 11. Phase 1 Percentage of lithic materials at quad units and extension squares (1 m²).

The same trend is apparent for quartz, with the quad units yielding far fewer artefacts of this material compared to the extension units (all sites combined). Lesser quantities of quartz artefacts were recovered (9.1%) in comparison to silcrete and tuff. In all, a small minority of quad units yielded quartz artefacts (n=6 quad units, 9.1%). Quartz was more commonly encountered in the extension squares, with most at AFT 19 (13 squares, 23.2%) compared to the ridgetops (4 squares, 4.9%). The current study illustrates that the small size of quad units seldom intersects with quartz activity areas, especially in those landscapes at a greater distance from streamlines.

One of the least frequent materials (<1%) was quartzite. There was a near absence of artefacts of 'other' lithic materials in the Phase 1 assemblage, with one quartzite artefact at AFT 17 and one at AFT 19. This is not an unexpected result, as Cumberland Plain open sites nearly always have exceptionally low frequencies of these materials.

Table 9. Phase 1: Total number of lithic materials per site.

Site	Unit	Silcrete		Tuff, CH, SW		Quartz		Other		Total	
		Count	%	Count	%	Count	%	Count	%	Count	%
AFT 14 0.3/m ²	NW Quad	3	75.0	1	25.0	0	-	0	-	4	20.0
	S-square ext.	9	56.3	4	25.0	3	18.8	0	-	16	80.0
	Total	12	60.0	5	25.0	3	15.0	0	-	20	100.00
AFT 16 0.3/m ²	NW Quad	1	33.3	1	33.3	1	33.3	0	-	3	37.5
	S-square ext.	2	40.0	1	20.0	2	40.0	0	-	5	62.5
	Total	3	37.5	2	25.0	3	37.5	0	-	8	100.0
All ridge-top sites (1 m²)		15	53.6	7	25.0	6	21.4	0	-	28	10.6
AFT 17 3.3/m ²	NW Quad	1	10.0	8	80.0	0	-	1	10.0	10	20.0
	S-square ext.	34	85.0	5	12.5	1	2.5	0	-	40	80.0
	Total	35	70.0	13	26.0	1	2.0	1	2.0	50	100.0
AFT 19 7.2/m ²	NW Quad	31	68.9	11	24.4	3	6.7	0	-	45	25.0
	S-square ext.	104	77.0	19	14.1	11	8.1	1	0.7	135	75.0
	Total	135	75.0	30	16.7	14	7.8	1	0.6	180	100.0
AFT 20 0.4/m ²	NW Quad	2	50.0	0	-	2	50.0	0	-	4	57.1
	S-square ext.	1	33.3	1	33.3	1	33.3	0	-	3	42.9
	Total	3	42.9	1	14.3	3	42.9	0	-	7	100.0
All creek-side sites (1m²)		173	73.0	44	18.6	18	7.6	2	0.8	237	89.4
All NW quads		38	57.6	21	31.8	6	9.1	1	1.5	66	24.9
All S-square ext.		150	75.4	30	15.1	18	9.0	1	0.5	199	75.1
All 1 m² units		188	70.9	51	19.2	24	9.1	2	0.8	265	100.0

Table 10. Phase 1: Total number of sampling units containing different lithic materials per site.

Site	Unit	Silcrete +ve		Tuff, CH, SW +ve		Quartz +ve		Other +ve		Total +ve	
		Count	%	Count	%	Count	%	Count	%	Count	%
AFT 14 58 units	NW Quad	2	3.4	1	1.7	0	-	0	-	3	5.2
	S-square ext.	5	8.6	4	6.9	2	3.4	0	-	11	19.0
	1 m ² units	7	12.1	5	8.6	2	3.4	0	-	14	24.1
AFT 16 23 units	NW Quad	1	4.3	1	4.3	1	4.3	0	-	3	13.0
	S-square ext.	2	8.7	1	4.3	1	4.3	0	-	3	13.0
	1 m ² units	3	13.0	2	8.7	2	8.7	0	-	5	21.7
All ridge-top sites (1 m²) 81 units		10	12.3	7	8.6	4	4.9	0	-	19	23.5
AFT 17 15 units	NW Quad	1	6.7	3	14.3	0	-	1	6.7	5	33.3
	S-square ext.	9	60.0	3	20.0	1	6.7	0	-	9	86.7
	1 m ² units	10	66.7	3	20.0	1	6.7	1	6.7	10	100.0
AFT 19 25 units	NW Quad	7	28.0	11	44.0	3	12.0	0	-	17	84.0
	S-square ext.	17	68.0	14	56.0	9	36.0	1	4.0	20	
	1 m ² units	19	76.0	16	64.0	9	36.0	1	4.0	25	
AFT 20 16 units	NW Quad	2	12.5	0	-	2	12.5	0	-	4	25.0
	S-square ext.	1	6.3	1	6.3	1	6.3	0	-	2	18.8
	1 m ² units	3	18.8	1	6.3	3	18.8	0	-	6	43.7
All creek-side sites (1m²) 56 units		32	57.1	21	37.5	13	23.2	2	3.6	41	73.2
All NW quads		13	8.2	16	11.7	6	4.4	1	0.7	32	23.4
All S-square ext.		34	24.8	22	16.1	14	10.2	1	0.7	45	32.8
All 1 m² units		42	30.7	29	21.2	17	12.4	2	1.5	60	43.8

6.7 Phase 1: Lithic Typology

Most of the Phase 1 artefacts (97%) are debitage, comprising flakes (16.2%), flake fragments (60.8%) and angular fragments (20%) (Table 11). A total of 8 cores were recovered, multidirectional (n=2), Bifacial (n=2), Bipolar (n=2), Unifacial (n=1) and a core tool (n=1). Most of the cores are silcrete (n=7), with one of quartz (n=1). None of the cores were from the quad units. Other than cores, the Phase 1 quad assemblage comprised similar proportions of artefact types compared to the extension squares, dominated by flake fragment and angular fragment.

Table 11. Phase 1: Artefact types by sample unit

All artefacts	Core		Flake		Prox. fgt		Flake fgt		Angular fgt		Total		Weight
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Total (g)
NW quads	0	-	11	16.7	9	13.6	34	51.5	12	18.2	66	24.9	104.4 g
S-square ext.	8	4.0	32	16.1	18	9.0	100	50.3	41	20.6	199	75.1	262.1 g
1 m ² units	8	3.0	43	16.2	27	10.2	134	50.6	53	20.0	265	100	366.5 g

Table 12. Phase 1 artefact weight

Weight	Silcrete		Tuff, Chert, SW		Quartz		Other		Total	
	Total	Mean	Total	Mean	Total	Mean	Total	Mean	Total	Mean
All	253.18 g	1.3 g	75.32 g	1.5 g	40.83 g	1.7 g	0.6 g	0.3 g	366.5 g	1.4 g
Flakes	25.02 g	0.8 g	6.70 g	1.0 g	3.61 g	0.9 g	0	0	35.51 g	0.8 g

The Phase 1 assemblage comprised 43 complete flakes, with most made of silcrete (74.4%). The most common flake platform was plain (58.6%), with two-thirds of the flakes of silcrete (67.3%) having this platform type (Table 13). Cortical platforms were more common for quartz (50%) compared to silcrete (4%). Conversely, faceted, focal, and ridged platforms were more common for silcrete, tuff and chert than for quartz.

Table 13. Phase 1: Platform types (complete flake and proximal fragments)

Material	Plain	Cortical	Focal	Faceted	Ridged	Total
Silcrete	33	2	2	3	9	49 (70%)
Tuff	2	2	1	0	3	8 (11.4%)
Chert	1	1	0	0	1	3 (4.3%)
Quartz	4	4	0	0	0	8 (11.4%)
Quartzite	1	1	0	0	0	2 (2.9%)
Total	41 (58.6%)	10 (14.3%)	3 (4.3%)	3 (4.3%)	13 (18.6%)	70 (100%)

Artefacts with retouch (including backing retouch) made up 3.4% (n=9) of the assemblage, with more than half (n=5) made of silcrete (Table 15). Most of the retouched and backed artefacts were recovered from the extension units, with just two specimens from the quad units. Most of these artefacts were from AFT 19, including a single silcrete core tool (S75) and two silcrete backed artefacts (S66) and (S72). Both backed artefacts were broken specimens.

Table 14. Phase 1: All cores

Sample Unit	Site	Square ID	Artefact ID	Material	Core type	Length	Weight
S-Extension square	AFT 17	S47	#275	Silcrete	Multidirectional	40.7 mm	27.45 g
		S49	#277	Silcrete	Multidirectional	44.4 mm	32.12 g
		S50	#280	Silcrete	Bifacial	37.9 mm	17.65 g
	AFT 19	S58	#951	Silcrete	Bipolar	14.5 mm	2.02 g
		S62	#964	Silcrete	Unifacial	42.2 mm	13.92 g
		S68	#1060	Silcrete	Bifacial	27 mm	5.46 g
		S75	#1092	Silcrete	Core tool	23.1 mm	7.51 g
		S65	#980	Quartz	Bipolar	38.99 mm	16.29 g

Table 15. Phase 1: All retouched & backed

Sample Unit	Site	Square ID	Artefact ID	Material	Tool type	Reduction type	Length	Weight
Quad	AFT 14	S5	#2747	Chert	Retouched	Angular fgt	12.6 mm	0.18 g
	AFT 19	S79	#1118	Tuff	Retouched	Proximal fgt	42.5 mm	6.51 g
Extension square	AFT 14	S92	#6	Silcrete	Retouched	Medial fgt	17.1 mm	0.7 g
		S83	#11	Tuff	Retouched	Distal fgt	12.2 mm	1.18 g
Extension square	AFT 19	S69	#1071	Tuff	Retouched	Distal fgt	36.3 mm	7.38 g
		S72	#1086	Silcrete	Retouched	Distal fgt	9.8 mm	0.35 g
		S75	#1092	Silcrete	Core tool	Core	23.1 mm	7.51 g
		S66	#1009	Silcrete	Backed – broken	Distal fgt	7.9 mm	0.1 g
		S72	#1085	Silcrete	Backed – broken	Distal fgt	9.1 mm	0.16 g

6.8 Phase 1 Units & Corresponding Phase 2/3 Open Areas

Phase 2/3 excavation was conducted at all sites, with a focus on the higher artefact yielding deposits at Cosgroves Creek where a total of four Phase 1 sample units were extended to form open areas that amounted to 145 m². Twice the number of Phase 1 units were extended at the ridgetop sites. These included six Phase 2/3 open areas at AFT 14 and two at AFT 16. The Phase 2/3 excavation at the ridgetop sites amounted to 97 m², which was two-thirds the size of Phase 2/3 excavation at the creek-side sites.

The highest yielding S-square unit in the program (S66) was selected for extension. However, a high artefact count was not the only criteria that triggered Phase 2/3 excavation. For instance, ten of the Phase 1 units selected for Phase 2/3 extension had less than 10 artefacts each. In these cases, other criteria came into effect, such as the integrity of the soil horizon and/or presence of artefacts exhibiting a range of diagnostic characteristics.

By comparing the artefact count at Phase 1 quads with corresponding Phase 2/3 open areas we can examine the accuracy of the former sampling strategy. In all except one case (AFT 17, S40), it appears that the quad totals are a good indicator of archaeological potential of the surrounding deposit. This was shown to be the case for the highest yielding Phase 1 quad unit (S66), located at AFT 19. The S66 quad unit yielded 15 artefacts. The corresponding Phase 1 extension square to S66 yielded a further 61 artefacts, including one silcrete backed artefact. Open Area 6 (OA6) was extended around S66, with the Phase 2/3 squares yielding a high number of artefacts (OA6 n=1,159). The mean density at OA6 was 24.2/m² (including S66).

For one archaeological deposit, there is a poor correlation between the number of artefacts at the quad square compared to the corresponding open area. This was at Open Area 5 (OA5), at AFT 17, which was extended around S40. The Phase 1 quad unit at OA5, yielded zero artefacts, while the extension square yielded 14 artefacts. The Phase 2/3 extension of S40 resulted in the recovery of 1,082 artefacts, which was the second highest number of artefacts for the entire Phase 2/3 program. The mean density of artefacts at OA5 was 15.4/m² (including S40), only two-thirds the mean density at OA6 which was located 200 metres downstream of OA5.

S40 at OA5 is an example of a low yielding quad (zero artefacts) corresponding to medium yielding Phase 2/3 squares. The explanation for the disparity in the mean density of the Phase 1 and Phase 2/3 squares at OA5 is that a patchy distribution of artefacts can be expected where relatively intact 'pockets' of archaeological deposits are preserved in disturbed alluvial contexts. The same trend is apparent for this landscape when quad units are compared to completed Phase 1 squares (1 m²) (Figure 12). Uneven distribution of artefacts was evident at another seven squares, representing approximately 14% of the Phase 1 creek-side sample units (Figure 12).

These results indicate that the calculation of artefact density based on 0.25 m² excavation units can potentially result in highly inaccurate estimates of the archaeological potential of a deposit. For instance, estimating artefact density at S40 by multiplying the quadrant artefact count by four produces a density figure of zero, with the 'real' mean density figure for the associated open area sample (OA5) being 15.4/m². Conversely, estimating artefact density at S66 by multiplying the quadrant artefact count by four produces a density figure of 60/m², with the 'real' density figure for the associated open area (OA6) being approximately one-third of this amount (24.2/m²).

Predicting the archaeological potential of the low yielding deposits on the ridgetops is inherently easier because they have a more uniform distribution of zero squares. However, a small disparity was shown to be evident between the Phase 1 and Phase 2/3 sample units at the ridgetop open areas (Figure 12).

All sites show an uneven distribution of artefacts, to differing degrees. This is because many factors combine to create an irregular spatial distribution of artefacts within a deposit. These include the effects of human behaviour at a location which may create areas of focused activity, such as knapping floors, and associated patterns in artefact distribution. Subsequent taphonomic processes may influence the location of artefacts within an archaeological deposit. These include bioturbation, floods, erosion, wildfires, soil accumulation and animal burrowing. Since 1788, human induced vegetation clearance, erosion, stock trampling, ploughing and construction of infrastructure has caused the heaviest impact to artefact deposits. Today, a wide range of artefact densities has been shown for creek-side environmental contexts within the south-west Cumberland Plain, with the impacts of flooding having accentuated this patchy artefact density pattern. Despite the impact of fluvial processes, portions of relatively undisturbed archaeological deposit survive on the margins of the flood-zone, as the results of the Phase 1 excavations of sites for the project have shown. While in some cases it may be possible to identify individual and time focused episodes within a deposit such as a single stone knapping event, often we are trying to uncover and interpret assemblages whose spatial distribution does not correlate with easily identifiable time periods or spatially discrete activities.

Table 16. AFT 14: Phase 1 squares selected for Phase 2/3 open area excavation.

Phase 1	Sample unit	Count	Lithic materials %				'Signature' artefacts			Phase 2/3*
			S %	T + %	Q %	O %	Cores	Backed	Retouch usewear	
S18	Quad unit	0	0	0	0	0	0	0	0	OA1 - 9 m ² 4 artefacts (0.4/m ²)
	S. square	2	100	0	0	0	0	0	0	
	1 m ²	2	100	0	0	0	0	0	0	
S6	Quad unit	0	0	0	0	0	0	0	0	OA2 - 9 m ² 7 artefacts (0.8/m ²)
	S. square	1	0	0	100	0	0	0	0	
	1 m ²	1	0	0	100	0	0	0	0	
S29	Quad unit	1	100	0	0	0	0	0	0	OA3 - 9 m ² 4 artefacts (0.4/m ²)
	S. square	0	0	0	0	0	0	0	0	
	1 m ²	1	100	0	0	0	0	0	0	
S7	Quad unit	0	0	0	0	0	0	0	0	OA4 - 9 m ² 5 artefacts (0.6/m ²)
	S. square	1	0	100	0	0	0	0	0	
	1 m ²	1	0	100	0	0	0	0	0	
S86	Quad unit	0	0	0	0	0	0	0	0	OA7 - 40 m ² 198 artefacts (4.95/m ²)
	S. square	3	100	0	0	0	0	0	0	
	1 m ²	3	100	0	0	0	0	0	0	
S88	Quad unit	0	0	0	0	0	0	0	0	OA11 - 9 m ² 12 artefacts (1.3/m ²)
	S. square	1	0	100	0	0	0	0	0	
	1 m ²	1	0	100	0	0	0	0	0	

*Phase 2/3 artefact total and mean density includes Phase 1 square. S%=Silcrete %, T+=Tuff & Chert % Q%=Quartz %, O%=Other %.

Table 17. AFT 16: Phase 1 squares selected for Phase 2/3 open area excavation.

Phase 1	Sample unit	Count	Lithic materials %				'Signature' artefacts			Phase 2/3*
			S %	T + %	Q %	O %	Cores	Backed	Retouch usewear	
S33	Quad unit	1	0	100	0	0	0	0	0	OA3 - 9 m ² 9 artefacts (1/m ²)
	S. square	1	50.0	50.0	0	0	0	0	0	
	1 m ²	2	50.0	50.0	0	0	0	0	0	
S36	Quad unit	0	0	0	0	0	0	0	0	OA4 - 9 m ² 10 artefacts (1.1/m ²)
	S. square	3	33.3	0	66.7	0	0	0	0	
	1 m ²	3	33.3	0	66.7	0	0	0	0	

*Phase 2/3 artefact total and mean density includes Phase 1 square. S%=Silcrete %, T+=Tuff & Chert %, Q%=Quartz %, O%=Other %.

Table 18. AFT 17: Phase 1 squares selected for Phase 2/3 open area excavation.

Phase 1	Sample unit	Count	Lithic materials %				'Signature' artefacts			Phase 2/3*
			S %	T + %	Q %	O %	Cores	Backed	Retouch usewear	
S40	Quad unit	0	0	0	0	0	0	0	0	OA5 - 71 m ² 1,096 artefacts (15.4/m ²)
	S. square	14	100	0	0	0	0	0	0	
	1 m ²	14	100	0	0	0	0	0	0	

*Phase 2/3 artefact total and mean density includes Phase 1 square. S%=Silcrete %, T+=Tuff & Chert %, Q%=Quartz %, O%=Other %.

Table 19. AFT 19: Phase 1 squares selected for Phase 2/3 open area excavation.

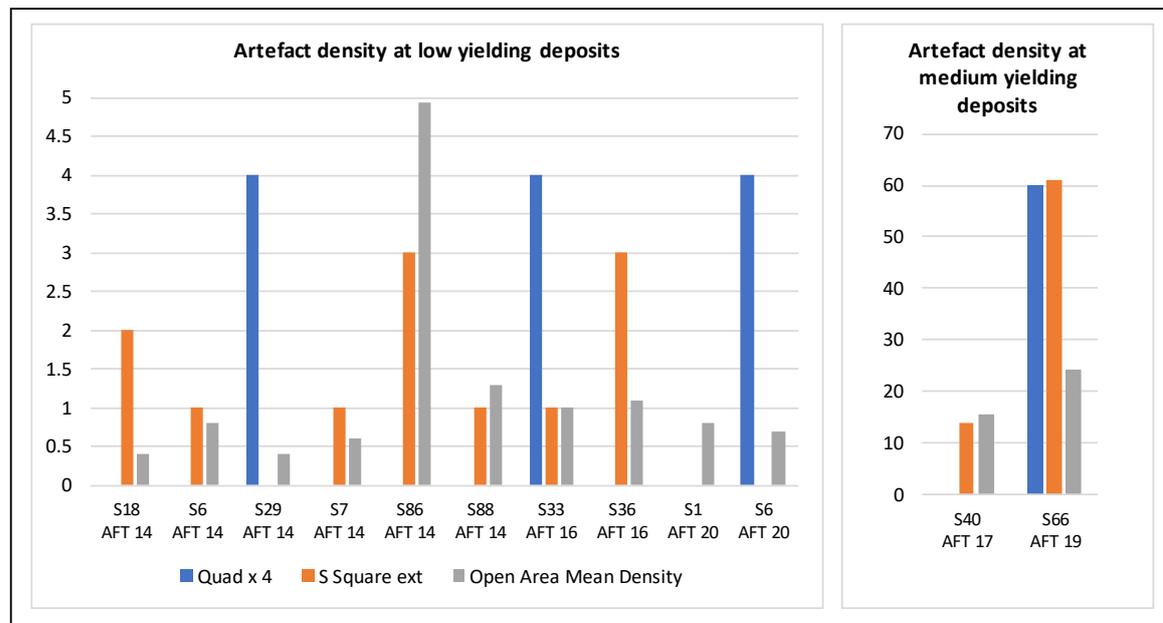
Phase 1	Sample unit	Count	Lithic materials %				'Signature' artefacts			Phase 2/3*
			S %	T + %	Q %	O %	Cores	Backed	Retouch usewear	
S66	Quad unit	15	93.3	6.7	0	0	0	0	0	OA6 - 51 m ² 1,235 artefacts (24.2/m ²)
	S. square	61	91.8	6.6	1.6	0	0	1	0	
	1 m ²	76	92.1	6.6	1.3	0	0	1	0	

*Phase 2/3 artefact total and mean density includes Phase 1 square. S%=Silcrete %, T+=Tuff %, Q%=Quartz %, O%=Other %.

Table 20. AFT 20: Phase 1 squares selected for Phase 2/3 open area excavation.

Phase 1	Sample unit	Count	Lithic materials %				'Signature' artefacts			Phase 2/3*
			S %	T %	Q %	O %	Cores	Backed	Retouch usewear	
S1	Quad unit	0	0	0	0	0	0	0	0	OA1 - 17 m ² 13 artefacts (0.8/m ²)
	S. square	0	0	0	0	0	0	0	0	
	1 m ²	0	0	0	0	0	0	0	0	
S6	Quad unit	1	100	0	0	0	0	0	0	OA2 - 9 m ² 6 artefacts (0.7/m ²)
	S. square	0	0	0	0	0	0	0	0	
	1 m ²	1	100	0	0	0	0	0	0	

*Phase 2/3 artefact total and mean density includes Phase 1 square. S%=Silcrete %, T+=Tuff %, Q%=Quartz %, O%=Other %.



Quad x 4 = Estimate of Phase 1 artefact density based on 0.25m² quad total, **S-square** = Actual number of artefacts recovered from 1m² Phase 1 **Open area mean density** = Mean artefact density at corresponding open area (including Phase 1 S-square).

Figure 12. Artefact density at Phase 1 units compared to corresponding open areas.

6.9 Phase 1 Salvage: Summary

A total of five sites were subject to Phase 1 salvage excavation, three at creek-side locations (AFT 17, AFT 19 & AFT 20) and two on the ridgetops (AFT 14 & AFT 16). The Phase 1 salvage yielded a total of 265 artefacts. This total includes 66 artefacts from the quad units and 199 from the extension squares. The total number of quad units was 137 (34.25 m²), distributed between the five sites. The combined Phase 1 total (quad units and S-square extension units) was 137 m². Most artefacts (n= 237, 89.4%) were recovered from sites near tributaries of Cosgroves Creek. In contrast, the two ridgetop sites had a combined total of just 28 artefacts or 10.6% of the total Phase 1 assemblage.

A-unit soils were deepest at the creek-side sites where Phase 1 transects intersected alluvial soils associated with Cosgroves Creek. Pockets of relatively intact deposit were revealed at the creek-side sites where some squares had depths of 40-50 cm. In contrast, shallow A-unit soils were encountered on the slopes and crests of the hills and ridges at sites AFT 14 and AFT 16. The artefact totals for all the ridgetop sites were low. This is due to a combination of factors, including: shallow soils; heavy sheet erosion; poor survival of artefact bearing deposits; and location within an 'intermediate' resource zone where access to drinking water was limited.

The artefacts recovered from the Phase 1 salvage were typically silcrete (70.9%), followed by tuff/chert (19.2%). Lesser quantities of quartz artefacts were recovered (9.1%) and quartzite (<1%). Most of the Phase 1 artefacts (97%) are debitage, comprising flakes (16.2%), flake fragments (60.8%) and angular fragments (20%). Other than cores, the Phase 1 quad assemblage comprised similar proportions of artefact types compared to the extension squares, with all dominated by flake fragment and angular fragment. A total of eight cores were recovered, including seven of made silcrete and one made of quartz. Artefacts with retouch or unswear (including backing retouch) made up 3.4% (n=9) of the assemblage. A total of two backed artefacts were recovered. Both were made of silcrete.

'Zero' sample units were encountered at all sites, with 76.7% of quad units and 58.4% of 1 m² units producing negative results. More than half (54.7%) of the zero quads were at ridgetop sites. Zero squares were also encountered at Cosgroves Creek, albeit less frequently than the ridgetop sites. Negative results at the quad units excavated on the upper slopes and crests correlated with negative or exceptionally low artefact numbers at the corresponding extension squares. This correlation was less obvious at creek-side sites which exhibited more variation between the different sampling units. In most cases, it appears that the quad totals are a good indicator of archaeological potential of the surrounding deposit, while in one case, there was a poor correlation between the number of artefacts at quad squares compared to the corresponding open area. Consequently, the calculation of artefact density based on 0.25 m² excavation units can result in highly inaccurate estimates of the archaeological potential of a deposit.

Regarding the size and spacing of the Phase 1 sample units, it appears that 15 m distance between 0.25m² units is nearly always too large to intersect activity areas where quartz and 'other' materials were discarded. Greater success was had finding artefacts of 'rarer' materials by excavating larger sized Phase 1 units (1 m² sample sizes). At the creek-side sites, these larger units were better at intercepting cores and retouched tools. However, at the ridgetop sites, the size of the Phase 1 units did not improve the chance of finding these 'signature' artefacts.

7 TNR AFT 14 Salvage Results

7.1 Overview

TNR AFT 14 (AFT 14) was located on the upper slope and crest of a ridge line separating the east flowing tributaries of Blaxland and Cosgroves Creeks and the west flowing tributaries of Mulgoa Creek. The site was situated on both sides of The Northern Road within Lot 1 DP109697, Lot 12 DP249113 and Lot 501 DP580982.

The Phase 1 program involved excavation of 58 Phase 1 units. A total of 20 artefacts were recovered from the Phase 1 units. Subsequent Phase 2/3 excavation involved the expansion of six of the Phase 1 units.

A total of 221 artefacts were recovered from Phase 2/3 excavation. Most artefacts (88%) were from the extension of S86 (OA7). Much smaller quantities of artefacts were recovered from the other open areas. The mean density of artefacts at OA7 was 4.95/m, while the density of the remaining open areas was less than 1/m². These densities include Phase 1 counts.

The artefacts recovered from the Phase 2/3 salvage were typically of silcrete (81.4%), tuff/chert (9.9%) and quartz (6.3%).

TNR AFT 14 Quick Reference Guide	
Creek system	Landform
Headwaters of Blaxland Creek	Ridgetop: Upper slope and crest
Phase 1 program	
58 squares (58 m ²) 20 total artefacts (0.3 artefacts/m ²)	
Phase 2/3 Program	
OA1, OA2, OA3, OA4, OA7 & OA11 Total area: 79 m ² (excluding Phase 1 squares) Total artefacts: 221 (excluding Phase 1 squares)	

7.2 AFT 14: Phase 2/3 extension at S72, S160 and S165

Phase 2/3 excavation involved the expansion of S18 (OA1), S6 (OA2), S29 (OA3), S7 (OA4), S86 (OA7) and S88 (OA11). The combined size of the Phase 2/3 salvage was 79 m² (85 m², including the Phase 1 squares). The area had been cleared of most native vegetation and consisted primarily of grass cover and had been used historically for grazing. Only small pockets of native trees remained. Vegetation clearance had led to erosion along tracks, with archaeological deposit limited to the defined upper contours on both sides of the road.

Open Area 1 (OA1)

The size of OA1 was 9 m² (including S18). The open area was centred upon Phase 1 unit S18. The quad unit yielded zero artefacts. The extension square yielded two artefacts, including a flake and proximal flake fragment, both silcrete. OA1 was near the northern boundary of AFT 14. The landform consisted of a crest with gentle gradient.

Open Area 2 (OA2)

The size of OA2 was 9 m² (including S6). The open area was centred upon Phase 1 unit S6. The quad unit yielded zero artefacts. The extension square yielded one artefact consisting of quartz proximal flake fragment. OA2 was near the northern boundary of AFT 14. The landform consisted of a crest with gentle gradient.

Open Area 3 (OA3)

The size of OA3 was 9 m² (including S29). The open area was centred upon Phase 1 unit S29. The quad unit yielded one artefact, consisting of a silcrete angular fragment. The extension square yielded zero artefacts. OA3 was near the northern boundary of AFT 14. The landform consisted of a crest with gentle gradient.

Open Area 4 (OA4)

The size of OA4 was 9 m² (including S7). The open area was centred upon Phase 1 unit S7. The quad unit yielded zero artefacts. The extension square yielded one artefact consisting of a tuff distal flake fragment. OA4 was at the southern end of AFT 14. The landform consisted of a crest with gentle gradient.

Open Area 7 (OA7)

The size of OA7 was 40 m² (including S86). The open area was centred upon Phase 1 unit S86. The quad unit yielded zero artefacts. The extension square yielded three artefacts consisting of silcrete angular fragments (n=1) and flake fragments (n=2). OA7 was approximately 20 m south of OA11. The landform consisted of a crest with gentle gradient.

Open Area 11 (OA11)

The size of OA11 was 9 m² (including S88). The open area was centred upon Phase 1 unit S88. The quad unit yielded zero artefacts. The extension square yielded one artefact, consisting of a chert proximal flake fragment. OA11 was approximately 20 m north of OA7. The landform consisted of a crest with gentle gradient.

7.3 AFT 14 Lithic Total Counts

The total Phase 1 program at AFT 14 yielded 20 artefacts, while the Phase 2/3 salvage yielded a total of 221 artefacts, excluding Phase 1 squares. Most artefacts recovered from the Phase 2/3 program were from the extension of S86 (OA7). Much smaller quantities of artefacts (n=1-11) were recovered from each of other open areas. The mean density of artefacts at OA7 was 4.95/m, while the density of the remaining open areas was less than 1.5/m². These densities include Phase 1 counts.

7.4 AFT 14: Phase 2/3 Soils and Stratigraphy

The soils and stratigraphy at AFT 14 are described in Section 6.3. In summary, all Phase 2/3 squares were excavated in bulk. The A-unit soils consisted of a pale yellowish-brown silty clay overlying compacted yellowish-brown clay. A detailed description of the deposit at TS 107 and OA7 is given in Figure 13.

Shallow A-unit soils were present across the slope and crest (Figure 13). The maximum depth of the A-unit was 30 cm at a minority of Phase 2/3 squares, with most having A-unit soils that were less than 20 cm deep. These represent some of the best-preserved deposits within the upgrade corridor for the landscape at the headwaters of Mulgoa Creek and Blaxland Creek. Prior to vegetation clearance, the A-unit soils on the ridgeline would have been relatively shallow, compared to the creek lines. However, the past 220 years of land use has caused heavy degradation of the A-unit across the ridgeline. For instance, the Phase 1 dispersed program showed that large areas of the upper slope and crest at AFT 14 had less than 15 cm of topsoil surviving.

Charcoal fragments were observed at all the open area deposits. The charcoal fragments were small (<10 mm) and were not associated with cultural features, such as hearths. There was no evidence to suggest that the charcoal was the result of cultural activity. It is possible that the charcoal and burnt clay feature relates to natural bushfire events or burning of the stumps of felled trees.

	<p style="text-align: center;">S 107 650E 600N</p> <ol style="list-style-type: none"> I. 0-2cm undulating surface with loose brown topsoil and grass roots, some gravel II. 2cm – base (10-20cm) silty brown loamy soil, moderately compacted, frequent inclusions of charcoal nodules with ironstone and gravels increasing with depth III. Base – undulating compacted orange clay surface with remnants of old tree roots in NE corner
	<p style="text-align: center;">OA7 746E 502N</p> <ol style="list-style-type: none"> I. 0-1cm loose humic topsoil, heavy grass roots II. 1-7cm pale grey/brown silty loam with few inclusions, clear boundary to- III. 7-17cm medium brown silty loam with some clay content with increasing ironstone inclusions with a diffuse boundary to IV. 17cm – base (18-22cm) bleached clay layer with continuing gravels leading onto reddish brown clay

Figure 13. AFT 14: Detailed description of the deposit

Table 21. AFT 14: Excavation end depths at open areas

Phase 2/3	Minimum and maximum excavation end depths	Phase 2/3	Minimum and maximum excavation end depths
OA1	15 cm – 22 cm	OA4	12 cm – 30 cm
OA2	13 cm – 19 cm	OA7	13 cm – 29 cm
OA3	13 cm – 19 cm	OA11	13 cm – 19 cm

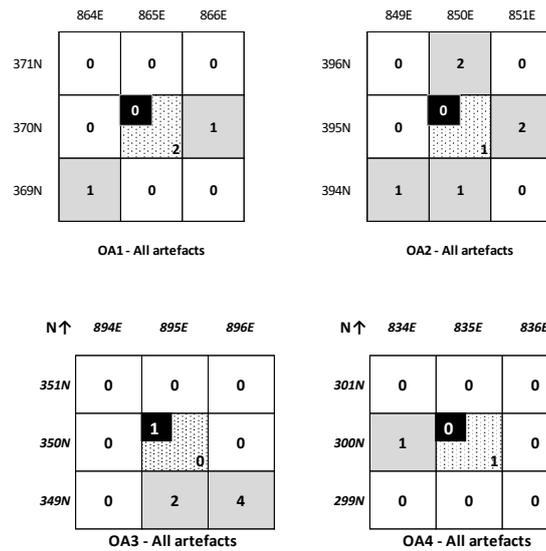


Figure 14. AFT 14: OA1, OA2, OA3 and OA4 – Distribution of artefacts

AFT 14 - OA7

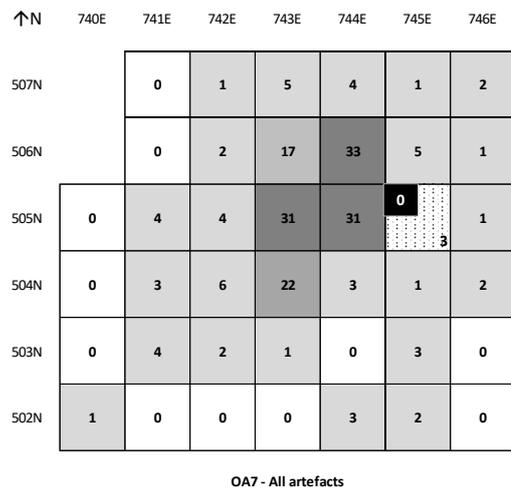


Figure 15. AFT 14 : View west after the completion of OA7 (left) & artefact count per square (right).

AFT 14 – OA11

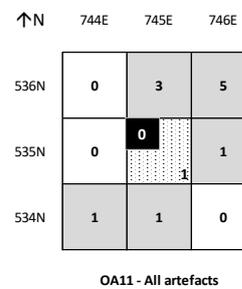


Figure 16. AFT 14: View north after the completion of OA11 (left) & artefact count per square (right).

7.5 AFT 14: Lithic Materials and Density

The total area of the dispersed (Phase 1) and open area (Phase 2/3) excavation program combined was 137 m². The program yielded a total of 241 artefacts, with 91.7% of artefacts recovered by the Phase 2/3 program (n=221 artefacts). The highest mean density of artefacts for the Phase 2/3 program was at OA7 (5/m²) (Table 22). All open areas, except OA7, had low yielding peak squares (≤ 5 artefacts/m²), while OA7 had medium yielding peak squares (22-33 artefacts/m²). The combined Phase 1/Phase 2-3 artefact total for OA7 was 198, with most (87.5%) squares yielding less than five artefacts each. OA7 had an artefact total that was six times the combined total of all the other open areas, however the mean artefact density at OA7 was not high (5/m²).

Silcrete was the most common lithic material, comprising 79.7% of the total AFT 14 assemblage (including Phase 1), by count, 56.6% by weight and 94.9% by MNF (Table 22). The second most common lithic material was tuff/chert, which comprised 13.3% of the assemblage by count, 39.2% by weight and 3.9% by MNF. Much smaller quantities of quartz artefacts were recovered, which accounted for 7.1% of the assemblage by count, 4.2% by weight and 2.6% by MNF (Table 23).

Table 22. AFT 14: Lithic materials counts, percentages & mean density/m²

Salvage unit	Silcrete	Tuff	Quartz	Q'zite	Chert	SW	Igneous	MG	Total
Phase 1 (58 m ²)	Count	12	3	3	0	2	0	0	20
	%	60	15	15	-	10	-	-	100
	Mean density	0.2/m ²	0.05/m ²	0.05/m ²	-	0.03	-	-	0.3/m ²
Phase 2/3 OA1	Count	1	1	0	0	0	0	0	2
	%	50.0	50.0	-	-	-	-	-	100
	Mean density	0.1/m ²	1.4/m ²	-	-	-	-	-	0.3/m ²
Phase 2/3 OA2	Count	5	0	0	0	1	0	0	6
	%	83.3	-	-	-	16.7	-	-	100
	Mean density	0.6/m ²	-	-	0	0.2/m ²	-	-	0.8/m ²
Phase 2/3 OA3	Count	2	0	1	0	0	0	0	3
	%	66.7	-	33.3	-	-	-	-	100
	Mean density	0.3/m ²	-	0.1/m ²	0	0	0	0	0.4/m ²
Phase 2/3 OA4	Count	0	2	2	0	0	0	0	4
	%	-	50.0	50.0	-	-	-	-	100
	Mean density	-	0.3/m ²	0.3/m ²	-	-	-	-	0.5/m ²
Phase 2/3 OA7	Count	169	17	5	0	4	0	0	195
	%	86.7	8.7	2.6	-	2.1	-	-	100
	Mean density	4.3/m ²	0.4/m ²	0.1/m ²	-	0.1/m ²	-	-	5/m ²
Phase 2/3 OA11	Count	3	2	6	0	0	0	0	11
	%	27.3	18.2	54.5	-	-	-	-	100
	Mean density	0.4/m ²	0.3/m ²	0.8/m ²	-	-	-	-	1.4/m ²
All (137 m ²)	Total Count	192	25	17	0	7	0	0	241
	Total %	79.7	10.4	7.1	-	2.9	-	-	100
	Weight (g)	143.3	87.7	10.7	-	11.5	-	-	253.2

Table 23. AFT 14: Minimum number of flakes (MNF) & Cortical artefacts

Assemblage	Silcrete	Tuff	Chert	Quartz	Total
Phase 1 Flakes & proximal fgts	3	0	1	1	4
Phase 2/3 flakes & proximal fgts	71	1	1	1	74
Total MNF	74 (94.9%)	1 (1.3%)	2 (2.6%)	2 (2.6%)	78
All Artefacts with cortex	53 (27.6%)	3 (12%)	1 (5.9%)	1 (14.3%)	58 (24.1%)

7.6 AFT 14: Phase 2/3 Lithics at OA7 and OA11

OA7 and OA11 were situated less than 20 metres apart and represented the highest artefact counts at the site. A total of 206 artefacts were recovered from 47m² (not including Phase 1 squares) with a mean artefact density of 4.4/m². The majority of artefacts were located at OA7 comprising 94.7% of the Phase 2/3 assemblage (n=195) with an artefact density of 5/m², while only 11 artefacts were recovered from OA11 with an artefact density of 1.4/m², although it is important to note that a much larger area was excavated at OA7 than was the case at OA11. A cluster of medium density squares were located at OA7, with three squares yielding between 31-33 artefacts each, which combined comprise almost 49% of artefacts recovered from that location. Most of the remaining squares with artefacts yielded densities of five or less artefacts. Lithic raw material was predominantly silcrete, comprising almost 84% (n=172) of the entire assemblage. Other materials found in smaller quantities include tuff (19), quartz (11) and chert (4).

Table 24. AFT 14: Phase 2 reduction types and raw material, all open areas (excluding Phase 1 units)

Reduction Types	Core	Complete flakes	Proximal frag.	Medial frag.	Distal frag.	Angular frag.	Total
Silcrete	6	52	19	13	67	23	180 (81.4%)
Tuff	2	1		3	9	7	22 (10%)
Quartz		1			8	5	14 (6.3%)
Chert		1		2	1	1	5 (2.3%)
Total	8 (3.6%)	55 (24.9%)	19 (8.6%)	18 (8.1%)	85 (38.5%)	36 (16.3%)	221

Flake fragments (proximal, medial, distal) were the most common reduction types recovered comprising just over 55% of the assemblage with a relatively low number of angular fragments (Table 24). Complete flakes comprised just over 25% of the assemblage, a ratio of complete flakes on the higher scale than found in most Aboriginal sites on the Cumberland Plain. Flakes were found across the spectrum of lithic materials, although the vast majority were found within the silcrete assemblage. Silcrete flakes were generally small with the majority (n=44) less than 25 mm in maximum size with a small number (6) less than 10 mm. The remaining five flakes ranged up to 45 mm in maximum size. The average weight for silcrete flakes was 0.84 g, with a minimum of 0.04 g and maximum of 7.74 g. The largest flake was chert with a maximum size range of 40 mm and a weight of 8.38 g (Table 26).

Seven cores were identified primarily within the silcrete assemblage, with one tuff core also recovered. Core flaking patterns varied, including unifacial, unifacial-rotated (including the tuff core), multidirectional and one tranchet core. The tranchet core has been identified as being part of the reduction sequence to produce backed blades, identified by Hiscock (1993) in a method labelled The Redbank A Strategy. A small unifacial rotated-silcrete core with three negative scars was also identified as a small wasted microblade core. Maximum sizes ranged within the silcrete assemblage between 21-35mm, all quite small with an average weight of 4.4g and a range of between 1.72g-10.72g. All silcrete cores had between 1-3 negative scars and all but one appeared to be exhausted. All except one core had small traces of cortex. The largest silcrete core had only one negative scar and no cortex. The tuff core was the largest and most intensely utilised with a maximum size range of between 51-55mm, a weight of 46.91g and as with the larger silcrete core had no cortex. A total of five negative scars was identified.

Cortical artefacts comprised 24.5% of the entire assemblage, with just over 28% of the silcrete assemblage retaining cortex, while the tuff assemblage had just less than 10% cortical artefacts, no quartz cortical artefacts and 20% within the chert assemblage.

Only four modified artefacts were recovered from the Phase 2 excavation, with six from the entire site. Two silcrete backed artefacts were located at OA7, including a complete backed blade and a distal blade fragment. The two retouched artefacts were both from the silcrete assemblage from OA7 and were non-formal in type. One retouched flake had retouch along both lateral margins and may have been unfinished backing, with the other retouched artefact was large proximal fragment with retouch along the left lateral margin initiated from the dorsal surface. Overall, backed and retouched artefacts comprised 2.7% of the assemblage (Table 27).

Table 25. AFT 14: Reduction types

Reduction Types	Whole flakes	Flake fragment	Angular fragment	Cores	Total
Phase 1	2 10%	12 60%	6 30%	0	20 8.3%
Phase 2	55 24.9%	122 55.2%	36 16.3%	8 3.6%	221 91.7%
Total	57 23.7%	134 55.6%	42 17.4%	8 3.3%	241

Table 26. AFT 14: Flake size ranges

Flake size	0-5mm	6-10mm	11-15mm	16-20mm	21-25mm	26-30mm	31-35mm	36-40mm	>40mm	Total
Phase 1	0	1	1	0	0	0	0	0	0	2
Phase 2	1	7	19	15	7	4	0	1	1	55
Total	1 1.8%	8 14%	20 35.1%	15 26.3%	7 12.3%	4 7%	0	1 1.8%	1 1.8%	57

Table 27. AFT 14: Tool types

Modified Artefacts	Backed			Retouched		Hammerstone / Axe Hatchet Frag.	Total
	Blade (F)	Geometric	Eloura	Non Specific	Scraper		
Phase 1	0	0	0	3	0	0	3 37.5%
Phase 2	2	1	0	2	0	0	5 62.5%
Total	2 25%	1 12.5%	0	5 62.5%	0	0	8

7.7 AFT 14: Summary

Site AFT 14 was located on a crest and upper slopes of a ridgeline separating two creek systems and yielded a low density of artefacts across most of the site, with one area of low-medium density located at Open Area 7. A total of 137 m² was excavated at AFT 14 during the Phase 1 and Phase 2/3 programs combined, with a total of 241 artefacts recovered. The Phase 1 program involved excavation of 58 m² and resulted in the recovery of 20 artefacts. The Phase 2/3 program involved excavation of 79 m² and recovery of 221 artefacts. Silcrete was the most common lithic material in the Phase 1 and Phase 2/3 assemblages, followed by tuff and quartz.

The excavation program at AFT 14 intercepted activity events that involved the production of a small quantity of backed and retouched flakes. We are not able to ascertain the date of the occupation events; however, the open area assemblage at OA7 has clear Bondaian characteristics which means the tools were produced in the past 6000 years.

It is likely that previous road construction, which passes directly through the site, has destroyed (removed) large portions of the archaeological assemblage. Compounding this is the historical removal of all large vegetation coverage for pastoral purposes, exposing the crest to erosion and soil deflation. While modelling suggests that Aboriginal sites on elevated landforms tend to be less intensely occupied than sites at lower elevations close to water sources, it is possible that AFT 14 would have proved a more complex site prior to historical and modern disturbances. Other sites on elevated landforms in this study and the wider TNR project all have low artefact densities and do not display the relatively complex assemblage that was found at OA7, such as evidence of backed tool production.



Plate 16. AFT 14: Unifacial rotated small silcrete blade core (ID #45).



Plate 17. AFT 14: Silcrete blade core on a flake body (tranchet core) (ID #127).



Plate 18. AFT 14: Silcrete backed blade (ID #97).



Plate 19. AFT 14: Silcrete retouched flake, possibly unfinished backing (ID #156).

8 TNR AFT 16 Salvage Results

8.1 Overview

TNR AFT 16 (AFT 16) was situated a ridge crest overlooking an east flowing tributary of Cosgroves Creek approximately 210 metres to the north-east. The site was situated within the north west corner of Lot 100 DP846962 on the eastern side of The Northern Road, 300 metres south of the roundabout at Elizabeth Drive. The site is part of the natural junction of two ridges: The Northern Road and Elizabeth Drive.

The Phase 1 program involved excavation of 23 Phase 1 units. A total of eight artefacts were recovered from the Phase 1 units. Subsequent Phase 2/3 excavation involved the expansion of two, of the Phase 1 units (S33 & S36).

A total of 14 artefacts were recovered from Phase 2/3 excavation areas. The mean density of artefacts at OA3 was 1/m², while the mean density at OA4 was 1.1/m². These densities include Phase 1 counts. A low quantity of artefacts was recovered.

TNR AFT 16 Quick Reference Guide	
Creek system	Landform
Headwaters of Cosgroves Creek	Ridgetop - Upper slope and crest
Phase 1 program	
23 squares (23 m ²) 8 total artefacts (0.3 artefacts/m ²)	
Phase 2/3 Program	
OA3 (8 m²) 7 total artefacts (excl. S33) Mean density: 1/m ²	OA4 (8 m²) 7 total artefacts (excl. S36) Mean density: 1.1/m ²

8.2 AFT 16: Phase 2/3 extension at S33 and S36

Site AFT 16 was situated on the ridgetop that separates the South Creek Catchment and Mulgoa Creek Catchment. As with most sites within the study, much of the area had been cleared of vegetation with small stands of native trees. Areas of disturbance were restricted to modern construction of a driveway, drainage ditches and fence construction, however the remainder of had low levels of disturbance.

Open Area 3 (OA3)

The size of OA3 was 9 m² (including Phase 1). The open area was centred upon Phase 1 unit S33, which yielded two artefacts. The quad unit yielded one artefact consisting of a silicified wood distal flake fragment. The extension square yielded one artefact consisting of a silcrete proximal flake fragment. OA3 was at the northern end of AFT 16. The landform consisted of upper slope and crest with a gentle gradient.

Open Area 4 (OA4)

The size of OA4 was 9 m² (including Phase 1). The open area was centred upon Phase 1 unit S36, which yielded 3 artefacts. The quad unit yielded zero artefacts, while the extension square yielded one silcrete proximal fragment and two quartz angular fragments. OA4 was approximately 20 m south of OA3, at the northern end of AFT 16. The landform consisted of upper slope and crest with a gentle gradient.



Plate 20. AFT 16: View south east with S39 in the foreground.

8.3 AFT 16: Lithic Total Counts

The total Phase 1 program at AFT 16 yielded eight artefacts, while the Phase 2/3 salvage yielded a total of 14 artefacts, excluding Phase 1 squares. The mean density of artefacts at OA3 and OA4 was 1-1.1/m², which is only slightly higher than the mean density for the entire Phase 1 program (0.3/m²).

8.4 AFT 16: Phase 2/3 Soils and Stratigraphy

The soils and stratigraphy at AFT 16 are described in Section 6.3. In summary, all Phase 2/3 squares were excavated in bulk. The A-units soils consisted of a pale yellowish-brown silty clay overlying compacted yellowish-brown clay. A detailed description of the deposit at S19 and OA4 is given in Figure 18.

Shallow A-unit soils were present across the slope and crest. The maximum depth of the A-unit was 27 cm at a minority of Phase 2/3 squares, with most having A-unit soils that were less than 25 cm deep. These represent some of the best-preserved deposits within the upgrade corridor for the landscape at the headwaters of Mulgoa Creek and Blaxland Creek. Prior to vegetation clearance, the A-unit soils on the ridgeline would have been relatively shallow, compared to the creek lines. However, the past 220 years of land use has caused heavy degradation of the A-unit across the ridgeline. For instance, the Phase 1 dispersed program showed that large areas of the upper slope and crest at AFT 16 had less than 15 cm of topsoil surviving.

Charcoal fragments were observed at all the open area deposits. The charcoal fragments were small (<10 mm) and were not associated with cultural features, such as hearths. There was no evidence to suggest that the charcoal was the result of cultural activity. It is possible that the charcoal and burnt clay feature relates to natural bushfire events or burning of the stumps of felled trees.

	<p style="text-align: center;">Phase 1 S19 015E 170N</p> <ol style="list-style-type: none"> I. 0-2cm loose topsoil heavy grass roots II. 2-7cm redeposited yellow/grey brown rocky soil particularly in north and west sections overlying dark brown humic soil. Clear boundary to III. 7-base (22-27cm) moderately compact yellow/brown silty clay loam with abundant ~50% orange to black rock fragments IV. Base – orange/brown clay cracked with tree roots
	<p style="text-align: center;">Phase 2 OA4 231E 999N</p> <ol style="list-style-type: none"> I. 0-2cm soft brown topsoil, grass roots some ironstone inclusions II. 2cm – Base (22-26cm) moderately compacted silty brown loam. Charcoal and ironstone inclusions increasing with depth with some bioturbation III. Base – compacted orange clay with gravel inclusion increasing to the north

Figure 18. AFT 16: Detailed description of the deposit at S19 and OA4.

Table 28. AFT 16: Excavation end depths at open areas

OA3 Easting/Northing	Minimum and Maximum end depth	OA4 Easting/Northing	Minimum and Maximum end depth
984E 238N (NW corner)	22 cm – 27 cm	999E 231N (NW corner)	22 cm – 28 cm
984E 236N (SW corner)	16 cm – 40 cm	999E 229N (SW corner)	20 cm – 25 cm
986E 238N (NE corner)	16 cm – 22 cm	001E 231N (NE corner)	20 cm – 26 cm
986E 236N (SE corner)	16 cm – 30 cm	001E 229N (SE corner)	22 cm – 26 cm

AFT 16 – OA3



N ↑	984E	985E	986E
238N	1	1	2
237N	2	0	1
236N	0	1	0

OA3 - All artefacts

Figure 19. AFT 16: View north-west after the completion of OA3 (left) & artefact count per square (right).

AFT 16 – OA4



N ↑	999E	000E	001E
231N	0	5	2
230N	0	0	0
229N	0	0	0

OA4 - All artefacts

Figure 20. AFT 16: View south after the completion of OA4 (left) & artefact count per square (right).



Plate 21. AFT 16 View south-east with OA4 in the middle ground.

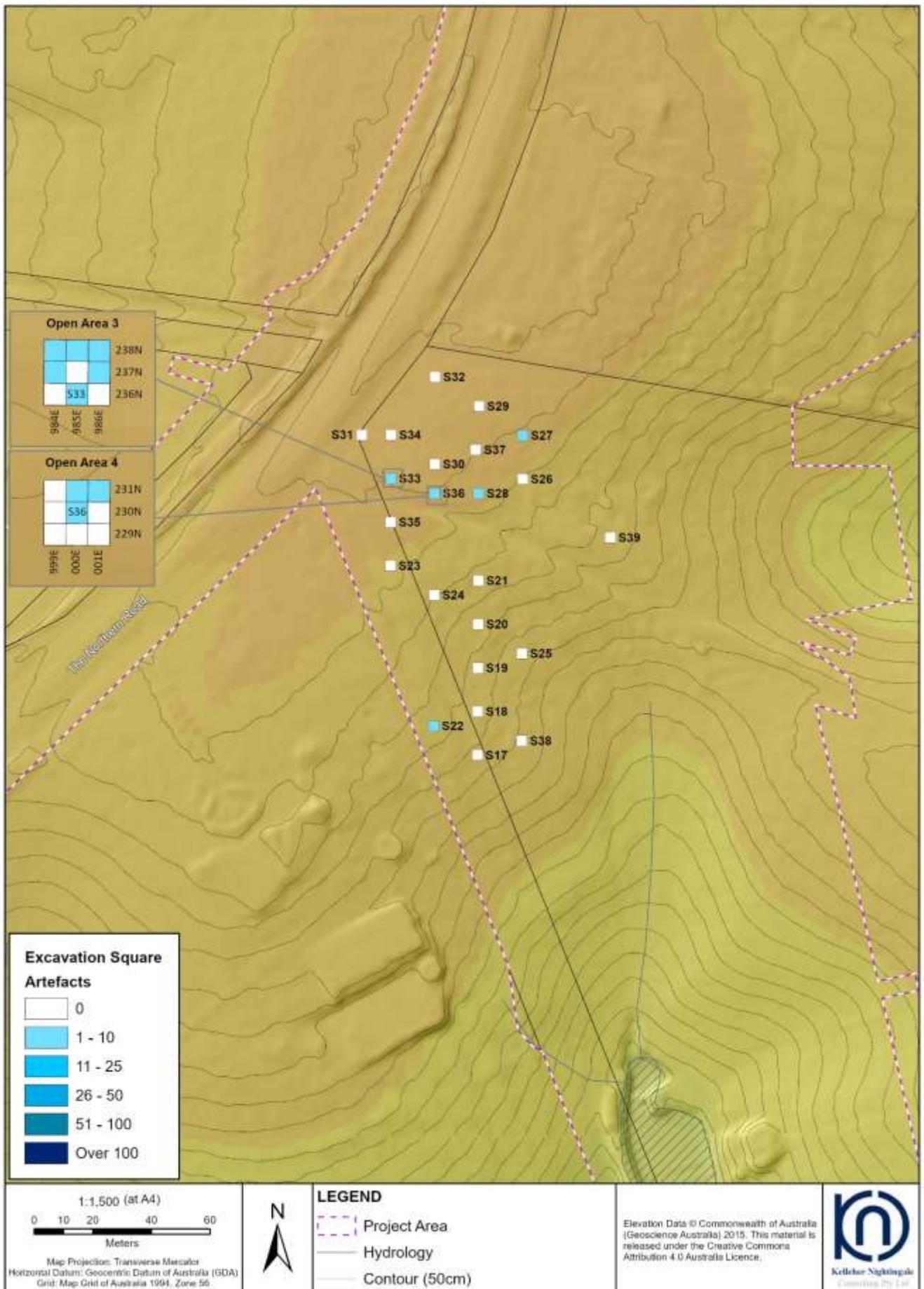


Figure 21. TNR AFT 16: Layout of Phase 1 and Phase 2/3 excavation units.

