

Appendix L

Archaeological Survey Report



NOONAMAH
RIDGE

INTRAPAC

NOONAMAH RIDGE ESTATE - ARCHAEOLOGICAL SURVEY REPORT



A report for EcOz Environmental Consultants

Dr. Silvano Jung
Principal
Ellengowan Enterprises – archaeological consultant
ABN: 47 208 214 348

Cover photos: B-25 N5-156 wreck debris (left), Stone tools (right).

December 2014

EXECUTIVE SUMMARY

An archaeological survey was required for the proposed Noonamah Ridge Estate, a residential development approximately 36km from Darwin. EcOz Environmental Consultants contracted Ellengowan Enterprises, archaeological consultants, to conduct the survey in November 2014. Seven stone artefact scatters, Noonamah Ridge Site (NRS), were found predominately on low laterite ridges adjacent to creeks. The artefacts were made of quartz and quartzite flakes, debitage and some core stones. One of the scatters was found in a rock shelter (NRS07), sufficiently large enough to hold deep deposits. The site is, therefore, an excavation potential.

Six stone artefact isoliths, Noonamah Ridge Isolith (NRI) were recorded, all quartz and quartzite. No fine-grained material, such as chert and silcrete was found. The only water found in the survey area was at spring near NRI06, which was not flowing at the time of the survey.

A World War II (WWII) bomber crash site occurs in the southern lot. The wreck is of a 15-ton B-25D 'Mitchell', a twin-engine medium bomber. The aircraft (Serial Number N5-156) was attached to No. 18 Squadron (Dutch) Royal Australian Air Force. Its pilot, Sergeant C.A.H. Keesmaat was killed in the crash. The rest of the crew parachuted out. Keesmaat was finally laid to rest in an Indonesian cemetery. The site is, therefore, not a war grave, but it is significant as it may indicate what happened to the aircraft at time of loss. The site is also a testament to the sacrifices made by members of the RAAF in the defence of Darwin against Japanese aerial incursions during WWII. Despite its intrinsic significance, the aircraft, its crew and the crash event is poorly known. The site would make a significant historic feature for the proposed estate.

Summary of recommendations:

- Option 1. Leave all archaeological material *in situ*.
- Option 2. Relocation of stone artefacts, away from development areas, to a safe keeping place still on country.
- Option 3. Complete site survey and mapping of the WWII bomber wreck. Research the operational history of the aircraft and the circumstances of the crash. Specific research questions could identify who were the crew and what happened to them since the crash.
- Option 3a. Protect the bomber wreck site with a buffer zone of 200m from the site centroid.
- Option 4. Archaeological excavation of the rock shelter site to determine the initial occupation of the region. There have been no excavations in this area, apart from shell midden sites around Darwin Harbour and sites in Kakadu National Park.
- All finds are listed in the table below:

Table of site coordinate centroids, isoliths (grey cells) and the WWII bomber wreck

Site ID	Site Type	Individual site type	GPS Grid Reference Datum: GDA94, Zone: 52L		Description	Significance
		Artefacts (n.)	Easting	Northing		
NRS01	Stone Artefact Scatter	Stone Artefacts (<n.12)	732401	8600499	On low laterite rise adjacent to main creek, on eastern bank. Quartz and Quartzite	Medium
NRS02	Stone Artefact Scatter	Stone Artefacts (<n.12)	732661	8599759	On low laterite rise adjacent to main creek, on western bank. Quart and Quartzite	Medium
NRI01	Isolith	Stone isolith	732254	8602078	On gully floor - Quartz	Low
N5-156	Aircraft wreck	Heritage	Location suppressed	Location suppressed	B-25D Mitchell	High
NRS03	Stone Artefact Scatter	Stone Artefacts (>n.12)	730379	8599393	On northern bank of major creek	High
NRS04	Stone Artefact Scatter	Stone Artefacts (>n.12)	730299	8599324	On southern bank of major creek, adjacent to above	Medium
NRS05	Stone Artefact Scatter	Stone Artefacts (<n.12)	731914	8600254	On eastern boundary of swamp area	Low
NRI02	Isolith	Stone isolith	730954	8601465	On eastern boundary of swamp area near dump	Low
NRI03	Isolith	Stone isolith	731297	8599895	On low rise east of main track	Low
NRI04	Isolith	Stone isolith	731086	8599698	Adjacent to small cave (unoccupied)	Low
NRS06	Stone Artefact Scatter	Stone Artefacts (>n.12)	730526	8599933	On northern bank of creek, north of NRS03	Low
NRI05	Isolith	Stone isolith	730378	8597184	On flood plain near creek	Low
NRI06	Isolith	Stone Artefacts (<n.12)	732582	8599992	In Bower Bird's nest adjacent to spring	Low
NRS07	Stone Artefact Scatter	Stone Artefacts (<n.12)	733262	8602288	Rock shelter (no art)	High