8.5 AFT 16: Lithic Assemblage

The dispersed Phase 1 and Phase 2/3 open area excavation programs combined was 39 m². The two programs, including all Phase 1 squares, yielded a total of 22 artefacts, with 63.6% of artefacts recovered by the Phase 2/3 program (n=14). The combined artefact total for OA3 was 9 (including S33), with six squares yielding one or two artefacts each and three squares yielding zero artefacts. OA4 yielded the same quantity and density of artefacts. Only three squares at OA4 yielded artefacts, while four squares had zero artefacts (Figures 26-27). Artefact densities (including test squares) were 1/m² at OA3 and 1.1/m² at OA4, with the highest density square located at OA4 (000E 231N) containing five artefacts.

Silcrete was the most common lithic material, comprising 36.4% of the assemblage by count and 18.6% by weight. (Table 29). This was followed by quartz, which accounted for 27.3% of the assemblage by count and 17.9% by weight. The proportions of quartz and tuff were similar, with the latter accounting for 22.7% of the assemblage by count and 12.9% by weight. In addition to the silcrete, tuff and quartz artefacts was a single chert artefact and a potential glass artefact. Only two complete flakes were recovered with sizes ranging from between 11-20mm. Angular fragments were the most common artefact type comprising just over 63% (n=9) of the assemblage. No cores were located. Cortical artefacts comprised 9.1% of the entire assemblage with 25% of the silcrete assemblage being cortical and 80% of the tuff assemblage cortical (Table 29).

The potential glass artefact was located at OA4. This was not definitively artefactual but was included in the assemblage for completeness. The glass piece was a large dark green bottle fragment with a maximum size of 55mm and weighing 20.99g. A series of small negative scars are present at one end of the glass piece. This 'retouch' was relatively regular but may also be the product of unintentional breakage.

Table 29. AFT 16: Lithic materials counts, percentages & mean density/m²

Salvage unit		Silcrete	Tuff	Quartz	Chert	Silicified wood	MG	Glass	Total
Phase 1 (23 m ²)	Count	3	1	3	0	1	0	0	8
	%	37.5	12.5	37.5	-	12.5	-	-	100
	Mean density	0.1/m ²	0.04/m ²	0.1/m ²	-	0.04/m ²	-	-	0.3/m ²
Phase 2/3 OA3	Count	2	3	1	1	0	0	0	7
	OA6 %	28.6	42.9	14.3	14.3	-	-	-	100
	Mean density	0.3/m ²	0.4/m ²	0.1/m ²	0.1/m ²	-	-	-	0.9/m ²
Phase 2/3 OA4	Count	3	1	2	0	0	0	1	7
	%	42.9	14.3	28.3	-	-	-	14.3	100
	Mean density	0.4/m ²	0.1/m ²	0.6/m ²	-	-	-	0.1/m ²	0.9/m ²
Phase 2/3 (16 m ²)	Count	5	4	3	1	0	0	1	14
	%	35.7	28.6	21.4	7.1	-	-	7.1	100
	Mean density	0.3/m ²	0.3/m ²	0.2/m ²	0.06/m ²	-	-	0.06/m ²	0.9/m ²
	Weight (g)	112.0	79.4	16.7	0.3	-	-	0	270.2
All (39 m ²)	Total Count	8	5	6	1	1	0	1	22
	Total %	36.4	22.7	27.3	4.5	4.5	-	4.5	100
	Mean density	0.2/m ²	0.1/m ²	0.2/m ²	0.03/m ²	0.03/m ²	-	0.03/m ²	8.8/m ²
	Weight (g)	8.99	6.21	8.65	0.2	3.21	-	20.99	48.25
	Cortical	2	4	2	0	0	0	0	8

Table 30. AFT 16: Phase 1 & 2/3 reduction types

Reduction Types	Whole flakes	Flake fragment	Angular fragment	Cores	Total
Phase 1	0	5 (62.5%)	3 (37.5%)	0	8 (36.4%)
Phase 2/3	2 (14.2%)	3 (21.4%)	9 (64.3%)	0	14 (63.6%)
Total	2 (9.1%)	6 (27.3%)	14 (63.6%)	0	22

8.6 AFT 16: Summary

Site AFT 16 was typical of most sites located on elevated landforms in this area of western Sydney. Essentially, the site displayed a low-density artefact scatter with little indication of systematic reduction and/or tool use. Despite the low number of artefacts, there was a wide variety of lithic materials present, including the possible glass artefact, suggesting that this was a transitory area with occasional curation or discarding of lithic materials derived from multiple sources.

9 TNR AFT 17 Salvage Results

9.1 Overview

TNR AFT 17 (AFT 17) was located on a cleared lower (toe) slope adjacent to a large dam that had been constructed on a tributary of Cosgroves Creek. The site is approximately 450 metres south east of The Northern Road within an access corridor to the east of Lot 1 DP232996 and west of Lot 101 DP846962.

A total of 50 artefacts was recovered from the Phase 1 units. Subsequent Phase 2/3 excavation involved the expansion of Phase 1 unit S40 (OA5). The mean artefact density for the Phase 1 program was 3.3 artefacts/m².

A total of 1,082 artefacts was recovered from the Phase 2/3 salvage program. All the Phase 2/3 artefacts were recovered from OA5 (70 m²). The mean density of artefacts was at OA5 (15.4/m²).

The artefacts recovered from AFT 17 salvage were mostly made of silcrete (94.6%). A relatively small quantity of tuff (4%), quartz (0.7%) and other materials (<1%) were recovered.

TNR AFT 17 Quick Reference Guide	
Creek system	Landform
Cosgroves Creek tributary	Low terraces and creek-flat
Phase 1 program	
15 squares (15 m ²) 50 total artefacts (3.3 artefacts/m ²)	
Phase 2/3 Program	
OA5 (70 m²) 1,082 total artefacts (excluding S40) Mean density: 15.4/m ²	

9.2 AFT 17: Phase 2/3 extension at S40

Phase 2/3 excavation involved the expansion of S40 (OA5). The size of the Phase 2/3 salvage was 70 m² (71 m² including the Phase 1 square). Much of the area had been cleared of native vegetation with low grass cover and dotted with small bushes. Large areas of sheet erosion surrounded the dam, and it was noted during the excavation that isolated areas had redeposited soils. This deposit was likely redistributed during the excavation of the dam and associated drainage ditches. The survey identified eight stone artefacts within two surface exposures on the eastern edge of the large dam. The site extent was defined by the dam construction and toe of slope, clearly demarcating the archaeological deposit. Moderate value archaeological deposit was identified within the undisturbed toe slope.

Open Area 5 (OA5)

The size of OA5 was 71 m² (including Phase 1). The open area was centred upon Phase 1 unit S40, which yielded 14 artefacts. The quad unit yielded zero artefacts, while the extension square yielded 14 artefacts, all silcrete. The artefacts consisted of flakes and flake fragments. Signature artefacts such as cores, backed artefacts and other tools were absent from the Phase 1 unit. OA5 was at the northern end of AFT 17. The landform consisted of lower slope with a gentle gradient on the margin of the flood-zone.



Plate 22. TNR AFT 17: View south with Phase 1 unit S40 in the foreground.

9.3 AFT 17: Lithic Total Counts

The total Phase 1 program at AFT 17 yielded 50 artefacts, while the Phase 2/3 salvage yielded a total of 1,082 artefacts, excluding the Phase 1 square. All artefacts recovered from the Phase 2/3 program were from the extension of S40 (OA5). The mean density of artefacts at OA5 was 15.4/m. This density includes the Phase 1 count.

9.4 AFT 17: Phase 2/3 Soils and Stratigraphy

The soils and stratigraphy at AFT 17 are described in Section 6.3 and Figure 22, below. In summary, all Phase 2/3 squares were excavated in bulk. The A-unit soils consisted of a greyish-brown sandy clay loam overlaying a pale grey-brown, sandy loam, bleached/paler unit. The basal clay consisted of orange-red compacted clay. Largely intact soil profiles were present at OA5.

In addition to flooding, the creek flats have undergone regular ploughing and cultivation. The physical evidence of these human impacts included the mixing of clay into the A-unit sediment. Charcoal fragments were observed within the open area deposit. The charcoal fragments were small (<10 mm) and were not associated with cultural features, such as hearths. There was no evidence to suggest that the charcoal was the result of cultural activity. It is possible that the charcoal and burnt clay feature relates to natural bushfire events or burning of the stumps of felled trees.

Redeposited clay was present within the A-unit at OA5, mostly from the top 20 cm of the deposit. Its presence indicates that the upper levels of the deposit were disturbed. A detailed description of the deposit at OA5 is given in Figure 22.

	<p style="text-align: center;">OA5 146E 810N</p> <ol style="list-style-type: none"> I. 0-3cm loose topsoil II. 3-21cm grey/brown moderately compacted silty loam with ironstone inclusions, some bioturbation (grass roots) and ant nest at 16cm depth III. 21cm – base (25-33cm) bleached pale silty loam with an undulating base. Some charcoal inclusions IV. Base – yellow/brown clay with ironstone inclusions
	<p style="text-align: center;">OA5 139E 810N</p> <ol style="list-style-type: none"> I. 0-5cm topsoil II. 5-22cm redeposited disturbed soil from excavated dam and channels in surrounding areas III. 22-45cm grey/brown moderately compacted silty loam (undisturbed) with abundant ironstone, iron manganese and charcoal inclusions IV. 45cm – base (38-48cm) pale pink sandy soil with continuing charcoal V. Base pale yellow/brown compacted clay

Figure 22. AFT 17: Detailed description of the deposit at OA5.

Table 31. AFT 17: End depths across OA5.

Eastings/Northing	Minimum and Maximum end depth	Eastings/Northing	Minimum and Maximum end depth
139E 818N (NW corner)	16 cm – 21 cm	146E 809N (SE corner)	22 cm - 33 cm
139E 810N (SW corner)	38 cm – 48 cm	145E 818N (NE corner)	19cm - 24 cm
142E 809N (mid-way southern boundary wall)	25 cm – 35 cm	146E 812N (mid-way eastern boundary wall)	25 cm - 26 cm

AFT 17 – OA5



	139E	140E	141E	142E	143E	144E	145E	146E
818N	5	4	9	7	6	5	1	
817N	8	4	9	11	4	6	2	
816N	4	1	17	12	19	14	2	
815N	20	0	6	21	19	10	8	
814N	3	10	18	38	65	64	12	
813N	2	13	24	60	56	32	8	
812N	6	22	19	26	18	12	10	6
811N	17	19	15	5	9	14	7	36
810N	7	12	12	13	6	16	14	35
809N				4	10	15	24	34

OA5 - All artefacts

Figure 23. AFT 17: View north east after the completion of OA5 (left) & artefact count per square (right).



Plate 23. AFT 17: View north showing the landscape surrounding OA5.



Plate 24. AFT 17: View north-east showing the landscape surrounding OA5.

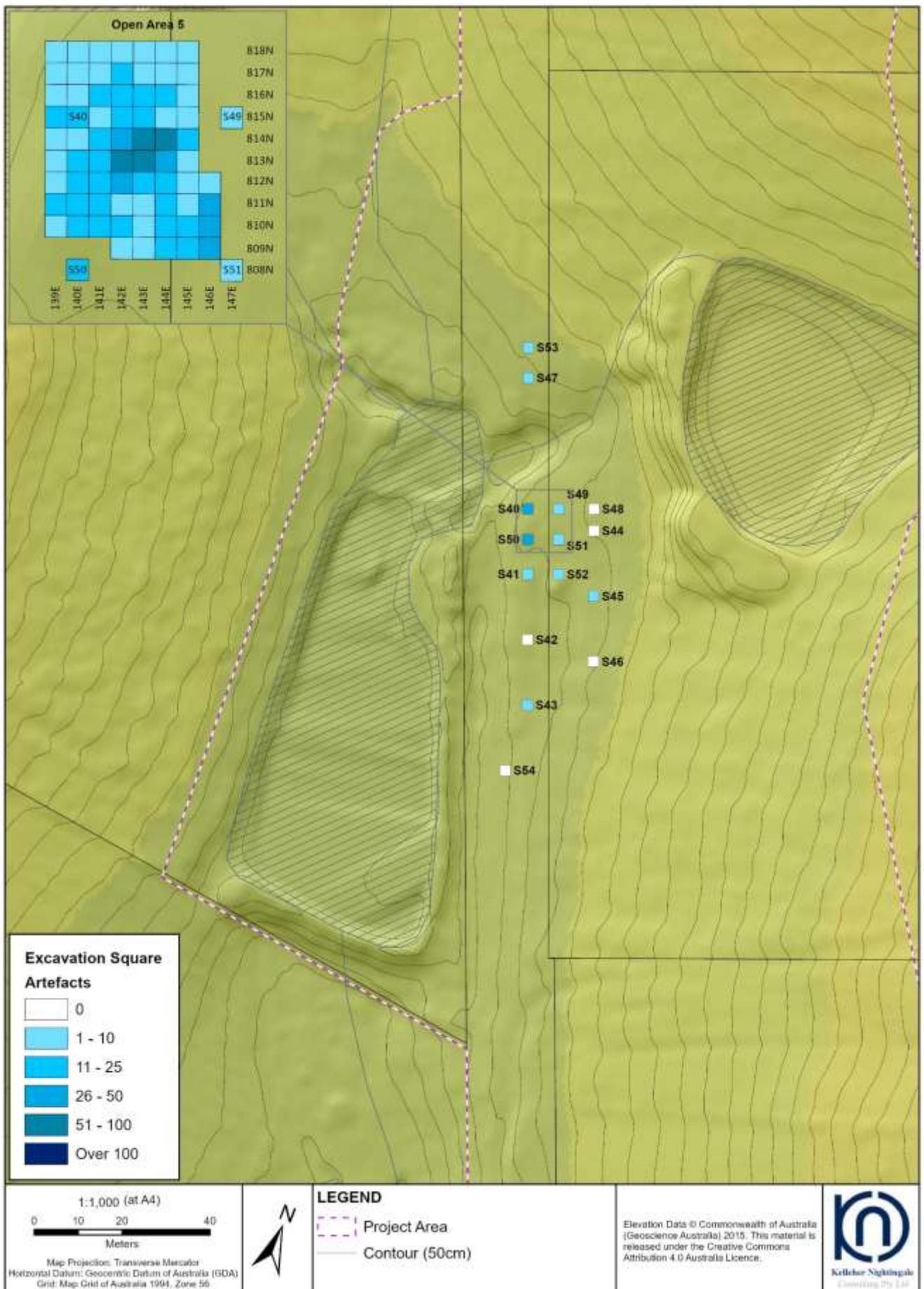


Figure 24. TNR AFT 17: Layout of Phase 1 and Phase 2/3 excavation units.

9.5 AFT 17 Phase 1 & Phase 2/3: Lithic Materials and Densities

The dispersed Phase 1 and open area Phase 2/3 excavation programs combined totalled 85 m². The two programs, including all Phase 1 squares, yielded a total of 1,132 artefacts, with 95.6% of artefacts recovered by the Phase 2/3 program (n=1,082). At OA5, the combined Phase 1 & Phase 2/3 artefact total was 1,096. The total excavation area at OA5 was large (71 m²). All the squares at OA5 yielded artefacts and 12.7% of squares yielded 30 or more artefacts each, while 45% of squares had between ten and thirty artefacts each (Figure 23). The peak square at OA1 yielded 65 artefacts and was one of a cluster of four medium-high density squares yielding between 55-65 artefacts each. Combined, these four squares comprised approximately 22.5% of the assemblage recovered from OA5.

Silcrete was the most common lithic material, comprising 94.6% of the total assemblage by count, 88.7% by weight and 96.9% by MNF. This was followed by tuff, which accounted for 4% of the assemblage by count, 10.7% by weight and 2.6% by MNF. Very small quantities of quartz were recovered from AFT 17, and accounted for 0.7% by count, and 0.15% by weight. A very low density of tuff was recorded for OA5 (0.5/m²), which was only slightly higher than the density of quartz (0.1/m²) (Table 32). Similarly, chert, silicified wood and quartzite accounted for less than 1% by count, and 0.4% by weight. The number of cortical artefacts was low throughout the assemblage (13.8%), with silcrete comprised of 13% cortical artefacts and tuff 31.1% (Table 33).

Table 32. AFT 17 Lithic totals as counts, percentages, and mean density.

Salvage unit	Silcrete	Tuff	Quartz	Chert	S. wood	Quartzite	Total	
Phase 1 (15 m ²)	Count	35	10	1	2	1	50	
	%	70.0	20.0	2.0	4.0	2.0	100	
	Mean density	2.3/m ²	0.7/m ²	0.07/m ²	0.1/m ²	0.07/m ²	0.07/m ²	3.3/m ²
Phase 2/3 (70 m ²)	Count	1,036	35	7	3	0	1,082	
	%	95.7	3.2	0.6	0.3	-	100	
	Mean density	14.8/m ²	0.5/m ²	0.1/m ²	0.04/m ²	-	0.01/m ²	15.4/m ²
All (85 m ²)	Total Count	1071	45	8	5	1	1,132	
	Total %	94.6	4.0	0.7	0.4	0.09	100	
	Mean density	12.6/m ²	0.5/m ²	0.09/m ²	0.06/m ²	0.01/m ²	0.02/m ²	13.3/m ²
	Weight (g)	727.35	88.08	1.27	2.61	0.35	0.39	820.05

Table 33. AFT 17: Minimum number of flakes (MNF) & Cortical artefacts

Assemblage	Silcrete	Tuff	Quartz	Chert	S. wood	Quartzite	Total
Phase 1 Flakes & proximal fgts	11	2	1	0	0	0	13
Phase 2/3 flakes & proximal fgts	428	10	1	1	0	0	440
Total MNF	439	12	2	1	0	0	453
Cortical artefacts	139 (13%)	14 (31.1%)	1 (12.5%)	1 (20%)	0	1 (50%)	156 (13.8%)

9.6 AFT 17 Phase 2/3: Lithics at OA5

Flake fragments (proximal, medial, distal) were the most common reduction types at OA5, comprising 70% of the entire assemblage. A comparatively low number of angular fragments were identified (9.4%) while complete flakes comprised 19.3% (n=210) of the assemblage. Complete flakes were found primarily within the silcrete assemblage (n=201) with nine tuff and 1 chert complete flake. A total of 12 whole cores were identified comprising 1.2% of the assemblage, with all but one within the silcrete assemblage, and one tuff core.

Size ranges of silcrete complete flakes ranged between maximum sizes of 0-5 mm – 40 mm, with almost all (196) less than 30 mm, two of which were between 0-5 mm. The largest silcrete flake had a size range of between 35-40 mm weighing 8.76 g, while the average weight of all silcrete flakes was 0.7 g with a range of between 0.02 g – 8.76 g. Tuff flakes tended to be larger with a maximum size range of between 6-50 mm weighing an average of 4.79 g and a range of between 0.05 g-16.8 g. The most common flake platforms at OA5 were plain (69.8%). The assemblage included silcrete flakes with faceted platforms (5.9%) and other platform types (focal, scarred and ridged) associated with 'hierarchical reduction sequences' (Moore 2011). Crushed platforms (0.6%) were recorded in very low quantities (Table 36), indicating generally controlled hand-held percussion of cores.

The most common flake shape was longer than wide (59.6%), with elongate flakes making up a further 11.1% of the flake assemblage (Table 36). Taken together with the number of faceted platforms and presence of tranchet cores, reduction of silcrete was oriented to the production of backed blades. Wide and short flakes comprised 28.8% of the flake assemblage. It is interesting that some of the backed artefacts were geometric microliths (n=12), which can be made using flakes that are not elongate in shape. Elongate flakes (n=2) were also present in the tuff assemblage, but backed artefacts of tuff or chert were not recovered from OA5. However, this does not mean that they were not produced on site.

Table 34. AFT 17 Phase 1 & 2 Reduction types

Reduction Types	Whole flakes	Flake fragment	Angular fragment	Cores	Total
Phase 1	12 (24%)	31 (62%)	4 (8%)	3 (6%)	50 (4.4%)
OA5 Phase 2/3 *	210 (19.5%)	757 (70.1%)	100 (9.3%)	13 (1.2%)	1,080 (95.6%)
Total	222 (19.6%)	788 (69.7%)	104 (9.2%)	16 (1.4%)	1,130

* 2 Tuff Crenated fracture not included

Table 35. AFT 17 Flake size range

Flake size	0-5 mm	6-10 mm	11-15mm	16-20mm	21-25mm	26-30mm	31-35mm	36-40mm	>40mm	Total
Phase 1	0	2	3	5	1	1	0	0	0	12
OA5 Phase 2/3	2	64	54	41	27	15	2	2	3	210
Total	2	66	57	46	28	16	2	2	3	222
%	0.9	29.7	25.7	20.7	12.6	7.2	0.9	0.9	1.4	100

Table 36. AFT 17 OA5: Flake shape, platforms and terminations at OA5 (counts)

Material	Flake shape				Flake platform						
	Elong	L>W	L=W	W>L	Plain	Cortical	Faceted	Ridged	Focal	Crushed	Scarred
Silcrete	21	119	1	57	239	13	21	45	24	0	1
Tuff & chert	2	5	0	3	7	0	0	1	0	2	0
Quartz	0	0	0	0	1	0	0	0	0	0	0
Total	23	124	1	60	247	13	21	46	24	2	1
%	11.1	59.6	0.5	28.8	69.8	3.7	5.9	13.0	6.8	0.6	0.3

A total of 15 cores were recovered from the Phase 1 and Phase 2/3 excavation programs. Three cores were from the Phase 1 program, while 12 cores were from OA5. Most of the cores were silcrete, with one of tuff. The mean weight of silcrete cores at OA5 was 5.8 g, and the mean length was 24.9 mm. This is less than the single tuff core (14.85 g) which was larger than the majority of silcrete cores (Table 37).

Core flaking patterns were varied, with unifacial reduction being the most common (n=7) including the sole tuff core. Other types included unifacial-rotated, multidirectional, one flake core and two tranchet cores. Core utilisation was generally low, with the majority having between 1-2 negative scars (n=10). One silcrete core displayed heavy utilisation with 8 identifiable scars and was also one of the largest cores with a maximum size range of between 31-35 mm, a weight of 14.77 g and a low level of cortex.

Core sizes were generally small, with maximum size ranges between 20-40 mm, including the tuff core, with an average weight of 6.5 g and a range of between 1.61 g-14.8 5g. The tuff core was the largest with a size between 36-40mm and weighing 14.85g although only one negative scar was identified. No cortex was evident. No microblade cores were evident, however the presence of two tranchet cores suggest that blade manufacturing was occurring, if only in low quantities. Approximately half of the core assemblage was cortical.

Table 37. AFT 17, Phase 1 and OA5: Core attributes

Material	Core Type	Cortex (count)	Flake scars (range)	Length (mm)		Weight (g)		Total
				Mean (g)	Range (g)	Mean (g)	Range (g)	
Silcrete	Multidirectional	2	3-8	38.9	31.5-44.4	24.8	14.7-32.1	3
	Unifacial	5	1-2	25.9	16.3-28.5	5.8	1.7-14.7	6
	Unifacial rotated	0	2	24.8	24.8	9.4	9.4	1
	Bifacial	1	4	37.9	37.9	17.7	17.7	1
	Tranchet	1	1-3	22.8	20.2-25.4	2.82	2.1-3.6	2
	Flake core	0	1	19.2	19.2	1.6	1.6	1
Total silcrete cores		9	1-8	24.9	16.3-44.4	5.8 g	1.6-32.1	14
Tuff	Unifacial	0	1	35.2	35.2	14.6	14.6	1
AFT 17 All cores		9 (60%)	1-8	28.6	16.3-44.4	10.3	1.6-32.1	15

A total of 27 modified artefacts (tools) were identified comprising 2.4% of the assemblage, all within the silcrete assemblage at OA5. A total of 17 backed artefacts were recovered, with geometric microliths comprising the bulk of the backed artefacts (n=12). Other backed artefacts included one complete backed blade, three blade fragments (distal), and one Elouera. Almost all the geometric microliths were sized between 11-15mm, with one slightly larger at 16-20mm. Two of the blade fragments and the Elouera appeared to be only partially backed.

The backed artefacts were recovered from 18.5% of squares (n=13) at OA5, while retouched artefacts were recovered from 11.4% of squares. The spatial distribution of backed and retouched artefacts mirrors the density distribution of the general assemblage, with most of these implements recovered from the central portion of OA5, near to the peak density squares for silcrete.

A total of ten retouched artefacts were located, primarily non formal types (7) with three scrapers identified including one thumbnail scraper. Retouched artefacts were generally small, with most between 6-25mm, three of which were between 6-10mm with one artefact between 25-30mm in size. The largest scraper was a distal fragment between 20-25mm in size and had retouch on the right lateral margin creating a concave edge. From the low numbers of blades identified and the high numbers of geometric microliths and retouched artefacts it appears that tools were being mostly utilised rather than manufactured on site.

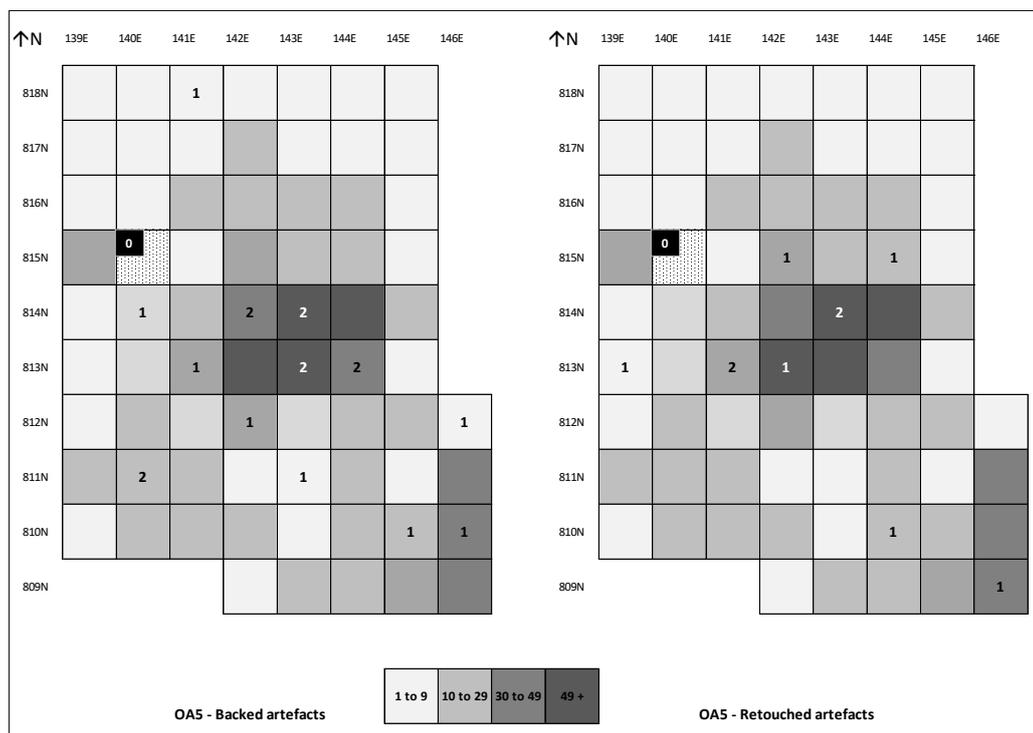


Figure 25. AFT 17 OA5: Distribution of backed & retouched artefacts. Shading shows the density distribution of all artefacts.

Table 38. AFT 17: Backed artefact attributes

Material	Tool Type	Reduction type*				Length (mm)		Weight (g)		Total
		F	FF	AF	CF	Mean	Range	Mean	Range	
Silcrete	Backed blade - complete	1	1	0	0	-	9.3-20.1	-	0.1-0.54	2
	Backed - Geometric	0	11	0	0	12.9	10.7-16.1	0.3	0.21-0.42	11
	Backed - broken	0	1	0	0	10.8	10.8	0.13	0.13	1
	Backed - partial	0	3	0	0	19.7	10.8-24.1	0.54	0.3-0.7	3
Total									17	

Table 39. AFT 17: Non- backed retouched artefact attributes

Material	Tool Type	Reduction type*				Length (mm)		Weight (g)		Total
		F	FF	AF	CF	Mean	Range	Mean	Range	
Silcrete	Retouched	0	10	0	0	11.9	6.8-21.7	1.1	0.13-2.6	10
Total									10	

*F=Flake, FF=Flake fragment (proximal, medial or distal), AF=Angular fragment, CF=Cobble fragment.

9.7 AFT 17: Summary

A total of 85 m² was excavated at AFT 17 during the Phase 1 and Phase 2/3 programs combined, with 1,132 artefacts recovered. The Phase 1 program involved excavation of 15 m² and resulted in the recovery of 50 artefacts. The Phase 2/3 program involved excavation of 70 m² and recovery of 1,082 artefacts. Site AFT 17 was predominantly a low-medium density site with one discrete area of medium-high density located in Open Area 5. The lithics recovered from the Phase 2/3 program showed a low-medium density distribution. The peak square at OA5 yielded 65 artefacts. OA5 recorded a mean density of 15.4/m², which was approximately four times the mean density of the Phase 1 program (3.3/m²). Some obvious disturbances were present within OA5, specifically the deposition of excavated soil from construction of the adjacent dam and associated drainage channels in the south-west of the open area. This deposit was clear in the soil profiles with a clear boundary to the undisturbed deposit underneath.

The site exhibited a variety of lithic materials commonly recovered from similar density sites within western Sydney, with silcrete as primary raw material. OA5 does display the type of complex characteristics associated with domestic use including moderate numbers of backed and retouched artefacts, a variety of lithic materials, exhausted microblade cores and a high percentage of flaked debitage. Evidence of tool production was present, however most tools located at AFT 17 appeared more utilitarian and used, likely discarded after breakage (i.e. only one complete backed blade was recovered). Broken blade fragments, small geometric microliths and single use retouched artefacts comprise most tool types identified. It is likely that a large proportion of tools produced in this area were used and discarded elsewhere.



Plate 25. AFT 17: Silcrete bifacial core (ID #280).



Plate 26. AFT 17: Chert distal fragment (ID #287).



Plate 27. AFT 17: Large tuff flake (ID #897).



Plate 28. AFT 17: Large tuff flake with cortex (# 707).



Plate 29. AFT 17: Tuff flake core with negative scars on dorsal surface (ID #676).



Plate 30. AFT 17: Silcrete microblade core OA5: Silcrete cores – clockwise from top left (ID #447).



Plate 31. AFT 17: Silcrete Elouera (ID #491).



Plate 32. AFT 17: Silcrete thumbnail scraper (ID #830).



Plate 33. AFT 17: Silcrete geometric microlith (ID #345).



Plate 34. AFT 17: Silcrete backed blade (ID #734).

10 TNR AFT 19 Salvage Results

10.1 Overview

TNR AFT 19 (AFT 19) was situated on an elevated terrace location adjacent to the northern bank of Cosgroves Creek and the junction of several tributaries. The site was located within Lot 102 DP846962, Lot 103 DP846962 and Lot 3 DP827223. The site was approximately 500 metres north of Adams Road and 850 metres north west of the intersection of Adams Road and Anton Road.

The Phase 1 program involved excavation of 25 Phase 1 units. A total of 180 artefacts were recovered from the Phase 1 units. One square (S66) yielded 76 artefacts, while two squares yielded 12-18 artefacts each. The remainder (n=22) of the Phase 1 units (1m²) yielded less than ten artefacts each (all squares were found to contain artefacts). The mean artefact density for the Phase 1 program was 7.2/m².

A total of 1,159 artefacts was recovered from the Phase 2/3 salvage program. All the Phase 2/3 artefacts were recovered from OA6 (50 m²). The mean density of artefacts at OA6 was 23.2/m² (excluding Phase 1) or 24.2/m² including Phase 1. The artefacts recovered from OA6 were mostly made of silcrete (91.3%). A relatively small quantity of tuff (5.4%), quartz (1.7%) and other materials (<1%) were recovered.

TNR AFT 19 Quick Reference Guide	
Creek system	Landform
Cosgroves Creek	Elevated terrace
Phase 1 program	
25 squares (25 m ²) 180 total artefacts (7.2 artefacts/m ²)	
Phase 2/3 Program	
OA6 (50 m²) 1,159 total artefacts (excluding S66) Mean density: 23.2/m ²	

10.2 AFT 19: Phase 2/3 extension at S66

The slopes and terrace at AFT 19 had been cleared of native vegetation and was utilised for grazing livestock. The site extent was clearly defined by flood levels and toe of slope, demarking the archaeological deposit. Edges of the site had been disturbed by sheet erosion and fluvial activity; however, the remaining areas were assessed as having moderate archaeological value. Artefacts were recovered from all Phase 1 squares (1 m²), with most yielding a low density of artefacts (less than 10). Three squares had over 10 artefacts, with the highest density square, S 66, yielding 76 artefacts. S 66 was subsequently the focus for further Phase 2 open area excavation.

Open Area 6 (OA6)

The size of OA6 was 51 m² (including Phase 1). The open area was centred upon Phase 1 unit S66, which yielded 76 artefacts. The quad unit yielded 15 artefacts, while the extension square yielded 61 artefacts. The artefacts consisted of flakes, flake fragments and angular fragments. A single silcrete backed artefact was recovered from the extension square. Other signature artefacts such as cores and other tools were absent from the Phase 1 unit. OA6 was at the northern end of AFT 19. The landform consisted of creek flat and terrace with a gentle to flat gradient on the margin of the flood-zone.



Plate 35. AFT 19: View east across the terrace adjacent to Cosgroves Creek with cars parked at OA6.

10.3 AFT 19: Lithic Total Counts

The total Phase 1 program at AFT 19 yielded 180 artefacts, while the Phase 2/3 salvage yielded a total of 1,159 artefacts, excluding Phase 1. All artefacts recovered from the Phase 2/3 program were from the extension of S66 (OA6). The mean density of artefacts at OA6 was 24.2/m. This density includes the Phase 1 count.

10.4 AFT 19: Phase 2/3 Soils and Stratigraphy

The soils and stratigraphy at AFT 19 are described in Section 6.3 and Figure 26, below. In summary, all Phase 2/3 squares were excavated in bulk. The A-unit soils consisted of a greyish-brown sandy clay loam overlaying a pale grey-brown, sandy loam, bleached/paler unit. The basal clay consisted of orange-red compacted clay. Largely intact soil profiles were present at OA5.

In addition to flooding, the creek flats have undergone regular ploughing and cultivation. The physical evidence of these human impacts included the mixing of clay into the A-unit sediment. Charcoal fragments were observed within the open area deposit. The charcoal fragments were small (<10 mm) and were not associated with cultural features, such as hearths. There was no evidence to suggest that the charcoal was the result of cultural activity. It is possible that the charcoal and burnt clay feature relates to natural bushfire events or burning of the stumps of felled trees.

Historical materials were present within the A-unit at OA6, mostly from the top 20 cm of the deposit. Their presence indicates that the upper levels of the deposit were disturbed. A detailed description of the deposit at S 79 and OA6 is given in Figure 26.

	<p style="text-align: center;">S 79 367.5E 522.5N</p> <ol style="list-style-type: none"> I. 0-5cm brown/grey humic layer with extensive grass root system II. 5-20cm pale brown bleached silty loam with clay, ironstone and charcoal inclusions. Diffuse boundary to; III. 20cm – base (35-47cm) orange brown silty clay. Increasing clay to base IV. Base – mostly even orange clay
	<p style="text-align: center;">OA6 366E 528N</p> <ol style="list-style-type: none"> I. 0-4cm top soil, loose grey/brown silty loam II. 4-20cm grey/brown silty loam with small iron manganese nodules. Orange/red clay patches throughout with well defined horizon to; III. 20cm – base (40-49cm) orange/brown silty clay with larger less frequent FeMn nodules IV. Base mixed grey/brown and orange clay with high silt content and continuing FeMn inclusions

Figure 26. AFT 19: Detailed description of the deposit at S79 and OA6.

Table 40. AFT 19: End depths across OA6.

OA6 Easting/Northing	Minimum and Maximum end depth
362E 533N (NW corner)	28 cm – 38 cm
362E 528N (SW corner)	40 cm – 48 cm
369E 534N (NE corner)	30 cm – 37 cm
368E 528N (SE corner)	49 cm – 49 cm

AFT 19 – OA6



↑N	362E	363E	364E	365E	366E	367E	368E	369E
534N				10	9	7	5	10
533N	6	6	7	18	28	27	7	14
532N	6	25	19	34	47	41	21	25
531N	5	19	73	65	47	51	36	22
530N	23	39	87	15 61	35	36	12	4
529N	14	33	24	35	19	18	9	
528N	6	12	14	21	5	8	15	

OA6 - All artefacts

Figure 27. AFT 19: View south after the completion of OA6 (left) & artefact count per square (right).



Plate 36. AFT 19: View east showing the landscape surrounding OA6.



Plate 37. AFT 19: View south showing the landscape surrounding OA6.

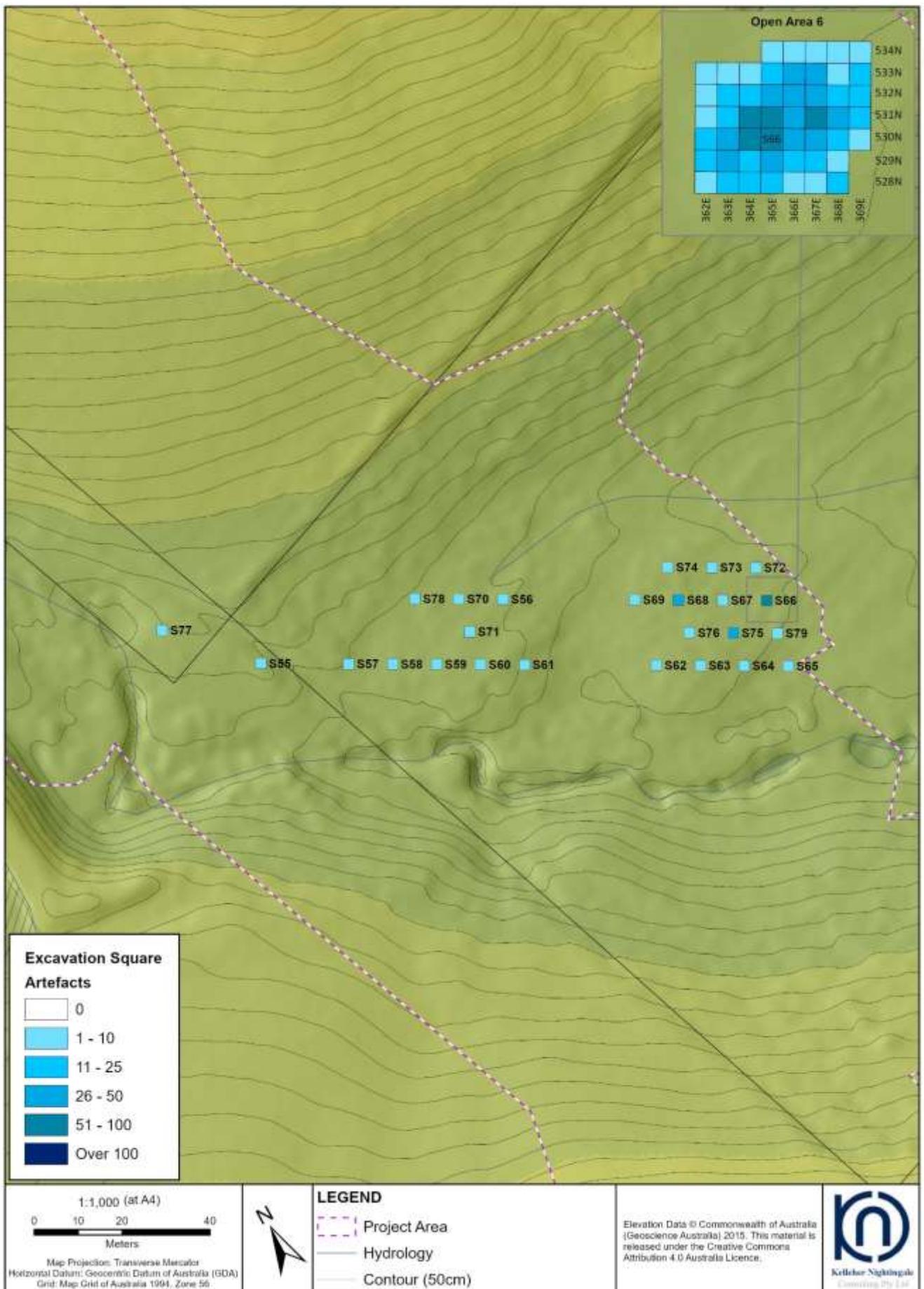


Figure 28. TNR AFT 19: Layout of Phase 1 and Phase 2/3 units.

10.5 AFT 19: Phase 1 & Phase 2/3 Lithic Materials and Densities

The dispersed Phase 1 and open area Phase 2/3 excavation programs combined totalled 75 m². The two programs, including all Phase 1 squares, yielded a total of 1,339 artefacts, with 86.6% of artefacts recovered by the Phase 2/3 program (n=1,159). At OA6, the combined Phase 1 & Phase 2/3 artefact total was 1,235. All the squares at OA6 yielded four or more artefacts each and 29.4% of squares yielded 30 or more artefacts each, while 41.2% of squares had between ten and thirty artefacts each. A cluster of medium to high density squares were around S 66, with the peak square at OA6 yielding 87 artefacts (Figure 27). The four squares in this cluster comprised just under 25% (n=301) of the Phase 2 assemblage. An area of medium density squares roughly surrounded this cluster with numbers dropping to low density at the edges of the open area.

Silcrete was the most common lithic material, comprising 89% of the total site assemblage by count, 63.4% by weight and 97% by MNF. This was followed by tuff, which accounted for 6.5% of the assemblage by count, 6% by weight and 3% by MNF. Quartz accounted for 2.5% by count, 3.1% by weight and 2.6% by MNF. The 'other' category of materials, comprising FGS, quartzite, chert, and igneous accounted for less than 1% by count 1.4% by MNF, however, 27.5% by weight, since several of these artefacts were fragments of larger ground stone artefacts and hammerstones.

Table 41. AFT 19 Lithic totals as counts, percentages, and mean density.

Salvage unit	Silcrete	Tuff	Quartz	Q'zite	Chert	FGS	Igneous	Total	
Phase 1 (25 m ²)	Count	135	24	14	1	6	0	0	180
	%	75.0	13.3	7.8	0.6	3.3	-	-	100
	Mean density	5.4/m ²	1.0/m ²	0.6/m ²	0.04/m ²	0.2/m ²	-	0	7.2/m ²
Phase 2/3 OA6 (50 m ²)	Count	1,058	63	20	5	5	2	6	1,159
	OA6 %	91.3	5.4	1.7	0.4	0.4	0.2	0.5	100
	Mean density	21.2/m ²	1.3/m ²	0.4/m ²	0.1/m ²	0.1/m ²	0.04/m ²	0.1/m ²	23.2/m ²
	Weight (g)	953.5	60.7	25.1	4.9	8.3	7.1	437.4	1497.2
All (75 m ²)	Total Count	1,193	87	34	6	11	2	6	1,339
	%	89.0	6.5	2.5	0.4	0.8	0.1	0.4	100
	Mean density	15.9/m ²	1.1/m ²	0.5/m ²	0.08/m ²	0.1/m ²	0.03/m ²	0.08/m ²	17.9/m ²
	Weight (g)	1057.9	99.8	52.6	5.3	9.7	7.1	437.4	1669.8

Table 42. AFT 19: Minimum number of flakes (MNF) & Cortical artefacts

Assemblage	Silcrete	Tuff	Quartz	Quartzite	Chert	FGS	Igneous	Total
Phase 1 Flakes & proximal fgts	33	7	5	1	2	0	0	48
Phase 2/3 flakes & proximal fgts	363	6	6	1	1	1	0	378
Total MNF	396 (97%)	13 (3%)	11 (2.6%)	2 (0.5%)	3 (0.7%)	1 (0.2%)	0	426
Cortical artefacts	188 (15.8%)	16 (18.4%)	10 (29.4%)	1 (16.7%)	3 (27.3%)	0	0	218 (16.3%)

10.6 AFT 19 Phase 2/3: Lithics at OA6

Silcrete was dominant within the lithic assemblage at AFT 19, OA6, although there was a more varied use of other materials than was recorded upstream at OA5 (AFT 17). Silcrete comprised 91.3% (n=1,058) of the OA6 assemblage while tuff was the only other lithic material in any substantial concentration, comprising 5.4% of the assemblage (n=63). Other materials recovered from OA6 include quartz (20), chert (5), quartzite (5), unidentified fine-grained siliceous material (FGS, 2) and six igneous fragments (Table 41).

Complete flakes, including bipolar and split flakes, comprise a relatively high 23% of the Phase 2 assemblage and were found within most of the lithic assemblage. Two bipolar flakes were identified within the quartz assemblage. Most flakes within the silcrete assemblage were less than 25 mm in maximum size (n=238, 92.6%), including 52 flakes between 6-10 mm. The remaining silcrete flakes ranged from 25-55 mm. Silcrete flakes weighed on average 0.86g with a range of between 0.03 g-22.15 g. Tuff flakes unusually were smaller (only 5 complete flakes) with sizes ranging between 11-20 mm with a mean weight of 0.4 g ranging between 0.17 g-0.64 g, while quartz flakes (4) were sized between 15-30 mm with an average weight of 2.35 g and ranging between 0.32 g-6.43 g.

Flake fragments were the most common reduction type although less dominant than found on other sites within this project, comprising 58.6% of the assemblage. Angular fragments comprised 15.4% of the assemblage.

The most common flake platforms at OA6 were plain (64.2%). The assemblage included silcrete flakes with faceted platforms (5.1%) and other platform types (focal, scarred and ridged) associated with 'hierarchical reduction sequences' (Moore 2011). Crushed platforms (0.7%) were recorded in very low quantities (Table 45), indicating generally controlled hand-held percussion of cores.

The most common flake shape was longer than wide (57.3%), with elongate flakes making up a further 14.6% of the flake assemblage (Table 45). Taken together with the number of faceted platforms and presence of microblade cores, reduction of silcrete was oriented to the production of backed blades. Wide and short flakes comprised 27.4% of the flake assemblage. It is interesting that some of the backed artefacts were geometric microliths (n=9), which can be made using flakes that are not elongate in shape (Table 47).

Elongate flakes (n=1) were also present in the tuff assemblage and two backed artefacts and a microblade core of tuff were recovered from OA6, indicating that these tools were probably produced on site, albeit at a much lower intensity than the production of silcrete backed artefacts (Table 45).

Table 43. AFT 19: Phase 1 & 2 Reduction types

Reduction Types	Whole flakes	Flake fragment	Angular fragment	Cores	Total
Phase 1	29 (16.2%)	107 (62.2%)	39 (21.7%)	5 (2.8%)	180 (13.5%)
OA6 Phase 2/3	267 (23.1%)	679 (58.6%)	177 (15.3%)	35 (3%)	1,158 (86.5%)
Total	296 (22.1%)	786 (58.7%)	216 (16.1%)	40 (3%)	1,338

Table 44. AFT 19: Flake size range

Flake size	6-10 mm	11-15mm	16-20mm	21-25mm	26-30mm	31-35mm	36-40mm	>40mm	Total
Phase 1	7	12	3	3	3	1	0	0	29
OA6 Phase 2/3	52	95	66	34	11	6	0	3	267
Total	59	107	69	37	14	7	0	3	296
%	19.9	36.1	23.3	12.5	4.7	2.4	0	1.0	100

Table 45. AFT 19: Flake shape, platforms and terminations at OA6 (counts).

Material	Flake shape				Flake platform						
	Elong	L>W	L=W	W>L	Plain	Cortical	Faceted	Ridged	Focal	Crushed	Scarred
Silcrete	39	153	2	72	262	31	22	53	39	3	1
Tuff & chert	1	4	0	2	7	0	0	2	2	0	0
Quartz	0	4	0	1	8	1	0	0	0	0	0
FGS	0	0	0	0	1	0	0	0	0	0	0
Quartzite	0	0	0	0	0	0	0	1	0	0	0
Total	40	157	2	75	278	32	22	56	41	3	1
%	14.6	57.3	0.7	27.4	64.2	7.4	5.1	12.9	9.5	0.7	0.2

A total of 35 cores were identified at OA6, primarily within the silcrete assemblage, with small numbers found within the tuff, quartz, and chert assemblages. Cores comprised 3% of the entire assemblage. Approximately 30% of cores were cortical (n=10), most of which had only low levels of cortical cover (between 1-30%). The mean weight of silcrete cores was 7.5 g, and the mean length was 25.4 mm. The average silcrete core was almost half the weight of the two tuff cores, which had a mean weight of 40 g (Table 46).

Core flaking patterns were varied with unifacial and multidirectional being the most common (Table 28), with other types including unifacial-rotated, bidirectional, bifacial, bipolar, one flake core and one tranchet core. Two core fragments were also identified. The two tuff cores, one multidirectional and one unifacial rotated were two of the largest cores and had higher utilisation than most of the silcrete cores. Three of the silcrete cores were identified as microblade cores, including one core with the most intense utilization in the core assemblage, a bifacial core with five negative scars weighing 6.9 g and a maximum size of 26-30 mm. One tranchet core was also identified, suggesting some manufacturing of backed blades was occurring on site.

A total of 42 modified artefacts (tools) were recovered from OA6, with 48 recovered from the entire excavation comprising 3.6% of the assemblage. Most tools were found within the OA6 silcrete assemblage (n=40) with two tuff backed artefacts also identified. One cobble fragment was identified as a hammerstone fragment, while a further three igneous fragments were identified as axe/hatchet fragments.

A total of 23 backed artefacts were recovered, including three complete backed blades, ten broken backed blade fragments, mostly distal fragments (including the 2 tuff tools), two partially backed blades and 9 geometric microliths. One non-diagnostic backed fragment was also identified. All geometric microliths were small, sized between 6-15mm with an average weight of 0.2g. Complete blades were also small with a maximum size range of between 11-20mm and a mean weight of 0.25g.

The backed artefacts were recovered from 33% of squares (n=17) at OA6. The spatial distribution of backed artefacts mirrors the density distribution of the general assemblage, with most of these implements recovered from the central portion of OA6, near to the peak density squares for silcrete.

Table 46. AFT 19 Core characteristics at OA6

Core type	Silcrete	Tuff	Quartz	Chert	Neg Scars		Max Size Range mm	Mean weight	Weight Range
					1-3	4-5			
Unifacial	8		1	0	9		21-35mm	3.87g	1.8-6.31g
Unifacial rotated	2	1	0	0	2	1	26-50mm	8.98g	1.68-16.29g
Multidirectional	9	1	0	1	7	4	16-50mm	11.62g	2.74-39.54g
Bidirectional	3	0	0	0	1	2	26-35mm	6.8g	5.01-8.49g
Bifacial	4	0	0	0	2	2	21-40mm	9.93g	3.4-21.07g
Bipolar	0	0	1	0	1	0	21-25mm	-	5.57g
Flake Core	1	0	0	0	1	0	26-30mm	-	2.54g
Transect	1	0	0	0	1	0	21.25mm	-	2.63g
Fragment	2	0	0	0	0	0	16-30mm	4.41g	0.96-7.85g
Total	30	2	2	1	24	9	16-50 mm	-	-
Mean length	25.4	40.0	24.8	32.4	-	-	-	-	-
Mean weight	7.5	15.5	3.8	6.3	-	-	-	-	-

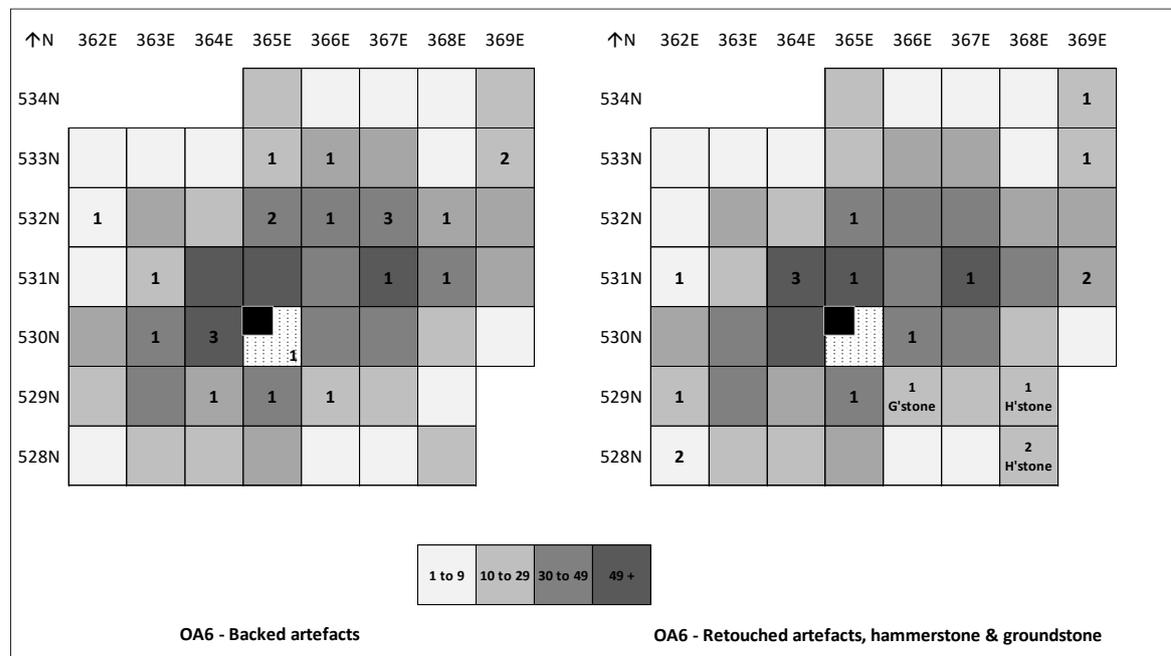


Figure 29. AFT 19 OA6: Distribution of backed & retouched artefacts. Shading shows density distribution of all artefacts.

Table 47. AFT 19: Backed artefacts attributes at OA6

Material	Tool Type	Reduction type*				Length (mm)		Weight (g)		Total
		F	FF	AF	CF	Mean	Range	Mean	Range	
OA6 Silcrete (incl. S66)	Backed blade - complete	1	2	0	0	14.4	11.7-16.5	0.25	0.15-0.31	3
	Backed - Geometric	1	8	0	0	9.5	7.6-11.6	0.2	0.08-0.4	9
	Backed - broken	0	8	0	0	10.5	8.2-13.3	0.2	0.1-0.5	8
	Backed - partial	0	1	0	0	16.5	16.5	0.5	0.5	1
	Non-diagnostic	0	1	0	0	13.3	13.3	0.44	0.44	1
OA6 Tuff	Backed - broken	0	2	0	0	16.1	15.2-17	0.5	0.3-0.6	2
Total									24	

*F=Flake, FF=Flake fragment (proximal, medial or distal), AF=Angular fragment, CF=Cobble fragment.

A total of 16 retouched artefacts, all silcrete, were recovered from the Phase 2 excavation, with the majority being non formal types (Table 48). A few scrapers were identified (n=6), including two end scrapers. The two retouched tuff flakes recovered from two Phase 1 units (S69 & S72) were much larger (mean 39.4 mm) compared to the average silcrete retouched flakes recovered from OA6 (mean 15.5 mm).

The retouched artefacts were recovered from 24% of all squares (n=12 squares) at OA6. The spatial distribution of retouched artefacts is like the spatial distribution of backed artefacts, with some clustering of these implements at the central portion of OA6, near to the peak density squares for silcrete.

Table 48. AFT 19: Non- backed retouched artefacts attributes at Phase 1 units and OA6

Material	Tool Type	Reduction type*				Length (mm)		Weight (g)		Total
		F	FF	AF	CF	Mean	Range	Mean	Range	
Phase 1 Tuff	Retouched		2			39.4	36.3-42.5	7.0	6.5-7.4	2
Phase 1 Silc.	Retouched		1			9.8	9.8	0.35	0.35	1
OA6 Silcrete	Retouched	4	11	1	0	15.5	7.7-38.9	1.4	0.1-5.5	16
Total										19

*F=Flake, FF=Flake fragment (proximal, medial or distal), AF=Angular fragment, CF=Cobble fragment.

10.7 AFT 19: Summary

A total of 85 m² was excavated at AFT 08 during the Phase 1 and Phase 2/3 programs combined, with 1,339 artefacts recovered. The Phase 1 program involved excavation of 25 m² and resulted in the recovery of 180 artefacts. The Phase 2/3 program involved excavation of 50 m² and recovery of 1,159 artefacts at OA6. Site AFT 19 was predominantly a low-medium density site with one discrete area of medium-high density located in Open Area 6. The peak square at OA6 yielded 87 artefacts. OA6 recorded a mean density of 24.2/m² (inclusive of Phase 1) which was approximately three times the mean density of the Phase 1 program (7.2/m²).

Site AFT 19 exhibited the highest artefact density and numbers within the TNR6 project area. Like AFT 17, the site displays the type of complex characteristics associated with domestic use including moderate numbers of backed and retouched artefacts, a variety of lithic materials, exhausted microblade cores and a high percentage of flaked debitage. Evidence of tool production was present, while backed and retouched artefacts were clustered in small groups in and around the higher density squares in the central section of OA6. Backed and retouched artefacts recovered from the site appeared roughly formed and often fragmentary or only partially completed, suggesting production for immediate use rather than intense curation of already existing tools.

It is likely as with site AFT 17 that larger quantity of tools were being produced than were recovered during the excavation. The lack of obvious curation and intense working of tools is at odds with the general lack of larger primary and secondary reduction types, while small tertiary reduction types and small exhausted cores were typical. From the characteristics of the assemblage there was no indication of easy access to abundant lithic materials, with most if not all the material being imported into the area from outside lithic sources. The lack of easily accessible lithic resources generally leads to more conservative use of lithic materials, which is not evident in the type of tool types represented within this assemblage although the generally small tertiary character of the flake and core assemblage is consistent.

As with site AFT 17, and other sites within the broader TNR Project, AFT 19 was complex site with an artefact assemblage generally connected with domestic activities. The flat landscape and access to water along with other resources would have made this area an ideal area for longer term occupation. We are not able to ascertain the date of the occupation events; however, the open area assemblage has clear Bondaian characteristics which means they were produced in the past 6000 years. Mixing of the deposit has occurred because of bioturbation and ploughing.

In conclusion, the artefact assemblage from AFT 19 likely represents the discard from at least several periods of occupation at Cosgroves Creek during the late Holocene (from c. 6000 cal. BP). This occupation involved numerous episodes of core reduction and production of tools, including backed and non-backed retouched flakes. Today, Cosgroves Creek is a shallow ephemeral watercourse that is choked by soil run-off, due to over-clearance of vegetation from the surrounding slopes and ridgelines. Prior to land clearance, the creek channel would have formed a chain-of-ponds that presented an invaluable source of semi-permanent freshwater to Aboriginal people as they travelled between the heavily forested Nepean River corridor and the open rolling plains in the east.



Plate 38. AFT 19: Retouched tuff proximal fgt (#1118).



Plate 39. AFT 19: Silcrete core tool (ID #1092).



Plate 40. AFT 19: Quartz proximal fragment (ID #1179).



Plate 41. AFT 19: Silcrete flake with banding (#1694).



Plate 42. AFT 19: Banded chert distal fragment (from Phase 1) (ID #960).



Plate 43. AFT 19: Tuff multidirectional core (ID #1936).



Plate 44. AFT 19: Silcrete unifacial rotated (bidirectional) blade core (ID #1330).



Plate 45. AFT 19: Hook-shaped silcrete retouched flake (ID #1941).



Plate 46. AFT 19: Silcrete retouched flake with partial backing (ID #1563).



Plate 47. AFT 19: Silcrete backed blade (ID #1726).



Plate 48. AFT 19: Hammerstone fragment (ID #2113).



Plate 49. AFT 19: Hammerstone fragment (ID #2113).

11 TNR AFT 20 Salvage Results

11.1 Overview

TNR AFT 20 (AFT 20) was situated on a lower north eastern slope adjacent to a dam constructed on an east flowing tributary of Cosgroves Creek. The site was located on the northern side of Adams Road within Lot 2 DP519034 and approximately 520 metres north east of the intersection of Adams Road and Jamison Street.

The Phase 1 program involved excavation of 16 Phase 1 squares, with a total of seven artefacts recovered. Six of the artefact Phase 1 units (1 m x 1m) yielded between one and two artefacts each, while the remainder of squares (n=10) yielded zero artefacts. The mean artefact density for the Phase 1 program was 0.4/m².

A total of 18 artefacts was recovered from the Phase 2/3 salvage program, with 13 artefacts from OA1 and five artefacts from OA2 (excluding Phase 1 units). The mean density of artefacts at OA1 and OA2 was 0.8/m² and 0.6/m² respectively (excl. Phase 1). The artefacts recovered from Phase 1 and Phase 2/3 salvage were mostly made of silcrete (72%), followed by tuff (16%). A relatively small quantity of quartz artefacts (n=3) was recovered.

TNR AFT 20 Quick Reference Guide	
Creek system	Landform
Cosgroves Creek	Lower slope
Phase 1 program	
16 squares (16 m ²) 7 total artefacts (0.4 artefacts/m ²)	
Phase 2/3 Program	
OA1 (16 m²) 13 total artefacts (excluding S1) Mean density: 0.8/m ²	OA2 (8 m²) 5 total artefacts (excluding S6) Mean density: 0.6/m ²

11.2 AFT 20: Phase 2/3 extension at S1 & S6

The slopes and terrace at AFT 20 had been cleared of native vegetation and utilised for grazing livestock. Site extent was defined by the creek channel and Adams Road. The survey recorded six silcrete artefacts located within surface exposures on the toe of the slope. Moderate depth of soil was evident across the landform and the site was assessed as having moderate archaeological value.

Open Area 1 (OA1)

The size of OA1 was 17 m² (including Phase 1). The open area was centred upon Phase 1 unit S1, which yielded zero artefacts but intact soils. OA1 was near the northern boundary of AFT 20. The landform consisted of a lower slope with a gentle to flat gradient on the margin of the flood-zone.

Open Area 2 (OA2)

The size of OA2 was 9 m² (including Phase 1). The open area was centred upon Phase 1 unit S6, which yielded one artefact. The quad unit yielded one artefact, while the extension square yielded zero artefacts. The artefact consisted of a silcrete medial flake fragment. Signature artefacts such as cores and other tools were absent from the Phase 1 unit. OA2 was in the south western portion of AFT 20. The landform was lower slope with a gentle to flat gradient.

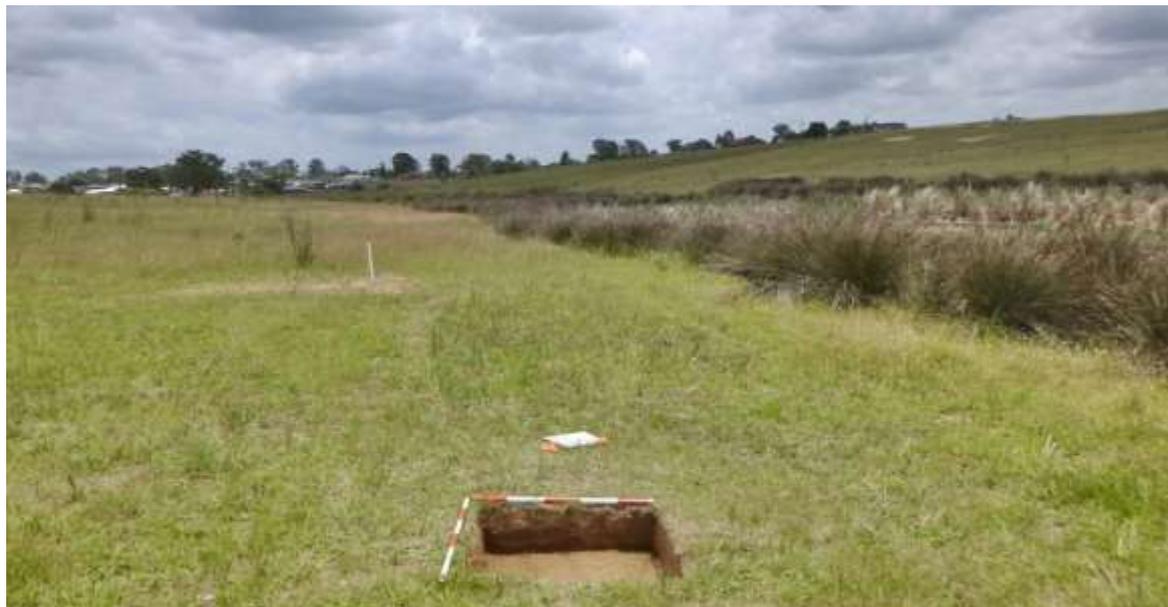


Plate 50. AFT 20: View north east with S5 in the foreground.

11.3 AFT 20: Lithic Total Counts

The total Phase 1 program at AFT 20 yielded seven artefacts, while the Phase 2/3 salvage yielded a total of 18 artefacts, excluding Phase 1 squares. All artefacts recovered from the Phase 2/3 program were from the extension of S1 (OA1) and S6 (OA2). The mean density of artefacts at OA1 and OA2 was low, between 0.6-0.8/m. This density includes the Phase 1 count.

11.4 AFT 20: Phase 2/3 Soils and Stratigraphy

The soils and stratigraphy at AFT 19 are described in Section 6.3 and Figure 30, below. In summary, all Phase 2/3 squares were excavated in bulk. The A-unit soils consisted of a clay loam. The basal clay consisted of orange-red compacted clay. Largely intact soil profiles were present at OA1 and OA2. A detailed description of the deposit at S 14 and OA1 is given in Figure 23.

In addition to flooding, the creek flats have undergone regular ploughing and cultivation. The physical evidence of these human impacts included the mixing of clay into the A-unit sediment. Charcoal fragments were observed at both open area deposits. The charcoal fragments were small (<10 mm) and were not associated with cultural features, such as hearths. There was no evidence to suggest that the charcoal was the result of cultural activity. It is possible that the charcoal and burnt clay feature relates to natural bushfire events or burning of the stumps of felled trees.

	<p style="text-align: center;">S 14 315E 915N</p> <ol style="list-style-type: none"> I. 0-9cm orange-brown silty loam, infrequent iron manganese nodules and grass roots. Defined boundary to; II. 9-20cm orange-brown silty loam with increasing yellow/orange clay content. High concentration of iron manganese nodules between 14-19cm III. 20-24cm mottled orange brown and pale yellow silty clay with regular FeMn nodules and diffuse boundary to base IV. Base – orange/yellow clay
	<p style="text-align: center;">OA1 258E 923N</p> <ol style="list-style-type: none"> I. 0-2cm humic topsoil with grass roots II. 2-20cm reddish brown silty loam with high clay content. Ironstone and charcoal inclusions particularly within the top 10cm of layer. Red/brown subsoil with biopores and diffuse boundary to; III. 20cm – base (24-30cm) red/orange silty loam with increasing clay content. Bioturbation continuing into base IV. Base – red/orange clay

Figure 30. AFT 20: Detailed description of the deposit at S14 and OA1.

Table 49. AFT 20: End depths across OA1 and OA2.

OA1 Easting/Northing	Minimum and Maximum end depth	OA2 Easting/Northing	Minimum and Maximum end depth
253E 924N (NW corner)	22 cm – 30 cm	239E 899N (NW corner)	23 cm – 25 cm
253E 922N (SW corner)	24 cm – 26 cm	239E 897N (SW corner)	24 cm – 29 cm
258E 923N (NE corner)	20 cm – 29 cm	241E 897N (NE corner)	20 cm – 24 cm
257E 922N (SE corner)	25 cm – 30 cm	241E 899N (SE corner)	26 cm - 29 cm

AFT 20 - OA1



↑N	253E	254E	255E	256E	257E	258E
924N	0	0	1	1	2	0
923N	0	0	0	2	2	0
922N	0	2	0	3	0	

OA1 - All artefacts

Figure 31. AFT 20: View east after the completion of OA1 (left) & artefact count per square (right).

AFT 20 - OA2



↑N	239E	240E	241E
899N	0	0	1
898N	0	1	0
897N	2	2	0

OA2 - All artefacts

Figure 32. AFT 20: View south after the completion of OA2 (left) & artefact count per square (right).



Plate 51. AFT 20: View south with OA2 in the foreground and excavation in progress at OA1 in the middle ground.

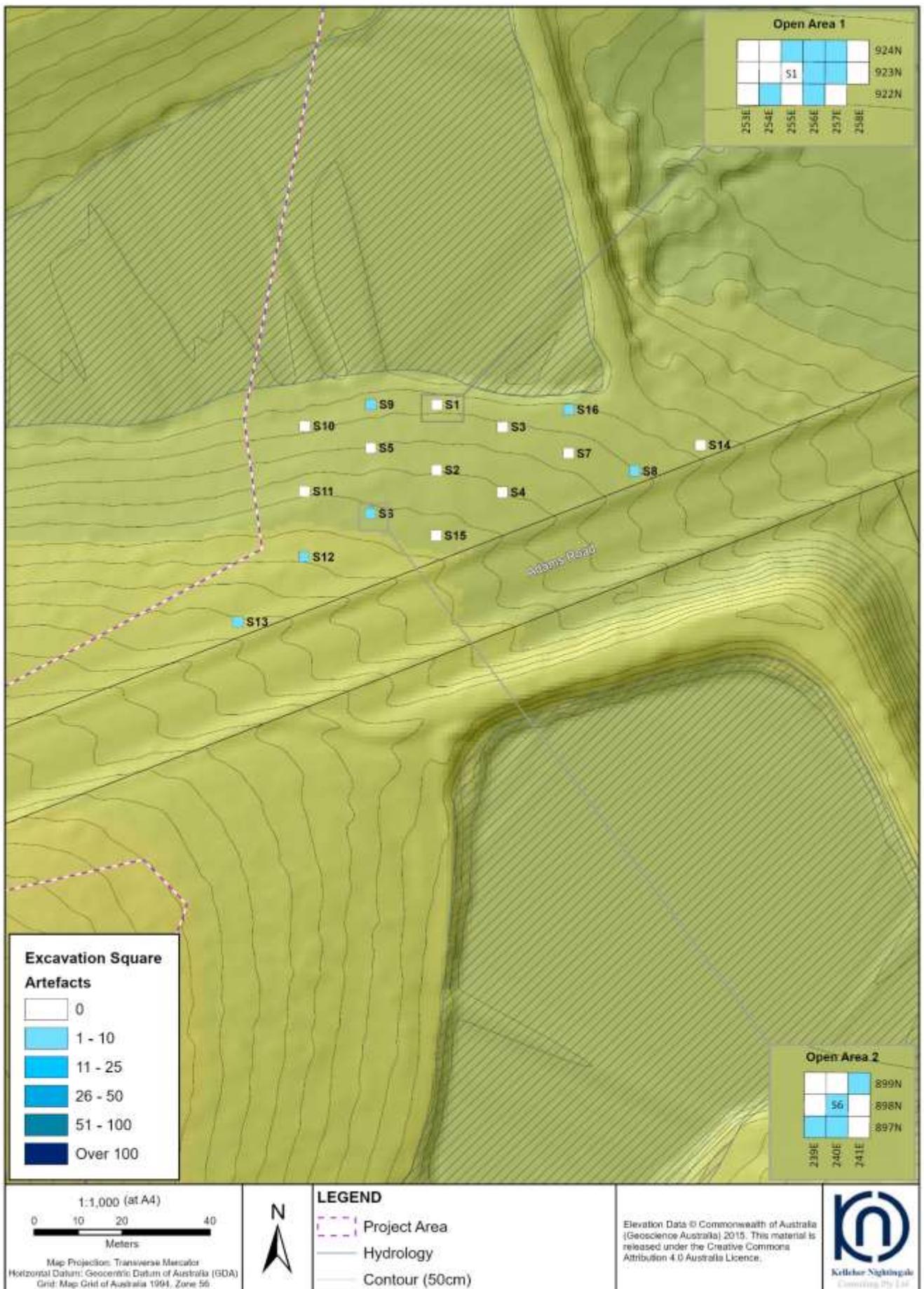


Figure 33. TNR AFT 20 Layout of Phase 1 and Phase 2/3 units

11.5 AFT 20: Lithic Assemblage

The Phase 1 and Phase 2/3 open area excavation programs combined was 40 m². The two programs, including all Phase 1 squares, yielded a total of 25 artefacts, with 72% of artefacts recovered by the Phase 2/3 program (n=18). Less than half the squares at OA1 and OA2 yielded artefacts. Artefact densities (including Phase 1 squares) were very low, just 0.8/m² at OA1 and 0.6/m² at OA2, with the highest density square located at OA2 containing three artefacts.

Silcrete was the most common lithic material, comprising 72% of the assemblage by count and 90.9% by weight (Table 50). This was followed by tuff and quartz, which accounted for 12-16% by count and 9.1% by weight. Flake fragments (medial and distal) were the most common reduction types comprising 67% (n=12) of the Phase 2/3 assemblage with angular fragments comprising just 11.1% (n=2) (Table 51). The tuff assemblage consisted of two distal fragments and one angular fragment. Only two complete silcrete flakes and two cores were identified, both comprising 11.1% of the assemblage. Complete flakes were small, between 11-20 mm in maximum size. The only other complete flake found in Phase 1 was slightly larger with a size range between 20-25 mm.

The two cores were also small with maximum sizes ranging between 16-35mm. One core each was found in OA1 and OA2. The core found in OA1 was a silcrete unifacial core with a weight of 11.28 g and a size range of 31-35 mm. Two negative scars were identified, and a small amount of cortex was visible. One silcrete multidirectional core was found in OA2 with a size range of 26-30mm, weighing just 4.65g with three negative scars and no cortex.

Only one modified artefact or tool was located. The retouched artefact was at OA2 and was a silcrete distal fragment with retouch on the left lateral margin. The tool was relatively large with a size range of between 26-30 mm and weighing 2.07g with a small amount of cortex.

Cortical artefacts comprised 28% (n=7) of the entire Phase 1 and 2/3 assemblage although the most common raw material, silcrete, had only 16.7% (n=3) of its assemblage cortical. Quartz and tuff both had high levels of cortex, 66.7% and 50% respectively, although the number of artefacts was very low (Table 50).

Table 50. AFT 20: Lithic materials counts, percentages & mean density/m²

Salvage unit		Silcrete	Tuff	Quartz	Total
Phase 1 (16 m ²)	Count	3	1	3	7
	%	42.9	14.3	42.9	100
	Mean density	0.2/m ²	0.06/m ²	0.2/m ²	0.4/m ²
Phase 2/3 OA1	Count	11	2	0	13
	OA1 %	84.6	15.4	-	100
Phase 2/3 OA2	Count	4	1	0	5
	OA2 %	80.0	20.0	28.3	100
Phase 2/3 (24 m ²)	Count	15	5	0	18
	%	83.3	27.8	-	100
	Mean density	0.6/m ²	0.2/m ²	-	0.75/m ²
All (40 m ²)	Total Count	18	4	3	25
	Total %	72.0	16.0	12.0	100
	Mean density	0.45/m ²	0.1/m ²	0.1/m ²	0.6/m ²
	Weight (g)	75.88 g	5.87 g	1.74 g	83.5 g
	Cortical	3 (16.7%)	2 (50%)	2 (66.7%)	7 (28%)

Table 51. AFT 20: Phase 1 & 2/3 reduction types

Reduction Types	Cores	Whole flakes	Flake fragment	Angular fragment	Total
Phase 1 & Phase 2/3	2	3	17	3	25
%	8%	12%	68%	12%	100%

11.6 AFT 20: Summary

Site AFT 20 exhibited an unusually low density of artefacts for a site situated on lower landscapes adjacent to a water source. Despite the modern construction of dams and the potential for soil disturbance, the soil profile appeared to be intact. It is possible that past flooding events have impacted on the archaeological material, although it is equally possible that the paleo-landscape was not conducive for longer term or repeated occupation, unlike AFT 17 and AFT 19. The lack of a broad range of lithic materials was also unlike most other sites, even low-density sites located on upper elevations. What remains of the archaeological material, with two wasted cores and a roughly retouched flake fragment, suggest that the area was used infrequently for isolated activities. Site AFT 20 is a useful illustration of a site that does not fit neatly into archaeological landscape models.



Plate 52. AFT 20: Silcrete multidirectional core (ID #2742).



Plate 53. AFT 20: Silcrete retouched distal fragment (ID #2743).

12 Comparative Analysis of Phase 2/3 assemblages

12.1 TNR Stage 6 (TNR6): Assemblage counts & sample size

A total of **2,759** artefacts were recovered from salvage excavations for the current project, with 376 m² excavated across five sites: AFT 14, AFT 16, AFT 17, AFT 19 and AFT 20 (Table 52). Sampling was found to be effective at each of the five sites, in the detection of archaeological material across the area of project impact. Just over half (53%) of the total sample (200 m²) was at Cosgroves Creek (AFT 17, AFT 19 & AFT 20). The remainder (176 m²) was at the elevated terrain overlooking the headwaters of Blaxland Creek and Mulgoa Creek (AFT 14 & AFT 16).

Most of the Phase 1 units (1m²) yielded less than 10 artefacts (n=132 squares, 96.4%), including 80 squares that had zero totals. The number of Phase 1 units that yielded more than ten artefacts was in the minority (n=5%). Conversely, a much higher percentage (32.8%) of the Phase 2/3 squares yielded more than 10 artefacts. In all, nine squares yielded more than 100 artefacts (Table 53). All of these were at Cosgroves Creek (AFT 17 & AFT 19), where the peak Phase 1 square yielded 76 artefacts and the peak Phase 2/3 square yielded 87 artefacts (Table 54).

Most artefacts (n=2,492, 90.3%) were recovered from sites near tributaries of Cosgroves Creek. In contrast, the two ridgetop sites had a combined total of just 263 artefacts or 9.5% of the combined project salvage assemblage. The sample units at the ridgetop sites consistently yielded much lower artefact densities than the creek side sites. This trend was the same for both the Phase 1 and Phase 2/3 programs. The peak square at the ridgetop sites was a Phase 2/3 unit containing 33 artefacts. Most of the Phase 2/3 units at the ridgetop sites yielded fewer than two artefacts.

Table 52. Summary of artefact counts, densities, and sample size for each site

Environment	Site	Phase 1			Phase 2/3		
		Artefacts	Sample	Density/m ²	Artefacts	Sample	Density/m ²
Ridge top	AFT 14	20	58m ²	0.3/m ²	221	79 m ²	2.8/m ²
	AFT 16	8	23 m ²	0.3/m ²	14	16 m ²	0.8/m ²
Cosgroves Creek	AFT 17	50	15m ²	3.3/m ²	1,082	70 m ²	15.4/m ²
	AFT 19	180	25 m ²	7.2/m ²	1,159	50 m ²	23.2/m ²
	AFT 20	7	16 m ²	0.4/m ²	18	24 m ²	0.8/m ²
Total		265	137 m²	1.9/m²	2,494	239 m²	10.4/m²

Table 53. Overview of artefact density for the entire excavation program (total 376 m² excavated)

Sample unit	Zero artefacts	1-9 artefacts	10-49 artefacts	50-99 artefacts	Total m ²
Phase 1 units (1m x 1m)	80 m ²	52 m ²	4 m ²	1 m ²	137 m ²
%	58.4	38.0	2.9	0.7	100%
Phase 2/3 units (1m x 1m)	60 m ²	97 m ²	74 m ²	8 m ²	239 m ²
%	25.1	40.6	31	3.3	100%
Total units (1m x 1m)	140 m²	149 m²	78 m²	9 m²	376 m²
%	37.2	39.6	20.7	2.4	100%

Table 54. Summary of peak squares for each site

Environment	Site	Phase 1		Phase 2/3	
		Peak square count	Location	Peak square count	Location
Ridgetop	AFT 14	3	S86	33	OA4
	AFT 16	3	S36	5	OA3
Cosgroves Creek	AFT 17	14	S40	65	OA5
	AFT 19	76	S66	87	OA6
	AFT 20	2	S9	2	OA1

12.2 Archaeological preservation & Aboriginal land use patterns

The relative and actual density of artefacts has been affected by erosion and fluvial processes at both ridge and creek side locations. The shallow soils on the ridges have been subject, over time, to wind and rain driven soil erosion, while the creek lines have experienced cycles of soil movement and deposition generated by flooding. This is revealed by the different depths of the A-unit soils at each site. The raised landforms at creek side locations exhibited the optimum combination of archaeological activity and soil stability – close to water sources and stone sources but high enough not to be decimated by flooding. The best-preserved deposit was at AFT 19 (OA6), which had the deepest A-unit soils (45-50 cm) and highest artefact densities (mean density 23.2/m²).

Nevertheless, the differences between the artefact densities at ridge and creek locations cannot be explained solely in terms of differential rates of site disturbance. Instead, the relative densities are also a product of past human behaviour and differences in the forms of occupation and use. The ridges were not areas where people camped for long periods as they were further from secure water supplies, offered less shelter from wind and the elements, and had a sparser presence of plant and animal foods. In contrast, the creek lines offered access to water, flatter terrain and shelter from prevailing wind. Overall, the creek lines were also areas where people had more ready access to plant and animal resources such as macropods, crustaceans, and a wider diversity of food plants. These differences led to greater overall congregation and use of creek lines than the ridges for camping and led to more tool manufacture, use and discard.

The peak density at all the sites is shown in Table 86. Excavation of archaeological deposits across the Cumberland Plain has revealed a common pattern of discrete clusters of silcrete artefacts, typically 3m² to 5m² in area, separated by more mixed lithic assemblages of low to medium density. For the southern and western Cumberland Plain, silcrete knapping episodes are expressed archaeologically as density peaks of around 40-79/m², while peaks greater than 80/m² are infrequent. AFT 17 and AFT 19 yielded the highest peak squares for the current project, with counts of 65/m² at OA5 and 87/m² at OA6. These are typical for the south-west Cumberland Plain, Artefact density peaks of greater than 80/m² are rarely present at open sites in the south-west. In contrast, the occurrence of artefact density peaks greater than 80/m² is normal for open sites in the northern Cumberland Plain, where large pieces of silcrete were more readily obtainable.

Archaeological studies over many years across the Cumberland Plain have tended to find this same pattern. It has been argued that it reflects variability in Aboriginal people's use of the landscape, and as such is an archaeological signature of deliberate land use strategies that reflected a structured way of inhabiting and utilizing the land. The presence of larger, more complex assemblages on lower slopes adjacent to creeks has been interpreted as the outcome of repeated occupation of these areas, often by larger groups, who were taking advantage of important characteristics in these areas. These multipurpose sites are domestic hubs, where many people gathered to undertake a range of activities. Two sites within the TNR 6 project area fit this category, AFT 17 and AFT 19. The landscape features at these site locations include ease of access to a good water supply; level ground for camping; an array of resources; and greater numbers of plant food resources associated with riparian and grassy woodland vegetation classes. The term "base camp" has been used for many years to label these types of sites in the region. Both sites were situated on lower slopes or alluvial terraces close to permanent water sources although both landscapes have been heavily modified since European colonization. An exception to this was site AFT 20 which despite being in the same sort of environment as AFT 17 and 19 yielded few artefacts and had a subsequently low overall artefact density.

Over time, as these areas were the scene of repeated occupation, it is assumed that the variation in tasks and activities being carried out resulted in the presence of a diverse collection of artefact types. These tasks included stone and wooden artefact manufacture and repair, and food preparation and consumption. In some cases, it is relatively easy to assign tool or artefact types to specific activities. A good example would be Eloueras which were used for woodworking. In other cases, a tool type might have been used to perform an array of different tasks. Sharp edged flakes, for example, could have been used for processing meat, hide and sinew, as well as wooden tool manufacture or even ritual activities.

In contrast, the smaller sites discovered on mid and upper slopes are interpreted as signatures of possibly repeated, but shorter term occupation, often associated with transiting through a landscape to more favoured occupation areas or to facilitate specific activities (away from domestic base camps). Sites AFT 14, AFT 16 and AFT 20 (lower slope) fit within this category. The two larger sites also incorporated some of these elements seen primarily through the Phase 1 excavations while the Phase 2/3 excavations concentrated on the higher density lower landform areas. Disturbance levels within each site also need to be considered, with many of the hill top/ridgecrest sites displaying higher degrees of erosion and soil deflation compared to sites on lower slopes and alluvial benches, although these lower sites would also be subject to periodic flooding.

Importantly, it is also possible that associating the absence of larger assemblages with shorter term, and less frequent use of a location is potentially simplistic. A location could have been used regularly, and for extended periods but not necessarily resulted in the subsequent discard of artefacts. Sites used as a vantage point to observe Country or travel routes between locales are potential examples. In broad terms, the delineation of base camps or living areas, from these types of sites is premised on the positive occurrence, at the former, of both larger and more varied artefact assemblages. Their size and variability are interpreted as being the product of extended and repeated occupation of a site to carry out a broad range of activities associated with group life and behaviours

12.3 Intra-site spatial patterning

The analysis showed that the occurrence of artefacts along the TNR 6 project area was generally consistent with that found at many similar large-scale archaeological investigations elsewhere in the region. This pattern of site distribution appears to hold true, even when factors of land disturbance and the statistical effects of variable sample size are considered. At a finer scale, intra-site spatial patterning at individual sites is inherently difficult to bring to light. Intra-site patterning concerns the differential distribution of artefacts, ideally, within a minimally dated horizon. However,

the delineation of individual occupation events at locations, where possibly thousands of years of occupation has occurred, is often prevented by taphonomy and subsequent spatial mixing of artefacts.

Despite density maps showing discrete areas of medium-high artefact densities at sites AFT 17 and AFT 19, no distinct or individual knapping events or reduction sequences were observed whilst recording the artefacts. This is not to say that they were not there, just that they could not be distinguished outside of the general accumulation of artefacts often found on sites with longer term occupation and deflated soil profiles.

12.4 Spatial distribution of raw materials

There were four primary lithic raw materials recovered from the TNR 6 project with silcrete being dominant, comprising 90.2% of the total assemblage (Table 55, Figure 34). The three other primary materials included silicified tuff (5.9%), quartz (2.3%) and chert (0.8%), with the category other consisting of small numbers of petrified wood, quartzite, unidentified fine grained siliceous (FGS), igneous material and one possible glass artefact. Artefacts from these categories were recovered in different proportions from the Phase 1 and Phase 2/3 lithic assemblages.

Table 55. Phase 1 & 2/3 raw material summary

Raw Materials	Silcrete	Tuff	Quartz	Chert	Other	Total
Phase 1	188 70.9%	39 14.7%	24 9.1%	10 3.8%	4 1.5%	265 9.6%
Phase 2/3	2,294 92%	127 5.1%	44 1.8%	14 0.6%	15 0.6%	2,494 90.4%
Phase 1 & 2/3 Combined	2,482 90.5%	166 6.7%	68 2.7%	24 1%	19 0.8%	2,759

Raw material usage varied between sites with silcrete being the most common material in Phase 2/3 at all sites except AFT 16 where larger percentages of tuff and quartz were recovered (Figure 35). The most common silcrete type was what appeared to be a mixture of heated red/red-yellow/yellow silcrete making up just over 70% of the assemblage (Table 57). Pink silcrete was the next most common and was mostly non-heated, while rarer silcrete types were also encountered, including low numbers of light grey/white and black silcrete. Tuff was the second most common material across the project, although found mostly in small low-density numbers across various Phase 1 squares and open areas. No higher density clusters were located. Surprisingly, quartz use was low across the study area as was chert, specifically when compared to sites from TNR 4.

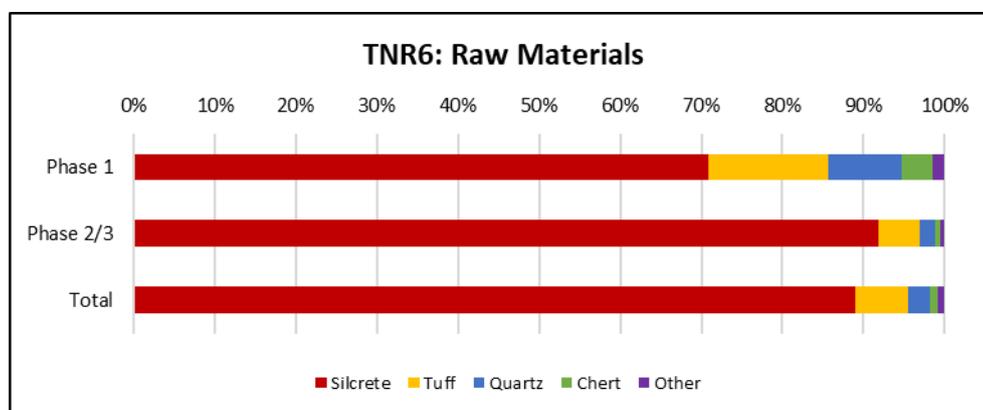


Figure 34. Phase 1 & 2/3 raw materials

Table 56. "Other" raw materials

Other Materials	P. Wood	Quartzite	FGS	Igneous	Glass
Phase 1 & 2/3	2	8	2	6	1

Table 57. Silcrete colours

Silcrete Colour	Red	Red/yellow	Yellow	Pink	Orange	Purple	Grey	Black	Total
TNR 6	1,438 57.9%	187 7.5%	115 4.6%	542 21.8%	7 0.3%	109 4.4%	81 3.3%	3 0.1%	2,482

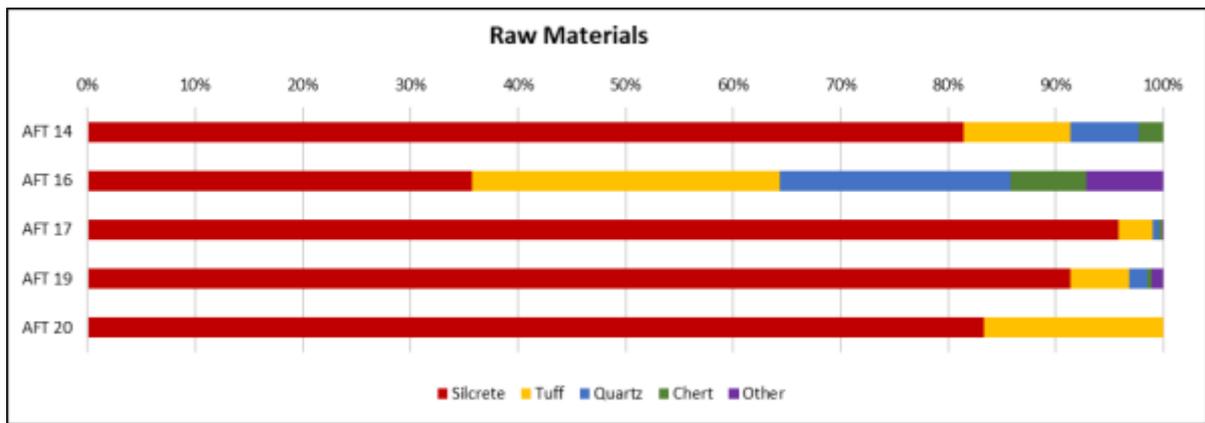


Figure 35. Phase 2 Raw material distribution

12.5 Size Ranges of Raw Materials

The vast majority of artefacts (84%) were under 20mm in length (maximum dimension) with the four main raw material types, silcrete, tuff, quartz and chert showing a peak in artefact numbers between 10-20mm size range, while the 'other' category shows a generally larger overall size range. This 10-20mm peak is followed by a steep reduction in artefact numbers between 20-30mm with few artefacts greater than 30mm. All materials show varying trends in size distribution, with tuff and chert having on average larger size distribution of artefacts than silcrete and quartz. Quartz had a much higher percentage of smaller artefacts, with just over 86% of the assemblage being less than 20mm in size with 32% less than 10mm (Table 58, Figure 36).

Table 58. Phase 1 & 2 Size range of raw materials

Size Range	Silcrete	Tuff	Quartz	Chert	Other	Total
<10mm	821 33.1%	35 21.1%	13 19.1%	5 20.8%	2 10.5%	876 31.8%
10-20mm	1,307 52.7%	88 53%	43 63.2%	15 62.5%	7 36.8%	1,460 52.9%
21-30mm	296 11.9%	30 18.1%	10 14.7%	2 8.3%	5 26.3%	343 12.4%
31-40mm	48 1.9%	7 4.2%	1 1.5%	2 8.3%	0 0%	58 2.1%
>40mm	10 0.4%	6 3.6%	1 1.5%	0 0%	5 26.3%	22 0.8%
Total	2,482	166	68	24	19	2,759

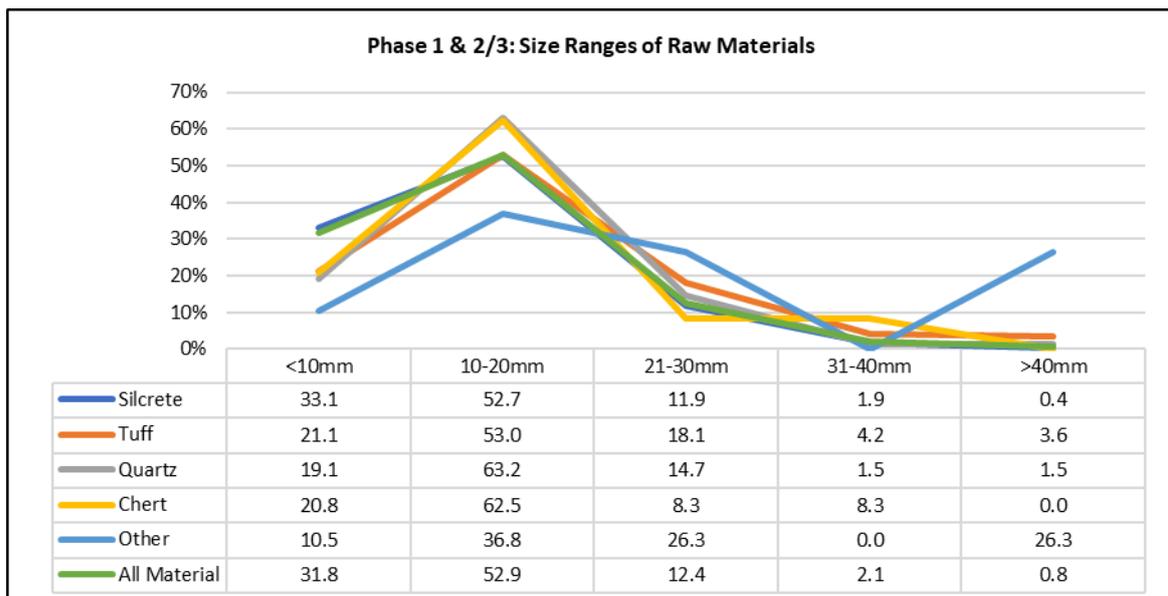


Figure 36. Phase 1 & 2/3 Percentage of raw materials by size category

12.6 Reduction Types

During recording, artefacts were classified into eight "reduction types": Flake, bipolar flake, split flake, proximal fragment, medial fragment, distal fragment, angular fragment and core. For statistical analysis, these reduction types have been merged to form four primary categories:

- **Flake & flake fragment** (flake, bipolar flake, split flake, proximal fragment, medial fragment, and distal fragment)
- **Angular fragment** (angular fragment)
- **Core** (whole core and core fragment)

Flakes and flake fragments were the most common reduction types across both Phase 1 and Phase 2/3 assemblages followed in most cases by angular fragments. The exception to this trend was site AFT 16 in Phase 1 and Phase 2/3, where angular fragments comprise the most frequent reduction type. However, it is important to factor in the low artefact numbers retrieved from AFT 20 which did not represent a complete assemblage.

By separating complete flakes from flake fragments, variation and similarities between salvage areas become evident. The two sites representing the bulk of the assemblage, AFT 17 and AFT 19, both displayed very similar percentages of reduction types, likely due to higher numbers of artefacts representing complete reduction sequences, similarly, AFT 14, while having a lower density of artefacts, shows a similar pattern of reduction. Sites AFT 16 and AFT 20, while situated on two different landscape types had a very low density of artefacts and displayed a much higher variation in reduction ratios, primarily due to low artefact numbers most likely due to various natural and historic disturbances. The larger Phase 2/3 excavations at site AFT 17 and 19 were primarily conducted on lower slopes and raised alluvial terraces adjacent to major water sources and displayed more intact soil profiles and thus archaeological assemblages.

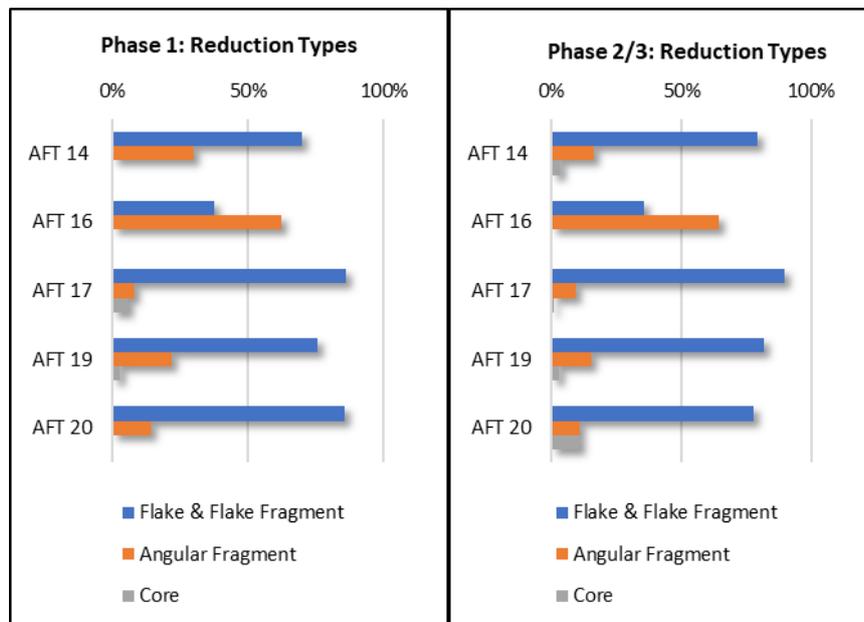


Figure 37. Relative proportions of reduction types – Phase 1 & 2/3

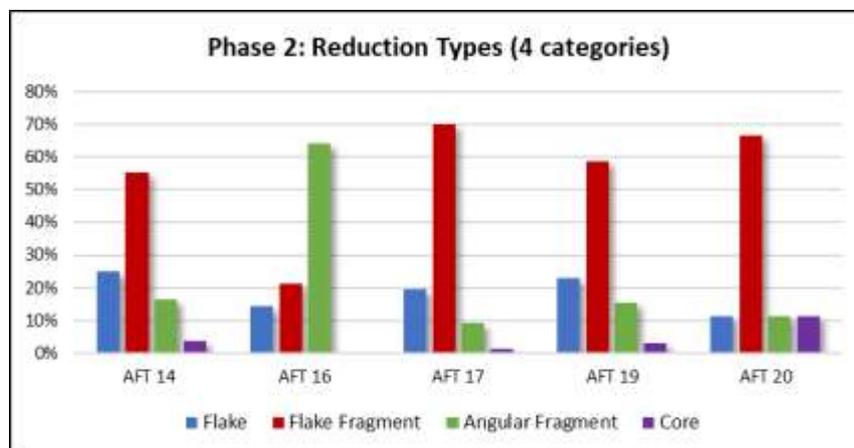


Figure 38. Phase 2/3 reduction types (four categories)

Table 59. Phase 1 Reduction Types

Reduction types Phase 1		Flake	Flake Fragment	Angular Fragment	Core	Total
TNR 6	AFT 14	2 10%	12 60%	6 30%	0	20 7.5%
	AFT 16	0	5 62.5%	3 37.5%	0	8 3%
	AFT 17	12 24%	31 62%	4 8%	3 6%	50 18.9%
	AFT 19	29 16.1%	107 59.4%	39 21.7%	5 2.8%	180 67.9%
	AFT 20	1 14.3%	5 71.4%	1 14.3%	0	7 2.6%

Table 60. Phase 2/3 Reduction Types

Reduction types Phase 2/3		Flake	Flake Fragment	Angular Fragment	Core	Total
TNR 6	AFT 14	55 24.9%	122 55.2%	36 16.3%	8 3.6%	221 8.9%
	AFT 16	2 14.3%	3 21.4%	9 64.3%	0	14 0.6%
	AFT 17	210 19.4%	757 70%	102 9.4%	13 1.2%	1,082 43.4%
	AFT 19	267 23.1%	679 58.5%	178 15.3%	35 3%	1,159 46.5%
	AFT 20	2 11.1%	12 66.7%	2 11.1%	2 11.1%	18 0.7%

12.7 Cortical Artefacts and Reduction Intensity

The number of cortical artefacts varied between the raw material assemblages. The highest proportion of cortical artefacts from the Phase 2/3 excavations were found within the silicified tuff assemblage (23.4%) followed by chert (23.1%). Silcrete, the largest representative sample of raw material, had a lower percentage of cortical artefacts at 15.5% with quartz having the lowest (12.2%) number of cortical artefacts. Quartz artefacts from the Phase 1 excavations had a much higher level of cortical artefacts (43.5%) while the other materials all had similar percentages of cortical artefacts. Higher levels of cortex within a raw material type is often indicative of less intense reduction and easier access to the raw material source.

Characteristics within the tuff assemblage show larger sized flakes and flaked debitage, with increased evidence of primary and secondary reduction. Lower levels of cortex indicate more intense reduction of materials and less access to the raw materials. In the case of this study, it is likely that silcrete sources were located outside the study area and imported from silcrete quarry areas in the surrounding region. This is reflected in more intense reduction of core materials, smaller artefact sizes and primarily tertiary reduction with only small evidence of primary and secondary reduction. Contrary to this, however, the core assemblage had just over 42% of artefacts with cortex, although the cores themselves were generally smaller than average when compared to other sites in Western Sydney.

When considering the silcrete assemblage, levels of cortex were low while the proportion of heat affected artefacts was high. There was no specific evidence of heat treatment of silcrete cobbles on any of the sites with the study area, with only small numbers of heat shattered silcrete recovered. Normally if cobbles are being heated on site large numbers of heat shattered material is found alongside knapped material. This is not evident. It is more likely that silcrete was heated at the source location and imported into the area. Non cultural heating may have also occurred such as periodic fire events.

Table 61. Cortical artefacts

Proportion of cortical artefacts	Silcrete	Tuff	Quartz	Chert	Other
Phase 1	188 23 (12.2%)	39 9 (23.1%)	24 11 (45.8%)	10 2 (20%)	4 1 (25%)
Phase 2/3	2,294 362 (15.8%)	127 30 (23.6%)	44 5 (11.4%)	14 3 (21.4%)	15 1 (6.7%)
Total	2,482 385 (15.5%)	166 39 (23.5%)	68 16 (23.5%)	24 5 (20.8%)	19 2 (10.5%)

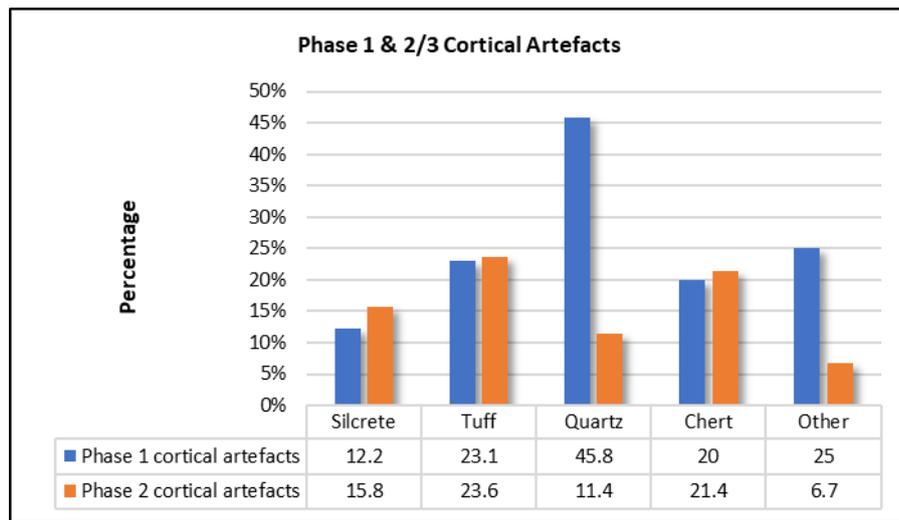


Figure 39. Phase 1 & 2/3 cortical artefacts

Table 62. Silcrete cortical artefacts by reduction type

Silcrete Artefacts	Flake	Flake fragment	Angular fragment	Core
Cortical artefacts	116	184	61	24
Total Artefacts	543	1,598	284	57
Percentage of cortical artefacts	21.4%	11.5%	21.2%	42.1%

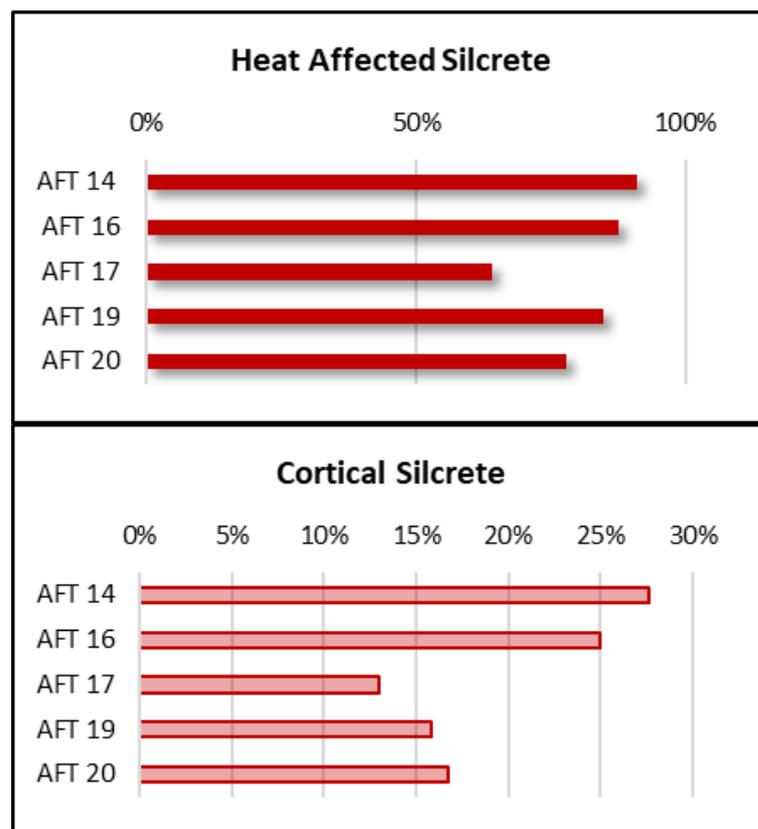


Figure 40. Phase 1 & 2/3 Heat Affected and cortical silcrete by site

12.8 Flake Assemblage: Phase 2/3 salvage areas compared

Most flakes and flake fragments were less than 20mm (maximum dimension). Most complete flakes were longer than wide in shape. These flakes represent the by-product of generalised core reduction and are not necessarily indicators of backed artefact production. Elongate shaped flakes make up a lower proportion of the flake assemblage and appear to be associated with more specialised production of tools. Production of backed blades was evident at low intensity at sites AFT 17 and AFT 19, each of which had a relatively high proportion of elongate flakes within the assemblage (Figure 43). Site AFT 14 also had a high proportion of elongate flakes, however there was little evidence of tool manufacturing within the assemblage.

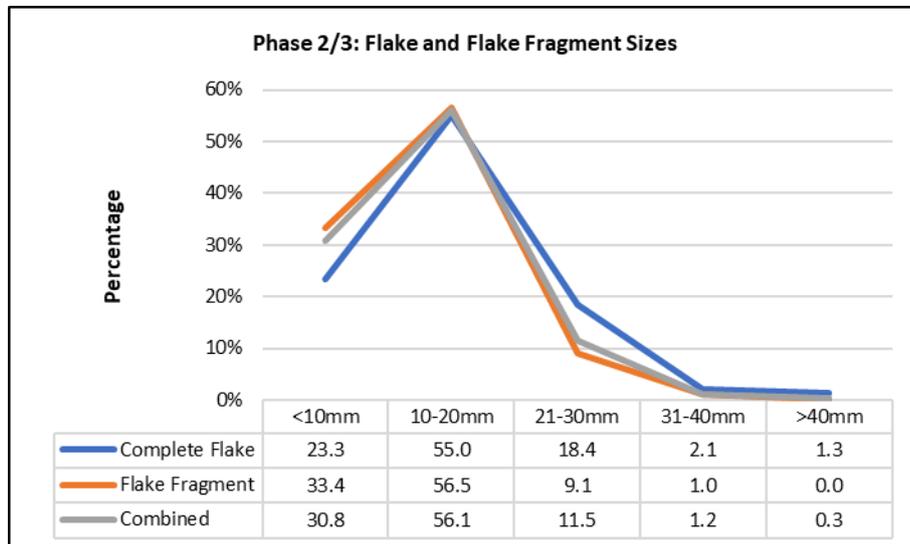


Figure 41. Flake and flake fragment size ranges

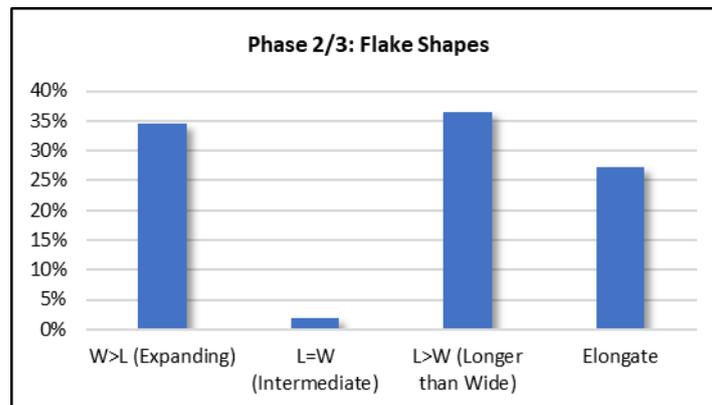


Figure 42. Flake shapes Phase 2/3

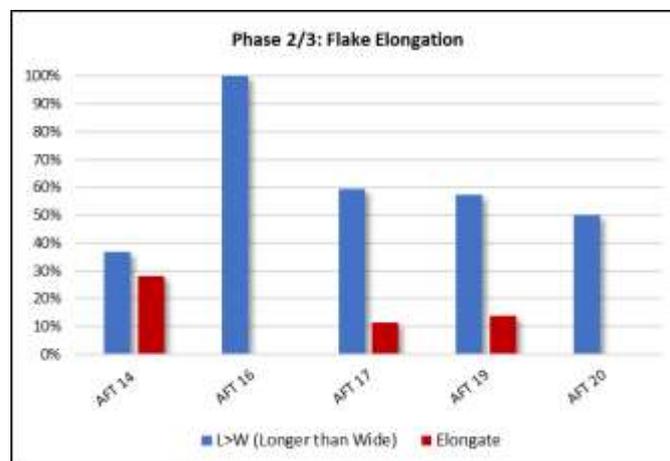


Figure 43. Flake elongation Phase 2/3

12.9 Characteristics of Cores: Phase 1 & 2/3 Salvage Areas Combined

A total of 63 whole cores were recovered during the Phase 1 and 2/3 excavation programs with 3 core fragments also identified. Silcrete cores comprised just over 86% of the core assemblage, followed by tuff (76%), quartz (4.5%) and chert (1.5%). No cores were recovered at site AFT 16, while quartz cores were only located at site FT 19. Site AFT 20 recorded a higher frequency of cores than is common, although the number of artefacts on the site was low. The sites with much higher numbers of artefacts, such as AFT 17 and AFT 19 show a much lower ratio of cores to flaking debitage, between 1% and 3% of the assemblage at each site, which is more in keeping with sites with similar assemblage sizes in Western Sydney. The elevated percentages of cores on sites with smaller assemblages is problematic and may be due to loss of archaeological integrity at each site.