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Background and consultancy brief.....	1
1.2	Location of the study areas	2
1.3	Environmental setting – brief description	2
2.0	HERITAGE LEGISLATIVE FRAMEWORK	4
2.1.	Northern Territory legislation.....	4
2.1.1.	Declared heritage places and objects.....	4
2.1.2.	Prescribed archaeological places and objects.....	5
2.2.	Constraints.....	5
2.2.1	Ground Integrity (GI).....	5
2.2.2	Ground Surface Visibility (GSV)	5
3.0	PREVIOUS RESEARCH.....	6
3.1	Literature review	6
4.0	METHODS.....	8
4.1	Survey method.....	8
4.1.1	Identification of archaeological material.....	8
4.1.2	Definition of archaeological sites.....	9
4.1.2.1	Historical Sites	9
4.1.2.2	Aboriginal Heritage Sites.....	9
5.0	RESULTS.....	10
5.1	Archaeology.....	10
5.1.1	NOONAMAH RIDGE SITE 01 (NRS01)	16
5.1.3	NOONAMAH RIDGE SITE 03 (NRS03)	19
5.1.5	NOONAMAH RIDGE SITE 05 (NRS05)	24
5.1.8	ISOLITHS	29
5.1.9	B-25D MITCHELL N5-156.....	36
6.0	CONCLUSIONS AND RECOMMENDATIONS.....	40
6.1	Conclusions	40
6.2	Recommendations.....	40
6.2.1	Recommendation 1 – avoidance.....	40
6.2.2	Recommendation 2 – specific site recommendations.....	40
6.2.2	Recommendation 3 – B-25D Mitchell N5-156.....	41
	REFERENCES.....	43

LIST OF TABLES

Table 1.	Site status on the Northern Territory Heritage Register database.....	4
Table 2.	List of archaeological finds.....	10

LIST OF FIGURES

Figure 1.	Location of the study area - Noonamah Ridge Estate (After Google Earth).	2
Figure 2.	Geological map of the Noonamah Ridge Estate (After Darwin SD5204, 1: 250 000 Geological Map, 2 nd edition 1988).....	3
Figure 3.	'Australia. 1944-02-14. A Mitchell b25 bomber aircraft of No 18 Squadron, the composite RAAF Netherlands East Indies Squadron, on its way south after two years active service in the South West Pacific Area' (Id. Number: 064758, Australian War Memorial).	7
Figure 4.	The grave of C.A.H. Keesmaat in Meteng Pulo War Cemetery, Dutch Field of Honour in Jakarta, Indonesia (http://srs.ogs.nl/slachtoffer/76319/cornelis-antonius-hendrikus-keesmaat . Accessed 25 November 2014).	7
Figure 5.	Overall map the survey area (Noonamah Ridge Estate), showing the two distinct regions - north and south (After Google Earth).	13
Figure 6.	Noonamah Ridge Estate (North), showing archaeological sites, track log (yellow lines) and drainage lines (white lines) (After Google Earth).	14
Figure 7.	Map of Noonamah Ridge Estate (South), showing archaeological site (Aboriginal) and archaeological site (WWII B-25 bomber, N5-156) (After Google Earth). Note: location of aircraft crash site suppressed.	15
Figure 8.	NRS01 looking across the site back to the track.	16
Figure 9.	NRS01 quartzite flakes. Scale in 1cm.	17
Figure 10.	NRS01 quartz flakes. Scale in 1cm.	17
Figure 11.	NRS02 view of the laterite terrace.	18
Figure 12.	NRS02 sample of artefacts. Quartz flakes. Scale in 1cm.	18
Figure 13.	NRS03 main view of the knapping floors. Creek is to the right of frame.	19
Figure 14.	NRS03 knapping floor 1, quartz debitage. Scale in 10cm.	20
Figure 15.	NRS03 knapping floor 2, quartz debitage. Scale in 10cm.	20
Figure 16.	NRS04 laterite terrace adjacent to creek (right of frame).	21
Figure 17.	NRS03 and NRS04 site plans.	22
Figure 18.	NRS04 main view of occupation floor.	22
Figure 19.	NRS04 quartz flakes. Scale in 1cm.	23
Figure 20.	NRS05 view of site at the edge of predominately wet valley floor.	24
Figure 21.	NRS05 quartz flakes and debitage. Scale in 1cm.	24
Figure 22.	NRS06 overall view.	25
Figure 23.	NRS06 artefacts. Scale in 1cm.	25
Figure 24.	NRS07 site plan and elevation.	26
Figure 25.	NRS07 view from the front approach.	27
Figure 26.	NRS07 view from the southern side, near small waterfall (not flowing)	27
Figure 27.	NRS07 floor view. Scale in 20cm.	28
Figure 28.	NRS07 quartzite cores (above), quartzite flake and quartz flakes (below).....	28
Figure 29.	Spring 1. The only surface water seen during the survey.	29
Figure 30.	Spring 2, dry at the time of the survey.	30
Figure 31.	Typical stoney ridge near Spring 2.	30
Figure 32.	NR101, quartzite core in the northern sector.	31
Figure 33.	Typical stoney ridge near NRI01.	31
Figure 34.	Laterite capped ridges, northern sector.	32
Figure 35.	NRI02, quartz flake.	32
Figure 36.	NRI03, quartz flake.	32
Figure 37.	NRI04, quartz flake near small un-occupied cave.	33