The most common core types were unifacial (31.8%) and multidirectional (24.2%). However, core flaking patterns were highly varied, with smaller numbers of unifacial-rotated, bidirectional, bifacial, and bipolar cores identified (Table 63, Figure 44). Two flake cores and four tranchet cores were also identified. Only one bipolar core was found within the silcrete assemblage, with none identified in the quartz assemblage, which is consistent with the low numbers of quartz bipolar flakes recovered. Several cores were also identified as 'blade' cores, indicating systematic manufacturing of blade flakes, although the number of complete backed blades was low at sites AFT 17 and AFT 19 with most blades being broken or fragmentary. The tranchet cores identified point directly to the manufacturing of backed blades within the silcrete assemblage (Hiscock 1993).

Core sizes were mostly small across the project area, with correspondingly low weights (Table 65 & Table 67). Tuff cores tended to be larger on average than silcrete or quartz with a mean weight of 23.1 g and a range of 14.71 g-46.91 g. Just over 50% of cores display a low reduction intensity (1-2 negative scars) with another 41% displaying moderate reduction intensity of between 3-4 negative scars. The most intensely utilized core was silcrete multidirectional core with a size range of between 31-35mm and weighing 14.77 g.

Table 63. Phase 1 & 2/3 – cores & core fragments

Cores		Core Fragment (Count)	Whole Cores (Count)	Whole Cores (Percentage of Assemblage)
TNR 6	AFT 14		8	3.3%
	AFT 16			
	AFT 17	1	15	1.3%
	AFT 19	2	38	2.8%
	AFT 20		2	8%
TNR 6 Total		3	63	2.3%

Table 64. Phase 1 & 2/3 – Core types by raw material

Core Types	Silcrete	Tuff	Quartz	Chert	Total
Unifacial	19	1	1		21 (31.8%)
Unifacial-Rotated	4	2			6 (9.1%)
Multidirectional	14	1		1	16 (24.2%)
Bidirectional	3				3 (4.5%)
Bifacial	6	1			7 (10.6%)
Bipolar	1		2		3 (4.5%)
Flake Core	2				2 (3%)
Tranchet	4				4 (6.1%)
Core Tool	1				1 (1.5%)
Fragment	3				3 (4.5%)
Total	57 (86.4%)	5 (7.6%)	3 (4.5%)	1 (1.5%)	66

Table 65. Core weights

Phase 1 & 2/3 Core Weights	Min Weight (g)	Max Weight (g)	Mean Weight (g)
Silcrete	0.96g	39.54g	7.76g
Tuff	14.71g	46.91	23.19g
Quartz	2.1g	16.29g	7.99g
Chert	6.34g	6.34g	6.34g

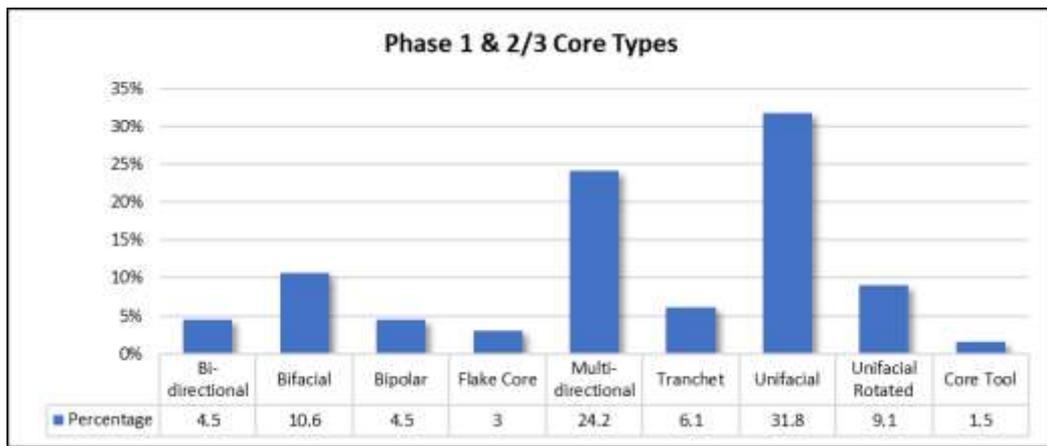


Figure 44. Phase 1 & 2/3 – Core types

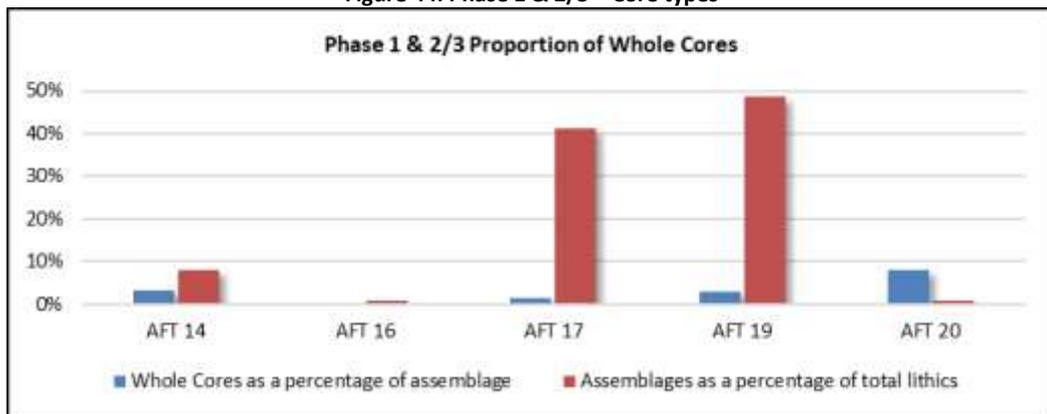


Figure 45. Proportion of whole cores by site

Table 66. Core reduction intensity (whole cores)

Core reduction intensity	1-2	3-4	5+*	Total
Silcrete	29 (53.7%)	21 (38.9%)	4 (7.4%)	53
Tuff	1 (20%)	2 (40%)	2 (40%)	4
Quartz	2 (66.7%)	1 (33.3%)	0	3
Chert	0	1 (100%)	0	1
Total	32 (50.8%)	25 (39.7%)	6 (9.5%)	63

* 1 silcrete core with 8 negative scars, 1 tuff with 14 negative scars (otherwise 5 maximum)

Table 67. Silcrete core weights and heat affected cores

Phase 1 & 2/3 Silcrete Cores	Min. Weight (g)	Max. Weight (g)	Mean Weight (g)	Heat Affected %
Unifacial	1.72g	14.67g	5.73g	78.9%
Unifacial-Rotated	1.68g	9.38g	5.52g	50%
Multidirectional	2.74g	39.54g	13.55g	78.6%
Bidirectional	5.01g	8.49g	6.8g	100%
Bifacial	3.4g	21.07g	10.47g	50%
Bipolar	2.02g	2.02g	2.02g	100%
Flake Core	1.61g	2.54g	2.08g	50%
Tranchet	2.05g	4.38g	3.16g	75%
Core Tool	7.51g	7.51g	7.51g	100%

Table 68. Levels of cortex on Cores by raw material

Phase 1 & 2/3 Cores with cortex	Silcrete	Tuff	Quartz	Chert
AFT 14	83.3%	0%	-	-
AFT 16	-	-	-	-
AFT 17	60%	0%	-	-
AFT 19	26.5%	100%	33.3%	0%
AFT 20	50%	-	-	-

12.10 Backed Artefacts: Phase 1 & 2/3 Programs

Backed artefacts were recovered from three of the five sites excavated during this project, with the majority located at the sites situated on lower slopes and with higher artefact numbers: AFT 17 and AFT 19 (Figure 46, Table 69). A total of 44 backed artefacts were identified from the Phase 1 and 2/3 excavations comprising 1.6% of the total lithic assemblage. The majority (95%, n=42) of backed artefacts were made of silcrete, with two silicified tuff backed blade fragments forming the remainder of the assemblage.

The range of backed artefacts was standard for Western Sydney comprising predominantly backed blades and geometric microliths. One Elouera and one non-diagnostic backed fragment were also recovered. A large portion of backed blades were fragmentary and may in most cases have been broken during use, with some artefacts showing use-wear along the working edge, or broken during the manufacturing process. Many blades were identified as 'Bondi points', however a wide range of shapes were encountered as well as varying levels of quality in backing. Many blades displayed only partial backing. It was noted that many of the geometric microliths were poorly formed with a number appearing broken or again with incomplete backing. Backed blade size ranges were slightly smaller than standard, with the five complete blades having a percussion length of between 11-25mm, the largest being a silcrete blade found at site AFT 14 with a percussion length of 21.5mm weighing 0.6g. Geometric microliths were generally small with all found within the silcrete assemblage. The majority of geometric microliths were between 6-15mm in maximum size with the smallest being 7.6mm and the largest 16.1mm. The single Elouera identified was recovered from site AFT 17 during the Phase 2/3 excavations with a maximum size of 21.2mm and weight of 0.65g.

Where present, backed artefacts generally comprised between 1-2% of the site assemblages. Retouched artefacts formed a greater proportion of assemblages at the sites with a low artefact density. At AFT 17 and AFT 19, backed artefacts were more frequent than retouched (Figure 46). Manufacturing of backed artefacts was evident primarily at sites AFT 17 and AFT 19, both of which had a medium to high artefact density, as well as core types indicative of blade production. Both sites displayed complex site usage and extended occupation events and were located close to major water sources.

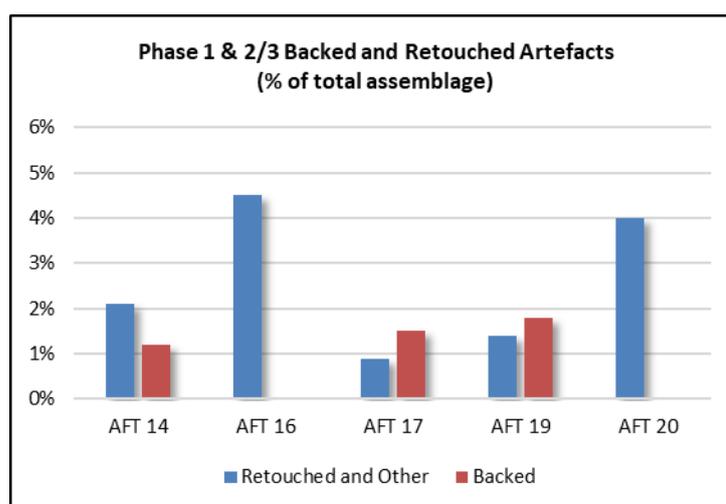


Figure 46. Phase 1 & 2/3 – Backed and retouched artefacts

Table 69. Backed artefacts

Phase 1 & 2/3 Backed Artefacts	Backed Blade	Blade Fragment	Geometric Microlith	Elouera	Non-diagnostic	Total (% of assemblage)
AFT 14	1	1	1			3 (1.2%)
AFT 16	-	-	-	-	-	-
AFT 17	1	3	12	1		17 (1.5%)
AFT 19	3	11	9		1	24 (1.8%)
AFT 20	-	-	-	-	-	-
Total	5 (11.4%)	15 (34.1%)	22 (50%)	1 (2.3%)	1 (2.3%)	44 (1.6%)

12.11 Retouched Artefacts: Phase 1 & 2/3 programs

A total of 40 retouched or ground/hammer tools were recovered from the Phase 1 and Phase 2/3 excavations (Table 70) comprising 1.4% of the entire lithic assemblage. Four hammerstone fragments were located at site AFT 19, three of which (ID #2098, #2099 and #2113) were fragments of a single hammerstone found over two excavation squares. The combined weight of the three fragments was 276.4g with a maximum dimension (when joined) of 65-70mm. Visible peck marks and striations were identified on two of the fragments.

Retouched artefacts were found on all sites within the study area although in generally low numbers. Only a small number of retouched artefacts were 'formal', typified by various scraper types (n=9) including two end scrapers, and one thumbnail scraper. Most retouched artefacts were non-formal flaked tools with a wide range of shapes and sizes and varying amounts of retouch, with many of these appearing to be single use tools. The largest concentration of retouched artefacts was found at AFT 19 (n=19 not including the hammerstone), comprising almost half of the retouched assemblage. AFT 17 had the second highest concentration (n=10).

The majority (77.5%) of retouched artefacts were recovered from the silcrete assemblage, with small numbers of tuff (n=3) and the potential glass artefact (n=1). The average size of retouched artefacts was 17.6mm with a range of between 6.8mm – 50mm. Termination shapes of retouched artefacts (complete flakes and distal fragments) were primarily convex, straight, or irregular, with none having concave edges. Retouch was most likely (70%) to be present on flaked fragments (n=28), with five complete flakes comprising 12.5% of the retouched assemblage. One core tool was also identified, formed from a distal flake fragment with retouch on the distal margin and two negative scars located on the dorsal surface.

The Cumberland Plain was a region where stone materials were relatively abundant, meaning that flaked stone was easy to come by. In many cases an implement was selected for immediate use from a mass of freshly knapped stone on the basis that it possessed a suitably sharp edge and fitted the hand well. This was a highly flexible approach to tool production that was well adapted to a highly mobile hunter-gatherer lifestyle. Importantly, people were not wasteful of stone resources as evidenced here by the recycling and reuse of broken flakes. Some of the larger flaked stone implements were also recycled, possibly years, or even generations, after they were discarded.

As already stated, retouched artefacts comprise 1.4% of the total assemblage, however variations occur across the project area. Sites with medium to high density (over 200 artefacts) have a low retouched artefact ratio, these include sites AFT 14, 17 & 19. Low density sites across the study area have a statistically higher presence of retouched artefacts, although numbers are correspondingly low, these sites include AFT 16 and AFT 20. The contrasting characteristics of the lithic assemblages recovered from these sites suggest that different activities were undertaken at these locations.

Table 70. Retouched artefacts and ground/hammer fragments

Phase 1 & 2/3 Retouched Artefacts	Retouched (non-specific)	Scraper	Hammerstone (Frag.)	Total (% of assemblage)
AFT 14	5			5 (2.1%)
AFT 16	1			1 (4.5%)
AFT 17	7	3		10 (0.9%)
AFT 19	13	6	4	23 (1.7%)
AFT 20	1			1 (4%)
Total	27 (67.5%)	9 (22.5%)	4 (10%)	40 (1.6%)

12.12 Regional Comparisons

Comparative analysis at a local and regional scale helps to define assemblage variability across landscapes, which has been caused by past human behaviour. Archaeological analysis attempts to identify variability as the basis for classifying site types such as quarries, base camps, and secondary activity areas.

The assemblages from several major archaeological excavation programs, located outside the TNR 6 study area, were compared to the TNR 6 sites. These were located at varying distances from the project area. They include:

- Nine archaeological sites at TNR 4, The Northern Road Project (KNC 2020 *in prep*) located 5-10km to the south of the current project area.
- Three archaeological sites from the M4 Smart Motorway project. Sites SC1 and SC2 were located on alluvial terraces near South Creek 10-15km to the north-east and Clyburn Avenue located on an upper slope/ridgeline 10km to the northwest (KNC 2019).

All the sites selected for comparative analysis had the following features:

- They capture a range of landforms across the Cumberland Plain.
- The assemblages were recovered by excavation and consist of a significant number of stone artefacts; and
- Artefact data was available in a form that was comparable to the TNR 6 sites.

How do the TNR 6 sites compare to other excavated assemblages from the Cumberland Plain? To address this question, some of the key assemblage characteristics are compared below. This discussion is supported by a series of tables listing the key features of individual sites.

The comparative analysis considers seventeen sites from two major creek catchment areas, Badgerys Creek and South Creek salvaged by KNC under three different excavation programs. The sites excavated by KNC yielded just over 16,100 artefacts from an excavation area of over 1,200m² (Table 71). Excavation methodology used a standard approach across a range of landforms to support the comparative analysis of the assemblages and to characterise the types of artefact assemblages that have been recovered.

The sites included in this study were defined by landform types, primarily between sites situated on elevated geography such as ridgetops, crests and upper slopes generally at distance from water resources, and sites located on lower slopes and alluvial terraces closer to or adjacent to creeks or drainage systems. The sites included in this study are shown in Table 71, below which shows landform type and artefact densities. The characteristics of these landscape types would have had a strong influence on the type of past activities that occurred there.

Table 71. Artefact density comparison

Landform	Site	Area Excavated	Artefacts	Artefact Density/m ²
Ridgetop/Crest & Upper Slope	TNR 4 AFT 22	31m ²	6	0.2/m ²
	TNR 4 AFT 24	59m ²	32	0.5/m ²
	TNR 4 AFT 26	75m ²	179	2.4/m ²
	TNR 4 AFT 27	76m ²	696	9.1/m ²
	TNR 4 AFT 29	15m ²	10	0.7/m ²
	TNR 4 AFT 30	36m ²	19	0.5/m ²
	TNR 4 AFT 31	75m ²	107	1.4/m ²
	TNR 6 AFT 14	137m ²	241	1.8/m ²
	TNR 6 AFT 16	39m ²	22	0.6/m ²
	Clyburn Ave.	43m ²	184	4.3/m ²
Total		586m² (46.7%)	1,496 (9.3%)	2.6/m²
Lower Slope/Alluvial Terrace	TNR 4 B6	125m ²	2,653	21.2/m ²
	TNR 4 B54	56m ²	1,085	19.4/m ²
	TNR 6 AFT 17	85m ²	1,132	13.3/m ²
	TNR 6 AFT 19	75m ²	1,339	17.8/m ²
	TNR 6 AFT 20	40m ²	25	0.6/m ²
	SC1	237m ²	6,550	27.6/m ²
	SC2	52m ²	1,855	35.7/m ²
Total		670m² (53.3%)	14,639 (90.7%)	21.8/m²
GRAND TOTAL		1,256m²	16,135	

The charts below (Figure 47 & Figure 48) show the artefact totals for sites within the comparative study separated by landform type. In almost all cases artefact totals were substantially higher among sites situated on lower slopes and alluvial terraces with SC1, situated adjacent to South Creek, having almost five times the artefact numbers than was recovered from site AFT 19, the largest site from the TNR 6 program. All other sites in this landform class, apart from TNR 6 AFT 20 (AFT 20), displayed moderate to high density artefact densities with complex cultural activity including tool production and other domestic activities. These higher density sites share characteristics such as the relative availability of lithic material and fresh water. Together, these resources would have had a strong influence on Hunter-Gatherer behaviour with people being drawn to those locations where fresh water and/or different types of lithic material were available. Access to reliable water sources and lithic materials characterise the two South Creek sites (SC1 & SC2), while access to water and other resources rather than lithic resources appear to be the primary attraction for sites within the TNR 4 and TNR 6 areas.

Nearly 60% of the areas excavated have been on the tops of elevated landforms producing just over 9% of the artefacts recovered. Most of these sites display low to very low artefact densities, often below one artefact per square meter, and low artefact totals. The exception to this was AFT 27 from TNR 4 and AFT 14 from TNR 6, which were situated primarily on raised elevations, however excavation continued onto lower elevations where higher density artefacts were encountered during Phase 2/3 excavations.

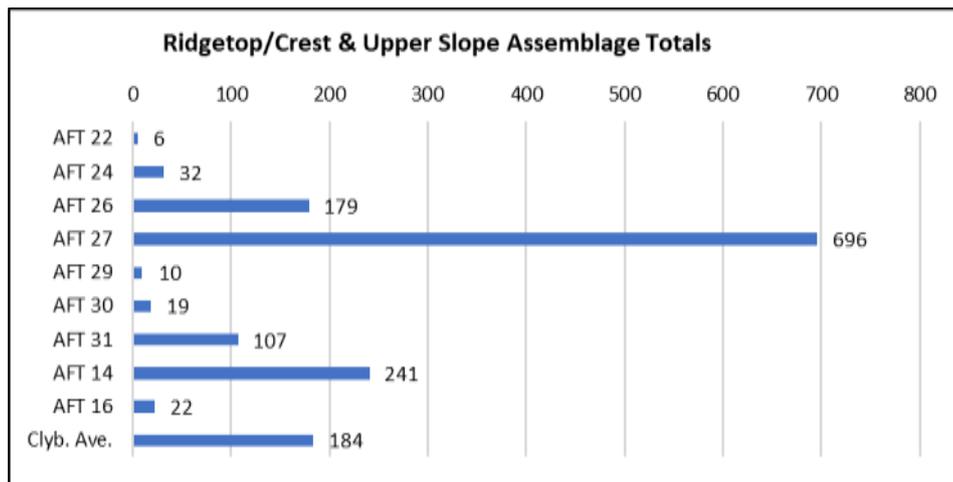


Figure 47. Ridgetop/Crest and Upper slope assemblages

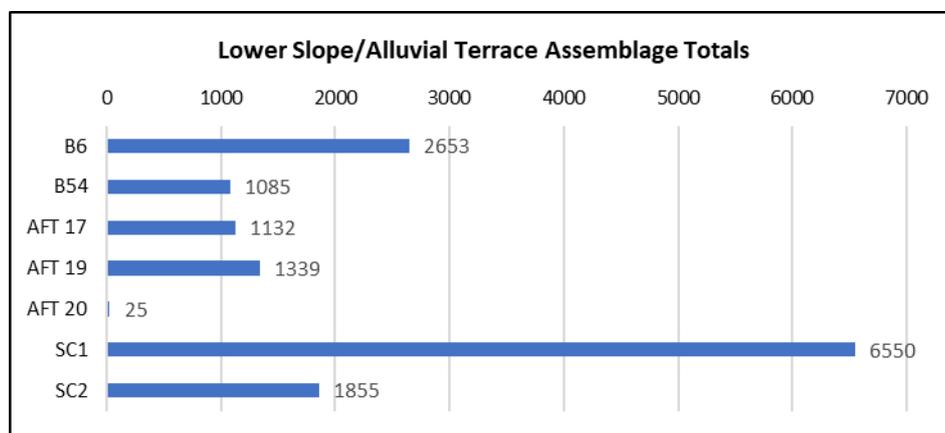


Figure 48. Lower Slope/Alluvial Terrace assemblages

An effective way to compare assemblages from across the Cumberland Plain is to examine mean artefact densities from a range of excavation programs. The graphs below (Figure 49 & Figure 50) show a high diversity in the mean Phase 1 densities *within* each landscape class as well as *between* them. In other words, not all landforms were occupied nor used to the same extent over time and some were probably used infrequently. Impacts to archaeological deposits by flooding and land clearance have accentuated this patchy artefact density pattern.

The data indicates that sites located on the lower slopes of elevated features tend to yield higher artefact densities than their 'partner' sites situated upslope, on the crests. The more complete assemblages recovered from these higher density sites may also explain why there also appears to be a trend for sites on the lower elevations to display higher proportions of complete flakes than sites on the crests. Sites located on higher elevations tend to have lower numbers of artefacts and a reduced opportunity to recover complete reduction sequences. This often leads to more varied assemblage types, including a more diverse array of lithic raw materials and more erratic reduction characteristics, such as higher numbers of cores or angular fragments than is seen in the higher density sites. Different assemblage characteristics are also an indication of the type of activities that were occurring in an area, with marked differences observed between the lower density elevated sites and higher density sites.

12.13 Assemblage Characteristics

On almost all sites within the study, flaked debitage constituted the primary reduction type within the various assemblages. These include complete flakes and proximal, medial, and distal fragments. Sites where this was not the case were limited to low density elevated sites such as TNR 4 AFT 24, TNR 6 AFT 16 and Clyburn Ave, which have elevated numbers of angular fragments within the assemblage. The two high density sites located along South Creek, SC1 and SC2 also have a higher percentage of angular fragments than comparable 'creekside' sites within the TNR assemblages

(Figure 52 &

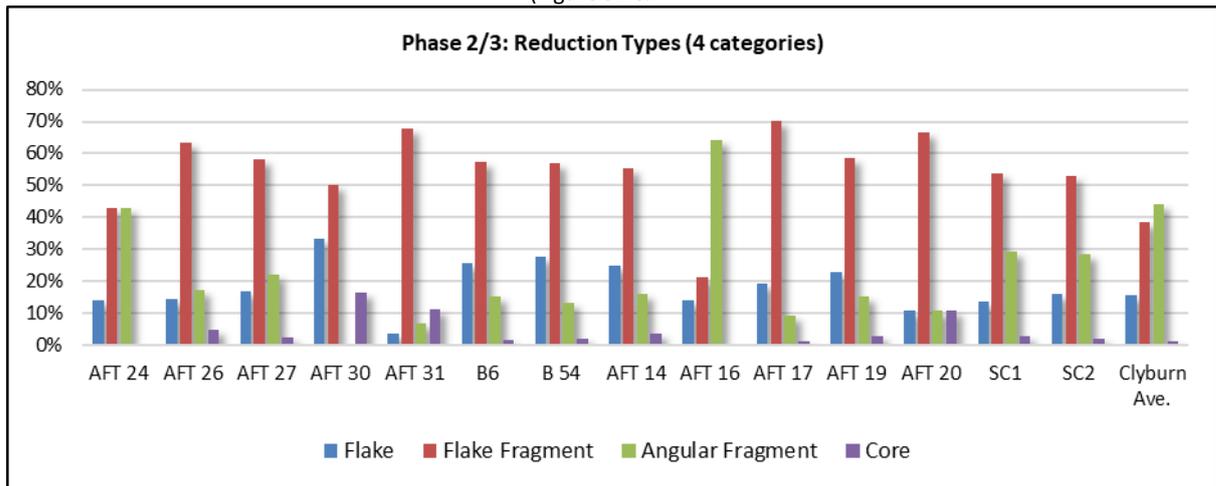


Figure 53). These two sites had higher levels of primary and secondary reduction than is found within the current study, which featured primarily tertiary characteristics. Access to lithic materials appeared to be more abundant at SC1 and SC2, with artefact sizes generally larger and higher rates of cortex within the assemblage.

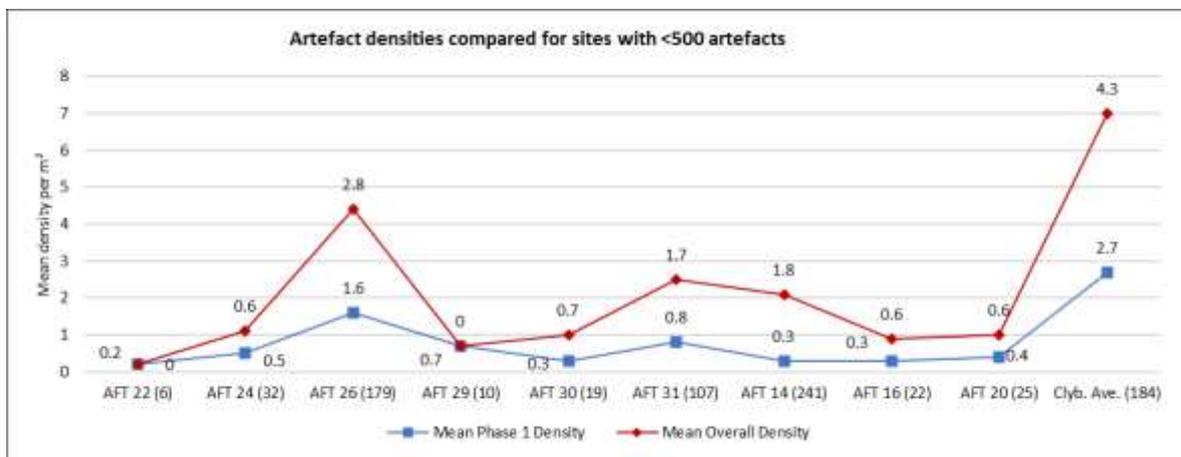


Figure 49. Artefact densities for sites with less than 500 artefacts

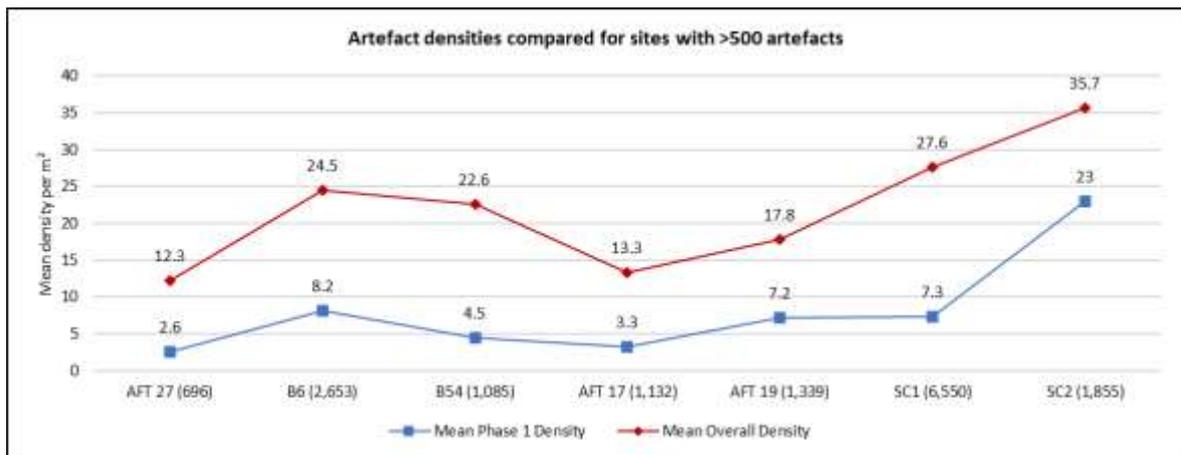


Figure 50. Artefact densities for sites with over 500 artefacts

Core sizes also tended to be larger with more intense usage at SC1 and SC2 than found in the current study. Core sizes at sites within TNR 4 and TNR 6 tended to be small, although approximately 50% of all cores displayed some cortex. The cores in this study appeared to have been exhausted prior to being discarded with few exhibiting intense use, although some of the more intensely used cores exhibited characteristics suggesting microblade production. Some of the lower density sites showed highly elevated percentages of cores within the assemblage than is usually found within sites on the Cumberland Plain. In most sites, cores generally constitute between 2-3% of the entire assemblage, sometimes less. Two sites within the TNR 4 project, AFT 30 and AFT 31, and one within TNR 6, AFT 20, had over 10% of cores and in the

case of AFT 30 over 15% in their respective assemblages. All three of these sites had less than 25 artefacts in their entire assemblages, so the high percentage of cores may simply be due to the low sample size, although it is possible that cores were being discarded at a higher rate on these elevated sites than was the case elsewhere. The ratio (percentage) of complete flakes to cores within the assemblage is shown in Figure 54. The same disparity can be seen within the same three sites, with elevated numbers of cores to complete flakes apparent. Interestingly, Clyburn Ave, another low-density elevated site displays the lowest percentage of cores to complete flakes, indicating different past uses of similar landscapes.

Backed and retouched artefacts are found across most sites, however sites within the current study area, TNR 4 and TNR 6 show a higher proportion of backed artefacts than retouched when compared to the three sites from the M4MM excavations, with Clyburn Ave. in particular having a very low percentage of backed artefacts. Blade production and use were visible within the assemblages from B6 and B54 from TNR 4, and AFT 17 and AFT 19 from TNR 6, with retouched tools being predominantly one off use types with very few showing specific formal uses, such as scrapers. This was also visible at SC1 and SC2 although the presence of a higher ratio of retouched artefacts suggest that processing of natural resources was occurring at a more intense and prolonged rate that is seen at sites at TNR 4 and TNR 6. The higher rates of backed artefacts, both blades and geometric microliths, suggest that activities associated with hunting were occurring more regularly than other forms of cultural activity normally found at domestic occupation sites.

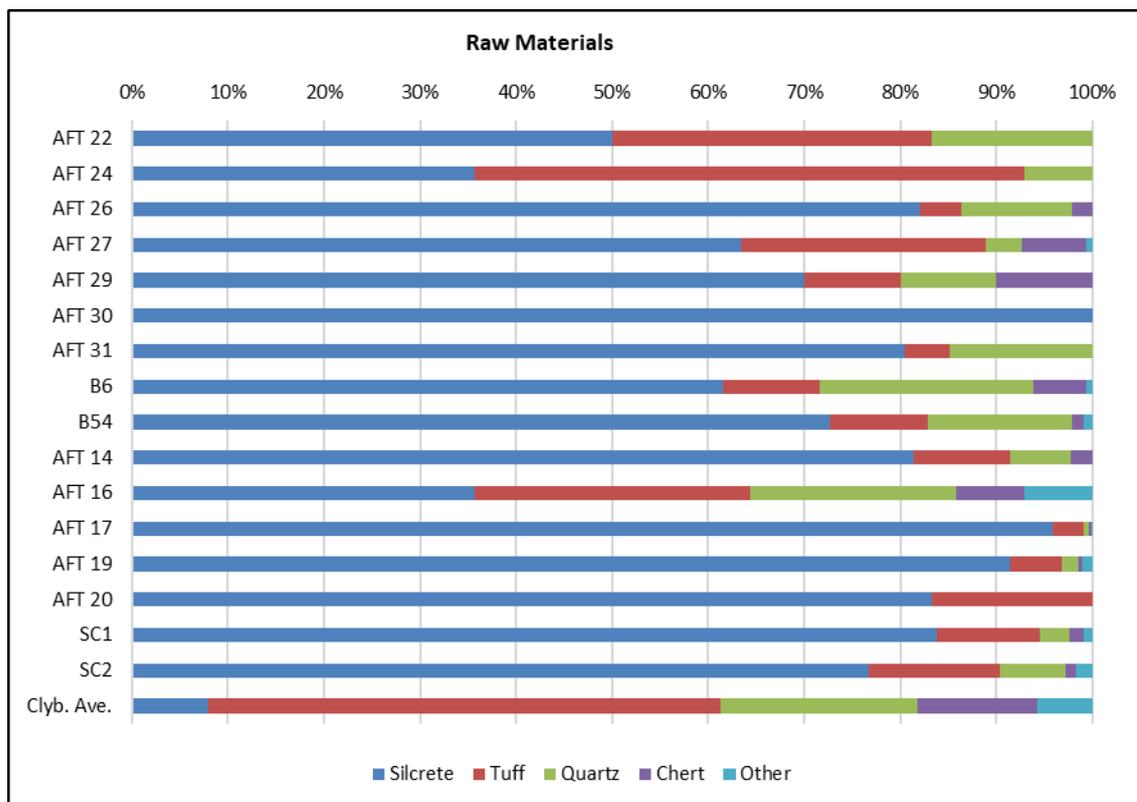


Figure 51. Raw material comparison

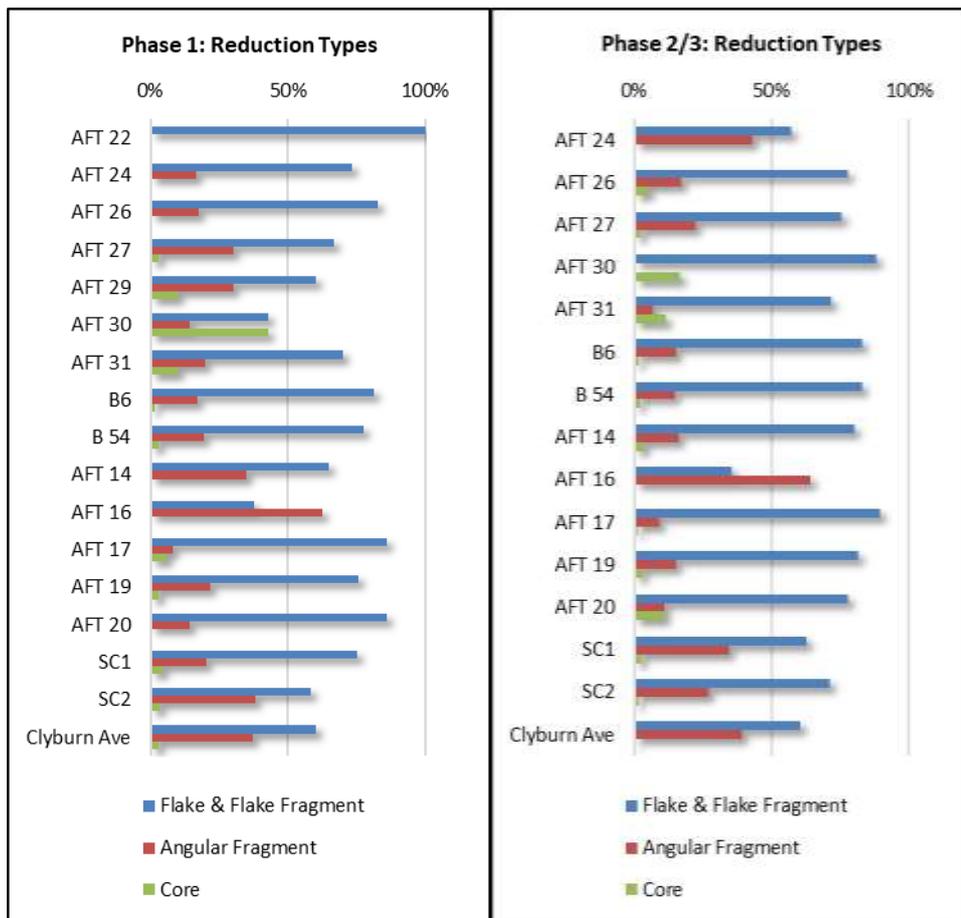


Figure 52. Phase 1 and Phase 2/3 Reduction types compared for sites within the comparative study (3 categories)

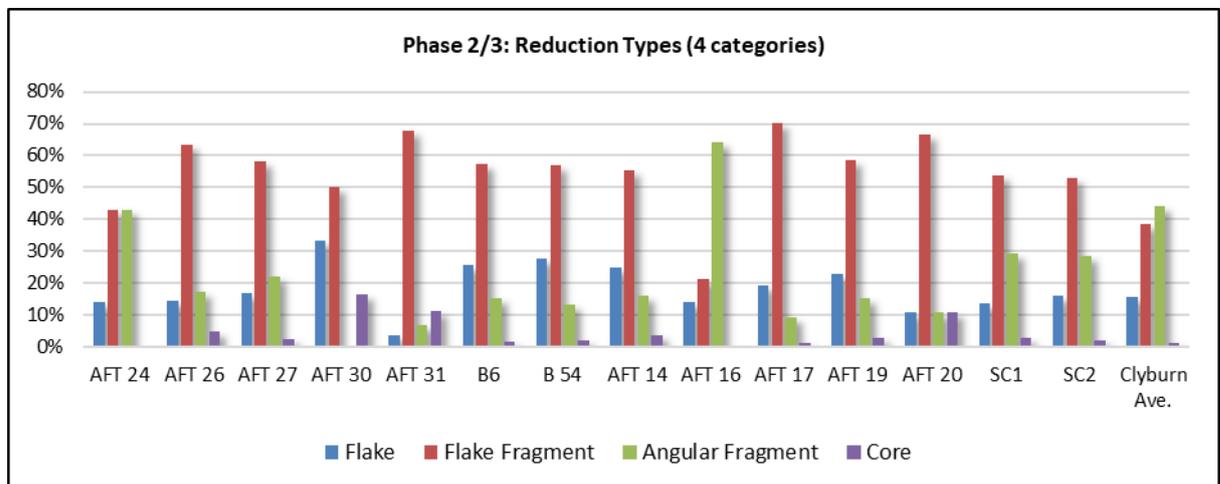


Figure 53. Phase 2/3 reduction types compared (4 categories)

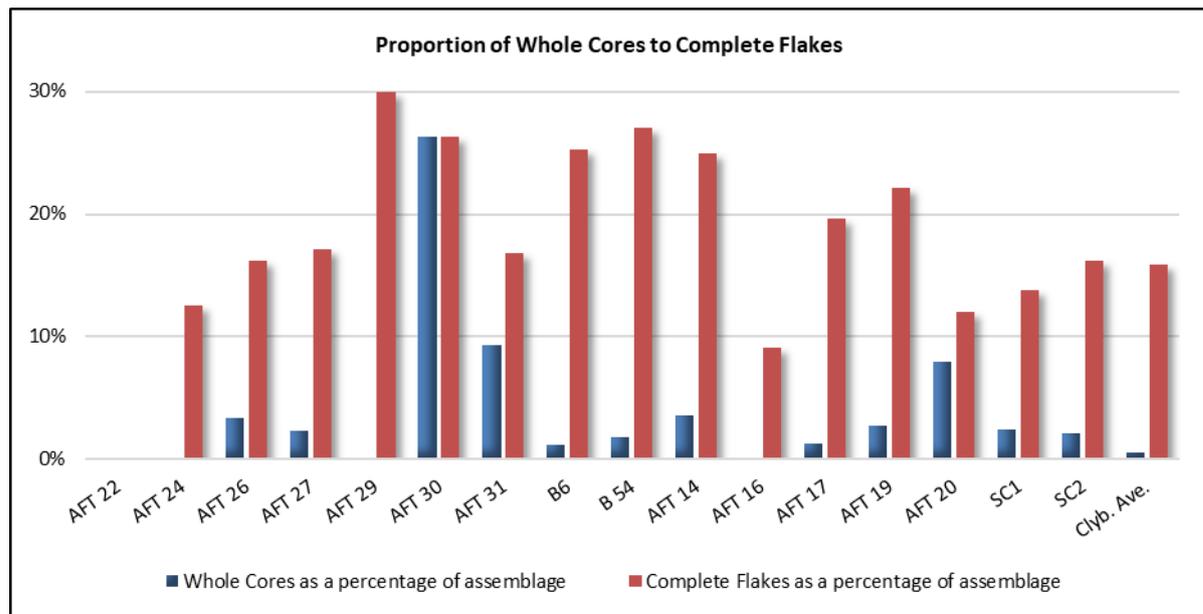


Figure 54. Comparison of cores to complete flakes as a percentage of the assemblage

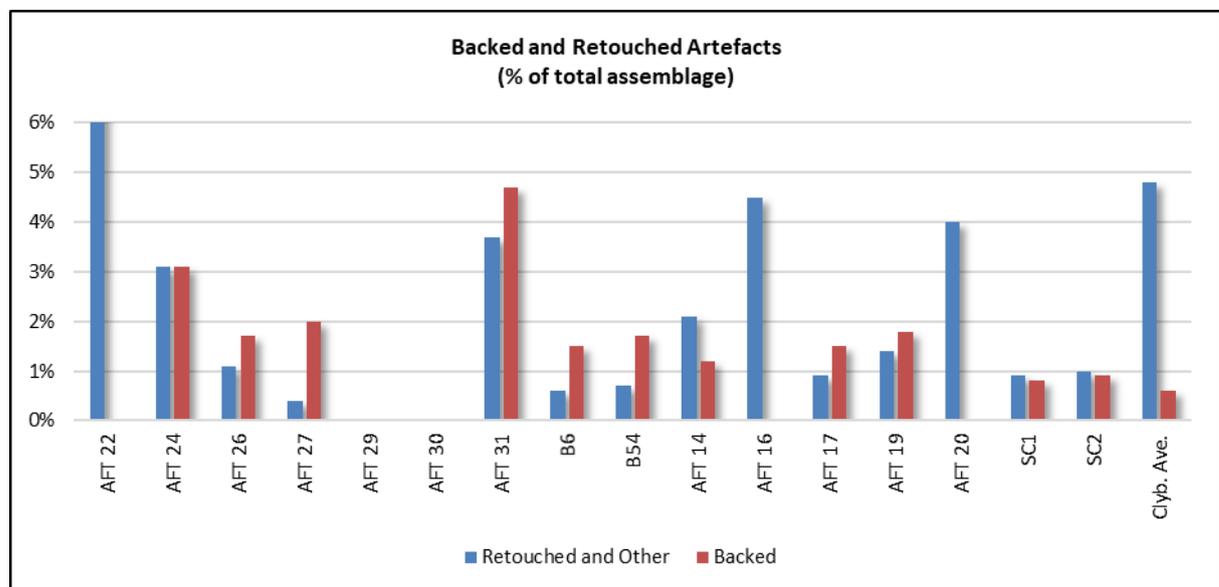


Figure 55. Proportion of backed and retouched artefacts as a percentage of total assemblage

12.14 Archaeological conclusions

Sites within the TNR 6 study show a distinct difference in human usage of the past landscape. Elevated sites, situated on ridgetops and crests, display low artefact densities and a more mixed assemblage, with little indication of long-term occupation. Sites situated on lower landform types such as lower slopes and alluvial terraces, in this case sites AFT 17 and AFT 19, show a more complex pattern of occupation. These two high density sites have assemblage characteristics which indicate domestic use and include: moderate numbers of backed artefacts and exhausted microblade cores, the use of a variety of lithic materials, and a high percentage of flaked debitage. The absence of these indicators at sites AFT 14 and AFT 20 suggests that these sites were not occupation areas but were likely corridors for movement across the landscape and/or short-term hunting camps. Easy access to reliable water sources and the various fauna and flora associated with such areas, added to a relatively flat stable environment appears to be a necessary basis for sites within this area. Easy access to lithic resources does not appear to be a principle factor in the location of long-term occupation for sites within this study, with the characteristics of the artefact assemblage suggesting the importation of most lithic material from outside the area.

The results indicate that there is a pattern of artefact discard within the study area that reflects differences in human behaviour. These differences most likely relate to the way Aboriginal people were accessing and using different resources across the individual landform types. The archaeological sites associated with the project represent an important extended type of connectivity, where all the sites are located on or near the spine of a low north-south ridge

(The Northern Road) stretching over 16 kilometres. The reason The Northern Road was built on the ridgeline was the same reason the Aboriginal sites are located on the ridge – the landform itself facilitates intrinsic transitory movements suitable for cultural activity. This naturally formed cultural highway enables an assessment of past transitory behaviour through the study of Aboriginal sites (representing past movements on the ridgeline over several thousand years).

Moreover, the collection of archaeological sites has a greater scientific and socio-cultural assessment value than piecemealed assessments. In effect the en masse archaeological information represents a higher information value than each individual site – the group is more valuable than any individual part. In this regard the projects' collection of impacted archaeological sites are valuable as an assessment group, because the group offers a statistically significant level of information about an area (the south west Cumberland Plain) where little, large scale, connectable or representative information exists. This dataset can be integrated into future comparative studies. Information obtained through the salvaging of artefacts at key locations along this continuum (road corridor) has enhanced our cultural and archaeological understanding of the area and forms a useful basis for understanding Aboriginal landscape use in this part of the region.

13 Conclusion

13.1 Archaeological salvage complete

The archaeological salvage program has been completed in accordance with the conditions of project approval (SSI 7127) and approved salvage methodology outlined in the CHAR for the following Aboriginal archaeological sites.

- TNR IF 04 (AHIMS 45-5-4808) (no archaeological salvage required)
- **TNR AFT 14 (AHIMS 45-5-4786) (archaeological salvage required)**
- **TNR AFT 16 (AHIMS 45-5-4796) (archaeological salvage required)**
- **TNR AFT 17 (AHIMS 45-5-4787) (archaeological salvage required)**
- **TNR AFT 19 (AHIMS 45-5-4790) (archaeological salvage required)**
- **TNR AFT 20 (AHIMS 45-5-4792) (archaeological salvage required)**

All conditions related to the excavation and collection of Aboriginal objects within sites TNR IF 04, TNR AFT 14, TNR AFT 16, TNR AFT 17, TNR AFT 19 and TNR AFT 20 within the Northern Road Upgrade - Stage 6 area as shown on Figure 56 are complete and no further mitigation is required for the sites. Remnant parts of the above sites are shown in Figure 56.

Salvage excavation was completed prior to any pre-construction or construction activities which may have harmed Aboriginal objects at these site locations.

13.2 Aboriginal Site Impact Recording Forms (ASIRFs)

Site card updates and ASIRFs have been completed for all impacted sites and submitted to the AHIMS Registrar.

13.3 Management of Aboriginal objects

The Aboriginal objects recovered during the salvage excavation program have been moved to the following temporary storage location:

Kelleher Nightingale Consulting Pty Ltd offices
Level 10, 25 Bligh St, Sydney, NSW 2000
Objects are kept in a secure storage location within a locked office

A description of the nature and types of Aboriginal objects which are now at this location is available in the salvage excavation lithics database (Appendix A). In accordance with the CHAR and conditions of Project Approval, the long term management of salvaged Aboriginal objects from the TNR6 sites will be determined in consultation with project RAPs:

- Requirement 26 "Stone artefact deposition and storage" in the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (24 September 2010, available online at: <http://www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf>) must be complied with.

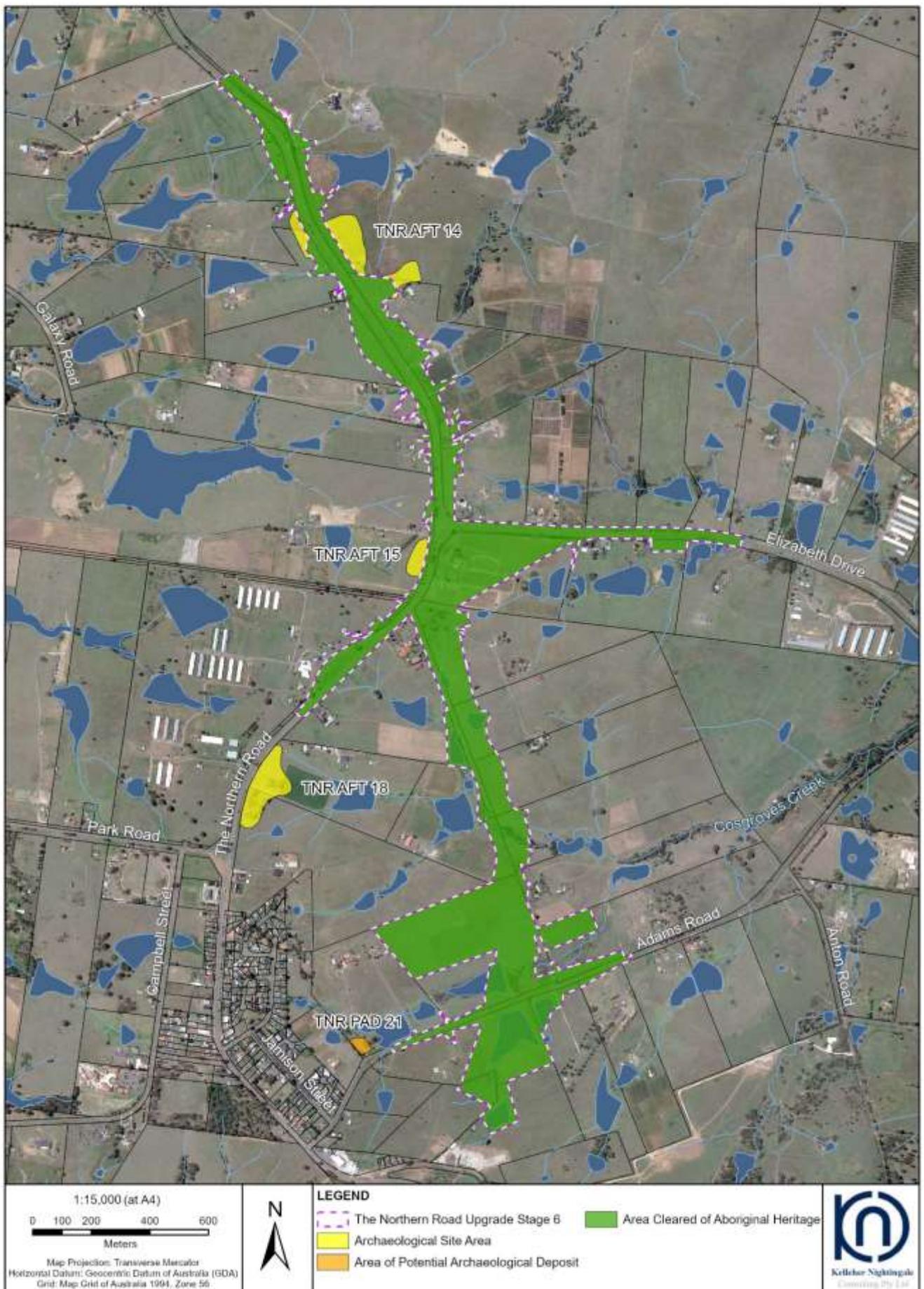


Figure 56. Area cleared of Aboriginal heritage within The Northern Road Upgrade – Stage 6

References

- Andrevsky, W. (1998). *Lithics: Macroscopic Approaches to Analysis*. Cambridge University Press, New York.
- Attenbrow, V. (2002). *Sydney's Aboriginal Past: Investigating the Archaeological and Historical Records*. University of New South Wales Press, Sydney.
- Attenbrow, V, Robertson, G, Hiscock, P. (2009). 'The changing abundance of backed artefacts in south-eastern Australia: a response to Holocene climate change?' *Journal of Archaeological Science*, Vol 36, pp. 2765-2770.
- Balek, C.L. (2002). "Buried artefacts in stable upland sites and the role of bioturbation: A review". *Geoarchaeology: An International Journal*, Vol. 17, No. 1, 41-45.
- Balme, J., Dagg, L., David, B., Davidson, I. and J. Ross, 2001. Salvage excavations at PK/CD 4+6. Volume 3. Unpublished Report for Rouse Hill (Stage 1) Pty Ltd (OEH ref. 99138).
- Bannerman, S.M., Hazelton, P.A., and Tille, P.J. (1989). Penrith 1:100,000 Soil Landscape Series Sheet 9030. Soil Conservation Service of NSW, Sydney.
- Barton, H. (1996). Archaeological test excavation for the Quakers Hill bypass, Quakers Hill, NSW. Unpublished Report for ACER Wargon Chapman (OEH ref: 3488).
- Binford, L.R. (1980). Willow smoke and dogs' tails: Hunter-gatherer settlement systems and archaeology. *American Antiquity* 45:4-20.
- Binford, L.R. (1983). *In Pursuit of the Past: Decoding the Archaeological Record*. London: Thames and Hudson.
- Brook, J and Kohen, J.L. (1991). *The Parramatta Native Institution and The Black Town: A History*. NSW Uni, Kensington.
- Clark, N.R. and Jones, D.C., (Eds). (1991). Penrith 1:100,000 Geological Sheet 9030. New South Wales Geological Survey, Sydney.
- Cotterell, B. and Kamminga, J. (1987). The formation of flakes. *American Antiquity* 52:675-708.
- Godden Mackey Logan (GML). (2007). GCC Oran Park Precinct Heritage Assessment. Appendix 1: Denbigh. Report prepared for the Growth Centres Commission.
- Haglund, L. (1989). Department of Housing Project 144 residential estate-Narellan. Preliminary archaeological investigation of archaeological sites 2 and 5. Report to Benjamin M.T.Chow & Associates on behalf of the Department of Housing.
- Hiscock, P. (1993). Bondaian technology in the Hunter Valley, New South Wales. *Archaeology in Oceania* 28:65-76.
- Holdaway, S. and Stern, N. (2004). *A Record in Stone: The Study of Australia's Flaked Stone Artefacts*. Museum Victoria, Melbourne VIC.
- Jo McDonald Cultural Heritage Management Pty Ltd. (JMCHM). (2005a). Archaeological salvage excavation of site RTA-G1. 109-113 George Street, Parramatta, NSW. Unpublished report to Landcom.
- Jo McDonald Cultural Heritage Management Pty Ltd. (JMCHM). (2005b). Archaeological salvage excavation of eight archaeological landscapes in the Second Ponds Creek Valley, Rouse Hill Development Area, NSW. Report prepared for Rouse Hill Infrastructure Pty Ltd and Landcom.
- Jo McDonald Cultural Heritage Management Pty Ltd. (JMCHM). (2006). Archaeological salvage excavation of the Colebee Release Area, Schofields, NSW. Report prepared for Medallist Golf Holdings Pty Ltd.
- Jo McDonald Cultural Heritage Management Pty Ltd. (JMCHM). (2010). Archaeological test excavations at SFPAD5 (45-2-3780), Spring Farm. Report prepared for Landcom.
- Kamminga, J. (1982). *Over the Edge: Functional Analysis of Australian Stone Tools*. Occasional Papers in Anthropology, no. 12, Anthropology Museum, University of Queensland, St. Lucia QLD.
- Karskens, G. (2009). *The Colony: A History of Early Sydney*. Allen & Unwin, Crows Nest, NSW.
- Kelleher Nightingale (KNC) Pty Ltd. (2015). Sydney Metro Northwest Archaeological Salvage Program Western Section Early Works. Indigenous Heritage Services. Prepared for Transport NSW.
- Kelleher Nightingale Consulting (KNC) Pty Ltd, (2016). The Northern Road Upgrade between Mersey Road, Bringelly and Glenmore Parkway, Glenmore Park: Aboriginal Archaeological Survey Report, Stage 2 PACHCI. Prepared for Roads and Maritime.