Figure 38. NRI04, adjacent un-occupied cave, with narrow floor (right).	33
Figure 39. NRI05, east of Redcliffe Road. Scale in 1cm.	34
Figure 40. NRI06, stone artefacts in a bowerbird nest.	35
Figure 41. NR106, quartzite artefacts found in the bowerbird nest.....	35
Figure 42. Main fuselage section, N5-156 wreck site. Scale in 20cm.....	36
Figure 43. Commemorative data plate, N5-156.	37
Figure 44. Concertinaed wing section, N5-156. Scale in 20cm.	37
Figure 45. Concertinaed section, N5-156. Scale in 20cm.	38
Figure 46. Cylinder head, N5-156. Scale in 1cm.	38
Figure 47. Burnt section, testament to the fire on board at time of loss, N5-156. Scale in 20cm.	39
Figure 48. Machinegun, .50 calibre shells, N5-156. Scale in 1cm.	39
Figure 49. Map of wreck site debris field, N5-156 (After GoogleEarth).	42

1.0 INTRODUCTION

1.1 Background and consultancy brief

An archaeological survey was commissioned by EcOz Environmental Consultants to identify any physical evidence of past human occupation in a proposed residential estate at Noonamah (Noonamah Ridge Estate), about 36km south of Darwin. An archaeologist (author) was engaged for five days to survey the Noonamah Ridge Estate, an area of 2,800 hectares, bounded to the north by Goode Road, to the south by Townend Road, to the west by Redcliffe Road and to the east by Mocatto Road and a granite mine.

A pedestrian and vehicle survey was conducted for five days from 10 to 14 November 2014. The consultancy brief was to:

- Identify any prescribed archaeological objects or places as defined under the Northern Territory *Heritage Act (2012)*, and any archaeological sites located within the survey area.
- Assess the nature, distribution and significance of these objects or places and discuss possible constraints to the works posed by the presence of archaeological and historic sites and an indication of what sites are likely to be the most sensitive in this respect.
- Present a final report including a summary of survey results, determination of significance of sites and the likely impact of the proposed development, and recommendations regarding management strategies or mitigation procedures as appropriate under the Northern Territory *Heritage Act (2012)*.

A total of thirteen Aboriginal Heritage archaeological sites were found. These comprise of seven stone artefact scatters, one of which is a highly significant knapping site. Six low significance background scatters and/or isoliths were also found. All stone artefacts were made from locally sourced quartzites and quartz.

Virtually all of the Aboriginal Heritage sites occur in the dissected country to the north of the main easement line leading up to the Telstra tower. South of the tower, the country appears not to be conducive for the preservation of archaeological sites, if they existed in the first place. No water sources were found, although a Restricted Work Area (RWA), which contains Lloyd Creek, would be a significant water source during the wet season.

In addition to the Aboriginal Heritage, a World War II (WWII) B-25 'Mitchell' bomber occurs in the survey area. The wreck site is a tangible reminder of the Air War in north Australia and is a significant aviation archaeological resource. Very little is known about the crash in historical sources and it will be up to a detailed archaeological survey of the site to determine exactly what may have happened to the aircraft at time of loss. The aircraft's pilot was killed in the crash, but the remainder of the crew parachuted out. Whether they survived is unknown.

The following details all of the archaeological finds and puts forward management recommendations as to best mitigate the impacts on the archaeological resource by the proposed development.

1.2 Location of the study areas

The study area occurs between the Stuart and Arnhem Highways, about seven kilometres from the township of Humpty Doo (Fig. 1). North of the proposed estate is an existing residential development off Goode Road, still under construction at the time of the survey. Access to the site is from all sides, apart from the estate's northern boundary, now closed off by the new construction works. Fred's Pass Road is no longer a viable access easement and was virtually obscured by vegetation re-growth.

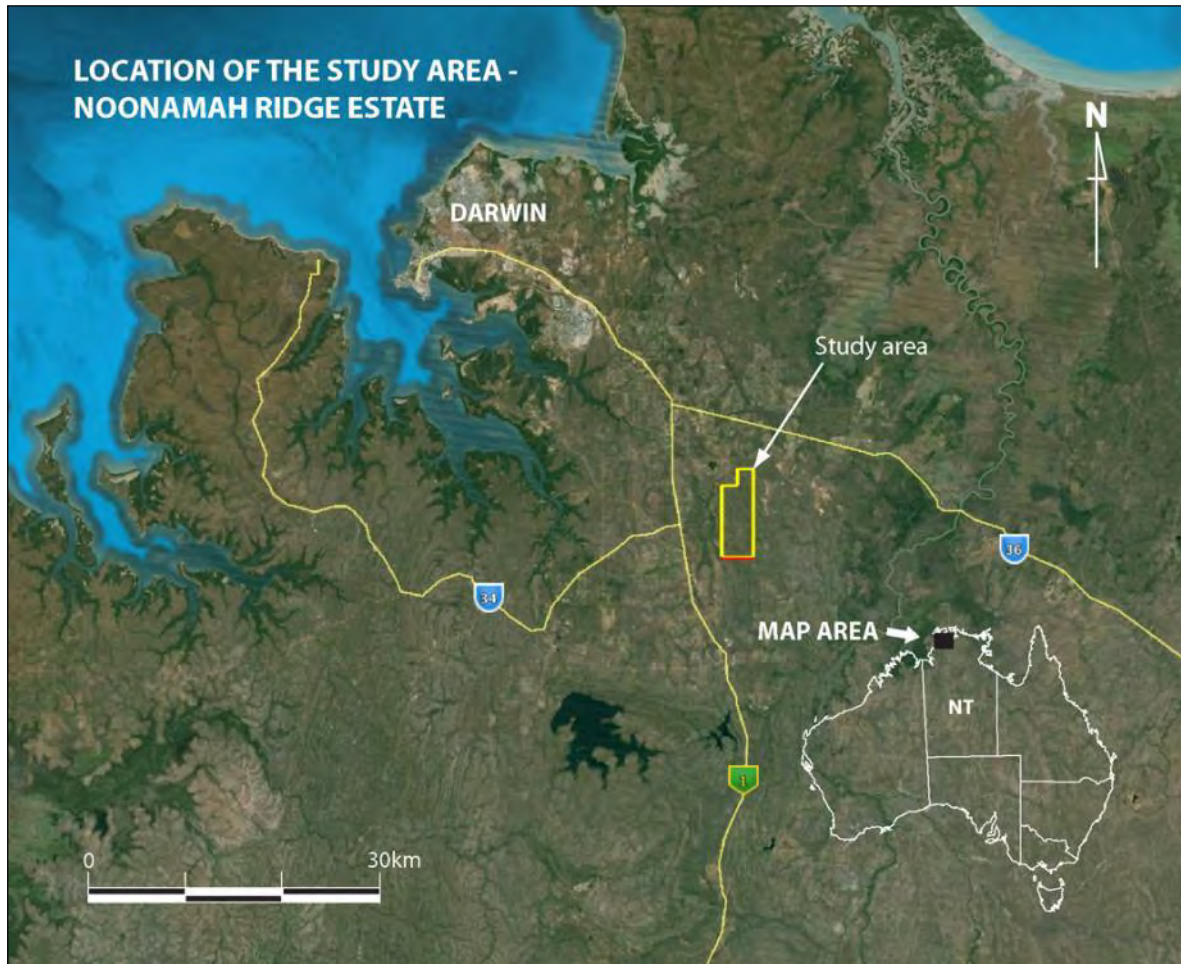


Figure 1. Location of the study area - Noonamah Ridge Estate (After Google Earth).

1.3 Environmental setting – brief description

The survey area is characterised by several ridges north of Alverly Road that are approximately 10 to 20m high. The ridges consist of quartzite and shale (Ppa) with quaternary sands, gravel and laterite in the valley floors (Czl and Cz) (Fig. 2). South of Alverly Road (roughly half way down the length of the project) there is a dominant high ridge where a communications tower and accesses easement has been constructed. The country is much flatter there and no permanent water sources were found. Only in the dissected northern portion was water found in a spring. No flowing water was seen at the time of the survey.

The vegetation was principally *Eucalyptus tetrodonta* (Darwin stringy bark), *E. miniata* (Woolybutt), *E. papuana* (Ghost gum) woodland, with patches of rainforest species near springs and deep-water courses, which would have water in them until fairly late in the dry season.