- Kelleher Nightingale Consulting (KNC) Pty Ltd. (2017). The Northern Road Upgrade Between Mersey Road, Bringelly and Glenmore Parkway, Glenmore Park. Aboriginal Cultural Heritage Assessment report. Prepared for Roads and Maritime Services.
- Kelleher Nightingale Consulting (KNC) Pty Ltd, (2019). M4 Smart Motorway Project: Aboriginal Archaeological Salvage Excavation Report. Prepared for Roads and Maritime Services.
- Kelleher Nightingale Consulting (KNC) Pty Ltd. (*in prep*, 2020). The Northern Road Upgrade – Stage 4. Aboriginal Archaeological Salvage Excavation. Prepared for Transport for NSW.
- Kohen, J.L. (1993). The Darug and Their Neighbours. The Traditional Aboriginal Owners of the Sydney Region. Darug Link in association with Blacktown and District Historical Society, Sydney.
- Kohen, J.L. (1984). Preliminary report on collections and excavations of Aboriginal artefacts in the western Cumberland Plain. Unpublished Report for NSW National Parks and Wildlife Service (OEH ref: 1142).
- Liston, C. (1988). 'The Dharawal and Gandangara in Colonial Campbelltown, New South Wales, 1788-1830'. *Aboriginal History* 12(1):48-62.
- McDonald, J., and Rich, E. (1993). Archaeological Investigations for the RHIP (Stage 1) Works along Caddies, Smalls and Second Ponds Creeks, Rouse Hill and Parklea. Final.
- McDonald, J., Rich, E., and Barton, H. (1994). The Rouse Hill Infrastructure Project (Stage 1) on the Cumberland Plain, western Sydney, in M. Sullivan, S. Brockwell & A. Webb (eds.) *Archaeology in the North*. Proceedings of the 1993 Australian Association Conference. Northern Australia Research Unit, ANU, Darwin. Pp. 259-293.
- McDonald, J. (2008). *Dreamtime Superhighway: An analysis of Sydney Basin Rock Art and Prehistoric Information Exchange*. Terra Australis 27, ANU E Pres.
- Moore, M. (2011). Simple Stone Flaking in Australasia: Patterns and implications. *Quaternary International* 2011, 1-10.
- Nanson, G., R. Young and Stockton, E. (1987). Chronology and palaeoenvironment of the Cranebrook Terrace (near Sydney) containing artefacts more than 40,000 years old. *Archaeology in Oceania* 22(2):72-78.
- Office of Environment and Heritage (OEH). (2011). Guide to investigating, assessing, and reporting on Aboriginal cultural heritage in NSW: Part 6 National Parks and Wildlife Act 1974. OEH: Sydney, NSW.
- OEH. (2010a). Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales: Part 6 National Parks and Wildlife Act 1974. OEH: Sydney, NSW.
- OEH. (2010b). *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010: Part 6 National Parks and Wildlife Act 1974*. Department of Environment, Climate Change and Water NSW, Sydney.
- Roads and Maritime Services (RMS). November 2011. *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*. Roads and Maritime Services, Sydney.
- Tench, W. (1793). Complete Account of the Settlement at Port Jackson. G. Nicol and J. Sewell, London.
- Waters, K. (2013). Cullunghutti: The Mountain and its People. A documentary history of Cullunghutti Mountain, Aboriginal People and the Shoalhaven from 1770 to 1920 (a report for the community). Report prepared for the Office of Environment and Heritage (Nowra).
- Williams, A., Atkinson, F., Lau, M., & Toms, P.S. (2012). A terminal Pleistocene open site on the Hawkesbury River, Pitt Town, New South Wales. *Australian Archaeology*, Vol 74 (1): 85-97.
- Williams, A.N., Burrow, A., Toms, P.S., Brown, O., Richards, M., & Bryant, T. (2017). The Cranebrook terrace revisited: Recent excavations of an early Holocene alluvial deposit on the banks of the Nepean River, NSW, and their implications for future work in the region. *Australian Archaeology*, Vol 83 (3).
- White, B. (2017). 'Analysis with confidence: distinguishing pre-Bondaian and Bondaian silicified mudstone artefact assemblages from the Cumberland Plain of Western Sydney, New South Wales'. *Australian Archaeology*. Vol 83, No. 3, pp 143-161.

Appendix A Lithics Database

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 14	1	745	505	1				S86	Silcrete	Pink	None	Medial Fragment		11-15	0%	0.44								
TNR AFT 14	2	745	505	1				S86	Silcrete	Red	Total	Distal Fragment		26-30	1-30%	4.03		Step						
TNR AFT 14	3	745	505	1				S86	Silcrete	Red	Total	Angular Fragment		16-20	0%	1.37								
TNR AFT 14	4	650	555	1	TU105	S105		Silcrete	Dark Grey	None	Flake			11-15	0%	0.5	Plain	Step	11.3	5.5	5.7	Elongate		
TNR AFT 14	5	650	555	1	TU105	S105		Silcrete	Pink	None	Distal Fragment			11-15	0%	0.08		Feather						
TNR AFT 14	6	760	435	1				S92	Silcrete	Pink	None	Medial Fragment	Retouched	16-20	0%	0.7			17.1	11.3	3.9		FAINT RETOUCH ON DISTAL BREAK, POSSIBLY BROKEN BLADE OR GEOMETRIC	
TNR AFT 14	7	760	450	1				S93	Silcrete	Red	Total	Distal Fragment		16-20	0%	0.94		Feather						
TNR AFT 14	8	760	480	1				S95	Silcrete	Red	Total	Medial Fragment		6-10	0%	0.15								
TNR AFT 14	9	760	480	1				S95	Silcrete	Red	Total	Angular Fragment		11-15	0%	0.49								
TNR AFT 14	10	745	535	1				S88	Chert	Red/Brown	None	Proximal Fragment		16-20	70-99%	1.09	Plain							
TNR AFT 14	11	745	460	1	TU83	S83		Silcrete	Brown	None	Distal Fragment	Retouched		16-20	0%	1.18		Step	12.2	17.9	4.7		rough retouch on right lateral margin	
TNR AFT 14	12	650	525	1				S103	S. Tuff	Beige	None	Angular Fragment		16-20	0%	1.19								
TNR AFT 14	13	650	540	1				S104	Quartz	Milky-White	None	Distal Fragment		11-15	0%	0.31		Feather						
TNR AFT 14	14	650	540	1				S104	Quartz	Milky-White	None	Angular Fragment		21-25	0%	1.64								
TNR AFT 14	15	740	502	2/3				S. Tuff	Beige	None	Distal Fragment			11-15	0%	0.27		Feather						
TNR AFT 14	16	741	503	2/3				Silcrete	Red	Partial	Core	Unifacial		21-25	1-30%	3.98	Plain		21.3	12.9	9.8	3		
TNR AFT 14	17	741	503	2/3				Silcrete	Red	Total	Core	Unifacial		21-25	1-30%	10.9	Plain		21.6	11.3	10.9	3		
TNR AFT 14	18	741	503	2/3				S. Tuff	Brown	None	Flake			36-40	0%	8.38	Ridged	Hinge	26.2	38.5	8.6	W>L		
TNR AFT 14	19	741	503	2/3				S. Tuff	Pink	None	Distal Fragment			11-15	0%	0.21		Hinge						
TNR AFT 14	20	741	504	2/3				Quartz	Milky-White	None	Distal Fragment			6-10	0%	0.12		Feather						
TNR AFT 14	21	741	504	2/3				Silcrete	Red/Yellow	None	Proximal Fragment			6-10	0%	0.13	Plain							
TNR AFT 14	22	741	504	2/3				Silcrete	Red	Total	Medial Fragment			11-15	0%	0.17								
TNR AFT 14	23	741	505	2/3				S. Tuff	Orange	None	Distal Fragment			26-30	1-30%	4.62		Feather						
TNR AFT 14	24	741	505	2/3				Silcrete	Red	Total	Flake			11-15	0%	0.48	Plain	Feather	10.1	11.8	3.3	W>L		
TNR AFT 14	25	741	505	2/3				Silcrete	Red	Total	Proximal Fragment			6-10	1-30%	0.13	Cortical							
TNR AFT 14	26	741	505	2/3				Silcrete	Red	Total	Distal Fragment			26-30	0%	1.33		Feather						
TNR AFT 14	27	742	503	2/3				Silcrete	Red	Total	Flake			11-15	1-30%	0.33	Plain	Feather	12.2	12.6	2.7	W>L		
TNR AFT 14	28	742	503	2/3				Silcrete	Purple	Total	Angular Fragment			6-10	0%	0.04								
TNR AFT 14	29	742	504	2/3				Silcrete	Red	Total	Flake			16-20	31-69%	0.62	Plain	Step	18.2	7	3.4	Elongate		
TNR AFT 14	30	742	504	2/3				Silcrete	Red	Total	Flake			11-15	1-30%	0.38	Plain	Plunged	10.2	14.3	1.8	W>L		
TNR AFT 14	31	742	504	2/3				Silcrete	Red	Total	Distal Fragment			11-15	0%	0.18		Step						
TNR AFT 14	32	742	504	2/3				Silcrete	Red	Total	Distal Fragment			11-15	0%	0.58		Step						
TNR AFT 14	33	742	504	2/3				Silcrete	Red	Total	Distal Fragment			6-10	0%	0.08		Feather						
TNR AFT 14	34	742	504	2/3				Chert	Red/Brown	None	Angular Fragment			6-10	0%	0.06								
TNR AFT 14	35	742	505	2/3				S. Tuff	Red/Brown	None	Angular Fragment			6-10	0%	0.07								
TNR AFT 14	36	742	505	2/3				Silcrete	Red	Total	Flake			16-20	1-30%	0.2	Cortical	Feather	14.6	9.7	2.4	L>W		
TNR AFT 14	37	742	505	2/3				Silcrete	Red	Total	Distal Fragment			11-15	70-99%	0.4		Step						
TNR AFT 14	38	742	505	2/3				Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.2		Feather						
TNR AFT 14	39	742	506	2/3				S. Tuff	Beige	None	Distal Fragment			16-20	0%	0.15		Feather						
TNR AFT 14	40	742	506	2/3				S. Tuff	Beige	None	Angular Fragment			6-10	0%	0.13								
TNR AFT 14	41	742	507	2/3				Silcrete	Purple	Partial	Distal Fragment	Retouched		21-25	0%	0.13	Plain		19.8	16.7	5.2		retouch on left lateral margin, initiated from dorsal surface	
TNR AFT 14	42	743	503	2/3				Silcrete	Pink	Partial	Proximal Fragment			16-20	0%	0.36	Focal							
TNR AFT 14	43	743	504	2/3				Chert	Yellow/Brown	None	Medial Fragment			16-20	0%	0.6								
TNR AFT 14	44	743	504	2/3				S. Tuff	Red/Brown	None	Distal Fragment			16-20	0%	0.42		Hinge						
TNR AFT 14	45	743	504	2/3				Silcrete	Red	Partial	Core	Unifacial-Rotated		21-25	1-30%	2.02	Cortical		21	9.4	6.3	3	small blade core	
TNR AFT 14	46	743	504	2/3				Silcrete	Red	Total	Flake			16-20	1-30%	0.46	Plain	Feather	15.3	10.6	1.5	L>W		
TNR AFT 14	47	743	504	2/3				Silcrete	Red	Total	Flake			16-20	0%	0.68	Ridged	Step	17.2	8.2	3	Elongate		
TNR AFT 14	48	743	504	2/3				Silcrete	Red	Total	Flake			11-15	31-69%	0.16	Plain	Step	10.3	7.9	1.4	L>W		
TNR AFT 14	49	743	504	2/3				Silcrete	Red	Total	Flake			11-15	0%	0.22	Focal	Step	10.2	5.5	3.8	L>W		
TNR AFT 14	50	743	504	2/3				Silcrete	Red	Partial	Flake			6-10	0%	0.06	Plain	Hinge	6.2	8.4	1.3	W>L		
TNR AFT 14	51	743	504	2/3				Silcrete	Yellow	None	Proximal Fragment			16-20	0%	0.13								
TNR AFT 14	52	743	504	2/3				Silcrete	Red	Partial	Proximal Fragment			11-15	0%	0.17	Plain							
TNR AFT 14	53	743	504	2/3				Silcrete	Red	Total	Medial Fragment			16-20	0%	0.57								
TNR AFT 14	54	743	504	2/3				Silcrete	Red/Yellow	Partial	Medial Fragment			6-10	0%	0.06								
TNR AFT 14	55	743	504	2/3				Silcrete	Red	Total	Distal Fragment			26-30	0%	3.16		Feather						
TNR AFT 14	56	743	504	2/3				Silcrete	Red	Total	Distal Fragment			16-20	0%	0.45		Step						
TNR AFT 14	57	743	504	2/3				Silcrete	Red	Total	Distal Fragment			16-20	1-30%	0.56		Step						
TNR AFT 14	58	743	504	2/3				Silcrete	Red	Total	Distal Fragment			16-20	0%	0.51		Step						
TNR AFT 14	59	743	504	2/3				Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.29		Feather						
TNR AFT 14	60	743	504	2/3				Silcrete	Red	Total	Distal Fragment			11-15	0%	0.14		Feather						
TNR AFT 14	61	743	504	2/3				Silcrete	Pink	Partial	Proximal Fragment			6-10	0%	0.13								
TNR AFT 14	62	743	504	2/3				Silcrete	Red/Yellow	Partial	Distal Fragment			6-10	0%	0.03		Feather						
TNR AFT 14	63	743	504	2/3				Silcrete	Red	Total	Angular Fragment			21-25	0%	1.06								
TNR AFT 14	64	743	504	2/3				Silcrete	Red	Total	Angular Fragment			6-10	0%	0.03								
TNR AFT 14	65	743	505	2/3				S. Tuff	Pink	None	Distal Fragment			6-10	0%	0.07		Feather						
TNR AFT 14	66	743	505	2/3				S. Tuff	Beige	None	Angular Fragment			11-15	0%	0.48								
TNR AFT 14	67	743	505	2/3				Silcrete	Red</															

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments			
TNR AFT 14	106	743	506	2/3			7	Silcrete	Red	Partial	Proximal Fragment			16-20	0%	0.23	Plain										
TNR AFT 14	107	743	506	2/3			7	Silcrete	Yellow	Partial	Medial Fragment			11-15	0%	0.15											
TNR AFT 14	108	743	506	2/3			7	Silcrete	Yellow	Partial	Distal Fragment			11-15	0%	0.15		Feather									
TNR AFT 14	109	743	506	2/3			7	Silcrete	Yellow	None	Angular Fragment			11-15	0%	0.57											
TNR AFT 14	110	743	506	2/3			7	Silcrete	Yellow	None	Angular Fragment			21-25	31-69%	4.25											
TNR AFT 14	111	743	506	2/3			7	Silcrete	Red	Total	Angular Fragment			16-20	1-30%	0.64											
TNR AFT 14	112	743	507	2/3			7	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.11											
TNR AFT 14	113	743	507	2/3			7	Silcrete	Red	Total	Flake			21-25	1-30%	1.65	Cortical	Feather	19.3	19.3	4.6	L=W		broken 2+ pieces, modern break			
TNR AFT 14	114	743	507	2/3			7	Silcrete	Red	Total	Flake			16-20	0%	0.82	Plain	Feather	9.3	19.4	4.3	W>L		coarse grained			
TNR AFT 14	115	743	507	2/3			7	Silcrete	Red	Partial	Flake			0-5	0%	0.2	Plain	Feather	4.4	5.5	0.5	W>L					
TNR AFT 14	116	743	507	2/3			7	Silcrete	Red/Yellow	Partial	Medial Fragment			6-10	0%	0.08											
TNR AFT 14	117	743	507	2/3			7	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.26		Feather									
TNR AFT 14	118	744	502	2/3			7	Chert	Brown	None	Medial Fragment			11-15	0%	0.26											
TNR AFT 14	119	744	502	2/3			7	Silcrete	Purple	Total	Medial Fragment			21-25	0%	1.73											
TNR AFT 14	120	744	502	2/3			7	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.15		Feather									
TNR AFT 14	121	744	504	2/3			7	Silcrete	Red/Yellow	Partial	Medial Fragment			11-15	0%	0.41											
TNR AFT 14	122	744	504	2/3			7	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.13											
TNR AFT 14	123	744	504	2/3			7	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05		Feather									
TNR AFT 14	124	744	505	2/3			7	S. Tuff	Yellow	None	Angular Fragment			16-20	0%	1.32											
TNR AFT 14	125	744	505	2/3			7	S. Tuff	Beige	None	Medial Fragment			11-15	0%	0.19									weathered		
TNR AFT 14	126	744	505	2/3			7	Quartz	Milky-White	None	Angular Fragment			11-15	0%	0.57											
TNR AFT 14	127	744	505	2/3			7	Silcrete	Red	Total	Core	Tranchet		26-30	1-30%	4.38	Plain		27.6	15.7	6.2	2					
TNR AFT 14	128	744	505	2/3			7	Silcrete	Purple	Total	Core	Unifacial		31-35	0%	10.72	Ridged		32.9	28.1	12	1					
TNR AFT 14	129	744	505	2/3			7	Silcrete	Red	Total	Flake			26-30	0%	0.77	Ridged	Feather	27.7	7.2	2.2	Elongate					
TNR AFT 14	130	744	505	2/3			7	Silcrete	Red	Total	Flake			21-25	0%	0.63	Plain	Feather	20.7	6.5	3.4	Elongate					
TNR AFT 14	131	744	505	2/3			7	Silcrete	Red	Total	Distal Fragment			31-35	31-69%	3.74		Feather									
TNR AFT 14	132	744	505	2/3			7	Silcrete	Pink	Partial	Distal Fragment			26-30	31-69%	7.72		Step									
TNR AFT 14	133	744	505	2/3			7	Silcrete	Yellow	None	Distal Fragment			26-30	0%	1.06		Feather									
TNR AFT 14	134	744	505	2/3			7	Silcrete	Yellow	None	Flake			21-25	0%	1.37	Plain	Feather		10.2		5	Elongate				
TNR AFT 14	135	744	505	2/3			7	Silcrete	Red	Total	Flake			21-25	0%	1.14	Faceted	Feather	23.3	8.1	5.3	Elongate					
TNR AFT 14	136	744	505	2/3			7	Silcrete	Purple	Total	Flake			16-20	0%	1.78	Plain	Step	18.2	13.4	6.6	LW					
TNR AFT 14	137	744	505	2/3			7	Silcrete	Red	Total	Flake			11-15	1-30%	0.63	Ridged	Step	13.8	9.8	3.5	LW					
TNR AFT 14	138	744	505	2/3			7	Silcrete	Red/Yellow	Partial	Flake			11-15	0%	0.18	Plain	Feather	8.4	9.5	2.3	W>L					
TNR AFT 14	139	744	505	2/3			7	Silcrete	Red	Total	Flake			6-10	1-30%	0.09	Cortical	Feather	7.6	6.1	0.9	LW					
TNR AFT 14	140	744	505	2/3			7	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.39	Plain										
TNR AFT 14	141	744	505	2/3			7	Silcrete	Pink	Partial	Proximal Fragment			16-20	31-69%	0.79	Plain										
TNR AFT 14	142	744	505	2/3			7	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.12	Faceted										
TNR AFT 14	143	744	505	2/3			7	Silcrete	Pink	Partial	Proximal Fragment			6-10	0%	0.12	Faceted										
TNR AFT 14	144	744	505	2/3			7	Silcrete	Red	Total	Medial Fragment			6-10	1-30%	0.21											
TNR AFT 14	145	744	505	2/3			7	Silcrete	Red	Total	Distal Fragment			11-15	31-69%	0.6		Feather									
TNR AFT 14	146	744	505	2/3			7	Silcrete	Red/Yellow	Partial	Distal Fragment			16-20	0%	1.7		Feather									
TNR AFT 14	147	744	505	2/3			7	Silcrete	Red	Total	Distal Fragment			11-15	70-99%	0.59											
TNR AFT 14	148	744	505	2/3			7	Silcrete	Yellow	None	Distal Fragment			16-20	0%	0.79		Step									
TNR AFT 14	149	744	505	2/3			7	Silcrete	Yellow	None	Distal Fragment			11-15	1-30%	0.29		Step									
TNR AFT 14	150	744	505	2/3			7	Silcrete	Red	Total	Distal Fragment			11-15	1-30%	0.26		Feather									
TNR AFT 14	151	744	505	2/3			7	Silcrete	Purple	Total	Distal Fragment			11-15	0%	0.17		Feather									
TNR AFT 14	152	744	505	2/3			7	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.09		Feather									
TNR AFT 14	153	744	505	2/3			7	Silcrete	Red	Total	Angular Fragment			16-20	1-30%	0.9											
TNR AFT 14	154	744	505	2/3			7	Silcrete	Red	Total	Angular Fragment			11-15	31-69%	0.29											
TNR AFT 14	155	744	506	2/3			7	Silcrete	Red	Partial	Core	Unifacial		16-20	1-30%	1.72	Faceted		16.7	11.3	7.4	2			retouched along both lateral margins, possibly unfinished backing		
TNR AFT 14	156	744	506	2/3			7	Silcrete	Red	Total	Flake	Retouched		26-30	1-30%	0.94	Cortical	Feather	26.4	7.2	3.9	Elongate					
TNR AFT 14	157	744	506	2/3			7	Silcrete	Red	Total	Flake			16-20	0%	0.92	Plain	Feather	19.4	9.6	4.5	Elongate					
TNR AFT 14	158	744	506	2/3			7	Silcrete	Red	Total	Flake			16-20	0%	0.69	Plain	Feather	16	12.8	3.2	L=W					
TNR AFT 14	159	744	506	2/3			7	Silcrete	Purple	Total	Flake			11-15	0%	0.55	Plain	Feather	10.8	10.9	4.9	W>L					
TNR AFT 14	160	744	506	2/3			7	Silcrete	Red	Total	Flake			16-20	0%	0.23	Focal	Feather	16.3	7.2	1.9	Elongate					
TNR AFT 14	161	744	506	2/3			7	Silcrete	Red	Total	Flake			6-10	0%	0.04	Plain	Feather	6.8	3.3	1.4	Elongate					
TNR AFT 14	162	744	506	2/3			7	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.05	Focal										
TNR AFT 14	163	744	506	2/3			7	Silcrete	Red	Total	Medial Fragment			16-20	70-99%	0.83											
TNR AFT 14	164	744	506	2/3			7	Silcrete	Red	Total	Distal Fragment			11-15	1-30%	0.23		Feather									
TNR AFT 14	165	744	506	2/3			7	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.05											
TNR AFT 14	166	744	506	2/3			7	Silcrete	Red	Total	Distal Fragment			16-20	1-30%	0.82		Step									
TNR AFT 14	167	744	506	2/3			7	Silcrete	Purple	Partial	Distal Fragment			16-20	0%	1.36		Step									
TNR AFT 14	168	744	506	2/3			7	Silcrete	Red	Total	Distal Fragment			11-15	1-30%	0.45		Feather									
TNR AFT 14	169	744	506	2/3			7	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.46		Step									
TNR AFT 14	170	744	506	2/3			7	Silcrete	Red	Total	Distal Fragment			11-15	31-69%	0.18		Feather									
TNR AFT 14	171	744	506	2/3			7	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.18		Feather									
TNR AFT 14	172	744	506	2/3			7	Silcrete	Red/Yellow	Partial	Distal Fragment			11-15	0%	0.15		Step									
TNR AFT 14	173	744	506	2/3			7	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.08		Step									
TNR AFT 14	174	744	506	2/3			7	Silcrete	Pink	Partial	Distal Fragment			11-15	1-30%	0.12		Feather									
TNR AFT 14	175	744	506	2/3			7	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.19		Feather									
TNR AFT 14	176	744	506	2/3			7	Silcrete	Yellow	None	Distal Fragment			11-15	0%	0.13		Feather									
TNR AFT 14	177	744	506	2/3			7	Silcrete	Red	Total	Distal Fragment			6-10	1-30%	0.08		Feather									
TNR AFT 14	178	744	5																								

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 14	211	745	534	2/3				11	Quartz	Milky-White	None	Distal Fragment		11-15	0%	0.22		Step						
TNR AFT 14	212	745	536	2/3				11	S. Tuff	Light Grey	None	Core	Unifacial-Rotated	51-55	0%	46.91	Ridged		50.9	38.6	21.6		5	
TNR AFT 14	213	745	536	2/3				11	Silcrete	Red/Yellow	Partial	Flake		26-30	31-69%	3.52	Cortical	Feather		21.5	13.2		9.5	L-W
TNR AFT 14	214	745	536	2/3				11	Silcrete	Red	Total	Distal Fragment		16-20	0%	0.68		Feather						
TNR AFT 14	215	746	535	2/3				11	Quartz	Milky-White	None	Angular Fragment		11-15	0%	0.37								
TNR AFT 14	216	746	536	2/3				11	S. Tuff	Grey/Green	None	Flake		16-20	0%	0.45	Plain		15.4	13.6	2.4	L-W		
TNR AFT 14	217	746	536	2/3				11	Quartz	Milky-White	None	Distal Fragment		26-30	0%	2.73		Step						
TNR AFT 14	218	746	536	2/3				11	Quartz	Milky-White	None	Distal Fragment		11-15	0%	0.27		Hinge						
TNR AFT 14	219	746	536	2/3				11	Quartz	Milky-White	None	Angular Fragment		11-15	0%	0.39								
TNR AFT 14	220	746	536	2/3				11	Quartz	Milky-White	None	Angular Fragment		11-15	0%	0.18								
TNR AFT 16	229	000	150	1				TU22	Quartz	Milky-White	None	Distal Fragment		6-10	0%	0.17		Feather						
TNR AFT 16	230	030	250	1				TU27	Silcrete	Red	Total	Distal Fragment		11-15	0%	0.14		Feather						
TNR AFT 16	231	015	230	1				S28	S. Tuff	Light Grey	None	Angular Fragment		16-20	0%	0.39								
TNR AFT 16	232	985	236	1				S33	Silcrete	Red	Total	Proximal Fragment		11-15	0%	0.27	Plain							
TNR AFT 16	233	985	236	1				TU33	S33	P. Wood	Black	None	Distal Fragment		26-30	0%	3.21		Step					
TNR AFT 16	234	000	230	1				S36	Silcrete	Red	Total	Proximal Fragment		26-30	0%	2.09	Plain							
TNR AFT 16	235	000	230	1				S36	Quartz	Milky-White	None	Angular Fragment		26-30	0%	6.8								
TNR AFT 16	236	000	230	1				S36	Quartz	Milky-White	None	Angular Fragment		6-10	0%	0.32								
TNR AFT 16	237	984	237	2/3				3	S. Tuff	Beige	None	Angular Fragment		16-20	31-69%	1.71								
TNR AFT 16	238	984	237	2/3				3	Chert	Red/Brown	None	Angular Fragment		0-5	0%	0.2								
TNR AFT 16	239	984	238	2/3				3	Silcrete	Red	Total	Angular Fragment		21-25	0%	0.73								
TNR AFT 16	240	985	238	2/3				3	Silcrete	Red	Total	Angular Fragment		16-20	1-30%	1.11								
TNR AFT 16	241	986	237	2/3				3	S. Tuff	Brown	None	Distal Fragment		31-35	31-69%	3.28		Feather						
TNR AFT 16	242	986	238	2/3				3	S. Tuff	Grey/Green	None	Angular Fragment		11-15	1-30%	0.18								
TNR AFT 16	243	986	238	2/3				3	Quartz	Milky-White	None	Bipolar Flake		11-15	1-30%	0.27	Cortical	Step		9.2	5.2	4.4	L-W	
TNR AFT 16	244	000	231	2/3				4	Glass	Dark Green	None	Angular Fragment	Retouched	51-55	0%	20.99				50	36.2	6		
TNR AFT 16	245	000	231	2/3				4	S. Tuff	Orange	None	Flake		16-20	1-30%	0.24	Cortical	Feather		13.2	11		3.2	L-W
TNR AFT 16	246	000	231	2/3				4	Silcrete	Red	Total	Medial Fragment		11-15	0%	0.88								Possible glass retouched artefact
TNR AFT 16	247	000	231	2/3				4	Silcrete	Pink	Partial	Angular Fragment		21-25	0%	2.15								
TNR AFT 16	248	000	231	2/3				4	Quartz	Milky-White	None	Angular Fragment		11-15	31-69%	0.72								
TNR AFT 16	249	001	231	2/3				4	Silcrete	Pink	None	Angular Fragment		16-20	31-69%	1.62								
TNR AFT 16	250	001	231	2/3				4	Quartz	Milky-White	None	Medial Fragment		11-15	0%	1.37								
TNR AFT 17	251	140	815	1				S40	Silcrete	Red	Total	Flake		21-25	1-30%	1.41	Plain	Plunged		14.4	22.3	3.6	W>L	
TNR AFT 17	252	140	815	1				S40	Silcrete	Pink	Partial	Flake		16-20	0%	0.6	Ridged	Feather		14.1	16.8	2.3	W>L	
TNR AFT 17	253	140	815	1				S40	Silcrete	Pink	Partial	Flake		16-20	0%	1.45	Plain	Feather		15.4	14	5.5	L-W	
TNR AFT 17	254	140	815	1				S40	Silcrete	Red	Total	Flake		16-20	0%	0.44	Plain	Feather		17.4	9.2	2.5	L-W	
TNR AFT 17	255	140	815	1				S40	Silcrete	Pink	Total	Flake		6-10	1-30%	0.13	Plain	Step		8.2	5.3	2	L-W	
TNR AFT 17	256	140	815	1				S40	Silcrete	Pink	None	Medial Fragment		6-10	0%	0.12								
TNR AFT 17	257	140	815	1				S40	Silcrete	Pink	Partial	Distal Fragment		16-20	0%	0.81		Step						
TNR AFT 17	258	140	815	1				S40	Silcrete	Pink	Partial	Distal Fragment		16-20	0%	0.34		Feather						
TNR AFT 17	259	140	815	1				S40	Silcrete	Pink	Partial	Distal Fragment		11-15	0%	0.26		Feather						
TNR AFT 17	260	140	815	1				S40	Silcrete	Pink	None	Distal Fragment		11-15	0%	0.24								
TNR AFT 17	261	140	815	1				S40	Silcrete	Pink	None	Distal Fragment		11-15	0%	0.23		Feather						
TNR AFT 17	262	140	815	1				S40	Silcrete	Red	Partial	Distal Fragment		11-15	0%	0.14		Feather						
TNR AFT 17	263	140	815	1				S40	Silcrete	Pink	None	Distal Fragment		6-10	0%	0.12		Feather						
TNR AFT 17	264	140	815	1				S40	Silcrete	Pink	None	Distal Fragment		6-10	0%	0.12		Feather						
TNR AFT 17	265	140	800	1				S41	Silcrete	Red	Total	Flake		16-20	0%	1.28	Plain	Feather		15.3	15.8	3.5	W>L	
TNR AFT 17	266	140	800	1				S41	Quartz	Milky-White	None	Proximal Fragment		11-15	1-30%	0.11	Cortical							
TNR AFT 17	267	140	800	1				S41	Silcrete	Red	Total	Angular Fragment		31-35	1-30%	5.26								
TNR AFT 17	268	140	800	1				TU41	S41	S. Tuff	Grey	None	Angular Fragment		36-40	0%	8.37							
TNR AFT 17	269	140	770	1				S43	Silcrete	Red	Total	Flake		11-15	0%	0.1	Ridged	Feather		10.7	6.9	1	L-W	
TNR AFT 17	270	140	770	1				S43	Silcrete	Red	Total	Distal Fragment		21-25	0%	2.28		Feather						
TNR AFT 17	271	140	770	1				S43	Silcrete	Red	Partial	Distal Fragment		11-15	0%	0.15		Feather						
TNR AFT 17	272	155	795	1				S45	S. Tuff	Orange	None	Distal Fragment		26-30	0%	2.77		Feather						
TNR AFT 17	273	155	795	1				S45	Chert	Red/Brown	None	Distal Fragment		11-15	0%	0.54		Feather						
TNR AFT 17	274	155	795	1				TU45	S45	Quartzite	Light Grey	None	Proximal Fragment		11-15	1-30%	0.31	Cortical						
TNR AFT 17	275	140	845	1				S47	Silcrete	Red	Total	Core	Multidirectional	41-45	30%	27.45	Plain		40.7	30.3	21.8		2	
TNR AFT 17	276	140	845	1				S47	Silcrete	Red	Total	Flake		16-20	0%	1.7	Plain	Feather		15.5	18.6	4.8	W>L	
TNR AFT 17	277	147	815	1				S49	Silcrete	Purple	Partial	Core	Multidirectional	41-45	0%	32.12	Plain		44.4	27.1	25	3	Broken in two pieces, possible old break	
TNR AFT 17	278	147	815	1				S49	Silcrete	Red	Total	Medial Fragment		6-10	0%	0.12								
TNR AFT 17	279	140	808	1				S50	P. Wood	Yellow/Brown	None	Distal Fragment		11-15	0%	0.35		Step						
TNR AFT 17	280	140	808	1				S50	Silcrete	Red	Partial	Distal Fragment	Bifacial	36-40	1-30%	17.2	Ridged		37.9	31.3	17.3	4		
TNR AFT 17	281	140	808	1				S50	Silcrete	Pink	Partial	Medial Fragment		11-15	0%	0.27		Feather						
TNR AFT 17	282	140	808	1				S50	Silcrete	Red	Total	Distal Fragment		16-20	0%	0.37		Feather						
TNR AFT 17																								

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 17	325	139	812	2/3		5	S. Tuff	Pink	None	None	Proximal Fragment			11-15	0%	0.08	Plain							
TNR AFT 17	326	139	812	2/3		5	Silcrete	Red	Partial	None	Flake			16-20	0%	0.83	Plain	Plunged	17.8	17.3		1.7 L-W		
TNR AFT 17	327	139	812	2/3		5	Silcrete	Pink	None	None	Flake			11-15	0%	0.31	Plain	Feather	8.9	14		1.9 W-L		
TNR AFT 17	328	139	812	2/3		5	Silcrete	Red	Partial	None	Flake			6-10	0%	0.03	Plain	Step	6.4	3.2		0.8 Elongate		
TNR AFT 17	329	139	812	2/3		5	Silcrete	Red	Partial	None	Distal Fragment			21-25	0%	1.38		Plunged						
TNR AFT 17	330	139	812	2/3		5	Silcrete	Red	Partial	None	Distal Fragment			11-15	0%	0.13		Feather						
TNR AFT 17	331	139	813	2/3		5	Silcrete	Red	Total	None	Distal Fragment	Retouched		6-10	0%	0.14		Feather	9.7	6.3		2.3		small retouch scars - platform removal
TNR AFT 17	332	139	813	2/3		5	Silcrete	Pink	None	None	Distal Fragment			6-10	0%	0.12		Feather						
TNR AFT 17	333	140	810	2/3		5	Silcrete	Red	Partial	None	Flake			16-20	0%	1.07	Plain	Feather	18	14.4		3.3 L-W		
TNR AFT 17	334	140	810	2/3		5	Silcrete	Pink	None	None	Medial Fragment			16-20	0%	0.93								
TNR AFT 17	335	140	810	2/3		5	Silcrete	Red	Partial	None	Medial Fragment			6-10	0%	0.17								
TNR AFT 17	336	140	810	2/3		5	Silcrete	Pink	None	None	Flake			11-15	0%	0.52	Ridged	Feather	11.3	11		3.1 L-W		
TNR AFT 17	337	140	810	2/3		5	Silcrete	Red	Total	None	Proximal Fragment			11-15	0%	0.28	Plain							
TNR AFT 17	338	140	810	2/3		5	Silcrete	Pink	None	None	Proximal Fragment			11-15	0%	0.29	Plain							
TNR AFT 17	339	140	810	2/3		5	Silcrete	Red	Partial	None	Medial Fragment			16-20	0%	0.7								
TNR AFT 17	340	140	810	2/3		5	Silcrete	Red	Partial	None	Medial Fragment			11-15	0%	0.58								
TNR AFT 17	341	140	810	2/3		5	Silcrete	Pink	None	None	Distal Fragment			26-30	0%	1.95		Step						
TNR AFT 17	342	140	810	2/3		5	Silcrete	Red	Partial	None	Distal Fragment			16-20	31-69%	1.5		Plunged						
TNR AFT 17	343	140	810	2/3		5	Silcrete	Red/Yellow	Partial	None	Distal Fragment			21-25	1-30%	2.14		Feather						
TNR AFT 17	344	140	810	2/3		5	Silcrete	Pink	None	None	Distal Fragment			11-15	0%	0.25		Feather						
TNR AFT 17	345	140	811	2/3		5	Silcrete	Pink	Partial	None	Distal Fragment	Backed	Geometric Microlith	11-15	0%	0.32		Feather	13.5	8.2		2.4		
TNR AFT 17	346	140	811	2/3		5	Silcrete	Pink	None	None	Medial Fragment	Backed	Geometric Microlith	11-15	0%	0.23			10.7	8.2		1.9		
TNR AFT 17	347	140	811	2/3		5	Silcrete	Red	Total	None	Flake			26-30	31-69%	4.84	Cortical	Step	24.2	17.7		10.6 L-W		
TNR AFT 17	348	140	811	2/3		5	Silcrete	Grey	None	None	Flake			31-35	0%	4.05	Ridged	Step	33.7	11.8		6.3 Elongate		
TNR AFT 17	349	140	811	2/3		5	Silcrete	Pink	Partial	None	Split Flake (L)			26-30	1-30%	1.98	Cortical	Feather						
TNR AFT 17	350	140	811	2/3		5	Silcrete	Red	Total	None	Flake			21-25	0%	1.75	Ridged	Step	17.2	13.3		6.8 L-W		
TNR AFT 17	351	140	811	2/3		5	Silcrete	Pink	None	None	Flake			6-10	0%	0.12		Feather	8.2	6.3		1.8 L-W		
TNR AFT 17	352	140	811	2/3		5	Silcrete	Pink	Partial	None	Proximal Fragment			16-20	0%	1.29	Faceted							
TNR AFT 17	353	140	811	2/3		5	Silcrete	Red	Total	None	Proximal Fragment			11-15	0%	0.2	Plain							
TNR AFT 17	354	140	811	2/3		5	Silcrete	Red	Total	None	Medial Fragment			21-25	1-30%	2.8								
TNR AFT 17	355	140	811	2/3		5	Silcrete	Red	Total	None	Medial Fragment			6-10	0%	0.11								
TNR AFT 17	356	140	811	2/3		5	Silcrete	Pink	Partial	None	Distal Fragment			21-25	0%	1.67		Feather						
TNR AFT 17	357	140	811	2/3		5	Silcrete	Pink	Partial	None	Distal Fragment			26-30	0%	3.13		Feather						
TNR AFT 17	358	140	811	2/3		5	Silcrete	Pink	Partial	None	Distal Fragment			16-20	0%	0.37		Feather						
TNR AFT 17	359	140	811	2/3		5	Silcrete	Pink	None	None	Distal Fragment			11-15	0%	0.13								
TNR AFT 17	360	140	811	2/3		5	Silcrete	Pink	None	None	Distal Fragment			6-10	0%	0.12		Feather						
TNR AFT 17	361	140	811	2/3		5	Silcrete	Pink	Total	None	Distal Fragment			16-20	0%	0.65								
TNR AFT 17	362	140	811	2/3		5	Silcrete	Red	Partial	None	Distal Fragment			11-15	0%	0.19		Feather						
TNR AFT 17	363	140	811	2/3		5	Silcrete	Purple	None	None	Medial Fragment			6-10	0%	0.07								
TNR AFT 17	364	140	812	2/3		5	S. Tuff	Beige	None	None	Distal Fragment			16-20	0%	0.36		Feather						
TNR AFT 17	365	140	812	2/3		5	S. Tuff	Light Grey	None	None	Distal Fragment			11-15	0%	0.12		Feather						
TNR AFT 17	366	140	812	2/3		5	Silcrete	Light Grey	None	None	Flake			31-35	0%	3.39	Plain	Step	30.2	18.1		6.4 L-W		
TNR AFT 17	367	140	812	2/3		5	Silcrete	Light Grey	None	None	Flake			21-25	0%	1.1	Plain	Feather	23.7	12.1		2.3 L-W		
TNR AFT 17	368	140	812	2/3		5	Silcrete	Pink	None	None	Flake			21-25	0%	1.17	Faceted	Step	21.8	15.1		3.2 L-W		
TNR AFT 17	369	140	812	2/3		5	Silcrete	Pink	None	None	Flake			6-10	0%	0.04	Plain	Feather	8.6	4		1.1 Elongate		
TNR AFT 17	370	140	812	2/3		5	Silcrete	Pink	None	None	Proximal Fragment			11-15	0%	0.39	Plain							
TNR AFT 17	371	140	812	2/3		5	Silcrete	Pink	Partial	None	Proximal Fragment			11-15	0%	0.13								
TNR AFT 17	372	140	812	2/3		5	Silcrete	Red	Total	None	Medial Fragment			21-25	0%	1.97								
TNR AFT 17	373	140	812	2/3		5	Silcrete	Pink	None	None	Medial Fragment			11-15	0%	0.76								
TNR AFT 17	374	140	812	2/3		5	Silcrete	Red	Partial	None	Medial Fragment			6-10	0%	0.16								
TNR AFT 17	375	140	812	2/3		5	Silcrete	Pink	Partial	None	Distal Fragment			21-25	0%	1.73		Step						
TNR AFT 17	376	140	812	2/3		5	Silcrete	Pink	None	None	Distal Fragment			16-20	0%	0.35		Plunged						
TNR AFT 17	377	140	812	2/3		5	Silcrete	Red	Partial	None	Distal Fragment			16-20	0%	0.24		Feather						
TNR AFT 17	378	140	812	2/3		5	Silcrete	Red	Partial	None	Distal Fragment			6-10	0%	0.13		Feather						
TNR AFT 17	379	140	812	2/3		5	Silcrete	Red	Total	None	Distal Fragment			6-10	0%	0.08		Feather						
TNR AFT 17	380	140	812	2/3		5	Silcrete	Light Grey	None	None	Distal Fragment			11-15	0%	0.26		Feather						
TNR AFT 17	381	140	812	2/3		5	Silcrete	Red	Partial	None	Distal Fragment			11-15	31-69%	1.35								
TNR AFT 17	382	140	812	2/3		5	Silcrete	Pink	None	None	Distal Fragment			11-15	0%	0.13		Feather						
TNR AFT 17	383	140	812	2/3		5	Silcrete	Pink	None	None	Distal Fragment			6-10	0%	0.04		Feather						
TNR AFT 17	384	140	812	2/3		5	Silcrete	Pink	None	None	Angular Fragment			11-15	0%	0.42								
TNR AFT 17	385	140	812	2/3		5	Silcrete	Pink	Partial	None	Angular Fragment			0-5	0%	0.04								
TNR AFT 17	386	140	813	2/3		5	S. Tuff	Orange	None	None	Core	Unifacial	Platform Prep (Cores)	36-40	0%	14.85	Plain	Feather	35.2	25.1		17.3	1	
TNR AFT 17	387	140	813	2/3		5	Silcrete	Red	Total	None	Flake			11-15	1-30%	0.38	Faceted	Feather	7.8	8.5		5.3 W-L		
TNR AFT 17	388	140	813	2/3		5	Silcrete	Light Grey	None	None	Proximal Fragment			11-15	0%	0.48	Ridged							
TNR AFT 17	389	140	813	2/3		5	Silcrete	Pink	Partial	None	Proximal Fragment			26-30	0%	2.21	Plain							
TNR AFT 17	390	140	813	2/3		5	Silcrete	Pink	None	None	Medial Fragment			21-25	0%	1.42								
TNR AFT 17	391	140	813	2/3		5	Silcrete	Pink	None	None	Medial Fragment			6-10	0%	0.23								
TNR AFT 17	392	140	813	2/3		5	Silcrete	Red	Total	None	Medial Fragment			11-15	100%	0.21								
TNR AFT 17	393	140	813	2/3		5	Silcrete	Red	Total	None	Medial Fragment			6-10	0%	0.3								
TNR AFT 17	394	140	813	2/3		5	Silcrete	Pink	None	None	Distal Fragment			11-15	0%	0.28		Step						
TNR AFT 17	395	140	813	2/3		5	Silcrete	Red	Partial	None	Distal Fragment			11-15	0%	0.13		Feather						
TNR AFT 17	396	140	813	2/3		5	Silcrete	Red	Total	None	Distal Fragment			6-10	0%	0.07		Feather						
TNR AFT 17	397	140	813	2/3		5	Silcrete	Pink	None	None	Distal Fragment			6-10	0%	0.18		Feather						
TNR AFT 17	398	140	813	2/3		5	Silcrete	Red	Total	None	Angular Fragment			6-10	0%	0.31								
TNR AFT 17	399	141	810																					

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 17	431	141	812	2/3				Silcrete	Pink	Partial	Proximal Fragment			21-25	1-30%	1.01	Cortical							
TNR AFT 17	432	141	812	2/3				Silcrete	Pink	None	Proximal Fragment			6-10	0%	0.1	Plain							
TNR AFT 17	433	141	812	2/3				Silcrete	Red	Partial	Medial Fragment			11-15	0%	0.48								
TNR AFT 17	434	141	812	2/3				Silcrete	Pink	None	Medial Fragment			6-10	0%	0.26								
TNR AFT 17	435	141	812	2/3				Silcrete	Pink	None	Distal Fragment			16-20	0%	0.57	Feather							
TNR AFT 17	436	141	812	2/3				Silcrete	Grey	None	Distal Fragment			16-20	0%	0.56	Feather							
TNR AFT 17	437	141	812	2/3				Silcrete	Pink	Partial	Distal Fragment			11-15	0%	0.21								
TNR AFT 17	438	141	812	2/3				Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.17	Feather							
TNR AFT 17	439	141	812	2/3				Silcrete	Light Grey	None	Distal Fragment			11-15	0%	0.2	Feather							
TNR AFT 17	440	141	812	2/3				Silcrete	Red/Yellow	Partial	Distal Fragment			11-15	0%	0.15	Step							
TNR AFT 17	441	141	812	2/3				Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.09	Step							
TNR AFT 17	442	141	812	2/3				Silcrete	Red	Total	Angular Fragment			36-40	0%	0.32								
TNR AFT 17	443	141	812	2/3				Silcrete	Pink	None	Angular Fragment			16-20	0%	1.58								
TNR AFT 17	444	141	812	2/3				Silcrete	Pink	Partial	Angular Fragment			11-15	0%	0.28								
TNR AFT 17	445	141	813	2/3				Silcrete	Red	Partial	Distal Fragment	Retouched	Scraper	21-25	0%	1.81	Feather		15.3	17.1	3.9		retouch on right lateral margin creating a concave surface	
TNR AFT 17	446	141	813	2/3				Silcrete	Red	Total	Distal Fragment	Backed	Geometric Microlith	11-15	0%	0.26	Feather		11.5	8.5	1.9			
TNR AFT 17	447	141	813	2/3				Silcrete	Pink	None	Core			26-30	1-30%	3.59	Ridged							
TNR AFT 17	448	141	813	2/3				Silcrete	Red/Yellow	Partial	Flake			16-20	0%	0.97	Plain	Step	16.1	14.1	2.5	L-W		
TNR AFT 17	449	141	813	2/3				Silcrete	Red	Total	Flake			21-25	1-30%	1.09	Plain	Feather	19.8	10.7	4.6	L-W		
TNR AFT 17	450	141	813	2/3				Silcrete	Red	Partial	Proximal Fragment			16-20	0%	0.53	Ridged							
TNR AFT 17	451	141	813	2/3				Silcrete	Light Grey	None	Proximal Fragment			21-25	0%	1.16	Faceted							
TNR AFT 17	452	141	813	2/3				Silcrete	Purple	Partial	Proximal Fragment			21-25	0%	1.64	Ridged							
TNR AFT 17	453	141	813	2/3				Silcrete	Purple	Partial	Proximal Fragment			21-25	0%	1.08	Plain							
TNR AFT 17	454	141	813	2/3				Silcrete	Pink	Partial	Proximal Fragment			11-15	0%	0.2	Plain							
TNR AFT 17	455	141	813	2/3				Silcrete	Pink	None	Proximal Fragment			6-10	0%	0.19	Plain							
TNR AFT 17	456	141	813	2/3				Silcrete	Pink	Partial	Medial Fragment			11-15	0%	0.61								
TNR AFT 17	457	141	813	2/3				Silcrete	Red	Partial	Medial Fragment			11-15	0%	1.31								
TNR AFT 17	458	141	813	2/3				Silcrete	Red	Total	Medial Fragment			11-15	0%	0.18								
TNR AFT 17	459	141	813	2/3				Silcrete	Red	Partial	Medial Fragment			6-10	0%	0.06								
TNR AFT 17	460	141	813	2/3				Silcrete	Pink	Partial	Distal Fragment	Retouched		16-20	0%	2.05	Feather						retouch on distal margin	
TNR AFT 17	461	141	813	2/3				Silcrete	Pink	None	Distal Fragment			16-20	0%	1.08	Feather							
TNR AFT 17	462	141	813	2/3				Silcrete	Pink	None	Distal Fragment			16-20	0%	0.68								
TNR AFT 17	463	141	813	2/3				Silcrete	Pink	None	Distal Fragment			11-15	0%	0.73	Step							
TNR AFT 17	464	141	813	2/3				Silcrete	Pink	Partial	Distal Fragment			11-15	0%	0.31	Feather							
TNR AFT 17	465	141	813	2/3				Silcrete	Pink	None	Distal Fragment			11-15	0%	0.47	Step							
TNR AFT 17	466	141	813	2/3				Silcrete	Pink	None	Distal Fragment			6-10	0%	0.22	Feather							
TNR AFT 17	467	141	813	2/3				Silcrete	Pink	Total	Angular Fragment			11-15	31-69%	1.85								
TNR AFT 17	468	141	813	2/3				Silcrete	Red	Total	Angular Fragment			11-15	0%	0.33								
TNR AFT 17	469	142	809	2/3				Silcrete	Red	Partial	Flake			21-25	0%	1.59	Plain	Feather	22.5	13.8		6.1	L-W	
TNR AFT 17	470	142	809	2/3				Silcrete	Pink	None	Flake			26-30	0%	3.91	Plain	Hinge	24.2	21.4		6.5	L-W	
TNR AFT 17	471	142	809	2/3				Silcrete	Pink	None	Medial Fragment			11-15	0%	0.34								
TNR AFT 17	472	142	809	2/3				Quartz	Milky/White	None	Angular Fragment			6-10	0%	0.18								
TNR AFT 17	473	142	810	2/3				S. Tuff	Orange	None	Angular Fragment			11-15	0%	0.2								
TNR AFT 17	474	142	810	2/3				Silcrete	Red	Total	Flake			11-15	0%	0.26	Plain	Step						1.7 Elongate
TNR AFT 17	475	142	810	2/3				Silcrete	Pink	None	Flake			11-15	0%	0.13	Plain	Hinge	11.6	6		1	L-W	
TNR AFT 17	476	142	810	2/3				Silcrete	Pink	Partial	Proximal Fragment			21-25	1-30%	3.14	Faceted							
TNR AFT 17	477	142	810	2/3				Silcrete	Red	Partial	Medial Fragment			16-20	0%	0.95								
TNR AFT 17	478	142	810	2/3				Silcrete	Grey	None	Distal Fragment			16-20	0%	1.4	Feather							
TNR AFT 17	479	142	810	2/3				Silcrete	Red	Total	Distal Fragment			11-15	0%	0.27	Feather							
TNR AFT 17	480	142	810	2/3				Silcrete	Red	Partial	Distal Fragment			6-10	0%	1.2	Feather							
TNR AFT 17	481	142	810	2/3				Silcrete	Red	None	Distal Fragment			6-10	0%	0.08	Feather							
TNR AFT 17	482	142	810	2/3				Silcrete	Pink	None	Distal Fragment			6-10	0%	0.05	Feather							
TNR AFT 17	483	142	810	2/3				Silcrete	Pink	None	Distal Fragment			6-10	0%	0.06	Step							
TNR AFT 17	484	142	810	2/3				Silcrete	Pink	None	Angular Fragment			11-15	0%	0.33								
TNR AFT 17	485	142	810	2/3				Silcrete	Red	Partial	Angular Fragment			6-10	0%	0.07								
TNR AFT 17	486	142	811	2/3				Silcrete	Red	Total	Flake			21-25	0%	2.94	Plain	Step	22.1	12.5		7.9	L-W	
TNR AFT 17	487	142	811	2/3				Silcrete	Red	Partial	Flake			11-15	1-30%	1.21	Plain	Step	9.7	8.1		1.6	L-W	
TNR AFT 17	488	142	811	2/3				Silcrete	Red	Total	Medial Fragment			11-15	0%	0.51								
TNR AFT 17	489	142	811	2/3				Silcrete	Pink	Partial	Medial Fragment			16-20	0%	0.64								
TNR AFT 17	490	142	811	2/3				Silcrete	Red	Total	Distal Fragment			11-15	0%	0.55	Feather							
TNR AFT 17	491	142	812	2/3				Silcrete	Red	Partial	Distal Fragment	Backed	Elouira	21-25	0%	0.65	Hinge	21.2	10.8		3.2		unfinished - only half backed	
TNR AFT 17	492	142	812	2/3				Silcrete	Pink	None	Flake			6-10	31-69%	1.04	Plain	Feather	4.9	6.7		1.1	W>L	
TNR AFT 17	493	142	812	2/3				Silcrete	Pink	None	Proximal Fragment			26-30	0%	2.14	None							
TNR AFT 17	494	142	812	2/3				Silcrete	Pink	None	Proximal Fragment			16-20	0%	0.5	Faceted							
TNR AFT 17	495	142	812	2/3				Silcrete	Pink	None	Proximal Fragment			11-15	0%	0.31	Ridged							
TNR AFT 17	496	142	812	2/3				Silcrete	Pink	None	Medial Fragment			11-15	0%	0.72								
TNR AFT 17	497	142	812	2/3				Silcrete	Purple	Partial	Medial Fragment			21-25	0%	1.5								
TNR AFT 17	498	142	812	2/3				Silcrete	Red	Total	Medial Fragment			6-10	0%	0.11								
TNR AFT 17	499	142	812	2/3				Silcrete	Pink	None	Medial Fragment			11-15	0%	0.32								
TNR AFT 17	500	142	812	2/3				Silcrete	Pink	None	Medial Fragment			11-15	0%	0.29								
TNR AFT 17	501	142	812	2/3				Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.51	Feather							
TNR AFT 17	502	142	812	2/3				Silcrete	Red	Partial	Distal Fragment			16-20	0%	0.84	Feather							
TNR AFT 17	503	142	812	2/3				Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.48	Feather							
TNR AFT 17	504	142	812	2/3				Silcrete	Light Grey	None	Medial Fragment			11-15	0%	0.28								
TNR AFT 17	505	142	812	2/3				Silcrete	Purple	Partial	Distal Fragment			11-15	0%	0.22	Feather							
TNR AFT 17	506	142	812	2/3				Silcrete	Pink	None	Distal Fragment			16-20	0%	0.38	Feather							
TNR AFT 17	507	142	812	2/3				Silcrete	Pink	None	Distal Fragment			11-15	0%	0.19								
TNR AFT 17	508	142	812	2																				