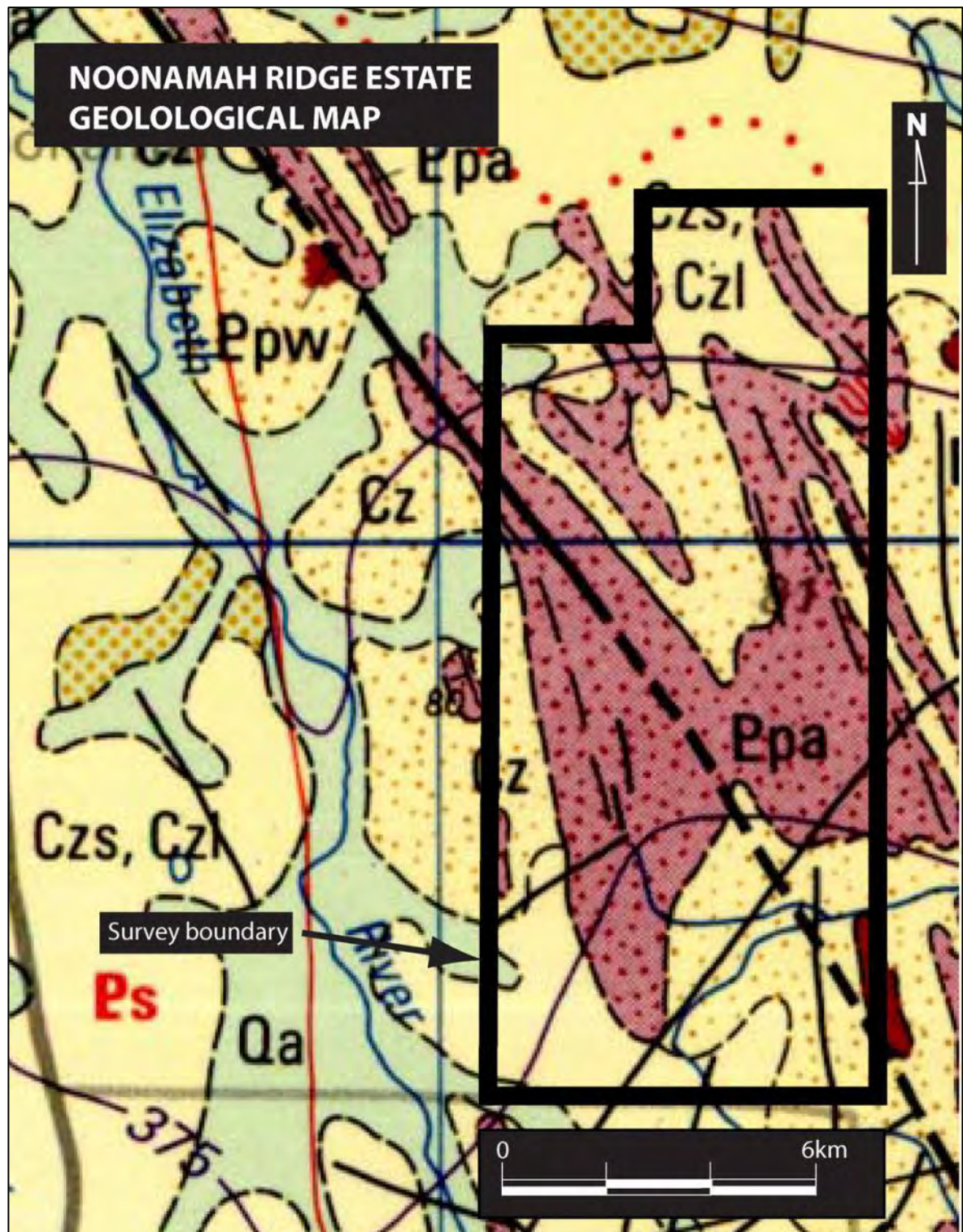


Figure 2. Geological map of the Noonamah Ridge Estate (After Darwin SD5204, 1: 250 000 Geological Map, 2nd edition 1988).

2.0 HERITAGE LEGISLATIVE FRAMEWORK

2.1. Northern Territory legislation

There are two kinds of heritage sites protected under the Northern Territory *Heritage Act* (2012), declared and prescribed places and objects. The Act places legal constraints on owners of private property, local government and the Crown:

- Places or objects listed on the Northern Territory Heritage Register are declared heritage places and objects that are protected under section 33 of the Act, and
- Prescribed archaeological places and objects, which may or may not be declared, are protected under sections 29 and 39 of the Act.

It is an offence under the Act to damage, destroy, alter or carry out work of any sort on declared or prescribed sites without the written consent of the Minister or Minister's delegate. If considered appropriate, the Heritage Branch may on occasion utilise the discretion available in the Act to give permission for small-scale disturbance (such as the relocation of isolated stone artefacts) without the need for a formal application. The discretion is allowed under s148 of the Act, which in effect says that a heritage officer (such as an archaeologist) may undertake actions (or authorize actions), not construed as an offence.

2.1.1. Declared heritage places and objects

Categories, which describe the status of each site on the Northern Territory Heritage Register database, are listed in Table 1.

Table 1. Site status on the Northern Territory Heritage Register database

Status	Description
D	Declared heritage place.
NR	Not recommended. HC* determined that the place did not meet heritage assessment criteria and did not hold sufficient value to warrant declaration under the <i>Act</i> .
RF	Refused by the Minister. HC* recommended for declaration and Minister refused to do so.
P	Proposed. HC* has determined that the place warrants declaration under the <i>Act</i> but has not yet made its recommendations to the minister.
RV	Revoked. Declaration as a heritage place pursuant to Section 26(1) of the <i>Act</i> is revoked.
N	Nominated. HC* has yet to complete its assessment of the heritage value of the place.

*Heritage Council

The Northern Territory Heritage Register contains places that possess special significance for the Northern Territory and have been recognized for a wide range of natural and cultural values. As a result it includes places that have been deemed significant because of their environmental and/or cultural characteristics. For the purposes of the current report, only places of historic or archaeological significance have been included. A search of the register indicates that no sites are listed in Heritage Register, in the proposed Noonamah Ridge Estate.

2.1.2. *Prescribed archaeological places and objects*

Most archaeological places and objects are listed in the *Heritage Conservation Regulations* (1999) as prescribed places and objects. The Heritage Branch, Department Lands, Planning and Environment (DLPE), formerly the Department of Natural Resources Environment and the Arts (NRETAS) hold the Archaeological Sites Register. Included in this register are the protected prescribed sites that consist of all archaeological sites and objects pertaining to the past occupation by Aboriginal people. Any historic sites listed on this register do not indicate that these sites are protected or hold legal significance under the Northern Territory *Heritage Act* (2012).

2.2. Constraints

2.2.1 *Ground Integrity (GI)*

Assessing ground surface integrity provides an indicator of whether or not the landscape under study has been modified, and if so the degree of disturbance encountered. It then becomes possible to gauge the degree to which modification has influenced the environmental context within which artefacts and/or places of cultural and/or scientific interest are located. Ground surface integrity must also be assessed from the perspective of the current legislation.

The *Aboriginal Cultural Heritage Act 2003* (in Queensland, but equally applicable to the Northern Territory) provides a definition for GI that includes the removal of native vegetation as inferring the ground has been subjected to 'significant ground disturbance'. Under these criteria of modification, therefore, the *Act* assumes that archaeological integrity and significance is greatly reduced, is negligible, or even extinguished completely.

Contrary to this however, archaeologists are continually finding evidence that important cultural heritage material and/or places regularly survive not only land clearing activities but also invasive farming techniques such as ploughing.

Combined with this is the fact that, regardless of levels of GI, significant Aboriginal objects and/or significant Aboriginal areas can be defined on entirely cultural grounds, by Traditional Owners, not requiring any assessment of ground surface integrity.

Levels of GI are determined using a percentage range between 0-100% where 0% indicates all GI is gone, and 100% represents excellent preservation of the original context. Zero – 0%; Poor – 1-25%; Moderate- 26-50 %; Fair – 51-75 %; Good – 76-85%; Excellent 86-100%.

2.2.2 *Ground Surface Visibility (GSV)*

Assessments of ground surface visibility provide an indication of how much of the ground surface can actually be seen.

Ground surface visibility (GSV) is most commonly inhibited by vegetation but other inhibitors may include concrete, gravel and bitumen. Levels are determined using a percentage scale similar to that used for the calculation of Ground Integrity (GI), in that 0% represents zero visibility and 100% represents maximum visibility (bare ground). Zero – 0%; Poor – 1-25%; Moderate – 26-50 %; Fair – 51-75 %; Good – 76-85%; Excellent – 86-100%. The better the visibility, the more potential there is for locating cultural/archaeological material.

3.0 PREVIOUS RESEARCH

3.1 Literature review

A review of the Northern Territory archaeological sites register at the Heritage Branch, Northern Territory Government, indicated that no previous archaeological work had been done in the survey area. The Heritage Branch did not provide data on site surveys conducted in the general area and it is, therefore, not possible to understand how the Noonamah Ridge Estate fits into the region's archaeology.

What is known about the crash site is recorded on an historical data plate affixed to a main section of the fuselage, which states that the aircraft crashed on 21 October 1943 while attached to No. 18 Squadron (Dutch) Royal Australian Air Force (RAAF). Many Dutch pilots escaped the fall of Java (Netherlands East Indies, now Indonesia) to the Japanese in March 1942. These pilots were incorporated into the RAAF and formed a predominately Dutch squadron, No. 18, with Australian (and other nationals) air-gunners, engineers and navigators (Helson, 1997; Hurst, 1991; Royal Australian Air Force, Historical Section, 1995; Wallace, 1983 and 1984).

The pilot's name was Sergeant Cornelis Antonius Hendrikus (C.A.H.) Keesmaat. The data plate was placed by an unknown group called 'Those who care' on an unknown date. The data plate incorrectly records the pilot's initials as C.A.G. The aircraft's serial number is N5-156, a B-25D model 'Mitchell' bomber, which is an early variant of the type. The aircraft had the contract number: 41-30587 (Baugher, 2009). The only difference to the earlier 'C' model Mitchell was where the 'D' models were made i.e., in Kansas City, Kansas, by North American Aviation.

The site is recorded as 'Heritage Site (HC 2268)' on the data plate, but this number does not correspond to any Heritage Branch site number. The site is not currently a heritage-listed site under the *Act*.

No photographs of this specific aircraft have been found. Figure 3 shows, however, a typical Mitchell bomber flown by No. 18 Squadron RAAF. Keesmaat would probably have been initially buried at the Adelaide River War Cemetery, but was exhumed and finally re-interred in Jakarta, Indonesia (Fig. 4). Alford (2014) provides further information on what may have caused the crash. The aircraft was flying a night exercise when a flare exploded onboard. The other members of crew (names not recorded) parachuted, presumably to safety, but Keesmaat apparently did not have a parachute. He may have tried to put the aircraft down in one piece, but did not survive the crash landing. A death certificate is currently being sourced for him, which may have more information on how he died, who found the crash site etc.



Figure 3. 'Australia. 1944-02-14. A Mitchell b25 bomber aircraft of No 18 Squadron, the composite RAAF Netherlands East Indies Squadron, on its way south after two years active service in the South West Pacific Area' (Id. Number: 064758, Australian War Memorial).



Figure 4. The grave of C.A.H. Keesmaat in Meteng Pulo War Cemetery, Dutch Field of Honour in Jakarta, Indonesia (<http://srs.ogs.nl/slachtofffer/76319/cornelis-antonius-hendrikus-keesmaat>. Accessed 25 November 2014).

4.0 METHODS

4.1 Survey method

The area of the highest probability of finding Aboriginal Heritage sites is in the dissected northern sector (north of Alverly Road) within creeks and drainage channels. EcOz Environmental Consultants provided a kml file of the drainage system in the Noonamah Ridge Estate, which were used as a guide to locate possible significant water sources. Pedestrian surveys were conducted along the creeks and creek banks, with several transects of flat terrain as a control for determining where people lived in the environment. Vehicle transects were conducted in the flat areas, but were limited to existing tracks, with pedestrian spot checks in any stoney rises which may have been occupied by people in the past.

All archaeological finds were recorded using GPS, photographed and some basic diagnostics noted, such as artefact type, raw material and the density of artefacts per site. Isolaths were recorded in the same way. Artefacts were left *in situ*.

4.1.1 Identification of archaeological material

Stone artefacts, including tools and debitage, the by-product of manufacture, are identified on the following criteria after McCarthy (1976), Holdaway and Stern (2004):

- Bulb of percussion
- Ercure scar (on the ventral surface)
- Point of force application (PFA) and associated ring crack
- Termination types (e.g. feathered, stepped, hinged, plunge)
- Flake scars (dorsal scars and ridges)
- Cores (identified by the presence of negative flake scars)
- Hammer stones (identified by the presence of end-crushing on pebble stones)
- Retouch (reworking of flake margins)
- Raw material type
- Grinding stones (very smooth wear on upper surface)

List of artefact type abbreviations:

- A – axe
- C – core
- CP – core piece
- F – flake
- FP – flake piece
- RTF – retouched flake

List of artefact type abbreviations:

- F – Flake
- SC – Single platform core
- RTF – Retouched flake
- F – flake
- FP – flake piece
- RTF – retouched flake
- GS – Grindstone/Grinding plate
- X – Axe/wasted cobble
- CT – Core tool

- CF – Core fragment
- A – Adze
- B – Blade
- S – Scraper
- M – Manuport
- An – Anvil
- TS – Top stone
- HS – Hammer stone
- Z – Other e.g., ceremonial

4.1.2 Definition of archaeological sites

4.1.2.1 Historical Sites

Historical sites in north Australia are those that have physical evidence of European and non-European activities. These range from Macassan sites to military sites of WWII. These sites may overlap with Aboriginal heritage sites.