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 17	643	143	813	2/3		5	Silcrete	Pink	None	None	Angular Fragment			11-15	0%	0.33								
TNR AFT 17	643	143	813	2/3		5	Silcrete	Red	Partial	Flake	Partial			11-15	1-30%	0.1	Plain	Feather		6.3	10.5	1.1	W-L	
TNR AFT 17	645	143	813	2/3		5	Silcrete	Pink	None	Flake	None			11-15	0%	0.2	Plain	Feather		11.9	6.1	2.2	L-W	
TNR AFT 17	646	143	813	2/3		5	Silcrete	Red	Total	Flake	Flake			11-15	0%	0.09	Ridged	Plunged		10.3	6.5	0.8	L-W	
TNR AFT 17	647	143	813	2/3		5	Silcrete	Red	Partial	Flake	Partial			6-10	0%	0.06	Focal	Feather		9.4	6	0.8	L-W	
TNR AFT 17	648	143	813	2/3		5	Silcrete	Red	Partial	Flake	None			6-10	0%	0.07	Plain	Feather		7.9	8.7	0.8	W-L	
TNR AFT 17	649	143	813	2/3		5	Silcrete	Red	Total	Flake	Total			6-10	0%	0.09	Plain	Feather		10.8	7.5	6.6	L-W	
TNR AFT 17	650	143	813	2/3		5	Silcrete	Red	None	Flake	None			0-5	0%	0.02	Focal	Feather		5.6	3.5	1.1	L-W	
TNR AFT 17	651	143	813	2/3		5	Silcrete	Pink	Partial	Proximal Fragment				11-15	0%	0.1	Plain							
TNR AFT 17	652	143	813	2/3		5	Silcrete	Purple	None	None	Proximal Fragment			6-10	0%	0.08	Plain							
TNR AFT 17	653	143	813	2/3		5	Silcrete	Red	Total	Medial Fragment				11-15	0%	0.16								
TNR AFT 17	654	143	813	2/3		5	Silcrete	Red	Total	Medial Fragment				6-10	0%	0.05								
TNR AFT 17	655	143	813	2/3		5	Silcrete	Red	Partial	Medial Fragment				6-10	0%	0.05								
TNR AFT 17	656	143	813	2/3		5	Silcrete	Red	Partial	Distal Fragment				11-15	0%	0.22		Feather						
TNR AFT 17	657	143	813	2/3		5	Silcrete	Pink	None	None	Distal Fragment			11-15	0%	0.17		Feather						
TNR AFT 17	658	143	813	2/3		5	Silcrete	Red	Total	Distal Fragment				6-10	0%	0.11		Feather						
TNR AFT 17	659	143	813	2/3		5	Silcrete	Pink	None	None	Distal Fragment			6-10	0%	0.13		Feather						
TNR AFT 17	660	143	813	2/3		5	Silcrete	Pink	Partial	Distal Fragment				11-15	0%	0.18		Feather						
TNR AFT 17	661	143	813	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	0%	0.2		Feather						
TNR AFT 17	662	143	813	2/3		5	Silcrete	Red	Partial	Distal Fragment				6-10	0%	0.17		Feather						
TNR AFT 17	663	143	813	2/3		5	Silcrete	Red	Total	Distal Fragment				6-10	0%	0.06		Feather						
TNR AFT 17	664	143	813	2/3		5	Silcrete	Red	Total	Distal Fragment				6-10	0%	0.11		Feather						
TNR AFT 17	665	143	813	2/3		5	Silcrete	Red	None	None	Distal Fragment			6-10	0%	0.07		Feather						
TNR AFT 17	666	143	813	2/3		5	Silcrete	Red	Partial	Distal Fragment				6-10	0%	0.1		Feather						
TNR AFT 17	667	143	813	2/3		5	Silcrete	Red	Partial	Distal Fragment				6-10	0%	0.05		Feather						
TNR AFT 17	668	143	813	2/3		5	Silcrete	Red	Partial	Distal Fragment				6-10	0%	0.05		Feather						
TNR AFT 17	669	143	813	2/3		5	Silcrete	Pink	None	None	Angular Fragment			6-10	0%	0.07		Feather						
TNR AFT 17	670	143	813	2/3		5	Silcrete	Pink	Partial	Angular Fragment				6-10	0%	0.04		Feather						
TNR AFT 17	671	143	813	2/3		5	Silcrete	Red	Total	Angular Fragment				11-15	0%	0.14								
TNR AFT 17	672	143	813	2/3		5	Silcrete	Red	Total	Angular Fragment				6-10	1-30%	0.21								
TNR AFT 17	673	143	813	2/3		5	Silcrete	Red	Partial	Angular Fragment				6-10	0%	0.14								
TNR AFT 17	674	143	813	2/3		5	Silcrete	Pink	Partial	Angular Fragment				11-15	0%	0.07								
TNR AFT 17	675	143	813	2/3		5	Silcrete	Pink	None	None	Angular Fragment			6-10	0%	0.06								
TNR AFT 17	676	144	809	2/3		5	S. Tuff	Grey/Green	None	Flake				41-45	1-30%	8.22	Crushed	Feather		25.1	39.2	9.7	W-L	2 neg scars on dorsal surface
TNR AFT 17	677	144	809	2/3		5	Silcrete	Red/Yellow	Partial	Flake				21-25	0%	1.25	Plain	Feather		17.7	16.8	3.2	L-W	
TNR AFT 17	678	144	809	2/3		5	Silcrete	Red	Partial	Flake				6-10	0%	0.06	Plain	Feather		6.3	5.8	1.6	L-W	
TNR AFT 17	679	144	809	2/3		5	Silcrete	Purple	Total	Medial Fragment				16-20	100%	1.06								
TNR AFT 17	680	144	809	2/3		5	Silcrete	Purple	Partial	Medial Fragment				11-15	0%	0.47								
TNR AFT 17	681	144	809	2/3		5	Silcrete	Red	Total	Medial Fragment				11-15	0%	0.28								
TNR AFT 17	682	144	809	2/3		5	Silcrete	Red	Partial	Medial Fragment				11-15	0%	0.08								
TNR AFT 17	683	144	809	2/3		5	Silcrete	Purple	Partial	Medial Fragment				6-10	0%	0.08								
TNR AFT 17	684	144	809	2/3		5	Silcrete	Purple	Total	Distal Fragment				16-20	1-30%	1.05		Step						
TNR AFT 17	685	144	809	2/3		5	Silcrete	Pink	Partial	Distal Fragment				16-20	0%	1.07		Step						
TNR AFT 17	686	144	809	2/3		5	Silcrete	Red	Total	Distal Fragment				16-20	31.69%	0.43		Feather						
TNR AFT 17	687	144	809	2/3		5	Silcrete	Pink	Partial	Distal Fragment				11-15	0%	0.38		Feather						
TNR AFT 17	688	144	809	2/3		5	Silcrete	Red	Total	Flake				0-5	0%	0.05	Plain	Feather		5.2	4.7	2.2	L-W	
TNR AFT 17	689	144	809	2/3		5	Silcrete	Pink	None	None	Distal Fragment			6-10	0%	0.08		Step						
TNR AFT 17	690	144	809	2/3		5	Silcrete	Pink	None	None	Angular Fragment			6-10	0%	0.1								
TNR AFT 17	691	144	810	2/3		5	S. Tuff	Beige	None	Crated Fracture				11-15	0%	0.1								
TNR AFT 17	692	144	810	2/3		5	Silcrete	Pink	None	None	Distal Fragment	Retouched		6-10	0%	0.13		Feather		6.8	8.7	1.9		
TNR AFT 17	693	144	810	2/3		5	Silcrete	Red	Total	Flake				6-10	0%	0.05	Focal	Feather		8.3	5.1	0.7	L-W	
TNR AFT 17	694	144	810	2/3		5	Silcrete	Red	Partial	Flake				6-10	70-99%	0.99	Ridged	Hinge		5.4	6.5	0.6	W-L	
TNR AFT 17	695	144	810	2/3		5	Silcrete	Red	Total	Proximal Fragment				6-10	0%	0.12	Plain							
TNR AFT 17	696	144	810	2/3		5	Silcrete	Pink	Partial	Medial Fragment				21-25	1-30%	1.55								
TNR AFT 17	697	144	810	2/3		5	Silcrete	Light Grey	None	None	Medial Fragment			16-20	1-30%	0.42								
TNR AFT 17	698	144	810	2/3		5	Silcrete	Red	Total	Medial Fragment				11-15	0%	0.29								
TNR AFT 17	699	144	810	2/3		5	Silcrete	Red	Partial	Medial Fragment				11-15	0%	0.16								
TNR AFT 17	700	144	810	2/3		5	Silcrete	Red	Total	Medial Fragment				6-10	0%	0.12								
TNR AFT 17	701	144	810	2/3		5	Silcrete	Light Grey	Partial	Distal Fragment				31-35	1-30%	2.69		Step						
TNR AFT 17	702	144	810	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	1-30%	0.22		Step						
TNR AFT 17	703	144	810	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	0%	0.18		Feather						
TNR AFT 17	704	144	810	2/3		5	Silcrete	Red	Total	Distal Fragment				6-10	0%	0.08		Step						
TNR AFT 17	705	144	810	2/3		5	Silcrete	Red	Total	Angular Fragment				11-15	1-30%	0.32								
TNR AFT 17	706	144	810	2/3		5	Silcrete	Purple	Partial	Angular Fragment				6-10	0%	0.06								
TNR AFT 17	707	144	811	2/3		5	S. Tuff	Orange	None	Flake				46-50	70-99%	16.8	Plain	Plunged		40.3	34.1	9	L-W	
TNR AFT 17	708	144	811	2/3		5	Quartz	Milky-White	None	Proximal Fragment				11-15	0%	0.09	Plain							
TNR AFT 17	709	144	811	2/3		5	Silcrete	Red	Total	Flake				11-15	0%	0.1	Plain	Step		8	7.8	2.7	L-W	
TNR AFT 17	710	144	811	2/3		5	Silcrete	Pink	None	Proximal Fragment				16-20	0%	1.21	Faceted							
TNR AFT 17	711	144	811	2/3		5	Silcrete	Pink	None	Proximal Fragment				21-25	0%	0.79	Plain							blade
TNR AFT 17	712	144	811	2/3		5	Silcrete	Light Grey	None	None	Medial Fragment			6-10	0%	0.27								
TNR AFT 17	713	144	811	2/3		5	Silcrete	Light Grey	None	None	Distal Fragment			16-20	0%	0.67		Step						
TNR AFT 17	714	144	811	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	0%	0.96		Step						
TNR AFT 17	715	144	811	2/3		5	Silcrete	Red	Total	Distal Fragment				16-20	0%	0.44		Feather						
TNR AFT 17	716	144	811	2/3		5	Silcrete	Pink	Partial	Distal Fragment				11-15	0%	0.23		Step						
TNR AFT 17	717	144	811	2/3		5	Silcrete	Red	Total	Distal Fragment				6-10	0%	0.09		Feather						
TNR AFT 17	718	144	811	2/3		5	Silcrete	Pink	Partial	Distal Fragment	</													

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments				
TNR AFT 17	749	144	813	2/3				S Silcrete	Red	Total	Distal Fragment			16-20	1-30%	0.48		Step										
TNR AFT 17	750	144	813	2/3				S Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.37		Step										
TNR AFT 17	751	144	813	2/3				S Silcrete	Red	Partial	Distal Fragment			16-20	0%	0.36		Feather										
TNR AFT 17	752	144	813	2/3				S Silcrete	Red	Total	Distal Fragment			11-15	0%	0.21		Feather										
TNR AFT 17	753	144	813	2/3				S Silcrete	Red/Yellow	Partial	Distal Fragment			11-15	0%	0.17		Feather										
TNR AFT 17	754	144	813	2/3				S Silcrete	Purple	Total	Distal Fragment			11-15	0%	0.19		Feather										
TNR AFT 17	753	144	813	2/3				S Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.1		Step										
TNR AFT 17	756	144	813	2/3				S Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.11		Feather										
TNR AFT 17	757	144	813	2/3				S Silcrete	Red	Total	Distal Fragment			6-10	0%	0.08		Step										
TNR AFT 17	758	144	813	2/3				S Silcrete	Pink	None	Distal Fragment			6-10	0%	0.06		Hinge										
TNR AFT 17	759	144	813	2/3				S Silcrete	Pink	Partial	Distal Fragment			6-10	0%	0.07		Feather										
TNR AFT 17	760	144	813	2/3				S Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.06		Step										
TNR AFT 17	761	144	813	2/3				S Silcrete	Pink	None	Distal Fragment			6-10	0%	0.03		Feather										
TNR AFT 17	762	144	813	2/3				S Silcrete	Red	Total	Angular Fragment			11-15	0%	0.15												
TNR AFT 17	763	144	813	2/3				S Silcrete	Red	Total	Angular Fragment			0-5	0%	0.02												
TNR AFT 17	764	144	813	2/3				S Silcrete	Pink	Partial	Angular Fragment			11-15	0%	0.23												
TNR AFT 17	765	145	809	2/3				S S. Tuff	Grey	None	Distal Fragment			26-30	0%	0.73		Feather										
TNR AFT 17	766	145	809	2/3				S S. Tuff	Beige	None	Created Fracture			11-15	0%	0.4												
TNR AFT 17	767	145	809	2/3				S Silcrete	Red	Total	Flake			16-20	1-30%	0.96	Ridged	Feather	15.4					4.6 L-W				
TNR AFT 17	768	145	809	2/3				S Silcrete	Pink	Partial	Flake			16-20	0%	0.59	Plain	Step	17.3					2.8 L-W				
TNR AFT 17	769	145	809	2/3				S Silcrete	Pink	Partial	Flake			11-15	0%	0.3	Plain	Step	13.2					6.3 Elongate				
TNR AFT 17	770	145	809	2/3				S Silcrete	Pink	None	Flake			6-10	0%	0.07	Plain	Feather						2.5 Elongate				
TNR AFT 17	771	145	809	2/3				S Silcrete	Red	Total	Flake			11-15	1-30%	0.25	Plain	Feather						10.1 L-W				
TNR AFT 17	772	145	809	2/3				S Silcrete	Pink	None	Proximal Fragment			21-25	0%	1.02	Plain											
TNR AFT 17	773	145	809	2/3				S Silcrete	Pink	None	Proximal Fragment			11-15	0%	0.17	Plain											
TNR AFT 17	774	145	809	2/3				S Silcrete	Pink	Partial	Proximal Fragment			11-15	0%	0.14	Plain											
TNR AFT 17	775	145	809	2/3				S Silcrete	Red	Partial	Proximal Fragment			11-15	0%	0.15	Ridged											
TNR AFT 17	776	145	809	2/3				S Silcrete	Red	Total	Medial Fragment			16-20	31-69%	1.22												
TNR AFT 17	777	145	809	2/3				S Silcrete	Red	Partial	Core	Unifacial		21-25	31-69%	1.74	Plain		16.3		13.6		5.4	1				
TNR AFT 17	778	145	809	2/3				S Silcrete	Red	Partial	Medial Fragment			11-15	0%	0.34												
TNR AFT 17	779	145	809	2/3				S Silcrete	Red	Total	Medial Fragment			11-15	0%	0.18												
TNR AFT 17	780	145	809	2/3				S Silcrete	Pink	None	Medial Fragment			6-10	0%	0.05												
TNR AFT 17	781	145	809	2/3				S Silcrete	Grey	None	Medial Fragment			11-15	0%	0.39												
TNR AFT 17	782	145	809	2/3				S Silcrete	Pink	None	Distal Fragment			16-20	0%	0.25		Feather										
TNR AFT 17	783	145	809	2/3				S Silcrete	Pink	None	Distal Fragment			6-10	0%	0.07		Feather										
TNR AFT 17	784	145	809	2/3				S Silcrete	Red	Total	Distal Fragment			6-10	0%	0.27		Feather										
TNR AFT 17	785	145	809	2/3				S Silcrete	Red	Total	Distal Fragment			6-10	0%	0.12		Feather										
TNR AFT 17	786	145	809	2/3				S Silcrete	Pink	None	Distal Fragment			11-15	0%	0.2		Feather										
TNR AFT 17	787	145	809	2/3				S Silcrete	Pink	None	Distal Fragment			11-15	0%	0.13		Feather										
TNR AFT 17	788	145	809	2/3				S Silcrete	Pink	None	Angular Fragment			6-10	0%	0.08												
TNR AFT 17	789	145	810	2/3				S S. Tuff	Orange	None	Angular Fragment			6-10	0%	0.11												
TNR AFT 17	790	145	810	2/3				S Silcrete	Red	Total	Distal Fragment	Backed	Geometric Microlith	11-15	0%	0.28		Feather				13.5	8.6	2.5				
TNR AFT 17	791	145	810	2/3				S Silcrete	Red	Partial	Core	Unifacial		26-30	31-69%	5.37	Cortical				27.1	23.8	6.7	2				
TNR AFT 17	792	145	810	2/3				S Silcrete	Red	Total	Flake			16-20	0%	0.44	Plain	Feather				12.7	12.5	1.8	L-W			
TNR AFT 17	793	145	810	2/3				S Silcrete	Pink	Partial	Flake			11-15	0%	0.35	Plain	Step				11.7	9.3	2.1	L-W			
TNR AFT 17	794	145	810	2/3				S Silcrete	Red	Partial	Proximal Fragment			16-20	1-30%	0.73	Cortical											
TNR AFT 17	795	145	810	2/3				S Silcrete	Red	Partial	Proximal Fragment			6-10	0%	0.11	Ridged											
TNR AFT 17	796	145	810	2/3				S Silcrete	Pink	None	Medial Fragment			6-10	0%	0.09												
TNR AFT 17	797	145	810	2/3				S Silcrete	Pink	Partial	Distal Fragment			16-20	1-30%	1.12		Feather										
TNR AFT 17	798	145	810	2/3				S Silcrete	Pink	Partial	Distal Fragment			16-20	0%	0.82		Plunged										
TNR AFT 17	799	145	810	2/3				S Silcrete	Red	Total	Distal Fragment			11-15	0%	0.13		Step										
TNR AFT 17	800	145	810	2/3				S Silcrete	Red	Total	Distal Fragment			6-10	0%	0.08		Feather										
TNR AFT 17	801	145	810	2/3				S Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.04		Feather										
TNR AFT 17	802	145	810	2/3				S Silcrete	Grey	None	Angular Fragment			16-20	0%	1.4												
TNR AFT 17	803	145	811	2/3				S Silcrete	Red	Partial	Proximal Fragment			16-20	0%	1.18	Plain											
TNR AFT 17	804	145	811	2/3				S Silcrete	Red	Partial	Proximal Fragment			16-20	0%	0.41	Plain											
TNR AFT 17	805	145	811	2/3				S Silcrete	Red	Partial	Medial Fragment			6-10	0%	0.15												
TNR AFT 17	806	145	811	2/3				S Silcrete	Red	Partial	Distal Fragment			16-20	0%	0.78		Feather										
TNR AFT 17	807	145	811	2/3				S Silcrete	Red	Total	Distal Fragment			11-15	100%	0.25		Feather										
TNR AFT 17	808	145	811	2/3				S Silcrete	Red	Total	Distal Fragment			6-10	0%	0.06		Feather										
TNR AFT 17	809	145	811	2/3				S Silcrete	Red	Total	Angular Fragment			6-10	1-30%	0.07												
TNR AFT 17	810	145	812	2/3				S Silcrete	Red	Partial	Flake			21-25	1-30%	1.96	Ridged	Plunged				14	24.7	4.8	W-L			
TNR AFT 17	811	145	812	2/3				S Silcrete	Pink	None	Flake			21-25	0%	1.36	Faceted	Feather				18.1	16.6	3.2	L-W			
TNR AFT 17	812	145	812	2/3				S Silcrete	Red	Total	Proximal Fragment			21-25	0%	1.89	Ridged											
TNR AFT 17	813	145	812	2/3				S Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.22	Plain											
TNR AFT 17	814	145	812	2/3				S Silcrete	Red	Partial	Medial Fragment			16-20	0%	0.36												
TNR AFT 17	815	145	812	2/3				S Silcrete	Pink	Partial	Medial Fragment			6-10	0%	0.08		Feather										
TNR AFT 17	816	145	812	2/3				S Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.38		Feather										
TNR AFT 17	817	145	812	2/3				S Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.15		Feather										
TNR AFT 17	818	145	812	2/3				S Silcrete	Red	Total	Distal Fragment			6-10	70-99%	0.06		Feather										
TNR AFT 17	819	145	812	2/3				S Silcrete	Red	Total	Angular Fragment			6-10	0%	0.02												
TNR AFT 17	820	145	813	2/3				S Silcrete	Red	Total	Proximal Fragment			16-20	0%	0.56	Faceted											
TNR AFT 17	821	145	813	2/3				S Silcrete	Pink	None	Proximal Fragment			11-15	0%	0.34	Plain											
TNR AFT 17	822	145	813	2/3				S Silcrete	Red	Total	Medial Fragment			11-15	1-30													

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 17	855	146	809	2/3			5	Silcrete	Grey	None	Distal Fragment			6-30	0%	0.1		Feather						
TNR AFT 17	856	146	809	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.14		Feather						
TNR AFT 17	857	146	809	2/3			5	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.07		Feather						
TNR AFT 17	858	146	809	2/3			5	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05		Feather						
TNR AFT 17	859	146	809	2/3			5	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.1								
TNR AFT 17	860	146	809	2/3			5	Silcrete	Red	Total	Angular Fragment			6-30	31-69%	0.07								
TNR AFT 17	861	146	809	2/3			5	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.05								
TNR AFT 17	862	146	810	2/3			5	S. Tuff	Yellow	None	Distal Fragment			6-30	1-30%	0.06		Feather						
TNR AFT 17	863	146	810	2/3			5	Silcrete	Purple	Partial	Distal Fragment	Backed	Geometric Microlith	11-15	0%	0.25		Feather	12.6	8.2	2			
TNR AFT 17	864	146	810	2/3			5	Silcrete	Red	Total	Core	Unifacial		21-25	31-69%	2.61	Plain		22.2	15.2	9.5	1		
TNR AFT 17	865	146	810	2/3			5	Silcrete	Pink	Partial	Flake			21-25	1-30%	1.26	Plain	Feather	19.1	11.9	3	L-W		
TNR AFT 17	866	146	810	2/3			5	Silcrete	Pink	None	Flake			11-15	0%	0.47	Plain	Feather				10.6	3.5 L-W	
TNR AFT 17	867	146	810	2/3			5	Silcrete	Pink	Partial	Flake			11-15	0%	0.36	Plain	Feather				13.3	8.7	
TNR AFT 17	868	146	810	2/3			5	Silcrete	Red	Total	Flake			16-20	1-30%	0.98	Plain	Feather	15.8	14.6	4.1	L-W		
TNR AFT 17	869	146	810	2/3			5	Silcrete	Red	Partial	Flake			11-15	0%	0.44	Ridged	Step	12.8	9.6	2.5	L-W		
TNR AFT 17	870	146	810	2/3			5	Silcrete	Pink	None	Flake			11-15	0%	0.07	Plain	Feather	6.8	9.5	1.2	W-L		
TNR AFT 17	871	146	810	2/3			5	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.25	Plain							
TNR AFT 17	872	146	810	2/3			5	Silcrete	Red	Total	Medial Fragment			16-20	70-99%	0.32								
TNR AFT 17	873	146	810	2/3			5	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.13								
TNR AFT 17	874	146	810	2/3			5	Silcrete	Red	Partial	Medial Fragment			11-15	0%	0.13								
TNR AFT 17	875	146	810	2/3			5	Silcrete	Red	Partial	Medial Fragment			11-15	0%	0.16								
TNR AFT 17	876	146	810	2/3			5	Silcrete	Red	Total	Medial Fragment			11-15	1-30%	0.17								
TNR AFT 17	877	146	810	2/3			5	Silcrete	Pink	None	Medial Fragment			6-10	0%	0.13								
TNR AFT 17	878	146	810	2/3			5	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.13								
TNR AFT 17	879	146	810	2/3			5	Silcrete	Red	Partial	Medial Fragment			6-10	0%	0.05								
TNR AFT 17	880	146	810	2/3			5	Silcrete	Red	Partial	Medial Fragment			6-10	0%	0.48								
TNR AFT 17	881	146	810	2/3			5	Silcrete	Red	Total	Distal Fragment			26-30	1-30%	2.57		Step						
TNR AFT 17	882	146	810	2/3			5	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.48		Step						
TNR AFT 17	883	146	810	2/3			5	Silcrete	Purple	Partial	Distal Fragment			16-20	0%	0.5		Feather						
TNR AFT 17	884	146	810	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.51		Step						
TNR AFT 17	885	146	810	2/3			5	Silcrete	Pink	Partial	Distal Fragment			11-15	0%	0.21		Step						
TNR AFT 17	886	146	810	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.15		Step						
TNR AFT 17	887	146	810	2/3			5	Silcrete	Pink	Partial	Distal Fragment			11-15	0%	0.19		Step						
TNR AFT 17	888	146	810	2/3			5	Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.19		Step						
TNR AFT 17	889	146	810	2/3			5	Silcrete	Pink	Partial	Distal Fragment			11-15	0%	0.2		Feather						
TNR AFT 17	890	146	810	2/3			5	Silcrete	Pink	Partial	Distal Fragment			6-30	0%	0.04		Feather						
TNR AFT 17	891	146	810	2/3			5	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05		Feather						
TNR AFT 17	892	146	810	2/3			5	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.25								
TNR AFT 17	893	146	810	2/3			5	Silcrete	Red	Total	Angular Fragment			0-5	0%	0.06								
TNR AFT 17	894	146	810	2/3			5	Silcrete	Pink	Partial	Angular Fragment			6-10	0%	0.1								
TNR AFT 17	895	146	810	2/3			5	Silcrete	Purple	None	Angular Fragment			6-30	0%	0.07								
TNR AFT 17	896	146	810	2/3			5	Silcrete	Red	Total	Angular Fragment			0-5	0%	0.01								
TNR AFT 17	897	146	811	2/3			5	S. Tuff	Yellow	None	Flake			56-60	1-30%	13.6	Plain	Feather	54.5	18.1	8.2	Elongate		
TNR AFT 17	898	146	811	2/3			5	Silcrete	Red	Partial	Flake			21-25	1-30%	1.23	Cortical	Feather	17.7	12.9	4.2	L-W		
TNR AFT 17	899	146	811	2/3			5	Silcrete	Red	Total	Flake			16-20	0%	0.29	Faceted	Step	15.5	5.2	2.7	Elongate		
TNR AFT 17	900	146	811	2/3			5	Silcrete	Pink	None	Flake			6-30	0%	0.13	Plain	Step	6.4	9.4	1.9	W-L		
TNR AFT 17	901	146	811	2/3			5	Silcrete	Red	Total	Proximal Fragment			26-30	0%	2.33	Ridged							
TNR AFT 17	902	146	811	2/3			5	Silcrete	Red/Yellow	Partial	Proximal Fragment			26-30	0%	1.73	Ridged							
TNR AFT 17	903	146	811	2/3			5	Silcrete	Red	Partial	Proximal Fragment			11-15	0%	0.35	Ridged							
TNR AFT 17	904	146	811	2/3			5	Silcrete	Pink	Partial	Proximal Fragment			11-15	0%	0.12	Plain							
TNR AFT 17	905	146	811	2/3			5	Silcrete	Pink	None	Proximal Fragment			11-15	0%	0.2	Plain							
TNR AFT 17	906	146	811	2/3			5	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.07		Proximal Fragment						
TNR AFT 17	907	146	811	2/3			5	Silcrete	Pink	None	Proximal Fragment			11-15	0%	0.11	Focal							
TNR AFT 17	908	146	811	2/3			5	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.05	Plain							
TNR AFT 17	909	146	811	2/3			5	Silcrete	Red	Partial	Medial Fragment			11-15	0%	0.25								
TNR AFT 17	910	146	811	2/3			5	Silcrete	Red	Total	Medial Fragment			16-20	0%	0.39								
TNR AFT 17	911	146	811	2/3			5	Silcrete	Red	Partial	Medial Fragment			6-10	0%	0.13								
TNR AFT 17	912	146	811	2/3			5	Silcrete	Pink	Partial	Medial Fragment			11-15	0%	0.12								
TNR AFT 17	913	146	811	2/3			5	Silcrete	Pink	Partial	Medial Fragment			6-10	0%	0.17								
TNR AFT 17	914	146	811	2/3			5	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.56		Step						
TNR AFT 17	915	146	811	2/3			5	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.55		Step						
TNR AFT 17	916	146	811	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.17		Step						
TNR AFT 17	917	146	811	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.27		Feather						
TNR AFT 17	918	146	811	2/3			5	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.37		Feather						
TNR AFT 17	919	146	811	2/3			5	Silcrete	Pink	Partial	Distal Fragment			11-15	0%	0.14		Step						
TNR AFT 17	920	146	811	2/3			5	Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.18		Step						
TNR AFT 17	921	146	811	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	1-30%	0.29		Step						
TNR AFT 17	922	146	811	2/3			5	Silcrete	Grey	None	Distal Fragment			11-15	0%	0.17		Feather						
TNR AFT 17	923	146	811	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.17		Feather						
TNR AFT 17	924	146	811	2/3			5	Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.14		Feather						
TNR AFT 17	925	146	811	2/3			5	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.07		Feather						
TNR AFT 17	926	146	811	2/3			5	Silcrete	Pink	None	Distal Fragment			6-10	0%	0.08		Step						
TNR AFT 17	927	146	811	2/3			5	Silcrete	Red	Total	Distal Fragment			6-30	1-30%	0.11		Feather						
TNR AFT 17	928	146	811	2/3			5	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.06								
TNR AFT 17	929	146	811	2/3			5	Silcrete	Grey	None	Angular Fragment			11-15	0%	0.49								
TNR AFT 17	930	146	811	2/3			5	Silcrete	Red	Partial	Angular Fragment			6-30	0%	0.04								
TNR AFT 17	931	146	811	2/3			5	Silcrete	Red	Total	Angular Fragment			6-10	0%</									

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments	
TNR AFT 19	1067	345	530	1				S68 Silcrete	Light Grey	None	Distal Fragment			16-20	0%	0.35		Plunged							
TNR AFT 19	1068	345	530	1	TU68			S68 Silcrete	Red/Yellow	Partial	Proximal Fragment			31-35	0%	4.06	Ridged								
TNR AFT 19	1069	345	530	1	TU68			S68 Silcrete	Yellow	None	Proximal Fragment			11-15	0%	0.61	Faceted								
TNR AFT 19	1070	345	530	1	TU68			S68 Chert	Yellow/Brown	None	Angular Fragment			6-10	0%	0.09									
TNR AFT 19	1071	335	530	1				S69 S. Tuff	Light Grey	None	Distal Fragment	Retouched		16-40	0%	7.38		Feather	36.3	22.1	7.7			rough retouch on distal margin	
TNR AFT 19	1072	335	530	1				S69 Quartz	Milky-White	None	Medial Fragment			11-15	0%	0.16									
TNR AFT 19	1073	335	530	1				S69 Silcrete	Pink	Partial	Distal Fragment			6-10	0%	0.1		Step							
TNR AFT 19	1074	335	530	1				S69 Silcrete	Red	Total	Distal Fragment			11-15	0%	0.18		Feather							
TNR AFT 19	1075	335	530	1				S69 Quartz	Milky-White	None	Proximal Fragment			11-15	1-30%	0.32	Cortical								
TNR AFT 19	1076	295	530	1				S70 S. Tuff	Orange	None	Angular Fragment			31-35	1-30%	2.94									
TNR AFT 19	1077	297.5	522.5	1				S71 Quartz	Milky-White	None	Angular Fragment			16-20	1-30%	1.94									
TNR AFT 19	1078	297.5	522.5	1				S71 S. Tuff	Grey	None	Distal Fragment			26-30	0%	1.85		Step							
TNR AFT 19	1079	297.5	522.5	1				S71 Silcrete	Red	Total	Angular Fragment			21-25	31-69%	1.19									
TNR AFT 19	1080	297.5	522.5	1	TU71			S71 Chert	Red/Brown	None	Flake			11-15	0%	0.2	Ridged	Feather	8.3	11.3		1.8	W-L		
TNR AFT 19	1081	362.5	537.5	1				S72 S. Tuff	Orange	None	Flake			11-15	0%	0.09	Focal	Hinge	11.4	6.3		1	L-W		
TNR AFT 19	1082	362.5	537.5	1				S72 S. Tuff	Orange	None	Distal Fragment			6-10	70-99%	0.09		Feather							
TNR AFT 19	1083	362.5	537.5	1				S72 S. Tuff	Light Grey	None	Angular Fragment			26-30	0%	3.15									
TNR AFT 19	1084	362.5	537.5	1				S72 Quartz	Milky-White	None	Distal Fragment			6-10	0%	0.13		Feather							
TNR AFT 19	1085	362.5	537.5	1				S72 Silcrete	Red	Total	Distal Fragment	Backed	Blade Fragment	6-10	0%	0.16		Feather	9.1	5.4		2.5			
TNR AFT 19	1086	362.5	537.5	1				S72 Silcrete	Red	Total	Distal Fragment	Retouched		11-15	0%	0.35		Step	9.8	8.8	8.8	3.2		retouch on proximal break	
TNR AFT 19	1087	362.5	537.5	1				S72 Silcrete	Red	Total	Distal Fragment			11-15	0%	0.45		Step							
TNR AFT 19	1088	362.5	537.5	1	TU72			S72 Quartz	Milky-White	None	Distal Fragment			11-15	0%	0.37		Feather							
TNR AFT 19	1089	352.5	537.5	1	TU73			S73 Chert	Light Grey	None	Angular Fragment			16-20	0%	0.51									
TNR AFT 19	1090	342.5	537.5	1	TU74			S74 Silcrete	Red	Partial	Flake			6-10	0%	0.09	Focal	Feather	6.9	7.6		1.3	W-L		
TNR AFT 19	1091	357.5	522.5	1				S75 S. Tuff	Grey	None	Distal Fragment			21-25	0%	1.08		Feather							
TNR AFT 19	1092	357.5	522.5	1				S75 Silcrete	Light Grey	Partial	Core	Tool		31-35	0%	7.51	Plain		23.1	24.6		8.4		4	formed from distal frag. retouch on distal margin, 2 neg scars on dorsal surface
TNR AFT 19	1093	357.5	522.5	1				S75 Silcrete	Red	Total	Flake			11-15	70-99%	0.6	Plain	Step	13.4	11.1		4.7	L-W		
TNR AFT 19	1094	357.5	522.5	1				S75 Silcrete	Light Grey	None	Flake			11-15	0%	0.28	Plain	Hinge	14.4	5.8		2.6	Elongate		
TNR AFT 19	1095	357.5	522.5	1				S75 Silcrete	Red	Total	Medial Fragment			11-15	0%	0.3									
TNR AFT 19	1096	357.5	522.5	1				S75 Silcrete	Red	Total	Distal Fragment			21-25	1-30%	1.31		Feather							
TNR AFT 19	1097	357.5	522.5	1				S75 Silcrete	Red	Total	Distal Fragment			11-15	0%	1.14		Step							
TNR AFT 19	1098	357.5	522.5	1				S75 Silcrete	Red	Total	Angular Fragment			11-15	0%	0.13									
TNR AFT 19	1099	357.5	522.5	1	TU75			S75 S. Tuff	Red/Brown	None	Flake			26-30	0%	1.72	Plain	Feather	26	15.7		3.8	L-W		
TNR AFT 19	1100	357.5	522.5	1	TU75			S75 Silcrete	Red	Total	Flake			31-35	0%	6.79	Plain	Step	28.8	26.7		9.1	L-W		
TNR AFT 19	1101	357.5	522.5	1	TU75			S75 Silcrete	Red	Total	Flake			16-20	0%	1.6	Ridged	Feather	19.4	15		4.7	L-W		
TNR AFT 19	1102	357.5	522.5	1	TU75			S75 Silcrete	Purple	None	Proximal Fragment			11-15	0%	0.37		Feather							
TNR AFT 19	1103	357.5	522.5	1	TU75			S75 Silcrete	Red	Total	Distal Fragment			16-20	0%	0.45		Feather							
TNR AFT 19	1104	357.5	522.5	1	TU75			S75 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.08		Feather							
TNR AFT 19	1105	357.5	522.5	1	TU75			S75 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.04		Step							
TNR AFT 19	1106	357.5	522.5	1	TU75			S75 Silcrete	Light Grey	None	Angular Fragment			26-30	1-30%	2.71									
TNR AFT 19	1107	357.5	522.5	1	TU75			S75 Silcrete	Red	Total	Angular Fragment			11-15	0%	0.3									
TNR AFT 19	1108	357.5	522.5	1	TU75			S75 Silcrete	Light Grey	None	Angular Fragment			6-10	0%	0.04									
TNR AFT 19	1109	347.5	522.5	1				S76 Silcrete	Red	Total	Distal Fragment			31-35	0%	5.99		Feather							
TNR AFT 19	1110	347.5	522.5	1				S76 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.1		Feather							
TNR AFT 19	1111	347.5	522.5	1				S76 Silcrete	Red	Total	Angular Fragment			26-30	0%	4.96									
TNR AFT 19	1112	347.5	522.5	1	TU76			S76 Silcrete	Red	Total	Distal Fragment			36-40	0%	5.21		Feather							
TNR AFT 19	1113	227.5	522.5	1				S77 S. Tuff	Grey	None	Flake			26-30	0%	1.8	Ridged	Feather	25.5	12.4		4.6	Elongate		
TNR AFT 19	1114	285	530	1				S78 S. Tuff	Grey	None	Proximal Fragment			21-25	31-69%	2.3	Cortical								
TNR AFT 19	1115	285	530	1				S78 Quartzite	Pink	None	Proximal Fragment			11-15	0%	0.29	Plain								
TNR AFT 19	1116	285	530	1				S78 Silcrete	Red	Total	Medial Fragment			6-10	0%	0.09									
TNR AFT 19	1117	285	530	1				S78 Silcrete	Dark Grey	None	Distal Fragment			11-15	0%	0.87		Feather							
TNR AFT 19	1118	367.5	522.5	1	TU79			S79 S. Tuff	Grey/Green	None	Proximal Fragment	Retouched		46-50	1-30%	6.51	Ridged		42.5	21.8		5.4		RETOUCH ALONG LEFT LATERAL MARGIN	
TNR AFT 19	1119	362	528	2/3				S79 Silcrete	Red	Total	Medial Fragment	Retouched		21-25	0%	1.73			16.3	15.9		4.4		retouch on right and left lateral margin. Conjoin #1120	
TNR AFT 19	1120	362	528	2/3				S79 Silcrete	Red	Total	Distal Fragment	Retouched		21-25	1-30%	2.14		Step	19.3	17.2		3.6		retouch on right and left lateral margin. Conjoin #1119	
TNR AFT 19	1121	362	528	2/3				S79 Silcrete	Red	Total	Flake			21-25	0%	1.22	Plain	Step	19	14.3		3.5	L-W		
TNR AFT 19	1122	362	528	2/3				S79 Silcrete	Red	Total	Flake			11-15	1-30%	0.38	Plain								
TNR AFT 19	1123	362	528	2/3				S79 Silcrete	Pink	None	Medial Fragment			11-15	0%	0.29									
TNR AFT 19	1124	362	528	2/3				S79 Silcrete	Red	Total	Distal Fragment			11-15	0%	0.31		Feather							
TNR AFT 19	1125	362	529	2/3				S79 S. Tuff	Beige	None	Angular Fragment			6-10	0%	0.1									
TNR AFT 19	1126	362	529	2/3				S79 Quartz	Milky-White	None	Distal Fragment			11-15	0%	0.55		Step							
TNR AFT 19	1127	362	529	2/3				S79 Silcrete	Red	Total	Proximal Fragment	Retouched	Scrapers	21-25	0%	1.08	Plain		13.3	19.8		4.3			
TNR AFT 19	1128	362	529	2/3				S79 Silcrete	Red	Total	Flake			16-20	1-30%	0.87	Crushed	Feather	15.4	14.4		2.8	L-W		
TNR AFT 19	1129	362	529	2/3				S79 Silcrete	Red	Partial	Flake			11-15	0%	0.43									

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 19	1172	362	532	2/3			6	Silcrete	Pink	None	Distal Fragment			16-20	0%	0.49		Feather						
TNR AFT 19	1173	362	533	2/3			6	Quartz	Milky-White	None	Flake			25-30	1-30%	6.43	Cortical	Step	23.9		19	9.9	L-W	
TNR AFT 19	1174	362	533	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.15	Plain	Feather		7	9.9	1.3	W-L	
TNR AFT 19	1175	362	533	2/3			6	Silcrete	Pink	None	Proximal Fragment			11-15	0%	0.31	Focal							
TNR AFT 19	1176	362	533	2/3			6	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.09	Faceted							
TNR AFT 19	1177	362	533	2/3			6	Silcrete	Red	Total	Medial Fragment			0-5	0%	0.04								
TNR AFT 19	1178	362	533	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.1		Feather						
TNR AFT 19	1179	363	528	2/3			6	Quartz	Smoky/Grey	None	Proximal Fragment			21-25	0%	3.59	Plain							
TNR AFT 19	1180	363	528	2/3			6	Silcrete	Red/Yellow	Partial	Core	Unifacial-Rotated		26-30	0%	1.68	Plain		25		11.5	2.9		2
TNR AFT 19	1181	363	528	2/3			6	Silcrete	Red	Total	Flake			26-30	0%	0.89	Ridged	Feather		23.5	6.5	4.7	L-W	
TNR AFT 19	1182	363	528	2/3			6	Silcrete	Red/Yellow	Partial	Flake			16-20	0%	0.64	Plain	Feather		18.5	10.6	2.5	L-W	
TNR AFT 19	1183	363	528	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	0%	0.13	Ridged	Feather		9.9	7.7	1.4	L-W	
TNR AFT 19	1184	363	528	2/3			6	Silcrete	Red	Total	Flake			6-10	0%	0.08	Plain	Feather		8.6	6.1	1.5	L-W	
TNR AFT 19	1185	363	528	2/3			6	Silcrete	Red	Total	Flake			6-10	0%	0.07	Focal	Feather		9.7	3.2	1.8	Elongate	
TNR AFT 19	1186	363	528	2/3			6	Silcrete	Red	Total	Proximal Fragment			16-20	0%	0.39	Ridged							
TNR AFT 19	1187	363	528	2/3			6	Silcrete	Red	Total	Medial Fragment			11-15	0%	31-69%	0.42							
TNR AFT 19	1188	363	528	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.32								
TNR AFT 19	1189	363	528	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.3		Step						
TNR AFT 19	1190	363	528	2/3			6	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.08								
TNR AFT 19	1191	363	529	2/3			6	Quartz	Milky-White	None	Medial Fragment			16-20	1-30%	0.6								
TNR AFT 19	1192	363	529	2/3			6	S. Tuff	Beige	None	Distal Fragment			21-25	70-99%	1.82		Hinge						
TNR AFT 19	1193	363	529	2/3			6	Silcrete	Red/Yellow	Partial	Flake			16-20	0%	0.75	Plain	Step		12.9	11.4		3.8	L-W
TNR AFT 19	1194	363	529	2/3			6	Silcrete	Red/Yellow	Partial	Flake			21-25	0%	0.48	Partial	Feather		22.5	6	4.1	Elongate	
TNR AFT 19	1195	363	529	2/3			6	Silcrete	Light Grey	None	Flake			26-30	0%	3.27	Plain	Feather		18.2	20.1		5.9	W-L
TNR AFT 19	1196	363	529	2/3			6	Silcrete	Red	Total	Flake			21-25	1-30%	1.36	Cortical	Feather		20.2	11.8	4.4	L-W	
TNR AFT 19	1197	363	529	2/3			6	Silcrete	Red	Total	Flake			16-20	0%	0.79	Ridged	Feather		15.3	11.4	2.8	L-W	
TNR AFT 19	1198	363	529	2/3			6	Silcrete	Red	Total	Flake			16-20	70-99%	0.38		Feather		11.3	13.2	1.9	W-L	
TNR AFT 19	1199	363	529	2/3			6	Silcrete	Pink	Partial	Proximal Fragment			31-35	0%	11.55	Plain							
TNR AFT 19	1200	363	529	2/3			6	Silcrete	Red/Yellow	Partial	Medial Fragment			6-10	0%	0.16								
TNR AFT 19	1201	363	529	2/3			6	Silcrete	Yellow	None	Medial Fragment			6-10	0%	0.1								
TNR AFT 19	1202	363	529	2/3			6	Silcrete	Yellow	None	Distal Fragment			26-30	0%	2.25		Feather						
TNR AFT 19	1203	363	529	2/3			6	Silcrete	Pink	Partial	Flake			21-25	0%	2.19								
TNR AFT 19	1204	363	529	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	1-30%	0.31	Plain	Feather		9.9	9.2	2.7	L-W	
TNR AFT 19	1205	363	529	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	1-30%	0.42	Cortical	Feather		12	7.9	2.8	L-W	
TNR AFT 19	1206	363	529	2/3			6	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.17	Faceted							
TNR AFT 19	1207	363	529	2/3			6	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.34	Ridged							
TNR AFT 19	1208	363	529	2/3			6	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.11	Faceted							
TNR AFT 19	1209	363	529	2/3			6	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.1	Plain							
TNR AFT 19	1210	363	529	2/3			6	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.33	Plain							
TNR AFT 19	1211	363	529	2/3			6	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.12								
TNR AFT 19	1212	363	529	2/3			6	Silcrete	Pink	None	Medial Fragment			11-15	0%	0.51								
TNR AFT 19	1213	363	529	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.32		Step						
TNR AFT 19	1214	363	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.16		Feather						
TNR AFT 19	1215	363	529	2/3			6	Silcrete	Orange	Partial	Distal Fragment			11-15	0%	0.11		Feather						
TNR AFT 19	1216	363	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.13		Step						
TNR AFT 19	1217	363	529	2/3			6	Silcrete	Dark Grey	None	Distal Fragment			11-15	0%	0.16		Step						
TNR AFT 19	1218	363	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.07		Feather						
TNR AFT 19	1219	363	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.08		Feather						
TNR AFT 19	1220	363	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05		Step						
TNR AFT 19	1221	363	529	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.22								
TNR AFT 19	1222	363	529	2/3			6	Silcrete	Pink	None	Angular Fragment			6-10	0%	0.07								
TNR AFT 19	1223	363	530	2/3			6	Silcrete	Pink	Partial	Angular Fragment			6-10	0%	0.03								
TNR AFT 19	1224	363	530	2/3			6	Chert	Light Grey	None	Core	Multidirectional		31-35	0%	6.34	Plain			32.4	19.3	12.4		3
TNR AFT 19	1225	363	530	2/3			6	Chert	Light Grey	None	Flake			16-20	0%	1.17	Plain	Feather		13.5	16.9	5.5	W-L	
TNR AFT 19	1226	363	530	2/3			6	S. Tuff	Light Grey	None	Medial Fragment	Backed	Blade Fragment	16-20	0%	0.6				17	6.8	4.3		
TNR AFT 19	1227	363	530	2/3			6	S. Tuff	Grey	None	Distal Fragment			11-15	0%	0.33		Hinge						
TNR AFT 19	1228	363	530	2/3			6	Quartz	Milky-White	None	Flake			11-15	0%	0.11	Plain	Step		12.1		6.7	3.7	L-W
TNR AFT 19	1229	363	530	2/3			6	Silcrete	Red	Total	Flake			16-20	1-30%	0.78	Ridged	Feather		12.7	18.5	2.6	W-L	
TNR AFT 19	1230	363	530	2/3			6	Silcrete	Red	Total	Flake			16-20	0%	1	Ridged	Plunged		16.4	16		3.3	L-W
TNR AFT 19	1231	363	530	2/3			6	Silcrete	Red/Yellow	Partial	Flake			16-20	0%	0.92	Plain	Feather		16.5	14.1	3.2	L-W	
TNR AFT 19	1232	363	530	2/3			6	Silcrete	Red	Total	Flake			16-20	0%	0.53	Faceted	Plunged		18.9	9.7	2.6	L-W	
TNR AFT 19	1233	363	530	2/3			6	Silcrete	Yellow	None	Flake			11-15	0%	1.76		Feather		14.2	8.8	1.6	L-W	
TNR AFT 19	1234	363	530	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	0%	0.15	Plain	Feather		10.3	12	1.2	W-L	

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments	
TNR.AFT.19	1278	363	531	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.83		Feather							
TNR.AFT.19	1279	363	531	2/3			6	Silcrete	Purple	Total	Angular Fragment			7-25	0%	1.87									
TNR.AFT.19	1280	363	531	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.17									
TNR.AFT.19	1281	363	531	2/3			6	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.12									
TNR.AFT.19	1282	363	532	2/3			6	S. Tuuff	Red/Brown	None	Distal Fragment			11-15	0%	0.2		Feather							
TNR.AFT.19	1283	363	532	2/3			6	S. Tuuff	Light Grey	None	Distal Fragment			11-15	0%	0.52		Step							
TNR.AFT.19	1284	363	532	2/3			6	S. Tuuff	Light Grey	None	Angular Fragment			11-15	0%	0.28									
TNR.AFT.19	1285	363	532	2/3			6	Silcrete	Red/Yellow	Partial	Flake			21-25	1-30%	2.3	Cortical	Feather	23.5	13.6	5.5	L-W			
TNR.AFT.19	1286	363	532	2/3			6	Silcrete	Red	Total	Flake			16-20	0%	0.7	Plain	Step	18.5	11.3	2.2	L-W			
TNR.AFT.19	1287	363	532	2/3			6	Silcrete	Red	Partial	Flake			16-20	0%	0.84	Plain	Feather	15.1	14.2	2.8	L-W			
TNR.AFT.19	1288	363	532	2/3			6	Silcrete	Red	Total	Flake			21-25	1-30%	0.48	Ridged	Feather	20.4	6.7	2.7	Elongate			
TNR.AFT.19	1289	363	532	2/3			6	Silcrete	Yellow	None	Flake			11-15	0%	0.12	Ridged	Feather	6	11.1	2.6	W-L			
TNR.AFT.19	1290	363	532	2/3			6	Silcrete	Red	Total	Flake			6-10	0%	0.05	Plain	Feather	7.3	5.4	0.7	L-W			
TNR.AFT.19	1291	363	532	2/3			6	Silcrete	Red	Total	Proximal Fragment			16-20	0%	0.51	Plain								
TNR.AFT.19	1292	363	532	2/3			6	Silcrete	Pink	None	Proximal Fragment			6-10	0%	0.04	Plain								
TNR.AFT.19	1293	363	532	2/3			6	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.04									
TNR.AFT.19	1294	363	532	2/3			6	Silcrete	Light Grey	None	Distal Fragment			21-25	0%	1.5		Feather							
TNR.AFT.19	1295	363	532	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.57									
TNR.AFT.19	1296	363	532	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	1-30%	0.25		Feather							
TNR.AFT.19	1297	363	532	2/3			6	Silcrete	Yellow	None	Distal Fragment			11-15	0%	1.8		Feather							
TNR.AFT.19	1298	363	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.14		Feather							
TNR.AFT.19	1299	363	532	2/3			6	Silcrete	Yellow	None	Distal Fragment			11-15	0%	0.1		Step							
TNR.AFT.19	1300	363	532	2/3			6	Silcrete	Pink	None	Distal Fragment			6-10	0%	0.14		Feather							
TNR.AFT.19	1301	363	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.04		Step							
TNR.AFT.19	1302	363	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.04		Feather							
TNR.AFT.19	1303	363	532	2/3			6	Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.05		Feather							
TNR.AFT.19	1304	363	532	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	0%	1.34									
TNR.AFT.19	1305	363	532	2/3			6	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.09									
TNR.AFT.19	1306	363	532	2/3			6	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.1									
TNR.AFT.19	1307	363	533	2/3			6	S. Tuuff	Beige	None	Distal Fragment			21-25	0%	1.4		Feather							
TNR.AFT.19	1308	363	533	2/3			6	Silcrete	Red	Total	Flake			16-20	0%	0.47	Focal	Feather	17.3	10.7	2.5	L-W			
TNR.AFT.19	1309	363	533	2/3			6	Silcrete	Red	Total	Flake			16-20	0%	0.75	Ridged	Feather	12.1	13.4	4.7	L-W			
TNR.AFT.19	1310	363	533	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.27	Faceted	Feather	11.5	6.2	2.6	L-W			
TNR.AFT.19	1311	363	533	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.11		Step							
TNR.AFT.19	1312	363	533	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			6-10	0%	0.06		Feather							
TNR.AFT.19	1313	364	528	2/3			6	Silcrete	Red	Total	Flake			16-20	0%	0.43	Focal	Feather	14.5	6.5	4.5	Elongate			
TNR.AFT.19	1314	364	528	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.11		Step	10.3	6.4	1.7	L-W			
TNR.AFT.19	1315	364	528	2/3			6	Silcrete	Red/Yellow	Partial	Flake			6-10	31-69%	0.03	Plain	Feather	6	6.2	0.7	W-L			
TNR.AFT.19	1316	364	528	2/3			6	Silcrete	Purple	None	Medial Fragment			16-20	0%	2.23									
TNR.AFT.19	1317	364	528	2/3			6	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.3									
TNR.AFT.19	1318	364	528	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			26-30	0%	2.58									
TNR.AFT.19	1319	364	528	2/3			6	Silcrete	Red	Total	Distal Fragment			26-30	0%	2.19									
TNR.AFT.19	1320	364	528	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	1-30%	1.03		Step							
TNR.AFT.19	1321	364	528	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.6		Feather							
TNR.AFT.19	1322	364	528	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.18		Step							
TNR.AFT.19	1323	364	528	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.06		Step							
TNR.AFT.19	1324	364	528	2/3			6	Silcrete	Yellow	None	Distal Fragment			11-15	0%	0.36									
TNR.AFT.19	1325	364	528	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			16-20	0%	0.29		Feather							
TNR.AFT.19	1326	364	528	2/3			6	Silcrete	Yellow	None	Medial Fragment			6-10	0%	0.09									
TNR.AFT.19	1327	364	529	2/3			6	Quartz	Milky-White	None	Core	Bipolar		21-25	0%	5.57	Plain		22.4	18	12.6	3			
TNR.AFT.19	1328	364	529	2/3			6	S. Tuuff	Grey/Green	None	Angular Fragment			21-25	0%	1.65									
TNR.AFT.19	1329	364	529	2/3			6	Silcrete	Red	Total	Distal Fragment	Backed	Blade Fragment	6-10	0%	0.14		Feather	8.2	5.6	2.4			blade tip	
TNR.AFT.19	1330	364	529	2/3			6	Silcrete	Yellow	None	Core	Unifacial-Notated		31-35	0%	8.98	Plain		31.8	16.5	10.5	4		blade core	
TNR.AFT.19	1331	364	529	2/3			6	Silcrete	Red	Total	Flake			21-25	0%	2.49	Plain	Step	13.6	22.9	6.6	W-L			
TNR.AFT.19	1332	364	529	2/3			6	Silcrete	Red/Yellow	Partial	Flake			21-25	0%	1.89	Plain	Step	16.2	19.9	4.6	W-L			
TNR.AFT.19	1333	364	529	2/3			6	Silcrete	Red	Total	Flake			21-25	1-30%	1.17	Plain	Plunged	34	15.7	2.2	W-L			
TNR.AFT.19	1334	364	529	2/3			6	Silcrete	Red/Yellow	Partial	Flake			16-20	70-99%	0.86	Plain	Feather	15.4	14.5	3.8	L-W			
TNR.AFT.19	1335	364	529	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	31-69%	0.44	Plain	Hinge	12.2	13.8	2.5	W-L			
TNR.AFT.19	1336	364	529	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	0%	0.22	Plain	Step	13.3	6.3	2	Elongate			
TNR.AFT.19	1337	364	529	2/3			6	Silcrete	Red	Partial	Flake			11-15	0%	0.23	Faceted	Step	14.2	7	2.5	Elongate			
TNR.AFT.19	1338	364	529	2/3			6	Silcrete	Dark Grey	None	Flake			11-15	0%	0.18	Plain	Step	10.1	7.1	1.8	L-W			
TNR.AFT.19	1339	364	529	2/3			6	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.25									
TNR.AFT.19	1340	364	529	2/3			6	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.03	Ridged								
TNR.AFT.19	1341	364	529	2/3			6	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.14									
TNR.AFT.19	1342	364	529	2/3			6	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.2									
TNR.AFT.19	1343	364	529	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.29		Feather							
TNR.AFT.19	1344	364	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.13		Step							
TNR.AFT.19	1345	364	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.07		Feather							
TNR.AFT.19	1346	364	529	2/3			6	Silcrete	Yellow	None	Distal Fragment			11-15	0%	0.14		Feather							
TNR.AFT.19	1347	364	529	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			6-10	0%	0.04		Feather							
TNR.AFT.19	1348	364	529	2/3			6	Silcrete	Red	Partial	Angular Fragment			21-25	1-30%	2.46									
TNR.AFT.19	1349	364	529	2/3			6	Silcrete	Yellow	None	Angular Fragment			11-15	0%	0.25									
TNR.AFT.19	1350	364	529	2/3			6	Silcrete	Yellow	None	Angular Fragment			6-10	0%	0.04									
TNR.AFT.19	1351	364																							