4.1.2.2 Aboriginal Heritage Sites

Aboriginal archaeological sites can be classified by six main types: 1) stone knapping sites, including quarries, 2) background scatters, including isoliths, 3) stone arrangements, such as mounds, walls, fish traps or stone motifs, 4) shell middens, 5) burials, 6) scarred trees and 7) rock art sites.

Burke and Smith (2004:63) define an archaeological site as ‘any place that contains the physical evidence of past human activity. Australia, however, has what has been referred to as a background scatter of stone artefacts, which refers to low-density artefact scatters that either represent singular knapping events (‘dinner-time’ camps or ‘hunting camps’), or larger sites that have been buried or disturbed. To differentiate this site type from larger sites that may contain thousands of artefacts, the term Archaeological Site (AS) is used to describe home-camps or quarries i.e., places where people have been returning to for millennia, as opposed to sites that have very low artefact densities that represent sporadic visits i.e., background scatters (BS).

5.0 RESULTS

5.1 Archaeology

The survey commenced by following a track from Redcliffe Road, which lead to a dump site (one of several found in the area) characterised by a recently dumped car in the middle of the track. The track continued to the southeast following along the base of the quartzite ridges. The ridges opened out to laterite terraces adjacent to the main watercourse running to the northwest. Quaternary sands have been deposited in the swales between the ridges, virtually obscuring any archaeological material, if any existed, but low-lying laterite terraces adjacent to the creeks had increased GSV, which revealed surfaces with evidence of occupation.

Seven artefact scatters were found on these terraces, with isoliths found interspersed along the watercourses. All finds are listed in Table 2, including the WWII bomber wreck. A small cave was found during a pedestrian transect off Redcliffe Road, but in the northwest a much larger laterite formation was recorded, which contained artefacts on the surface. Figure 5 shows the overall survey area with two distinct regions, north and south, as delineated by Alverly Road track. Figure 6 illustrates the archaeological sites, isoliths and track log in the northern sector. South of Alverly Road track, the small valleys between the quartzite ridges had no defined creek lines and had poor GSV. The most distinctive watercourse in this sector is the Restricted Work Area (RWA) for Lloyd Creek. The creek and its banks, however, was heavily overgrown with GSV <5% and opened up to a swamp, not conducive to the preservation of archaeological sites. The wreck of the Mitchell bomber is shown, with a debris area approximately 200m². The following sections describe the finds.

Table 2. List of all archaeological finds

Format: UTM M/D/Y H:M:S 9.50 hrs Datum[121]: WGS 84								
ID	Name	Comment	Artefact material type	Raw and	Date Time	Zone (L)	Easting	Northing
W	NRS01	NRS01			11/10/14 13:02	52	732401	8600499
W	1	NRS01	QF		11/10/14 13:08	52	732390	8600501
W	2	NRS01	QF		11/10/14 13:13	52	732393	8600495
W	3	NRS01	QZFP		11/10/14 13:16	52	732394	8600491
W	4	NRS01	QC		11/10/14 13:18	52	732394	8600501
W	5	NRS01	QF		11/10/14 13:22	52	732406	8600498
W	6	NRS01	QZF		11/10/14 13:24	52	732402	8600499
W	SPRING1				11/10/14 13:46	52	732637	8600037
W	7	NRS02	QF		11/10/14 14:01	52	732661	8599759
W	8	NRS02	QF		11/10/14 14:02	52	732660	8599760
W	9	NRS02			11/10/14 14:03	52	732652	8599752
W	10	NRS02			11/10/14 14:05	52	732648	8599747
W	SPRING2				11/10/14 15:57	52	731513	8599234
W	11	NR101			11/11/14 10:13	52	732254	8602078
W	AIRCRAFT	N5-156			11/11/14 11:47	52	Location suppressed	Location suppressed
W	12	N5-156			11/11/14 14:22	52	Location suppressed	Location suppressed
W	13	N5-156			11/11/14 14:23	52	Location suppressed	Location suppressed
W	SHELLS	N5-156			11/11/14 14:23	52	Location suppressed	Location suppressed