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 19	1480	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			11-15	0%	0.09		Feather						
TNR AFT 19	1481	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.1		Feather						
TNR AFT 19	1492	364	531	2/3				6 Silcrete	Pink	None	Distal Fragment			11-15	0%	0.12		Step						
TNR AFT 19	1493	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.1		Hinge						
TNR AFT 19	1494	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.08		Feather						
TNR AFT 19	1495	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			11-15	31-69%	0.09		Feather						
TNR AFT 19	1496	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.11		Feather						
TNR AFT 19	1497	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05		Feather						
TNR AFT 19	1498	364	531	2/3				6 Silcrete	Yellow	None	Distal Fragment			11-15	0%	0.1		Feather						
TNR AFT 19	1499	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.06		Feather						
TNR AFT 19	1500	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.04		Step						
TNR AFT 19	1501	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	1-30%	0.06		Feather						
TNR AFT 19	1502	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05		Feather						
TNR AFT 19	1503	364	531	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.06		Feather						
TNR AFT 19	1504	364	531	2/3				6 Silcrete	Red/Yellow	Partial	Distal Fragment			6-10	0%	0.04		Feather						
TNR AFT 19	1505	364	531	2/3				6 Silcrete	Red	Total	Angular Fragment			6-10	0%	0.08		Feather						
TNR AFT 19	1506	364	531	2/3				6 Silcrete	Red	Total	Angular Fragment			6-10	1-30%	0.08		Feather						
TNR AFT 19	1507	364	531	2/3				6 Silcrete	Red	Total	Angular Fragment			6-10	0%	0.11		Feather						
TNR AFT 19	1508	364	531	2/3				6 Silcrete	Red/Yellow	Partial	Angular Fragment			6-10	0%	0.06		Feather						
TNR AFT 19	1509	364	531	2/3				6 Silcrete	Pink	Partial	Angular Fragment			0-5	0%	0.08		Feather						
TNR AFT 19	1510	364	531	2/3				6 Silcrete	Yellow	None	Angular Fragment			6-10	0%	0.06		Feather						
TNR AFT 19	1511	364	532	2/3				6 S. Tuff	Light Grey	None	Distal Fragment			11-15	0%	0.21		Feather						
TNR AFT 19	1512	364	532	2/3				6 Silcrete	Red/Yellow	Partial	Flake			16-20	31-69%	0.23	Cortical	Feather	12.6	8.1		2	L-W	
TNR AFT 19	1513	364	532	2/3				6 Silcrete	Red	Total	Flake			11-15	0%	0.15	Plain	Feather	10	7.5		1	L-W	
TNR AFT 19	1514	364	532	2/3				6 Silcrete	Red	Total	Flake			11-15	0%	0.15	Plain	Step	10.1	5.6		1.8	L-W	
TNR AFT 19	1515	364	532	2/3				6 Silcrete	Red	Total	Medial Fragment			6-10	0%	0.08		Feather						
TNR AFT 19	1516	364	532	2/3				6 Silcrete	Red	Total	Distal Fragment			16-20	1-30%	0.42		Feather						
TNR AFT 19	1517	364	532	2/3				6 Silcrete	Red	Total	Distal Fragment			11-15	0%	0.19		Feather						
TNR AFT 19	1518	364	532	2/3				6 Silcrete	Yellow	None	Distal Fragment			11-15	0%	0.21		Feather						
TNR AFT 19	1519	364	532	2/3				6 Silcrete	Red/Yellow	Partial	Distal Fragment			11-15	31-69%	0.33		Step						
TNR AFT 19	1520	364	532	2/3				6 Silcrete	Red	Total	Distal Fragment			11-15	0%	0.12		Feather						
TNR AFT 19	1521	364	532	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.18		Step						
TNR AFT 19	1522	364	532	2/3				6 Silcrete	Pink	Partial	Distal Fragment			11-15	0%	0.17		Feather						
TNR AFT 19	1523	364	532	2/3				6 Silcrete	Red	Total	Distal Fragment			11-15	0%	0.16		Feather						
TNR AFT 19	1524	364	532	2/3				6 Silcrete	Red	Total	Distal Fragment			11-15	0%	0.12		Feather						
TNR AFT 19	1525	364	532	2/3				6 Silcrete	Red/Yellow	Partial	Distal Fragment			6-10	0%	0.09		Feather						
TNR AFT 19	1526	364	532	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.08		Step						
TNR AFT 19	1527	364	532	2/3				6 Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.05		Feather						
TNR AFT 19	1528	364	532	2/3				6 Silcrete	Red/Yellow	Partial	Angular Fragment			11-15	0%	0.89		Feather						
TNR AFT 19	1529	364	532	2/3				6 Silcrete	Red	Total	Angular Fragment			11-15	0%	0.1		Feather						
TNR AFT 19	1530	364	533	2/3				6 Silcrete	Pink	None	Flake			11-15	0%	0.69		Ridged	Step	13.3	12.8		4.1	L-W
TNR AFT 19	1531	364	533	2/3				6 Silcrete	Red	Total	Flake			11-15	0%	1.47		Faceted	Feather	13.3	8.9		4.2	L-W
TNR AFT 19	1532	364	533	2/3				6 Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.17	Focal	Feather						
TNR AFT 19	1533	364	533	2/3				6 Silcrete	Red/Yellow	Partial	Distal Fragment			6-10	0%	0.06		Feather						
TNR AFT 19	1534	364	533	2/3				6 Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.06		Feather						
TNR AFT 19	1535	364	533	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	1-30%	0.03		Step						
TNR AFT 19	1536	364	533	2/3				6 Silcrete	Red	Partial	Angular Fragment			6-10	0%	0.08		Feather						
TNR AFT 19	1537	365	528	2/3				6 FGS	White	Partial	Medial Fragment			26-30	0%	5.99		Feather						possibly heavily degraded/weathered silcrete
TNR AFT 19	1538	365	528	2/3				6 S. Tuff	Beige	None	Angular Fragment			6-10	0%	0.06		Feather						
TNR AFT 19	1539	365	528	2/3				6 Silcrete	Red	Total	Core	Unifacial		21-25	0%	4.71	Plain	Feather	21.3	19.9		8.6	2	small blade core
TNR AFT 19	1540	365	528	2/3				6 Silcrete	Yellow	None	Core	Unifacial		21-25	0%	2.23	Plain	Feather	12.6	20		6.8	2	
TNR AFT 19	1541	365	528	2/3				6 Silcrete	Red	Total	Flake			11-15	0%	0.39	Plain	Feather	12.3	8.8		4	L-W	
TNR AFT 19	1542	365	528	2/3				6 Silcrete	Red	Partial	Flake			11-15	0%	0.29	Plain	Feather	9.6	10.9		2.7	W-L	
TNR AFT 19	1543	365	528	2/3				6 Silcrete	Red	Partial	Flake			11-15	0%	0.1	Plain	Feather	10.9	3.9		1.4	Elongate	
TNR AFT 19	1544	365	528	2/3				6 Silcrete	Red	Total	Distal Fragment			21-25	0%	1.74		Feather						
TNR AFT 19	1545	365	528	2/3				6 Quartz	Pink	Partial	Distal Fragment			11-15	0%	0.49		Step						
TNR AFT 19	1546	365	528	2/3				6 Silcrete	Purple	Total	Distal Fragment			11-15	0%	0.35		Feather						
TNR AFT 19	1547	365	528	2/3				6 Silcrete	Purple	None	Distal Fragment			11-15	0%	0.29		Feather						
TNR AFT 19	1548	365	528	2/3				6 Silcrete	Yellow	None	Distal Fragment			11-15	0%	0.25		Feather						
TNR AFT 19	1549	365	528	2/3				6 Silcrete	Red	Total	Distal Fragment			11-15	0%	0.1		Feather						
TNR AFT 19	1550	365	528	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.07		Feather						
TNR AFT 19	1551	365	528	2/3				6 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.1		Feather						
TNR AFT 19	1552	365	528	2/3				6 Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.04		Feather						
TNR AFT 19	1553	365	528	2/3				6 Silcrete	Red/Yellow	Partial	Angular Fragment			11-15	0%	0.31		Feather						
TNR AFT 19	1554	365	528	2/3				6 Silcrete	Red	Total	Angular Fragment			6-10	0%	0.09		Feather						
TNR AFT 19	1555	365	528	2/3				6 Silcrete	Red	Total	Angular Fragment			6-10	0%	0.05		Feather						
TNR AFT 19	1556	365	528	2/3				6 Silcrete	Red	Total	Angular Fragment			6-10	0%	0.04		Feather						
TNR AFT 19	1557	365	528	2/3				6 Silcrete	Red	Total	Angular Fragment			0-5	0%	0.02		Feather						
TNR AFT 19	1558	365	529	2/3				6 Quartz	Milky-White	None	Bipolar Flake			16-20	0%	1.58	Plain	Step	17.6	13		4.8	L-W	
TNR AFT 19	1559	365	529	2/3				6 S. Tuff	Red/Brown	None	Distal Fragment			6-10	0%	0.03		Feather						
TNR AFT 19	1560	365	529	2/3				6 S. Tuff	Grey	None	Angular Fragment			21-25	0%	2.48		Feather						
TNR AFT 19	1561	365	529	2/3				6 S. Tuff	Beige	None	Distal Fragment			11-15	0%	0.42		Feather						
TNR AFT 19	1562	365	529	2/3				6 Silcrete	Pink	None	Distal Fragment	Backed	Geometric Microth	6-10	0%	0.14		Feather		8.4	5.7		2.8	
TNR AFT 19	1563	365	529	2/3				6 Silcrete	Grey	None	Flake	Retouched		41-45	0%	5.57	Faceted	Feather	38.9	15.6		7.7	Elongate	retouch along left lateral margin with some attempted backing along central ridge
TNR AFT 19	1564	365	529	2/3				6 Silcrete	Red/Yellow	Partial	Core	Bidirectional		31-35	1-30%	8.49	Ridged	Feather	27.5	22		13.8	2	
TNR AFT 19	1565	365	529	2/3				6 Silcrete	Pink	Total	Core	Bif												

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments			
TNR AFT 19	1595	365	531	2/3		6	S. Tuff	Light Grey	None	Angular Fragment				6-30	0%	0.08											
TNR AFT 19	1596	365	531	2/3		6	Silcrete	Red	Total	Core	Angular Fragment	Multidirectional		21-25	0%	5.33	Plain			21		19.7	15.3	3			
TNR AFT 19	1597	365	531	2/3		6	Silcrete	Red	Total	Core	Core			21-25	0%	2.63	Ridged			24		15.5	5.2	1	neg scar on ventral surface		
TNR AFT 19	1598	365	531	2/3		6	Silcrete	Red	Partial	Flake	Flake	Retouched		21-25	0%	1.2	Ridged	Feather		21.5		13	2.6	L-W	fine retouch on right lateral margin		
TNR AFT 19	1599	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			21-25	0%	0.65	Plain	Feather		20.5		14	1.9	L-W			
TNR AFT 19	1600	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			16-20	0%	0.8	Ridged	Step		19.4		9.3	4.5	Elongate			
TNR AFT 19	1601	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			16-20	0%	1.6	Plain	Step		16.7		14.6	2.8	L-W			
TNR AFT 19	1602	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			21-25	1-30%	0.68	Cortical	Feather		20.1		7.6	3.2	Elongate			
TNR AFT 19	1603	365	531	2/3		6	Silcrete	Red	Partial	Flake	Flake			21-25	0%	1.21	Plain	Feather		19.1		16.5	3.4	L-W			
TNR AFT 19	1604	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			16-20	0%	1.06	Plain	Step		15.5		13.5	3.6	L-W			
TNR AFT 19	1605	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			16-20	0%	0.59	Plain	Feather		17.6		11.3	2.5	L-W			
TNR AFT 19	1606	365	531	2/3		6	Silcrete	Red	Total	Proximal Fragment	Proximal Fragment			11-15	0%	0.21	Faceted										
TNR AFT 19	1607	365	531	2/3		6	Silcrete	Red	Total	Proximal Fragment	Proximal Fragment			16-20	70-99%	0.88	Plain										
TNR AFT 19	1608	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Proximal Fragment	Proximal Fragment			11-15	0%	0.27	Plain										
TNR AFT 19	1609	365	531	2/3		6	Silcrete	Red	Total	Medial Fragment	Medial Fragment			21-25	1-30%	1.97											
TNR AFT 19	1610	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			11-15	0%	0.3		Feather									
TNR AFT 19	1611	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			16-20	0%	1.0		Feather									
TNR AFT 19	1612	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			11-15	0%	0.25		Feather									
TNR AFT 19	1613	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			16-20	0%	0.66		Feather									
TNR AFT 19	1614	365	531	2/3		6	Silcrete	Red	Total	Angular Fragment	Angular Fragment			16-20	0%	1.73											
TNR AFT 19	1615	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			11-15	0%	0.56	Plain	Feather				13.6	9.2	3	L-W		
TNR AFT 19	1616	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			11-15	0%	0.09	Plain	Feather				9.5	8.1	0.9	L-W		
TNR AFT 19	1617	365	531	2/3		6	Silcrete	Red	Partial	Flake	Flake			11-15	31-69%	0.67	Cortical	Step				14.6	9	4.2	L-W		
TNR AFT 19	1618	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			11-15	0%	0.33	Plain	Feather				10.9	9.8	2.2	L-W		
TNR AFT 19	1619	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Flake	Flake			11-15	0%	0.18	Focal	Hinge				10.2	8.1	2.4	L-W		
TNR AFT 19	1620	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			6-10	0%	0.17	Ridged	Step				9.2	6.2	2.1	L-W		
TNR AFT 19	1621	365	531	2/3		6	Silcrete	Red	Total	Proximal Fragment	Proximal Fragment			11-15	0%	0.44											
TNR AFT 19	1622	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Proximal Fragment	Proximal Fragment			16-20	0%	0.81	Faceted										
TNR AFT 19	1623	365	531	2/3		6	Silcrete	Purple	None	Proximal Fragment	Proximal Fragment			11-15	0%	0.18	Plain										
TNR AFT 19	1624	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Proximal Fragment	Proximal Fragment			11-15	0%	0.18	Plain										
TNR AFT 19	1625	365	531	2/3		6	Silcrete	Red	Partial	Medial Fragment	Medial Fragment			11-15	0%	0.24											
TNR AFT 19	1626	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Distal Fragment	Distal Fragment			16-20	0%	0.51		Feather									
TNR AFT 19	1627	365	531	2/3		6	Silcrete	Red	Partial	Distal Fragment	Distal Fragment			16-20	0%	0.74		Feather									
TNR AFT 19	1628	365	531	2/3		6	Silcrete	Purple	None	Distal Fragment	Distal Fragment			11-15	0%	0.46		Feather									
TNR AFT 19	1629	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			11-15	0%	0.23		Step									
TNR AFT 19	1630	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Distal Fragment	Distal Fragment			11-15	0%	0.35		Feather									
TNR AFT 19	1631	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			11-15	0%	0.2		Feather									
TNR AFT 19	1632	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			11-15	0%	0.2		Feather									
TNR AFT 19	1633	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			11-15	0%	0.19		Feather									
TNR AFT 19	1634	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Distal Fragment	Distal Fragment			11-15	0%	0.22		Feather									
TNR AFT 19	1635	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			11-15	0%	0.16		Step									
TNR AFT 19	1636	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Distal Fragment	Distal Fragment			11-15	0%	0.7		Feather									
TNR AFT 19	1637	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Distal Fragment	Distal Fragment			6-10	0%	0.08		Feather									
TNR AFT 19	1638	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			6-10	0%	0.15		Feather									
TNR AFT 19	1639	365	531	2/3		6	Silcrete	Red	Total	Angular Fragment	Angular Fragment			11-15	0%	0.13											
TNR AFT 19	1640	365	531	2/3		6	Silcrete	Red	Partial	Flake	Flake			6-10	0%	0.11	Plain	Feather				8	1.1	7.4	1.5	L-W	
TNR AFT 19	1641	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			6-10	0%	0.05	Plain	Feather				9	4.3	3.1	Elongate		
TNR AFT 19	1642	365	531	2/3		6	Silcrete	Red	Total	Flake	Flake			6-10	0%	0.04	Focal	Step				7.4	4.5	0.9	L-W		
TNR AFT 19	1643	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Proximal Fragment	Proximal Fragment			6-10	0%	0.08	Plain										
TNR AFT 19	1644	365	531	2/3		6	Silcrete	Red	Total	Medial Fragment	Medial Fragment			6-10	0%	0.08											
TNR AFT 19	1645	365	531	2/3		6	Silcrete	Grey	None	Medial Fragment	Medial Fragment			6-10	0%	0.11											
TNR AFT 19	1646	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			6-10	0%	0.09		Feather									
TNR AFT 19	1647	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			6-10	0%	0.12		Feather									
TNR AFT 19	1648	365	531	2/3		6	Silcrete	Purple	Partial	Distal Fragment	Distal Fragment			6-10	0%	0.1		Step									
TNR AFT 19	1649	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Distal Fragment	Distal Fragment			6-10	0%	0.09		Feather									
TNR AFT 19	1650	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			6-10	0%	0.09		Feather									
TNR AFT 19	1651	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			6-10	0%	0.06		Feather									
TNR AFT 19	1652	365	531	2/3		6	Silcrete	Yellow	None	Distal Fragment	Distal Fragment			6-10	0%	0.08		Step									
TNR AFT 19	1653	365	531	2/3		6	Silcrete	Pink	None	Distal Fragment	Distal Fragment			6-10	0%	0.07		Feather									
TNR AFT 19	1654	365	531	2/3		6	Silcrete	Red	Total	Distal Fragment	Distal Fragment			6-10	0%	0.07		Feather									
TNR AFT 19	1655	365	531	2/3		6	Silcrete	Red/Yellow	Partial	Distal Fragment	Distal Fragment			6-10	0%	0.04		Feather									
TNR AFT 19	1656	365	531	2/3		6	Silcrete	Red	Total	Angular Fragment	Angular Fragment			6-10	0%	0.13											
TNR AFT 19	1657	365	531	2/3		6	Silcrete	Red	Total	Angular Fragment	Angular Fragment			6-10	0%	0.17											
TNR AFT 19	1658	365	532	2/3		6	Quartz	Milky-White	None	Proximal Fragment	Proximal Fragment			11-15	0%	0.26	Plain										
TNR AFT 19	1659	365	532	2/3		6	Silcrete	Red	Total	Distal Fragment	Backed	Backed	Blade Fragment	16-20	0%	0.54		Feather				16.5	6.6	4.1		partially backed	
TNR AFT 19	1660	365	532	2/3		6	Silcrete	Orange	Partial	Medial Fragment	Backed	Backed	Blade Fragment	11-15	0%	0.26						10.9	5.1	3.7			
TNR AFT 19	1661	365	532	2/3		6	Silcrete	Red/Yellow	Partial	Core	Core			16-20	0%	1.16	Plain					23.7	15.5	9.2	1		
TNR AFT 19	1662	365	532	2/3		6	Silcrete	Red	Total	Core	Multidirectional			16-20	1-30%	2.74	Plain					12.2	10.8	3			
TNR AFT 19	1663	365	532	2/3		6	Silcrete	Red	Partial	Flake	Flake			16-20	0%	0.41	Ridged	Feather				18.5	5.3	3.9	Elongate	blade	
TNR AFT 19	1664	365	532	2/3		6	Silcrete	Purple	Partial	Flake	Flake			1													

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments	
TNR AFT 19	1701	365	533	2/3			6	Silcrete	Red	Partial	Proximal Fragment			16-20	1-30%	0.74	Cortical								
TNR AFT 19	1702	365	533	2/3			6	Silcrete	Dark Grey	Total	Distal Fragment			16-20	0%	0.96		Plunged							
TNR AFT 19	1703	365	533	2/3			6	Silcrete	Red	Partial	Distal Fragment			16-20	1-30%	0.49		Feather							
TNR AFT 19	1704	365	533	2/3			6	Silcrete	Purple	Total	Distal Fragment			16-20	0%	1.13		Step							
TNR AFT 19	1705	365	533	2/3			6	Silcrete	Pink	Partial	Distal Fragment			16-20	0%	0.61		Feather							
TNR AFT 19	1706	365	533	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.26		Feather							
TNR AFT 19	1707	365	533	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05		Feather							
TNR AFT 19	1708	365	533	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.14		Step							
TNR AFT 19	1709	365	533	2/3			6	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.07									
TNR AFT 19	1710	365	534	2/3			6	S. Tuff	Grey	None	Distal Fragment			16-20	0%	0.47		Feather							
TNR AFT 19	1711	365	534	2/3			6	S. Tuff	Beige	None	Angular Fragment			6-10	0%	0.09									
TNR AFT 19	1712	365	534	2/3			6	Silcrete	Red/Yellow	Partial	Flake			6-10	0%	0.04	Plain	Step	6.8	4.6		1	L-W		
TNR AFT 19	1713	365	534	2/3			6	Silcrete	Orange	Partial	Proximal Fragment			6-10	0%	0.08	Plain								
TNR AFT 19	1714	365	534	2/3			6	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.18									
TNR AFT 19	1715	365	534	2/3			6	Silcrete	Red	Total	Distal Fragment			21-25	1-30%	1.91		Feather							
TNR AFT 19	1716	365	534	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.1		Feather							
TNR AFT 19	1717	365	534	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			6-10	0%	0.05									
TNR AFT 19	1718	365	534	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.32									
TNR AFT 19	1719	365	534	2/3			6	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.1									
TNR AFT 19	1720	366	528	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.34	Plain	Step		13.3	5	4.3	Elongate		
TNR AFT 19	1721	366	528	2/3			6	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.06	Focal								
TNR AFT 19	1722	366	528	2/3			6	Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.45		Step							
TNR AFT 19	1723	366	528	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	1.08		Feather							
TNR AFT 19	1724	366	528	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	31-69%	1.91		Step							
TNR AFT 19	1725	366	529	2/3			6	Igneous	Grey	None	Angular Fragment	Ground Stone		66-70	0%	155.1			64.4	56		47.2	possible hammerstone frag. some partial scarring		
TNR AFT 19	1726	366	529	2/3			6	Silcrete	Yellow	None	Flake	Backed	Complete Blade	16-20	0%	0.29	Plain	Feather		16.5	6.2	2.7	Elongate		
TNR AFT 19	1727	366	529	2/3			6	Silcrete	Red	Total	Flake			26-30	1-30%	2.3	Cortical	Feather		12.9	27.4	6.6	W-L		
TNR AFT 19	1728	366	529	2/3			6	Silcrete	Red	Total	Flake			16-20	0%	0.5	Plain	Feather		11.6	16.5	2.9	W-L		
TNR AFT 19	1729	366	529	2/3			6	Silcrete	Purple	Total	Flake			11-15	0%	0.22	Plain	Feather		12.1	7.9	1.2	L-W		
TNR AFT 19	1730	366	529	2/3			6	Silcrete	Pink	Partial	Flake			6-10	0%	0.09	Plain	Step		8.6	5.1	1.7	L-W		
TNR AFT 19	1731	366	529	2/3			6	Silcrete	Purple	Total	Proximal Fragment			11-15	0%	0.2	Plain								
TNR AFT 19	1732	366	529	2/3			6	S. Tuff	Pink	None	Medial Fragment			16-20	0%	0.07									
TNR AFT 19	1733	366	529	2/3			6	Silcrete	Red	Partial	Medial Fragment			6-10	0%	0.07									
TNR AFT 19	1734	366	529	2/3			6	Silcrete	Red/Yellow	Partial	Medial Fragment			6-10	0%	0.09									
TNR AFT 19	1735	366	529	2/3			6	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.1									
TNR AFT 19	1736	366	529	2/3			6	Silcrete	Pink	Partial	Distal Fragment			16-20	1-30%	0.65		Feather							
TNR AFT 19	1737	366	529	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.65									
TNR AFT 19	1738	366	529	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			16-20	31-69%	1.11		Step							
TNR AFT 19	1739	366	529	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.21		Step							
TNR AFT 19	1740	366	529	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.25		Feather							
TNR AFT 19	1741	366	529	2/3			6	Silcrete	Orange	Partial	Distal Fragment			11-15	0%	0.2		Feather							
TNR AFT 19	1742	366	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.09									
TNR AFT 19	1743	366	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.1		Feather							
TNR AFT 19	1744	366	530	2/3			6	S. Tuff	Light Grey	None	Angular Fragment			11-15	0%	0.47									
TNR AFT 19	1745	366	530	2/3			6	S. Tuff	Red/Brown	None	Angular Fragment			21-25	31-69%	0.67									
TNR AFT 19	1746	366	530	2/3			6	Silcrete	Red/Yellow	Partial	Core	Fragment		26-30	0%	7.85				27		22.9	9.7		
TNR AFT 19	1747	366	530	2/3			6	Silcrete	Red	Total	Flake			31-35	1-30%	2.3	Plain	Feather		32.5	11.1	6.8	Elongate	several partial scars	
TNR AFT 19	1748	366	530	2/3			6	Silcrete	Red	Total	Flake			26-30	1-30%	6.95	Ridged	Step		22.9	23.7	8.2	W-L		
TNR AFT 19	1749	366	530	2/3			6	Silcrete	Red	Partial	Flake			26-30	0%	2.53	Plain	Feather		24.3	14.1	6	L-W		
TNR AFT 19	1750	366	530	2/3			6	Silcrete	Red/Yellow	Partial	Flake			21-25	31-69%	2.42	Plain	Feather		17.8	17.8	8.1	L-W		
TNR AFT 19	1751	366	530	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	0%	0.79	Plain	Feather		13.9	11.1	4.1	L-W		
TNR AFT 19	1752	366	530	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.34		Plunged				13.7	7.5	2.1	L-W
TNR AFT 19	1753	366	530	2/3			6	Silcrete	Red	Total	Flake			6-10	0%	0.05	Plain	Feather		5.4	7.6	0.7	W-L		
TNR AFT 19	1754	366	530	2/3			6	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.48	Plain								
TNR AFT 19	1755	366	530	2/3			6	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.09	Plain								
TNR AFT 19	1756	366	530	2/3			6	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.1	Plain								
TNR AFT 19	1757	366	530	2/3			6	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.26									
TNR AFT 19	1758	366	530	2/3			6	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.05									
TNR AFT 19	1759	366	530	2/3			6	Silcrete	Grey	None	Distal Fragment			26-30	0%	3.89		Feather							
TNR AFT 19	1760	366	530	2/3			6	Silcrete	Grey	None	Distal Fragment	Retouched		11-15	0%	0.22		Feather		9.4	7.5	2.8		small area of fine retouch near point	
TNR AFT 19	1761	366	530	2/3			6	Silcrete	Purple	Partial	Distal Fragment			31-35	0%	5.04		Feather							
TNR AFT 19	1762	366	530	2/3			6	Silcrete	Pink	Partial	Distal Fragment			21-25	0%	1.3		Step							
TNR AFT 19	1763	366	530	2/3			6	Silcrete	Purple	Partial	Distal Fragment			21-25	0%	1.94		Feather							
TNR AFT 19	1764	366	530	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			11-15	31-69%	0.66		Feather							
TNR AFT 19	1765	366	530	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	31-69%	0.41		Hinge							
TNR AFT 19	1766	366	530	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.14		Feather							
TNR AFT 19	1767	366	530	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.22		Feather							
TNR AFT 19	1768	366	530	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.07		Step							
TNR AFT 19	1769	366	530	2/3			6	Silcrete	Yellow	None	Distal Fragment			6-10	31-69%	0.09		Feather							
TNR AFT 19	1770	366	530	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.13		Feather							
TNR AFT 19	1771	366	530	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05		Feather							
TNR AFT 19	1772	366	530	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.09		Step							
TNR AFT 19	1773	366	530	2/3			6	Silcrete	Grey	Partial	Angular Fragment			21-25	0%	2.37									
TNR AFT 19	1774	366	530	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.39									
TNR AFT 19	1775	366	530	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.1									

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	ID	Comments
TNR.AFT.19	1807	366	531	2/3			6	Silcrete	Pink	Partial	Medial Fragment			11-15	0%	0.16									
TNR.AFT.19	1808	366	531	2/3			6	Silcrete	Yellow	None	Distal Fragment			11-15	0%	0.41		Feather							
TNR.AFT.19	1809	366	531	2/3			6	Silcrete	Purple	None	Distal Fragment			16-20	0%	1.47		Feather							
TNR.AFT.19	1810	366	531	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	100%	0.47		Feather							
TNR.AFT.19	1811	366	531	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			16-20	1-30%	0.58		Step							
TNR.AFT.19	1812	366	531	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.35		Step							
TNR.AFT.19	1813	366	531	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.2		Step							
TNR.AFT.19	1814	366	531	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.25		Feather							
TNR.AFT.19	1815	366	531	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			11-15	0%	0.31		Step							
TNR.AFT.19	1816	366	531	2/3			6	Silcrete	Pink	Partial	Distal Fragment			11-15	0%	0.2		Feather							
TNR.AFT.19	1817	366	531	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			11-15	0%	0.2		Plunged							
TNR.AFT.19	1818	366	531	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.22		Feather							
TNR.AFT.19	1819	366	531	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.07		Step							
TNR.AFT.19	1820	366	531	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.06		Step							
TNR.AFT.19	1821	366	531	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05		Feather							
TNR.AFT.19	1822	366	531	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.04		Feather							
TNR.AFT.19	1823	366	531	2/3			6	Silcrete	Red/Yellow	Partial	Angular Fragment			11-15	0%	0.3									
TNR.AFT.19	1824	366	531	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	1-30%	0.18									
TNR.AFT.19	1825	366	531	2/3			6	Silcrete	Red/Yellow	Partial	Angular Fragment			0-5	0%	0.02									
TNR.AFT.19	1826	366	532	2/3			6	Quartz	Milky-White	None	Core	Unifacial		31-35	0%	2.1	Plain			27.2	12.1	5.9	1	broken 2 pieces, modern break	
TNR.AFT.19	1827	366	532	2/3			6	S. Tuft	Light Grey	None	Angular Fragment			11-15	0%	0.12									
TNR.AFT.19	1828	366	532	2/3			6	Silcrete	Red	Total	Core	Unifacial		26-30	1-30%	4.77	Plain			28.3	15.2	13.2	1		
TNR.AFT.19	1829	366	532	2/3			6	Silcrete	Red	Total	Flake			26-30	1-30%	3.27	Plain	Step		24.5	27.4	5.1	W>L		
TNR.AFT.19	1830	366	532	2/3			6	Silcrete	Purple	None	Flake			21-25	0%	1.81	Plain	Feather		21.1	19.5	4.2	L>W		
TNR.AFT.19	1831	366	532	2/3			6	Silcrete	Purple	Total	Flake			21-25	70-99%	2.7	Cortical	Step		20.9	16	6.6	L>W		
TNR.AFT.19	1832	366	532	2/3			6	Silcrete	Purple	Total	Flake			16-20	0%	0.39	Plain	Feather		6.8	17.1	2.2	W>L		
TNR.AFT.19	1833	366	532	2/3			6	Silcrete	Red	Total	Flake			21-25	0%	1.2	Faceted	Feather		15.3	13.4	3.8	L>W		
TNR.AFT.19	1834	366	532	2/3			6	Silcrete	Red/Yellow	Partial	Flake			21-25	0%	1.69	Plain	Feather		10.1	20.7	7.7	W>L		
TNR.AFT.19	1835	366	532	2/3			6	Silcrete	Purple	Total	Flake			11-15	0%	0.33	Ridged	Feather		11.8	13.5	1.4	W>L		
TNR.AFT.19	1836	366	532	2/3			6	Silcrete	Pink	None	Proximal Fragment	Backed	Blade Fragment	11-15	0%	0.41	Focal			13.1	6.2	4.1			
TNR.AFT.19	1837	366	532	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	0%	0.2	Plain	Feather		10.4	12.6	1.3	W>L		
TNR.AFT.19	1838	366	532	2/3			6	Silcrete	Yellow	None	Proximal Fragment			11-15	0%	0.2									
TNR.AFT.19	1839	366	532	2/3			6	Silcrete	Yellow	None	Proximal Fragment			6-10	0%	0.11	Plain								
TNR.AFT.19	1840	366	532	2/3			6	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.35									
TNR.AFT.19	1841	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	1-30%	0.43		Feather							
TNR.AFT.19	1842	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	1-30%	1.04		Step							
TNR.AFT.19	1843	366	532	2/3			6	Silcrete	Yellow	None	Distal Fragment			11-15	0%	0.42									
TNR.AFT.19	1844	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.61		Feather							
TNR.AFT.19	1845	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.59		Step							
TNR.AFT.19	1846	366	532	2/3			6	Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.44		Feather							
TNR.AFT.19	1847	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.19		Feather							
TNR.AFT.19	1848	366	532	2/3			6	Silcrete	Yellow	None	Angular Fragment			36-40	0%	31.69%									
TNR.AFT.19	1849	366	532	2/3			6	Silcrete	Yellow	None	Angular Fragment			16-20	0%	0.34									
TNR.AFT.19	1850	366	532	2/3			6	Silcrete	Red	Total	Flake			6-10	0%	0.09	Plain	Feather		8.4	4.4	1.4	L>W		
TNR.AFT.19	1851	366	532	2/3			6	Silcrete	Red	Total	Flake			6-10	0%	0.04	Plain	Feather		5.9	5.3	0.5	L>W		
TNR.AFT.19	1852	366	532	2/3			6	Silcrete	Red	Total	Flake			6-10	0%	0.03	Plain	Feather		6	6.3	1	W>L		
TNR.AFT.19	1853	366	532	2/3			6	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.39									
TNR.AFT.19	1854	366	532	2/3			6	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.21									
TNR.AFT.19	1855	366	532	2/3			6	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.08									
TNR.AFT.19	1856	366	532	2/3			6	Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.1		Feather							
TNR.AFT.19	1857	366	532	2/3			6	Silcrete	Purple	Total	Distal Fragment			11-15	0%	0.27		Feather							
TNR.AFT.19	1858	366	532	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			11-15	0%	0.21		Plunged							
TNR.AFT.19	1859	366	532	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			11-15	0%	0.2		Feather							
TNR.AFT.19	1860	366	532	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			11-15	0%	0.17		Feather							
TNR.AFT.19	1861	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.1		Feather							
TNR.AFT.19	1862	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.1		Feather							
TNR.AFT.19	1863	366	532	2/3			6	Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.21									
TNR.AFT.19	1864	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.15		Feather							
TNR.AFT.19	1865	366	532	2/3			6	Silcrete	Purple	Total	Distal Fragment			6-10	0%	0.09		Feather							
TNR.AFT.19	1866	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.07		Feather							
TNR.AFT.19	1867	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.09		Feather							
TNR.AFT.19	1868	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.07		Feather							
TNR.AFT.19	1869	366	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05		Feather							
TNR.AFT.19	1870	366	532	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.1									
TNR.AFT.19	1871	366	532	2/3			6	Silcrete	Red	Total	Angular Fragment			6-10	1-30%	0.15									
TNR.AFT.19	1872	366	532	2/3			6	Silcrete	Pink	Partial	Angular Fragment			6-10	0%	0.05									
TNR.AFT.19	1873	366	533	2/3			6	Silcrete	Red	Total	Medial Fragment	Backed	Geometric Microolith	11-15	0%	0.21				11.4	5.1	3.6			
TNR.AFT.19	1874	366	533	2/3			6	Silcrete	Red	Total	Core	Unifacial		21-25	0%	4.16	Plain			17.6	19.2	11.8	1		
TNR.AFT.19	1875	366	533	2/3			6	Silcrete	Red/Yellow	Partial	Flake			31-35	0%	8.48	Plain	Step		23	31.9	10.1	W>L		
TNR.AFT.19	1876	366	533	2/3			6	Silcrete	Red	Total	Flake			16-20	0%	0.89	Plain	Feather		15	11.2	5.2	L>W		
TNR.AFT.19	1877	366	533	2/3			6	Silcrete	Purple	Total	Flake			16-20	0%	0.23	Plain	Feather		14.8	8.2	1.6	L>W		
TNR.AFT.19	1878	366	533	2/3			6	Silcrete	Red	Total	Flake			11-15	1-30%	0.35	Plain	Feather		13.3	10.4	2.4	L>W		
TNR.AFT.19	1879	366	533	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	1-30%	0.36	Cortical	Step		12.7	7.2	3	W>L		

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 19	1913	367	528	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.24	Feather							
TNR AFT 19	1914	367	528	2/3			6	Silcrete	Purple	Total	Distal Fragment			11-15	0%	0.24	Step							
TNR AFT 19	1915	367	528	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05	Feather							
TNR AFT 19	1916	367	528	2/3			6	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.11								
TNR AFT 19	1917	367	528	2/3			6	Silcrete	Pink	None	Angular Fragment			6-10	1-30%	0.05								
TNR AFT 19	1918	367	529	2/3			6	Quartz	Milky-White	None	Angular Fragment			11-15	1-30%	0.81								
TNR AFT 19	1919	367	529	2/3			6	Silcrete	Yellow	None	Core	Multidirectional		31-35	0%	11.23	Plain		33.2	20.9	14.3	4	some blade scars	
TNR AFT 19	1920	367	529	2/3			6	Silcrete	Red	Total	Core	Multidirectional		26-30	0%	4.78	Plain		25.2	17.5	8.8	3		
TNR AFT 19	1921	367	529	2/3			6	Silcrete	Red	Total	Core	Bidirectional		26-30	1-30%	5.01	Plain		27.4	19.9	7.1	4	1 blade scar	
TNR AFT 19	1922	367	529	2/3			6	Silcrete	Pink	None	Core	Flake Core		26-30	0%	2.54	Plain		23.7	22.9	4.7	1	blade scar	
TNR AFT 19	1923	367	529	2/3			6	Silcrete	Red	Total	Core	Multidirectional		21-25	0%	3.87	Plain		19.7	17.9	12.1	3		
TNR AFT 19	1924	367	529	2/3			6	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.07	Plain							
TNR AFT 19	1925	367	529	2/3			6	Silcrete	Red	Total	Medial Fragment			6-10	1-30%	0.29								
TNR AFT 19	1926	367	529	2/3			6	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.09								
TNR AFT 19	1927	367	529	2/3			6	Silcrete	Purple	Total	Distal Fragment			11-15	0%	0.48	Step							
TNR AFT 19	1928	367	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.09	Feather							
TNR AFT 19	1929	367	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.16	Feather							
TNR AFT 19	1930	367	529	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	1-30%	0.27	Plunged							
TNR AFT 19	1931	367	529	2/3			6	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.18	Feather							
TNR AFT 19	1932	367	529	2/3			6	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.06	Feather							
TNR AFT 19	1933	367	529	2/3			6	Silcrete	Red	Total	Angular Fragment			26-30	0%	2.96								
TNR AFT 19	1934	367	529	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	1-30%	0.26	Feather							
TNR AFT 19	1935	367	529	2/3			6	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.06								
TNR AFT 19	1936	367	530	2/3			6	S. Tuff	Grey/Green	None	Core	Multidirectional		36-40	1-30%	14.71	Plain		35.3	24.7	17.2	4		
TNR AFT 19	1937	367	530	2/3			6	S. Tuff	Beige	None	Distal Fragment			11-15	0%	0.11	Feather							
TNR AFT 19	1938	367	530	2/3			6	S. Tuff	Beige	None	Angular Fragment			11-15	0%	0.45								
TNR AFT 19	1939	367	530	2/3			6	S. Tuff	Grey	None	Angular Fragment			16-20	0%	0.43								
TNR AFT 19	1940	367	530	2/3			6	S. Tuff	Grey	None	Angular Fragment			11-15	0%	0.27								
TNR AFT 19	1941	367	530	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.27	Scarred	Feather	14.9	7.3	2.5	Elongate		hook like shape
TNR AFT 19	1942	367	530	2/3			6	Silcrete	Red/Yellow	Partial	Core	Bifacial		26-30	1-30%	7.28	Plain	24.3	20.4	12.6	3			
TNR AFT 19	1943	367	530	2/3			6	Silcrete	Yellow	None	Core	Bifacial		26-30	0%	7.97	Plain	25.8	23.6	12.1	2			
TNR AFT 19	1944	367	530	2/3			6	Silcrete	Red/Yellow	Partial	Flake			31-35	0%	9.04	Step							6.6 L-W
TNR AFT 19	1945	367	530	2/3			6	Silcrete	Red/Yellow	Partial	Flake			16-20	1-30%	0.8	Focal	Feather	15.7	9	5	L-W		
TNR AFT 19	1946	367	530	2/3			6	Silcrete	Purple	Total	Flake			11-15	0%	0.25	Plain	Feather	10.3	8.8	3.1	L-W		
TNR AFT 19	1947	367	530	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.15	Plain	Feather	9.6	10.5	2.2	W-L		
TNR AFT 19	1948	367	530	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	0%	0.17	Plain	Feather	10.1	8.9	1.8	L-W		
TNR AFT 19	1949	367	530	2/3			6	Silcrete	Red/Yellow	Partial	Flake			6-10	1-30%	0.20	Step							6.8
TNR AFT 19	1950	367	530	2/3			6	Silcrete	Red/Yellow	Partial	Flake			6-10	31-69%	0.07	Cortical	Feather	6	7.9	1.3	W-L		
TNR AFT 19	1951	367	530	2/3			6	Silcrete	Red	Total	Flake			6-10	0%	0.05	Plain	Step	6.3	5.9	1.1	L-W		
TNR AFT 19	1952	367	530	2/3			6	Silcrete	Red	Total	Proximal Fragment			6-10	0%	0.06	Plain							
TNR AFT 19	1953	367	530	2/3			6	Silcrete	Pink	Partial	Medial Fragment			16-20	0%	0.89								
TNR AFT 19	1954	367	530	2/3			6	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.07								
TNR AFT 19	1955	367	530	2/3			6	Silcrete	Pink	None	Medial Fragment			6-10	0%	0.08								
TNR AFT 19	1956	367	530	2/3			6	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.44	Step							
TNR AFT 19	1957	367	530	2/3			6	Silcrete	Pink	None	Distal Fragment			26-30	0%	4.16	Step							
TNR AFT 19	1958	367	530	2/3			6	Silcrete	Purple	Partial	Distal Fragment			21-25	0%	2.12	Feather							
TNR AFT 19	1959	367	530	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			16-20	0%	0.34	Feather							
TNR AFT 19	1960	367	530	2/3			6	Silcrete	Red	Total	Distal Fragment			21-25	1-30%	2.04	Step							
TNR AFT 19	1961	367	530	2/3			6	Silcrete	Red	Partial	Distal Fragment			21-25	0%	1.01	Feather							
TNR AFT 19	1962	367	530	2/3			6	Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.36	Feather							
TNR AFT 19	1963	367	530	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.21	Step							
TNR AFT 19	1964	367	530	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.21	Step							
TNR AFT 19	1965	367	530	2/3			6	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.13	Feather							
TNR AFT 19	1966	367	530	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.22	Feather							
TNR AFT 19	1967	367	530	2/3			6	Silcrete	Pink	None	Distal Fragment			6-10	0%	0.09	Feather							
TNR AFT 19	1968	367	530	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	1-30%	0.3								
TNR AFT 19	1969	367	530	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	1-30%	0.13								
TNR AFT 19	1970	367	530	2/3			6	Silcrete	Red	Partial	Angular Fragment			6-10	0%	0.09								
TNR AFT 19	1971	367	530	2/3			6	Silcrete	Red	Total	Angular Fragment			0-5	0%	0.07								
TNR AFT 19	1972	367	531	2/3			6	S. Tuff	Orange	None	Distal Fragment			6-10	0%	0.11	Feather							
TNR AFT 19	1973	367	531	2/3			6	S. Tuff	Orange	None	Distal Fragment			11-15	0%	0.39	Feather							
TNR AFT 19	1974	367	531	2/3			6	Silcrete	Red	Partial	Distal Fragment			21-25	0%	1.59								
TNR AFT 19	1975	367	531	2/3			6	Silcrete	Red	Total	Core	Retouched		21-25	0%	1.8	Plain		18.7	10.6	10.8	5.3	1	retouch on proximal break
TNR AFT 19	1976	367	531	2/3			6	Silcrete	Red/Yellow	Partial	Flake			31-35	31-69%	5.1	Plain	Feather	20.8	29.4	9.4	W-L		
TNR AFT 19	1977	367	531	2/3			6	Silcrete	Yellow	None	Flake			16-20	1-30%	0.61	Ridged	Feather	16.4	9.6	2.5	L-W		
TNR AFT 19	1978	367	531	2/3			6	Silcrete	Yellow	None	Flake			11-15	0%	0.24	Plain	Feather	11.5	9.6	1.5	L-W		
TNR AFT 19	1979	367	531	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	0%	1.68	Ridged	Feather	9.9	9.1	1.3	L-W		
TNR AFT 19	1980	367	531	2/3			6	Silcrete	Purple	Total	Flake			11-15	0%	0.18	Plain	Feather	6.6	12.7	6.6	1.6	L-W	
TNR AFT 19	1981	367	531	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.32	Plain	Plunged	10.4	9.5	2.9	L-W		
TNR AFT 19	1982	367	531	2/3			6	Silcrete	Grey	None	Flake			16-20	0%	0.22	Plain	Feather	14.7	7.4	1.2	L-W		
TNR AFT 19	1983	367	531	2/3			6	Silcrete	Red	Total	Medial Fragment			26-30	0%	2.34								
TNR AFT 19	1984	367	531	2/3			6	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.51								
TNR AFT 19	1985	367	531	2/3			6	Silcrete	Yellow	None	Core	Unifacial		26-30	0%	6.31	Plain							2
TNR AFT 19	1986	367	531	2/3			6	Silcrete	Yellow	None	Distal Fragment			21-25	100%	0.9	Feather							
TNR AFT 19	1987	367	531	2/3			6	Silcrete</																

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments	
TNR AFT 19	2019	367	531	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.03		Feather							
TNR AFT 19	2020	367	531	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.03		Feather							
TNR AFT 19	2021	367	531	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.16									
TNR AFT 19	2022	367	531	2/3			6	Silcrete	Yellow	None	Angular Fragment			11-15	0%	0.28									
TNR AFT 19	2023	367	532	2/3			6	S. Tuff	Grey	None	Flake			11-15	0%	0.21	Ridged	Hinge	7.3	10.3	1.6	W>L			
TNR AFT 19	2024	367	532	2/3			6	S. Tuff	Grey	None	Proximal Fragment	Backed		16-20	0%	0.31	Focal		15.2	6.3	3.1				
TNR AFT 19	2025	367	532	2/3			6	S. Tuff	Beige	None	Distal Fragment			21-25	0%	2.87									
TNR AFT 19	2026	367	532	2/3			6	Silcrete	Red/Yellow	Partial	Medial	Backed		11-15	0%	0.44		Hinge		13.3	6.5	3.8			
TNR AFT 19	2027	367	532	2/3			6	Silcrete	Pink	None	Distal Fragment	Backed		11-15	0%	0.14		Feather		10	5.1	1.8			
TNR AFT 19	2028	367	532	2/3			6	Silcrete	Pink	None	Flake			21-25	0%	1.76	Plain	Feather	19.2	22.1	4.3	W>L			
TNR AFT 19	2029	367	532	2/3			6	Silcrete	Yellow	None	Flake			21-25	31-69%	5.43	Plain	Feather	30.2	24.9	9.1	LW			
TNR AFT 19	2030	367	532	2/3			6	Silcrete	Yellow	None	Flake			16-20	0%	0.8	Ridged	Step	13	11.9	3.8	LW			
TNR AFT 19	2031	367	532	2/3			6	Silcrete	Red/Yellow	Partial	Flake			11-15	0%	0.42	Focal	Feather	14.6	7.5	3.5	LW			
TNR AFT 19	2032	367	532	2/3			6	Silcrete	Red	Total	Flake			16-20	1-30%	0.8	Ridged	Plunged	15	9.3	6	LW			
TNR AFT 19	2033	367	532	2/3			6	Silcrete	Yellow	None	Flake			11-15	0%	0.66	Plain	Step	12.5	12.6	2.9	W>L			
TNR AFT 19	2034	367	532	2/3			6	Silcrete	Red	Total	Flake			6-30	0%	0.14	Focal	Feather	9.6	7.7	1.7	LW			
TNR AFT 19	2035	367	532	2/3			6	Silcrete	Red/Yellow	Partial	Flake			6-30	0%	0.3	Plain	Step	6.9	7.5	1.2	W>L			
TNR AFT 19	2036	367	532	2/3			6	Silcrete	Pink	Partial	Flake			11-15	0%	0.13	Plain	Feather	6.2	9.1	1.2	W>L			
TNR AFT 19	2037	367	532	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.21	Plain	Hinge	8.9	7.3	2.4	LW			
TNR AFT 19	2038	367	532	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.12	Plain	Feather	9.7	6.3	1.9	LW			
TNR AFT 19	2039	367	532	2/3			6	Silcrete	Red/Yellow	Partial	Flake			6-30	0%	0.09	Plain	Feather	8.1	6.4	1	LW			
TNR AFT 19	2040	367	532	2/3			6	Silcrete	Red	Total	Proximal Fragment			6-30	100%	0.33	Plain								
TNR AFT 19	2041	367	532	2/3			6	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.32									
TNR AFT 19	2042	367	532	2/3			6	Silcrete	Red	Total	Medial Fragment			16-20	0%	1.07									
TNR AFT 19	2043	367	532	2/3			6	Silcrete	Red	Total	Medial Fragment			6-30	0%	0.13									
TNR AFT 19	2044	367	532	2/3			6	Silcrete	Red	Total	Medial Fragment			6-30	0%	0.04									
TNR AFT 19	2045	367	532	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	1-30%	0.59		Feather							
TNR AFT 19	2046	367	532	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.42		Hinge							
TNR AFT 19	2047	367	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.18		Feather							
TNR AFT 19	2048	367	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.12		Feather							
TNR AFT 19	2049	367	532	2/3			6	Silcrete	Red	Total	Proximal Fragment			6-30	0%	0.12	Plain								
TNR AFT 19	2050	367	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	1-30%	0.6		Feather							
TNR AFT 19	2051	367	532	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			6-30	0%	0.06		Feather							
TNR AFT 19	2052	367	532	2/3			6	Silcrete	Red	Total	Angular Fragment			21-25	31-69%	1.29									
TNR AFT 19	2053	367	532	2/3			6	Silcrete	Purple	Total	Angular Fragment			21-25	0%	1.15									
TNR AFT 19	2054	367	532	2/3			6	Silcrete	Yellow	None	Angular Fragment			16-20	0%	0.51									
TNR AFT 19	2055	367	532	2/3			6	Silcrete	Yellow	None	Angular Fragment			11-15	1-30%	0.28									
TNR AFT 19	2056	367	532	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	70-99%	0.16									
TNR AFT 19	2057	367	532	2/3			6	Silcrete	Yellow	None	Angular Fragment			6-30	0%	0.09									
TNR AFT 19	2058	367	532	2/3			6	Silcrete	Yellow	None	Angular Fragment			6-30	0%	0.12									
TNR AFT 19	2059	367	532	2/3			6	Silcrete	Red/Yellow	Partial	Angular Fragment			11-15	31-69%	0.29									
TNR AFT 19	2060	367	532	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.14									
TNR AFT 19	2061	367	532	2/3			6	Silcrete	Red	Total	Angular Fragment			6-30	0%	0.06									
TNR AFT 19	2062	367	532	2/3			6	Silcrete	Red	Total	Angular Fragment			6-30	0%	0.08									
TNR AFT 19	2063	367	532	2/3			6	Silcrete	Red	Total	Angular Fragment			6-30	0%	0.1									
TNR AFT 19	2064	367	533	2/3			6	S. Tuff	Grey	None	Flake			16-20	0%	0.62	Focal	Feather	18.3	9.1	3.9	Elongate			
TNR AFT 19	2065	367	533	2/3			6	S. Tuff	Beige	None	Distal Fragment			6-30	0%	0.05		Step							
TNR AFT 19	2066	367	533	2/3			6	S. Tuff	Light Grey	None	Angular Fragment			6-30	0%	0.1									
TNR AFT 19	2067	367	533	2/3			6	Silcrete	Red	Total	Flake			16-20	31-69%	0.42	Focal	Feather	11.6	16.3	3	W>L			
TNR AFT 19	2068	367	533	2/3			6	Silcrete	Orange	Partial	Flake			6-30	0%	0.11	Plain	Feather	4.6	7.3	2.5	W>L			
TNR AFT 19	2069	367	533	2/3			6	Silcrete	Red	Total	Flake			6-30	0%	0.05	Plain	Step	4.3	5.9	1.2	W>L			
TNR AFT 19	2070	367	533	2/3			6	Silcrete	Red	Total	Flake			6-30	0%	0.1	Focal	Step	6.1	4.9	2.6	W>L			
TNR AFT 19	2071	367	533	2/3			6	Silcrete	Red	Total	Flake			6-30	0%	0.09	Plain	Feather	4.8	7.6	2	W>L			
TNR AFT 19	2072	367	533	2/3			6	Silcrete	Red	Partial	Proximal Fragment			31-35	1-30%	6.05	Cortical								
TNR AFT 19	2073	367	533	2/3			6	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.49	Faceted								
TNR AFT 19	2074	367	533	2/3			6	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.23	Plain								
TNR AFT 19	2075	367	533	2/3			6	Silcrete	Red	Total	Medial Fragment			6-30	0%	0.1									
TNR AFT 19	2076	367	533	2/3			6	Silcrete	Yellow	None	Distal Fragment			11-15	1-30%	0.41		Feather							
TNR AFT 19	2077	367	533	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.46		Feather							
TNR AFT 19	2078	367	533	2/3			6	Silcrete	Red	Total	Distal Fragment			16-20	0%	0.67		Step							
TNR AFT 19	2079	367	533	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.42		Step							
TNR AFT 19	2080	367	533	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.34									
TNR AFT 19	2081	367	533	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.1		Feather							
TNR AFT 19	2082	367	533	2/3			6	Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.15		Step							
TNR AFT 19	2083	367	533	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.13		Step							
TNR AFT 19	2084	367	533	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			6-30	0%	0.13		Step							
TNR AFT 19	2085	367	533	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.06		Feather							
TNR AFT 19	2086	367	533	2/3			6	Silcrete	Purple	None	Angular Fragment			26-30	0%	3.4									
TNR AFT 19	2087	367	533	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	70-99%	0.63									
TNR AFT 19	2088	367	533	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.29									
TNR AFT 19	2089	367	533	2/3			6	Silcrete	Red	Partial	Angular Fragment			6-30	0%	0.08									
TNR AFT 19	2090	367	533	2/3			6	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.08									
TNR AFT 19	2091	367	534	2/3			6	Silcrete	Red/Yellow	Partial	Core	Bidirectional		26-30	1-30%	6.9	Plain		23.3	18	16	5	small blade core		
TNR AFT 19	2092	367	534	2/3			6	Silcrete	Red	Total	Flake			16-20	0%	0.87	Ridged	Step	14.4	12.8	2.9	LW			
TNR AFT 19	2093	367	534	2/3			6	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.28	Faceted	</							

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 19	2125	368	530	2/3			6	Silcrete	Red	Total	Flake			21-25	0%	1.9	Plain	Feather	22.7	24	5.4	L-W		
TNR AFT 19	2126	368	530	2/3			6	Silcrete	Red	Total	Flake			11-15	100%	0.28	Cortical	Feather	6.6	14.1	4	W-L		
TNR AFT 19	2127	368	530	2/3			6	Silcrete	Red	Total	Flake			6-30	0%	0.11	Plain	Step	6.8	6.6	1.4	L-W		
TNR AFT 19	2128	368	530	2/3			6	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.17	Ridged							
TNR AFT 19	2129	368	530	2/3			6	Silcrete	Red	Partial	Medial Fragment			6-30	0%	0.14								
TNR AFT 19	2130	368	530	2/3			6	Silcrete	Pink	Partial	Distal Fragment			26-30	1-30%	1.74								
TNR AFT 19	2131	368	530	2/3			6	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.32	Step							
TNR AFT 19	2132	368	530	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.08	Feather							
TNR AFT 19	2133	368	530	2/3			6	Silcrete	Red	Total	Angular Fragment			6-30	0%	0.14								
TNR AFT 19	2134	368	531	2/3			6	S. Tuff	Light Grey	None	Distal Fragment			11-15	0%	0.18	Feather							
TNR AFT 19	2135	368	531	2/3			6	S. Tuff	Light Grey	None	Angular Fragment			6-30	0%	0.14								
TNR AFT 19	2136	368	531	2/3			6	S. Tuff	Light Grey	None	Angular Fragment			6-30	0%	0.11								
TNR AFT 19	2137	368	531	2/3			6	S. Tuff	Beige	None	Angular Fragment			6-30	1-30%	0.06								
TNR AFT 19	2138	368	531	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment	Backed	Blade Fragment	11-15	0%	0.21		Feather	13.3	4.8	3.2			
TNR AFT 19	2139	368	531	2/3			6	Silcrete	Red	Partial	Flake			26-30	0%	2.39	Ridged	Feather	25.2	17.8	4.6	L-W		
TNR AFT 19	2140	368	531	2/3			6	Silcrete	Red	Total	Flake			16-20	1-30%	0.69	Cortical	Step	15.9	11.3	2.8	L-W		
TNR AFT 19	2141	368	531	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.57	Plain	Step	14.2	10.1	3.1	L-W		
TNR AFT 19	2142	368	531	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.49	Focal	Step	11.6	11.2	3.8	L-W		
TNR AFT 19	2143	368	531	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.22	Faceted	Step	10.5	10.2	1.4	L-W		
TNR AFT 19	2144	368	531	2/3			6	Silcrete	Red	Total	Flake			16-20	70-99%	0.52	Plain	Feather	8.7	14.2	3.3	W-L		
TNR AFT 19	2145	368	531	2/3			6	Silcrete	Red	Total	Flake			16-20	0%	0.59	Focal	Feather	17.5	7.7	3.5	Elongate		
TNR AFT 19	2146	368	531	2/3			6	Quartzite	Grey	None	Proximal Fragment			21-25	1-30%	3.12	Ridged							
TNR AFT 19	2147	368	531	2/3			6	Silcrete	Red	Total	Proximal Fragment			16-20	0%	0.69	Plain							
TNR AFT 19	2148	368	531	2/3			6	Quartzite	Grey	None	Medial Fragment			16-20	0%	0.95								
TNR AFT 19	2149	368	531	2/3			6	Quartzite	Grey	Partial	Medial Fragment			11-15	0%	0.55								
TNR AFT 19	2150	368	531	2/3			6	Silcrete	Pink	None	Distal Fragment			6-30	0%	0.11								
TNR AFT 19	2151	368	531	2/3			6	Silcrete	Purple	Total	Flake			11-15	0%	0.6								
TNR AFT 19	2152	368	531	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.32	Feather							
TNR AFT 19	2153	368	531	2/3			6	Silcrete	Yellow	None	Distal Fragment			6-30	0%	0.15	Step							
TNR AFT 19	2154	368	531	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	31-69%	0.31	Feather							
TNR AFT 19	2155	368	531	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.31	Feather							
TNR AFT 19	2156	368	531	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.17	Step							
TNR AFT 19	2157	368	531	2/3			6	Silcrete	Yellow	None	Distal Fragment			11-15	0%	0.14	Feather							
TNR AFT 19	2158	368	531	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	1-30%	0.19	Step							
TNR AFT 19	2159	368	531	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.24	Feather							
TNR AFT 19	2160	368	531	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.12	Feather							
TNR AFT 19	2161	368	531	2/3			6	Quartzite	Grey	None	Distal Fragment			6-30	0%	0.07								
TNR AFT 19	2162	368	531	2/3			6	Silcrete	Red/Yellow	Partial	Distal Fragment			11-15	0%	0.11	Feather							
TNR AFT 19	2163	368	531	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.06	Feather							
TNR AFT 19	2164	368	531	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.11	Feather							
TNR AFT 19	2165	368	531	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	31-69%	0.06	Step							
TNR AFT 19	2166	368	531	2/3			6	Silcrete	Red	Total	Angular Fragment			21-25	0%	2.2								
TNR AFT 19	2167	368	531	2/3			6	Quartzite	Grey	None	Angular Fragment			11-15	0%	0.29								
TNR AFT 19	2168	368	531	2/3			6	Silcrete	Pink	None	Angular Fragment			6-30	0%	0.14								
TNR AFT 19	2169	368	531	2/3			6	Silcrete	Red	None	Angular Fragment			6-30	0%	0.05								
TNR AFT 19	2170	368	532	2/3			6	S. Tuff	Light Grey	None	Distal Fragment			21-25	0%	1.26		Feather						
TNR AFT 19	2171	368	532	2/3			6	S. Tuff	Light Grey	None	Angular Fragment			11-15	0%	0.36								
TNR AFT 19	2172	368	532	2/3			6	Silcrete	Red	Total	Distal Fragment	Backed	Geometric Microlith	6-30	0%	0.16	Plain	Feather	7.6	5.1	2.6			
TNR AFT 19	2173	368	532	2/3			6	Silcrete	Purple	Partial	Flake			11-15	0%	0.48	Plain	Step	11.7	9.3	2.9	L-W		
TNR AFT 19	2174	368	532	2/3			6	Silcrete	Red	Partial	Flake			6-30	0%	0.1	Plain	Hinge	6.5	5.7	1.9	L-W		
TNR AFT 19	2175	368	532	2/3			6	Silcrete	Pink	Partial	Proximal Fragment			21-25	1-30%	1.73	Cortical							
TNR AFT 19	2176	368	532	2/3			6	Silcrete	Red/Yellow	Partial	Proximal Fragment			11-15	0%	0.47	Plain							
TNR AFT 19	2177	368	532	2/3			6	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.56	Ridged							
TNR AFT 19	2178	368	532	2/3			6	Silcrete	Grey	None	Proximal Fragment			11-15	0%	0.31	Plain							
TNR AFT 19	2179	368	532	2/3			6	Silcrete	Red/Yellow	Partial	Medial Fragment			11-15	0%	0.33								
TNR AFT 19	2180	368	532	2/3			6	Silcrete	Red	Total	Distal Fragment			21-25	0%	1.34		Feather						
TNR AFT 19	2181	368	532	2/3			6	Silcrete	Grey	None	Distal Fragment			16-20	0%	0.14	Feather							
TNR AFT 19	2182	368	532	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.14	Feather							
TNR AFT 19	2183	368	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.21	Step							
TNR AFT 19	2184	368	532	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	31-69%	0.34								
TNR AFT 19	2185	368	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.1	Feather							
TNR AFT 19	2186	368	532	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.09								
TNR AFT 19	2187	368	532	2/3			6	Silcrete	Pink	Partial	Distal Fragment			6-30	0%	0.04	Feather							
TNR AFT 19	2188	368	532	2/3			6	Silcrete	Red	Total	Angular Fragment			6-30	1-30%	0.33								
TNR AFT 19	2189	368	532	2/3			6	Silcrete	Red	Total	Angular Fragment			6-30	0%	0.09								
TNR AFT 19	2190	368	532	2/3			6	Silcrete	Pink	Partial	Angular Fragment			11-15	0%	0.19								
TNR AFT 19	2191	369	533	2/3			6	Quartz	Milky-White	None	Distal Fragment			11-15	0%	0.29								
TNR AFT 19	2192	368	533	2/3			6	Silcrete	Red	Total	Flake			11-15	0%	0.15	Focal	Feather	10.8	7.7	0.9	L-W		
TNR AFT 19	2193	368	533	2/3			6	Silcrete	Red	Total	Proximal Fragment			16-20	0%	0.43	Ridged							
TNR AFT 19	2194	368	533	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	1-30%	0.54	Feather							
TNR AFT 19	2195	368	533	2/3			6	Silcrete	Purple	Total	Distal Fragment			6-30	0%	0.19	Feather							
TNR AFT 19	2196	368	533	2/3			6	Silcrete	Red	Total	Angular Fragment			6-30	0%	0.13								
TNR AFT 19	2197	368	533	2/3			6	Silcrete	Red	Total	Angular Fragment			6-30	0%	0.08								
TNR AFT 19	2198	368	534	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.24	Feather							
TNR AFT 19	2199	368	534	2/3			6	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.26	Feather							
TNR AFT 19	2200	368	534	2/3			6	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.1	Feather							
TNR AFT 19	2201	368	534	2/3			6	Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.17	Feather							
TNR AFT 19	2202	368	534	2/3																				

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 17	2337	141	814	2/3				5 Silcrete	Pink	None	Flake			16-20	0%	0.77	Plain	Feather		15.7	13.2		3 L-W	
TNR AFT 17	2338	141	814	2/3				5 Silcrete	Red/Yellow	Partial	Flake			26-30	1-30%	1.39	Plain	Feather		18.3	15.2		4.3 L-W	
TNR AFT 17	2339	141	814	2/3				5 Silcrete	Red	Partial	Flake			11-15	0%	0.51	Plain	Feather		13	13.7		3.4 W-L	
TNR AFT 17	2340	141	814	2/3				5 Silcrete	Red	Partial	Flake			16-20	0%	0.46	Plain	Hinge		12.1	8.8		4.2 L-W	
TNR AFT 17	2341	141	814	2/3				5 Silcrete	Pink	None	Proximal Fragment			6-10	0%	0.06	Plain							
TNR AFT 17	2342	141	814	2/3				5 Silcrete	Red	Total	Medial Fragment			6-10	0%	0.1								
TNR AFT 17	2343	141	814	2/3				5 Silcrete	Red	Total	Medial Fragment			6-10	0%	0.07								
TNR AFT 17	2344	141	814	2/3				5 Silcrete	Pink	None	Distal Fragment			11-15	0%	0.39		Step						
TNR AFT 17	2345	141	814	2/3				5 Silcrete	Red/Yellow	Partial	Distal Fragment			16-20	1-30%	1.05		Feather						
TNR AFT 17	2346	141	814	2/3				5 Silcrete	Red	Partial	Distal Fragment			16-20	0%	0.52		Feather						
TNR AFT 17	2347	141	814	2/3				5 Silcrete	Pink	Partial	Distal Fragment			11-15	0%	0.42		Step						
TNR AFT 17	2348	141	814	2/3				5 Silcrete	Pink	None	Distal Fragment			11-15	0%	0.24		Step						
TNR AFT 17	2349	141	814	2/3				5 Silcrete	Pink	None	Distal Fragment			11-15	0%	0.31		Feather						
TNR AFT 17	2350	141	814	2/3				5 Silcrete	Pink	None	Distal Fragment			16-20	0%	0.71		Step						
TNR AFT 17	2351	141	814	2/3				5 Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.33		Step						
TNR AFT 17	2352	141	814	2/3				5 Silcrete	Red	Total	Distal Fragment			11-15	0%	0.13		Feather						
TNR AFT 17	2353	141	814	2/3				5 Silcrete	Pink	None	Distal Fragment			11-15	31-69%	0.15		Feather						
TNR AFT 17	2354	141	814	2/3				5 Silcrete	Purple	Total	Distal Fragment			11-15	0%	0.15		Feather						
TNR AFT 17	2355	141	815	2/3				5 Silcrete	Red	Total	Flake			6-10	0%	0.05	Plain	Feather		7.8	3.9		0.9 Elongate	
TNR AFT 17	2356	141	815	2/3				5 Silcrete	Red	Total	Distal Fragment			16-20	0%	0.4		Feather						
TNR AFT 17	2357	141	815	2/3				5 Silcrete	Red	Total	Distal Fragment			21-25	0%	0.55		Feather						
TNR AFT 17	2358	141	815	2/3				5 Silcrete	Pink	None	Distal Fragment			11-15	0%	0.25		Feather						
TNR AFT 17	2359	141	815	2/3				5 Silcrete	Pink	None	Distal Fragment			11-15	0%	0.11		Feather						
TNR AFT 17	2360	141	815	2/3				5 Silcrete	Purple	Partial	Angular Fragment			16-20	0%	0.74								
TNR AFT 17	2361	141	816	2/3				5 Silcrete	Pink	None	Flake			16-20	0%	0.44	Plain	Feather		18.2	9.4		2 L-W	
TNR AFT 17	2362	141	816	2/3				5 Silcrete	Pink	None	Flake			16-20	0%	0.71	Plain	Hinge		18.1	11		3.4 L-W	
TNR AFT 17	2363	141	816	2/3				5 Silcrete	Pink	Partial	Flake			16-20	0%	0.56	Plain	Feather		10.9	14.1		3 W-L	
TNR AFT 17	2364	141	816	2/3				5 Silcrete	Pink	Partial	Flake			11-15	0%	0.22	Plain	Feather		13	4.6		2.6 Elongate	
TNR AFT 17	2365	141	816	2/3				5 Silcrete	Red	Total	Flake			6-10	0%	0.11	Plain	Step		8.2	4.7		2.2 L-W	
TNR AFT 17	2366	141	816	2/3				5 Silcrete	Pink	None	Flake			6-10	0%	0.09	Plain	Feather		7.1	5.7		1.5 L-W	
TNR AFT 17	2367	141	816	2/3				5 Silcrete	Pink	None	Flake			6-10	0%	0.07	Plain	Feather		5.7	7.3		1.6 W-L	
TNR AFT 17	2368	141	816	2/3				5 Silcrete	Pink	None	Flake			6-10	0%	0.04	Plain	Feather		8.5	3.4		0.8 Elongate	
TNR AFT 17	2369	141	816	2/3				5 Silcrete	Red	Total	Flake			6-10	0%	0.03	Focal	Feather		5	3.3		0.8 L-W	
TNR AFT 17	2370	141	816	2/3				5 Silcrete	Red	Partial	Proximal Fragment			16-20	0%	1.25	Plain							
TNR AFT 17	2371	141	816	2/3				5 Silcrete	Pink	None	Proximal Fragment			6-10	0%	0.1	Plain							
TNR AFT 17	2372	141	816	2/3				5 Silcrete	Red	Partial	Medial Fragment			6-10	0%	0.06								
TNR AFT 17	2373	141	816	2/3				5 Silcrete	Pink	None	Distal Fragment			6-10	0%	0.06								
TNR AFT 17	2374	141	816	2/3				5 Silcrete	Purple	Partial	Distal Fragment			21-25	0%	1.18		Feather						
TNR AFT 17	2375	141	816	2/3				5 Silcrete	Pink	None	Distal Fragment			11-15	0%	0.29		Feather						
TNR AFT 17	2376	141	816	2/3				5 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.06		Feather						
TNR AFT 17	2377	141	816	2/3				5 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.04		Feather						
TNR AFT 17	2378	141	817	2/3				5 Quartz	Milky-White	None	Distal Fragment			6-10	0%	0.17		Step						
TNR AFT 17	2379	141	817	2/3				5 Silcrete	Pink	None	Flake			11-15	0%	0.19	Plain	Feather		11.8	6.6		2 L-W	
TNR AFT 17	2380	141	817	2/3				5 Silcrete	Red	Total	Flake			6-10	0%	0.06	Plain	Step		7.1	5.2		1.2 L-W	
TNR AFT 17	2381	141	817	2/3				5 Silcrete	Red	Partial	Proximal Fragment			11-15	0%	0.22	Plain							
TNR AFT 17	2382	141	817	2/3				5 Silcrete	Red	Partial	Medial Fragment			11-15	0%	0.6								
TNR AFT 17	2383	141	817	2/3				5 Silcrete	Red	Total	Medial Fragment			11-15	0%	0.16								
TNR AFT 17	2384	141	817	2/3				5 Silcrete	Pink	None	Medial Fragment			6-10	0%	0.09								
TNR AFT 17	2385	141	817	2/3				5 Silcrete	Pink	None	Distal Fragment			16-20	0%	0.87		Feather						
TNR AFT 17	2386	141	817	2/3				5 Silcrete	Pink	None	Distal Fragment			6-10	0%	0.04		Feather						
TNR AFT 17	2387	141	818	2/3				5 S. Tuff	Orange	None	Distal Fragment	Backed	Geometric Microlith	11-15	0%	0.12		Feather						
TNR AFT 17	2388	141	818	2/3				5 Silcrete	Pink	None	Flake			11-13	0%	0.13		Feather		10.8	5.5		1.5	broken geometric
TNR AFT 17	2389	141	818	2/3				5 Silcrete	Pink	None	Flake			16-20	0%	0.42	Focal	Feather		8.7	16.1		3.5 W-L	
TNR AFT 17	2390	141	818	2/3				5 Silcrete	Red	Total	Flake			11-15	0%	0.5	Ridged	Feather		13.6	10.6		2.8 W-L	
TNR AFT 17	2391	141	818	2/3				5 Silcrete	Pink	None	Flake			11-15	0%	0.14	Plain	Feather		7.4	11.6		1 W-L	
TNR AFT 17	2392	141	818	2/3				5 Silcrete	Red	Partial	Flake			6-10	0%	0.08	Plain	Feather		8.3	5.7		2 L-W	
TNR AFT 17	2393	141	818	2/3				5 Silcrete	Purple	None	Proximal Fragment			6-10	0%	0.08								
TNR AFT 17	2394	141	818	2/3				5 Silcrete	Pink	None	Distal Fragment			11-15	0%	0.11		Feather						
TNR AFT 17	2395	141	818	2/3				5 Silcrete	Red	Total	Distal Fragment			6-10	0%	0.05		Feather						
TNR AFT 17	2396	142	814	2/3				5 Silcrete	Pink	None	Distal Fragment	Backed	Geometric Microlith	11-15	0%	0.21		Feather		11.7	5.8		3	
TNR AFT 17	2397	142	814	2/3				5 Silcrete	Pink	Partial	Core Fragment			21-25	0%	3.43				21.3	14.5		9.6	
TNR AFT 17	2398	142	814	2/3				5 Silcrete	Pink	None	Flake			16-20	0%	0.84	Ridged	Feather		16.9	16.3		2.4 L-W	
TNR AFT 17	2399	142	814	2/3				5 Silcrete	Pink	None	Flake			16-20	0%	0.7	Plain	Feather		10.9	17.6		3.5 W-L	
TNR AFT 17	2400	142	814	2/3				5 Silcrete	Pink	None	Flake			16-20	0%	0.59	Ridged	Hinge		16.3	8.9		2.5 L-W	
TNR AFT 17	2401	142	814	2/3				5 Silcrete	Red	Total	Flake			16-20	0%	0.42	Plain	Feather		15.2	11.2		1.7 L-W	
TNR AFT 17	2402	142	814	2/3				5 Silcrete	Pink	None	Proximal Fragment			26-30	0%	2.22	Plain							
TNR AFT 17	2403	142	814	2/3				5 Silcrete	Pink	None	Proximal Fragment			26-30	1-30%	1.96								
TNR AFT 17	2404	142	814	2/3				5 Silcrete	Grey	None	Proximal Fragment			11-15	0%	0.39	Faceted							
TNR AFT 17	2405	142	814	2/3				5 Silcrete	Red	Total	Proximal Fragment			16-20	0%	0.6	Faceted							
TNR AFT 17	2406	142	814	2/3				5 Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.42	Ridged							
TNR AFT 17	2407	142	814	2/3				5 Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.15	Plain							
TNR AFT 17	2408	142	814	2/3				5 Silcrete	Red	Partial	Medial Fragment			11-15	0%	0.46								
TNR AFT 17	2409	142	814	2/3				5 Silcrete	Red	Partial	Medial Fragment			11-15	0%	0.26								
TNR AFT 17	2410	142	814	2/3				5 Silcrete	Pink	None	Medial Fragment			11-15	0%	0.21								
TNR AFT 17	2411	142	814	2/3				5 Silcrete	Pink	None	Distal Fragment													

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 17	2443	142	815	2/3		5	Silcrete	Pink	None	Distal Fragment				16-20	0%	0.27		Feather						
TNR AFT 17	2444	142	815	2/3		5	Silcrete	Red	Total	Distal Fragment				16-20	0%	0.79		Step						
TNR AFT 17	2445	142	815	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	0%	0.19		Feather						
TNR AFT 17	2446	142	815	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	0%	0.15		Feather						
TNR AFT 17	2447	142	815	2/3		5	Silcrete	Pink	Partial	Distal Fragment				6-10	0%	0.13		Feather						
TNR AFT 17	2448	142	815	2/3		5	Silcrete	Red	Partial	Distal Fragment				6-10	0%	0.15		Feather						
TNR AFT 17	2449	142	815	2/3		5	Silcrete	Red	Partial	Distal Fragment				11-15	0%	0.19		Feather						
TNR AFT 17	2450	142	815	2/3		5	Silcrete	Red	Partial	Distal Fragment				6-10	0%	0.15		Step						
TNR AFT 17	2451	142	815	2/3		5	Silcrete	Red	Total	Distal Fragment				6-10	0%	0.06		Feather						
TNR AFT 17	2452	142	815	2/3		5	Silcrete	Pink	None	Distal Fragment				6-10	0%	0.06		Step						
TNR AFT 17	2453	142	815	2/3		5	Silcrete	Red	Partial	Distal Fragment				6-10	1-30%	0.1		Feather						
TNR AFT 17	2454	142	815	2/3		5	Silcrete	Pink	None	Distal Fragment				6-10	0%	0.7		Feather						
TNR AFT 17	2455	142	816	2/3		5	S. Tuff	Red/Brown	None	Flake				6-10	0%	0.9	Plain	Feather	6.2		5	2.1	L-W	
TNR AFT 17	2456	142	816	2/3		5	S. Tuff	Beige	None	Flake				6-10	0%	0.05	Plain	Hinge	5.7		5.5		1.5	L-W
TNR AFT 17	2457	142	816	2/3		5	Silcrete	Pink	None	Flake				21-25	0%	0.71	Focal	Feather	20.3		8.2		4.7	Elongate
TNR AFT 17	2458	142	816	2/3		5	Silcrete	Pink	None	Medial Fragment				16-20	0%	0.57		Feather						
TNR AFT 17	2459	142	816	2/3		5	Silcrete	Pink	None	Distal Fragment				16-20	0%	0.77		Feather						
TNR AFT 17	2460	142	816	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	1-30%	0.188		Feather						
TNR AFT 17	2461	142	816	2/3		5	Silcrete	Red/Yellow	Partial	Distal Fragment				6-10	0%	0.13		Step						
TNR AFT 17	2462	142	816	2/3		5	Silcrete	Red	Total	Distal Fragment				6-10	0%	0.13		Feather						
TNR AFT 17	2463	142	816	2/3		5	Silcrete	Pink	Partial	Distal Fragment				11-15	0%	0.4		Feather						
TNR AFT 17	2464	142	816	2/3		5	Silcrete	Pink	None	Distal Fragment				11-15	0%	0.13		Feather						
TNR AFT 17	2465	142	816	2/3		5	Silcrete	Pink	None	Distal Fragment				11-15	0%	0.24		Step						
TNR AFT 17	2466	142	816	2/3		5	Silcrete	Pink	None	Distal Fragment				6-10	0%	0.11		Step						
TNR AFT 17	2467	142	817	2/3		5	Silcrete	Pink	None	Flake				26-30	0%	1.14	Plain	Feather	24.7		11.9		2.9	Elongate
TNR AFT 17	2468	142	817	2/3		5	Silcrete	Pink	None	Flake				16-20	0%	0.46	Plain	Hinge	13.6		9.8		2.4	L-W
TNR AFT 17	2469	142	817	2/3		5	Silcrete	Pink	None	Flake				6-10	0%	0.17	Plain	Feather	6.0		8.8		7.4	2.1 L-W
TNR AFT 17	2470	142	817	2/3		5	Silcrete	Red	Total	Flake				11-15	31-69%	0.77	Plain	Feather	10.9		14.2		6.9	W-L
TNR AFT 17	2471	142	817	2/3		5	Silcrete	Red	Total	Proximal Fragment				11-15	31-69%	0.7	Plain							
TNR AFT 17	2472	142	817	2/3		5	Silcrete	Red	Total	Medial Fragment				16-20	0%	1.03								
TNR AFT 17	2473	142	817	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	0%	0.19		Step						
TNR AFT 17	2474	142	817	2/3		5	Silcrete	Red	Total	Distal Fragment				6-10	0%	0.07		Feather						
TNR AFT 17	2475	142	817	2/3		5	Silcrete	Red	Partial	Distal Fragment				6-10	0%	0.14		Feather						
TNR AFT 17	2476	142	817	2/3		5	Silcrete	Pink	None	Distal Fragment				11-15	0%	0.16		Feather						
TNR AFT 17	2477	142	817	2/3		5	Silcrete	Pink	None	Distal Fragment				6-10	0%	0.08		Feather						
TNR AFT 17	2478	142	818	2/3		5	S. Tuff	Beige	None	Medial Fragment				11-15	0%	0.24								
TNR AFT 17	2479	142	818	2/3		5	Silcrete	Pink	Partial	Flake				11-15	0%	0.14	Plain	Feather	10.1		6.5		1.1	L-W
TNR AFT 17	2480	142	818	2/3		5	Silcrete	Pink	None	Split Flake (R)				11-15	0%	0.09	Plain	Feather						
TNR AFT 17	2481	142	818	2/3		5	Silcrete	Pink	None	Flake				6-10	0%	0.09	Faceted	Feather	7.5		8		1.4	W-L
TNR AFT 17	2482	142	818	2/3		5	Silcrete	Pink	None	Flake				6-10	0%	0.06	Plain	Feather	7.1		4.8		1.3	L-W
TNR AFT 17	2483	142	818	2/3		5	Silcrete	Red	Total	Medial Fragment				26-30	31-69%	2.69								
TNR AFT 17	2484	142	818	2/3		5	Silcrete	Pink	None	Medial Fragment				11-15	0%	1.48								
TNR AFT 17	2485	143	814	2/3		5	Silcrete	Red	Partial	Medial Fragment	Retouched			21-25	0%	2.09			21.7		17.7		5.3	retouch on prox/distal break
TNR AFT 17	2486	143	814	2/3		5	Silcrete	Red	Partial	Distal Fragment	Backed		Geometric Microolith	11-15	0%	0.23		Feather	11.8		6.6		3.3	
TNR AFT 17	2487	143	814	2/3		5	Silcrete	Pink	Partial	Distal Fragment	Backed		Geometric Microolith	16-20	0%	0.42		Feather	16.1		7.4		3.6	
TNR AFT 17	2488	143	814	2/3		5	Silcrete	Red	Partial	Flake				36-40	70-99%	1.67	Ridged	Feather	36.7		12		3.6	Elongate
TNR AFT 17	2489	143	814	2/3		5	Silcrete	Red	Total	Flake				26-30	31-69%	2.18	Plain	Step	24.3		17.3		5.5	L-W
TNR AFT 17	2490	143	814	2/3		5	Silcrete	Red	Partial	Flake				21-25	0%	1.24	Plain	Step	22.2		17.6		2.8	L-W
TNR AFT 17	2491	143	814	2/3		5	Silcrete	Pink	None	Proximal Fragment				16-20	0%	0.69	Ridged							
TNR AFT 17	2492	143	814	2/3		5	Silcrete	Red	Total	Proximal Fragment				11-15	0%	0.32	Plain							
TNR AFT 17	2493	143	814	2/3		5	Silcrete	Pink	None	Proximal Fragment				11-15	0%	0.32	Plain							
TNR AFT 17	2494	143	814	2/3		5	Silcrete	Pink	None	Proximal Fragment				11-15	0%	0.68	Focal							
TNR AFT 17	2495	143	814	2/3		5	Silcrete	Red	Total	Medial Fragment				16-20	0%	1.08								
TNR AFT 17	2496	143	814	2/3		5	Silcrete	Pink	None	Medial Fragment				16-20	0%	0.42								
TNR AFT 17	2497	143	814	2/3		5	Silcrete	Red	Total	Medial Fragment				11-15	0%	0.32								
TNR AFT 17	2498	143	814	2/3		5	Silcrete	Red	Total	Medial Fragment				11-15	0%	0.15								
TNR AFT 17	2499	143	814	2/3		5	Silcrete	Red	Total	Distal Fragment				26-30	0%	2.12		Feather						
TNR AFT 17	2500	143	814	2/3		5	Silcrete	Red	Partial	Distal Fragment				26-30	1-30%	0.68		Feather						
TNR AFT 17	2501	143	814	2/3		5	Silcrete	Red	Total	Distal Fragment				16-20	0%	0.44		Feather						
TNR AFT 17	2502	143	814	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	0%	0.14		Feather						
TNR AFT 17	2503	143	814	2/3		5	Silcrete	Red	Total	Distal Fragment				16-20	1-30%	1.06		Feather						
TNR AFT 17	2504	143	814	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	0%	0.65		Feather						
TNR AFT 17	2505	143	814	2/3		5	Silcrete	Pink	None	Distal Fragment				11-15	0%	0.4		Feather						
TNR AFT 17	2506	143	814	2/3		5	Silcrete	Pink	None	Distal Fragment				11-15	0%	0.24		Step						
TNR AFT 17	2507	143	814	2/3		5	Silcrete	Pink	None	Distal Fragment				11-15	0%	0.47		Hinge						
TNR AFT 17	2508	143	814	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	0%	0.21		Hinge						
TNR AFT 17	2509	143	814	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	0%	0.56		Feather						
TNR AFT 17	2510	143	814	2/3		5	Silcrete	Red	Total	Distal Fragment				11-15	0%	0.11		Feather						
TNR AFT 17	2511	143	814	2/3		5	Silcrete	Red	Partial	Distal Fragment				11-15	0%	0.25		Step						
TNR AFT 17	2512	143	814	2/3		5	Silcrete	Red	Partial	Distal Fragment				11-15	0%	0.57		Feather						
TNR AFT 17	2513	143	814	2/3		5	Silcrete	Red	Total	Angular Fragment				11-15	1-30%	0.49								
TNR AFT 17	2514	143	814	2/3		5	Silcrete	Pink	None	Angular Fragment				16-20	0%	0.48								
TNR AFT 17	2515	143	814	2/3		5	Silcrete	Red	Total	Distal Fragment	Retouched			6-10	0%	0.24	Plain	Feather	8.1		7.2		2.7	
TNR AFT 17	2516	143	814	2/3		5	Silcrete	Red	Total	Flake				6-10	0%	0.1	Plain	Feather	7.6		7.8		1.2	W-L
TNR AFT 17	2517	143	814	2/3		5	Silcrete	Pink	None	Flake				6-10	0%									

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments
TNR AFT 17	2549	143	814	2/3			5	Silcrete	Red	Total	Angular Fragment			6-30	0%	0.03								
TNR AFT 17	2550	143	815	2/3			5	S. Tuff	Red/Brown	None	Angular Fragment			6-30	0%	0.06								
TNR AFT 17	2551	143	815	2/3			5	S. Tuff	Red/Brown	None	Angular Fragment			6-30	31-69%	0.07								
TNR AFT 17	2552	143	815	2/3			5	Silcrete	Pink	None	Core	Unifacial		36-40	1-30%	14.67	Plain		35.6		23.9		13.5	1
TNR AFT 17	2553	143	815	2/3			5	Silcrete	Red	Total	Core	Unifacial		26-30	1-30%	6.01	Cortical		28.5		22.5		6.6	1
TNR AFT 17	2554	143	815	2/3			5	Silcrete	Red	Total	Flake			26-30	70-99%	1.8	Focal	Step	15.8		24.8		4.3	WxL
TNR AFT 17	2555	143	815	2/3			5	Silcrete	Pink	None	Flake			16-20	0%	0.69	Plain	Feather	15.4		12.3		2.7	LW
TNR AFT 17	2556	143	815	2/3			5	Silcrete	Pink	None	Flake			21-25	0%	1.31	Plain	Step	14.9		14.7		3.9	LW
TNR AFT 17	2557	143	815	2/3			5	Silcrete	Red	Partial	Flake			16-20	0%	0.51	Plain	Feather	18.4		10		1.9	LW
TNR AFT 17	2558	143	815	2/3			5	Silcrete	Grey	None	Proximal Fragment			11-15	0%	0.21	Plain							
TNR AFT 17	2559	143	815	2/3			5	Silcrete	Red	Total	Medial Fragment			16-20	0%	0.48								
TNR AFT 17	2560	143	815	2/3			5	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.27								
TNR AFT 17	2561	143	815	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.27		Step						
TNR AFT 17	2562	143	815	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.14		Step						
TNR AFT 17	2563	143	815	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.47		Step						
TNR AFT 17	2564	143	815	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	1-30%	0.13		Feather						
TNR AFT 17	2565	143	815	2/3			5	Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.3		Feather						
TNR AFT 17	2566	143	815	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.18		Feather						
TNR AFT 17	2567	143	815	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.13		Step						
TNR AFT 17	2568	143	815	2/3			5	Silcrete	Red	Total	Distal Fragment			6-10	31-69%	0.17		Feather						
TNR AFT 17	2569	143	816	2/3			5	Silcrete	Red	Total	Flake			21-25	0%	1.65	Plain	Feather	21		12.2		4.9	LW
TNR AFT 17	2570	143	816	2/3			5	Silcrete	Red	Total	Flake			21-25	0%	2.58	Plain	Feather	22.1		15.6		7.3	LW
TNR AFT 17	2571	143	816	2/3			5	Silcrete	Pink	None	Flake			6-30	0%	0.06	Plain	Feather	9		6.9		0.7	LW
TNR AFT 17	2572	143	816	2/3			5	Silcrete	Red	Total	Flake			6-10	0%	0.12	Plain	Step	8.8		4.5		1.9	LW
TNR AFT 17	2573	143	816	2/3			5	Silcrete	Red	Total	Flake			6-10	0%	0.03	Plain	Feather	5.5		4.7		0.7	LW
TNR AFT 17	2574	143	816	2/3			5	Silcrete	Pink	None	Flake			6-10	0%	0.04	Plain	Feather	6.1		4		0.9	LW
TNR AFT 17	2575	143	816	2/3			5	Silcrete	Pink	None	Medial Fragment			11-15	0%	0.48								
TNR AFT 17	2576	143	816	2/3			5	Silcrete	Red	Total	Medial Fragment			6-10	31-69%	0.08								
TNR AFT 17	2577	143	816	2/3			5	Silcrete	Pink	None	Medial Fragment			6-10	0%	0.07								
TNR AFT 17	2578	143	816	2/3			5	Silcrete	Light Grey	None	Distal Fragment			26-30	0%	4.26		Step						
TNR AFT 17	2579	143	816	2/3			5	Silcrete	Red/Yellow	Partial	Distal Fragment			16-20	1-30%	1.56		Feather						
TNR AFT 17	2580	143	816	2/3			5	Silcrete	Red	Partial	Distal Fragment			16-20	1-30%	0.78		Feather						
TNR AFT 17	2581	143	816	2/3			5	Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.32		Step						
TNR AFT 17	2582	143	816	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.17		Step						
TNR AFT 17	2583	143	816	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.15		Step						
TNR AFT 17	2584	143	816	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.21		Feather						
TNR AFT 17	2585	143	816	2/3			5	Silcrete	Red	Partial	Distal Fragment			6-10	0%	0.11		Feather						
TNR AFT 17	2586	143	816	2/3			5	Silcrete	Red	Total	Distal Fragment			6-10	0%	0.04		Feather						
TNR AFT 17	2587	143	816	2/3			5	Silcrete	Red	Total	Angular Fragment			6-10	0%	0.1								
TNR AFT 17	2588	143	817	2/3			5	S. Tuff	Beige	None	Flake			26-30	0%	1.98	Crushed	Hinge	21.1		23.9		3.5	WxL
TNR AFT 17	2589	143	817	2/3			5	Silcrete	Pink	None	Medial Fragment			11-15	0%	0.42								
TNR AFT 17	2590	143	817	2/3			5	Silcrete	Red	Partial	Distal Fragment			16-20	0%	1.66		Feather						
TNR AFT 17	2591	143	817	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.16		Feather						
TNR AFT 17	2592	143	818	2/3			5	Silcrete	Red/Yellow	Partial	Core	Multidirectional		31-35	1-30%	14.77			31.5		23.4		17.5	8
TNR AFT 17	2593	143	818	2/3			5	Silcrete	Red	Partial	Flake			6-10	0%	0.09	Plain	Feather	9		5		1.6	LW
TNR AFT 17	2594	143	818	2/3			5	Silcrete	Red	Partial	Flake			6-10	0%	0.17	Plain	Feather	9.3		8.7		2.3	LW
TNR AFT 17	2595	143	818	2/3			5	Silcrete	Pink	Partial	Proximal Fragment			11-15	0%	0.13								
TNR AFT 17	2596	143	818	2/3			5	Silcrete	Pink	None	Medial Fragment			6-30	0%	0.11								
TNR AFT 17	2597	143	818	2/3			5	Silcrete	Pink	None	Medial Fragment			11-15	1-30%	0.22								
TNR AFT 17	2598	144	814	2/3			5	Silcrete	Pink	None	Core	Unifacial-Rotated		26-30	0%	9.38	Plain		24.8		20.3		16.6	2
TNR AFT 17	2599	144	814	2/3			5	Silcrete	Red	Partial	Flake			36-40	0%	8.76	Ridged		34.4		29.5		8.2	LW
TNR AFT 17	2600	144	814	2/3			5	Silcrete	Red	Partial	Flake			21-25	0%	1.06	Plain	Feather	21.8		10.3		4	Elongate
TNR AFT 17	2601	144	814	2/3			5	Silcrete	Red	Partial	Flake			16-20	0%	0.98	Plain	Step	17.5		13.8		4.1	LW
TNR AFT 17	2602	144	814	2/3			5	Silcrete	Pink	None	Flake			16-20	0%	0.78	Plain	Feather	10.2		14.8		3.6	WxL
TNR AFT 17	2603	144	814	2/3			5	Silcrete	Red	Total	Flake			16-20	0%	0.45	Plain	Feather	10.3		14.9		2.1	WxL
TNR AFT 17	2604	144	814	2/3			5	Silcrete	Pink	Partial	Flake			11-15	0%	0.29	Plain	Feather	8.2		11.4		1.7	WxL
TNR AFT 17	2605	144	814	2/3			5	Silcrete	Red	Partial	Flake			11-15	31-69%	1.02	Plain	Plugged	12		11.4		6.1	LW
TNR AFT 17	2606	144	814	2/3			5	Silcrete	Red	Total	Flake			11-15	1-30%	0.17	Plain	Step	8.8		9.9		1.8	WxL
TNR AFT 17	2607	144	814	2/3			5	Silcrete	Red	Partial	Flake			6-10	0%	0.14	Plain	Feather	9.6		6.9		2	LW
TNR AFT 17	2608	144	814	2/3			5	Silcrete	Red	Partial	Flake			6-10	0%	0.08	Ridged	Feather	6.2		8.6		1.3	WxL
TNR AFT 17	2609	144	814	2/3			5	Silcrete	Red/Yellow	Partial	Proximal Fragment			31-35	70-99%	2.05	Ridged							
TNR AFT 17	2610	144	814	2/3			5	Silcrete	Pink	Partial	Medial Fragment			11-15	0%	1.25								
TNR AFT 17	2611	144	814	2/3			5	Silcrete	Red	Total	Medial Fragment			11-15	0%	1.06								
TNR AFT 17	2612	144	814	2/3			5	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.32								
TNR AFT 17	2613	144	814	2/3			5	Silcrete	Pink	None	Medial Fragment			11-15	0%	0.21								
TNR AFT 17	2614	144	814	2/3			5	Silcrete	Red	Total	Distal Fragment			21-25	31-69%	1.52		Feather						
TNR AFT 17	2615	144	814	2/3			5	Silcrete	Red	Partial	Distal Fragment			11-15	0%	0.21								
TNR AFT 17	2616	144	814	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.47		Step						
TNR AFT 17	2617	144	814	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.18		Feather						
TNR AFT 17	2618	144	814	2/3			5	Silcrete	Red	Partial	Distal Fragment			16-20	0%	0.34		Step						
TNR AFT 17	2619	144	814	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.41		Feather						
TNR AFT 17	2620	144	814	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.11		Feather						
TNR AFT 17	2621	144	814	2/3			5	Silcrete	Pink	Partial	Distal Fragment			6-30	0%	0.16		Feather						
TNR AFT 17	2622	144	814	2/3			5	Silcrete	Red	Total	Angular Fragment			11-15	0%	0.22			</					

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments	
TNR AFT 17	2655	144	814	2/3			5	Silcrete	Red	Total	Distal Fragment			6-30	0%	0.03		Feather							
TNR AFT 17	2656	144	814	2/3			5	Silcrete	Grey	None	Distal Fragment			6-30	0%	0.04		Feather							
TNR AFT 17	2657	144	814	2/3			5	Silcrete	Pink	Partial	Distal Fragment			6-30	0%	0.04		Feather							
TNR AFT 17	2658	144	814	2/3			5	Silcrete	Pink	None	Angular Fragment			6-30	0%	0.08									
TNR AFT 17	2659	144	814	2/3			5	Silcrete	Red	Partial	Angular Fragment			6-30	0%	0.03									
TNR AFT 17	2660	144	814	2/3			5	Silcrete	Red	Total	Angular Fragment			6-30	0%	0.03									
TNR AFT 17	2661	144	814	2/3			5	Silcrete	Pink	None	Angular Fragment			6-5	0%	0.02									
TNR AFT 17	2662	144	815	2/3			5	Quartz	Milky-White	None	Distal Fragment			11-15	0%	0.14		Step							
TNR AFT 17	2663	144	815	2/3			5	Quartz	Milky-White	None	Distal Fragment			11-15	0%	0.14		Feather							
TNR AFT 17	2664	144	815	2/3			5	Silcrete	Pink	None	Flake			16-20	0%	0.54	Ridged		16.1	7.3		3	Elongate		
TNR AFT 17	2665	144	815	2/3			5	Silcrete	Pink	Partial	Flake			26-30	0%	2.27	Plain	Feather		24.8	10.9		6.3	Elongate	
TNR AFT 17	2666	144	815	2/3			5	Silcrete	Pink	None	Flake			11-15	0%	0.31	Plain	Step		11.5				2.1	L-W
TNR AFT 17	2667	144	815	2/3			5	Silcrete	Pink	None	Proximal Fragment			21-25	0%	1.09	Ridged								
TNR AFT 17	2668	144	815	2/3			5	Silcrete	Purple	Partial	Distal Fragment	Retouched		11-15	31.69%	0.79		Feather		11.6	11.3		6.5		
TNR AFT 17	2669	144	815	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.11		Step							
TNR AFT 17	2670	144	815	2/3			5	Silcrete	Pink	None	Distal Fragment			6-30	0%	0.09		Feather							
TNR AFT 17	2671	144	815	2/3			5	Silcrete	Yellow	None	Distal Fragment			11-15	0%	0.58		Step							
TNR AFT 17	2672	144	816	2/3			5	Silcrete	Pink	None	Flake			21-25	0%	1.84	Ridged	Feather		16.8	23		3.8	W>L	
TNR AFT 17	2673	144	816	2/3			5	Silcrete	Pink	Partial	Flake			11-15	0%	0.26	Plain	Step						1.8	L-W
TNR AFT 17	2674	144	816	2/3			5	Silcrete	Red	Partial	Flake			11-15	0%	0.17	Plain	Feather		7.5	8.9		1.6	W>L	
TNR AFT 17	2675	144	816	2/3			5	Silcrete	Pink	Partial	Flake			6-30	0%	0.04	Plain	Feather		6.9	4.9		0.8	L-W	
TNR AFT 17	2676	144	816	2/3			5	Silcrete	Pink	None	Proximal Fragment			6-30	0%	0.09	Plain								
TNR AFT 17	2677	144	816	2/3			5	Silcrete	Pink	None	Proximal Fragment			6-30	0%	0.09	Plain								
TNR AFT 17	2678	144	816	2/3			5	Silcrete	Purple	Partial	Proximal Fragment			6-30	0%	0.13	Ridged								
TNR AFT 17	2679	144	816	2/3			5	Silcrete	Pink	None	Medial Fragment			11-15	0%	0.35									
TNR AFT 17	2680	144	816	2/3			5	Silcrete	Pink	None	Distal Fragment			21-25	0%	1.23		Step							
TNR AFT 17	2681	144	816	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.23		Feather							
TNR AFT 17	2682	144	816	2/3			5	Silcrete	Pink	Partial	Distal Fragment			11-15	0%	0.1		Feather							
TNR AFT 17	2683	144	816	2/3			5	Silcrete	Pink	None	Distal Fragment			6-10	0%	0.13		Step							
TNR AFT 17	2684	144	816	2/3			5	Silcrete	Pink	Partial	Angular Fragment			11-15	0%	0.17									
TNR AFT 17	2685	144	816	2/3			5	Silcrete	Pink	Partial	Angular Fragment			6-30	0%	0.06									
TNR AFT 17	2686	144	817	2/3			5	Silcrete	Red	Total	Medial Fragment			11-15	0%	0.12									
TNR AFT 17	2687	144	817	2/3			5	Silcrete	Pink	None	Medial Fragment			6-10	0%	0.1									
TNR AFT 17	2688	144	817	2/3			5	Silcrete	Pink	None	Medial Fragment			6-10	0%	0.06									
TNR AFT 17	2689	144	817	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.15		Feather							
TNR AFT 17	2690	144	817	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.15		Feather							
TNR AFT 17	2691	144	817	2/3			5	Silcrete	Pink	None	Flake			6-30	0%	0.04	Plain	Step		7.6	5.4		1.6	L-W	
TNR AFT 17	2692	144	818	2/3			5	Silcrete	Red	Partial	Flake			11-15	0%	0.21	Plain	Feather		9.1	8.3		2	L-W	
TNR AFT 17	2693	144	818	2/3			5	Silcrete	Red	Total	Flake			11-15	0%	0.12	Plain	Feather		7.6	10.2		1.1	W>L	
TNR AFT 17	2694	144	818	2/3			5	Silcrete	Pink	None	Proximal Fragment			6-10	0%	0.12	Plain								
TNR AFT 17	2695	144	818	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.13		Feather							
TNR AFT 17	2696	144	818	2/3			5	Silcrete	Red	Partial	Angular Fragment			11-15	0%	0.08									
TNR AFT 17	2697	145	814	2/3			5	Silcrete	Red	Total	Flake			11-15	31.69%	0.3	Cortical	Plunged		10.1	9.6		2.7	L-W	
TNR AFT 17	2698	145	814	2/3			5	Silcrete	Red	Total	Flake			6-10	1.30%	0.18	Cortical	Feather		8.6	8.6		1.8	L-W	
TNR AFT 17	2699	145	814	2/3			5	Silcrete	Purple	None	Medial Fragment			16-20	0%	0.29									
TNR AFT 17	2700	145	814	2/3			5	Silcrete	Red	Total	Medial Fragment			6-30	0%	0.13									
TNR AFT 17	2701	145	814	2/3			5	Silcrete	Red	Total	Medial Fragment			6-10	0%	0.06									
TNR AFT 17	2702	145	814	2/3			5	Silcrete	Red	Partial	Distal Fragment			16-20	0%	1.1		Feather							
TNR AFT 17	2703	145	814	2/3			5	Silcrete	Red	Partial	Distal Fragment			16-20	1.30%	1.5		Step							
TNR AFT 17	2704	145	814	2/3			5	Silcrete	Pink	Partial	Distal Fragment			16-20	0%	0.87									
TNR AFT 17	2705	145	814	2/3			5	Silcrete	Pink	None	Distal Fragment			11-15	0%	0.13		Feather							
TNR AFT 17	2706	145	814	2/3			5	Silcrete	Pink	Partial	Distal Fragment			6-30	1.30%	0.13		Feather							
TNR AFT 17	2707	145	814	2/3			5	Silcrete	Red	Total	Distal Fragment			11-15	0%	0.08		Feather							
TNR AFT 17	2708	145	814	2/3			5	Silcrete	Pink	None	Angular Fragment			6-30	0%	0.13									
TNR AFT 17	2709	145	815	2/3			5	Silcrete	Pink	Partial	Flake			26-30	0%	1.61	Ridged	Plunged		28.3	10.7		4.3	Elongate	
TNR AFT 17	2710	145	815	2/3			5	Silcrete	Pink	None	Flake			6-30	0%	0.08	Plain	Feather		6.8	6.7		0.8	L-W	
TNR AFT 17	2711	145	815	2/3			5	Silcrete	Pink	None	Proximal Fragment			11-15	0%	0.39									
TNR AFT 17	2712	145	815	2/3			5	Silcrete	Pink	None	Proximal Fragment			11-15	0%	0.14	Plain								
TNR AFT 17	2713	145	815	2/3			5	Silcrete	Pink	None	Medial Fragment			21-25	0%	0.5									
TNR AFT 17	2714	145	815	2/3			5	Silcrete	Pink	None	Medial Fragment			11-15	0%	0.09									
TNR AFT 17	2715	145	815	2/3			5	Silcrete	Pink	Partial	Distal Fragment			11-15	0%	0.17		Feather							
TNR AFT 17	2716	145	815	2/3			5	Silcrete	Pink	None	Angular Fragment			11-15	0%	0.39									
TNR AFT 17	2717	145	816	2/3			5	Silcrete	Red	Total	Proximal Fragment			11-15	0%	0.23	Plain								
TNR AFT 17	2718	145	816	2/3			5	Silcrete	Pink	None	Distal Fragment			6-10	0%	0.15		Feather							
TNR AFT 17	2719	145	817	2/3			5	Silcrete	Pink	Partial	Proximal Fragment			11-15	0%	0.36	Plain								
TNR AFT 17	2720	145	817	2/3			5	Silcrete	Light Grey	None	Distal Fragment			11-15	0%	0.18		Hinge							
TNR AFT 17	2721	145	818	2/3			5	Silcrete	Pink	Partial	Distal Fragment			16-20	31.69%	0.76									
TNR AFT 20	2722	240	898	1			1	Silcrete	Red	Total	Medial Fragment			21-25	0%	2.75									
TNR AFT 20	2723	300	909	1			1	Quartz	Smoky/Grey	None	Flake			21-25	31.69%	1.14	Plain	Feather		20.4	11.4		5.2	L-W	
TNR AFT 20	2724	240	923	1			1	Silcrete	Light Grey	None	Medial Fragment			6-10	0%	0.19									
TNR AFT 20	2725	240	923	1			1	S. Tuff	Grey/Green	None	Distal Fragment			16-20	0%	0.68		Hinge							
TNR AFT 20	2726	225	888	1			1	Silcrete	Red	Total	Angular Fragment			46-50	31.69%	28.97									
TNR AFT 20	2727	210	873	1			1	Quartz	Milky-White	None	Medial Fragment			11-15	0%	0.49									
TNR AFT 20	2728	285	923	1			1	Quartz	Milky-White	None	Distal Fragment			11-15	70.99%	0.11		Feather							
TNR AFT 20	2729	254	922	2/3			1	S. Tuff	Light Grey	None	Angular Fragment			16-20	0%	0.72									
TNR AFT 20	2730	254	922	2/3																					

Site	ID	E	N	Phase	TU	S	OA	Material	Colour	Heating	Reduction Type	Mod./Core Type	Backed/RT Type	Size Range mm	Cortex	Weight (g)	Platform	Termination	L mm	W mm	Th mm	Flake Shape	Core Neg. Scars	Comments	
TNR AFT 14	2761	895	349	2/3			3	Silcrete	Pink	Partial	Distal Fragment			16-20	0%	2.03		Feather							
TNR AFT 14	2762	895	349	2/3			3	Silcrete	Pink	Partial	Angular Fragment			16-20	1-30%	1.75									
TNR AFT 14	2763	896	349	2/3			3	Quartz	Milky-White	None	Distal Fragment			11-15	0%	0.17		Feather							
TNR AFT 14	2764	896	349	2/3			3	S. Tuff	Orange	None	Angular Fragment			16-20	0%	0.43									
TNR AFT 14	2765	834	300	2/3			4	S. Tuff	Yellow/Brown	None	Distal Fragment			26-30	1-30%	3.4		Hinge							
TNR AFT 14	2766	896	349	2/3			3	Quartz	Milky-White	None	Distal Fragment			11-15	0%	0.25		Feather							
TNR AFT 14	2767	896	349	2/3			3	Quartz	Milky-White	None	Angular Fragment			6-10	0%	0.13									