W	14	N5-156		11/11/14 14:25	52	Location suppressed	Location suppressed
W	15	N5-156		11/11/14 14:26	52	Location suppressed	Location suppressed
W	16	N5-156		11/11/14 14:29	52	Location suppressed	Location suppressed
W	17	N5-156		11/11/14 14:35	52	Location suppressed	Location suppressed
W	18	N5-156		11/11/14 14:35	52	Location suppressed	Location suppressed
W	19	N5-156		11/11/14 14:44	52	Location suppressed	Location suppressed
W	20	N5-156		11/11/14 14:44	52	Location suppressed	Location suppressed
W	21	N5-156		11/11/14 14:44	52	Location suppressed	Location suppressed
W	22	N5-156		11/11/14 14:45	52	Location suppressed	Location suppressed
W	23	N5-156		11/11/14 14:45	52	Location suppressed	Location suppressed
W	24	N5-156		11/11/14 14:45	52	Location suppressed	Location suppressed
W	25	N5-156		11/11/14 14:45	52	Location suppressed	Location suppressed
W	26	N5-156		11/11/14 14:46	52	Location suppressed	Location suppressed
W	27	N5-156		11/11/14 14:53	52	Location suppressed	Location suppressed
W	NRS03	NRS03		11/12/14 9:55	52	730379	8599393
W	28	NRS03		11/12/14 10:03	52	730382	8599404
W	29	NRS03		11/12/14 10:04	52	730384	8599418
W	30	NRS03		11/12/14 10:05	52	730390	8599405
W	31	NRS03		11/12/14 10:05	52	730395	8599402
W	32	NRS03		11/12/14 10:05	52	730396	8599395
W	33	NRS03		11/12/14 10:06	52	730392	8599392
W	34	NRS03		11/12/14 10:06	52	730392	8599383
W	35	NRS03		11/12/14 10:07	52	730387	8599375
W	36	NRS03		11/12/14 10:07	52	730379	8599373
W	37	NRS03		11/12/14 10:07	52	730372	8599376
W	38	NRS03		11/12/14 10:07	52	730365	8599379
W	39	NRS03		11/12/14 10:08	52	730362	8599385
W	40	NRS03		11/12/14 10:08	52	730365	8599390
W	41	NRS03		11/12/14 10:08	52	730369	8599393
W	42	NRS03		11/12/14 10:08	52	730370	8599396
W	43	NRS03		11/12/14 10:08	52	730371	8599401
W	44	NRS03		11/12/14 10:12	52	730409	8599378
W	45	NRS03		11/12/14 10:14	52	730415	8599390
W	46	NRS03		11/12/14 10:14	52	730418	8599394
W	47	NRS03		11/12/14 10:15	52	730406	8599408
W	48	NRS03		11/12/14 10:15	52	730391	8599411
W	49	NRS03		11/12/14 10:19	52	730435	8599352
W	50	NRS03		11/12/14 10:19	52	730438	8599351
W	51	NRS03		11/12/14 10:20	52	730457	8599341
W	52	NRS03		11/12/14 10:20	52	730457	8599341
W	53	NRS03		11/12/14 10:20	52	730457	8599340
W	54	NRS03		11/12/14 10:20	52	730463	8599340
W	55	NRS03		11/12/14 10:20	52	730464	8599337

W	56	NRS03		11/12/14 10:20	52	730464	8599336
W	57	NRS03		11/12/14 10:21	52	730463	8599331
W	58	NRS04		11/12/14 11:39	52	730299	8599324
W	59	NRS04		11/12/14 11:41	52	730291	8599321
W	60	NRS04		11/12/14 11:41	52	730286	8599325
W	61	NRS04		11/12/14 11:41	52	730286	8599323
W	62	NRS04		11/12/14 11:41	52	730283	8599324
W	63	NRS04		11/12/14 11:42	52	730282	8599328
W	64	NRS04		11/12/14 11:43	52	730274	8599322
W	65	NRS04		11/12/14 11:43	52	730273	8599324
W	66	NRS04		11/12/14 11:43	52	730273	8599324
W	67	NRS04		11/12/14 11:43	52	730272	8599324
W	68	NRS04		11/12/14 11:43	52	730273	8599325
W	69	NRS04		11/12/14 11:44	52	730275	8599309
W	70	NRS04		11/12/14 11:44	52	730276	8599307
W	71	NRS04		11/12/14 11:46	52	730265	8599317
W	NRS04	NRS04		11/12/14 11:57	52	730279	8599323
W	NRS05	NRS05		11/12/14 13:45	52	731914	8600254
W	72	NRS05		11/12/14 13:45	52	731915	8600253
W	73	NRS05		11/12/14 13:45	52	731914	8600254
W	74	NRS05		11/12/14 13:47	52	731907	8600256
W	75	NRS05		11/12/14 13:47	52	731907	8600256
W	76	NRI02		11/12/14 14:34	52	730954	8601465
W	77	NRI03	QF	11/12/14 15:38	52	731297	8599895
W	78	NRI04 (cave)		11/13/2014 10:14:42.000	52	731086	8599698
W	NRS06	NRS06		11/13/2014 10:59:45.000	52	730542	8599928
W	79	NRS06	QF	11/13/2014 11:06:35.000	52	730526	8599933
W	80	dry gullies		11/13/2014 14:20:25.000	52	732583	8598493
W	80a	NRI05		11/14/2014 11:02:30.000	52	730378	8597184
W	BOWER	NRI06		11/14/2014 13:11:17.000	52	732582	8599992
W	CAVE (occupation)	NRS07		11/14/2014 14:27:18.000	52	733262	8602288
W	81	NRS07	QF	11/14/2014 14:54:44.000	52	733269	8602276
W	82	NRS07	QZFP	11/14/2014 14:55:52.000	52	733264	8602276
W	83	NRS07	QF	11/14/2014 14:58:59.000	52	733258	8602280
W	84Smaller Cave	NRS07		11/14/2014 15:04:14.000	52	733290	8602246

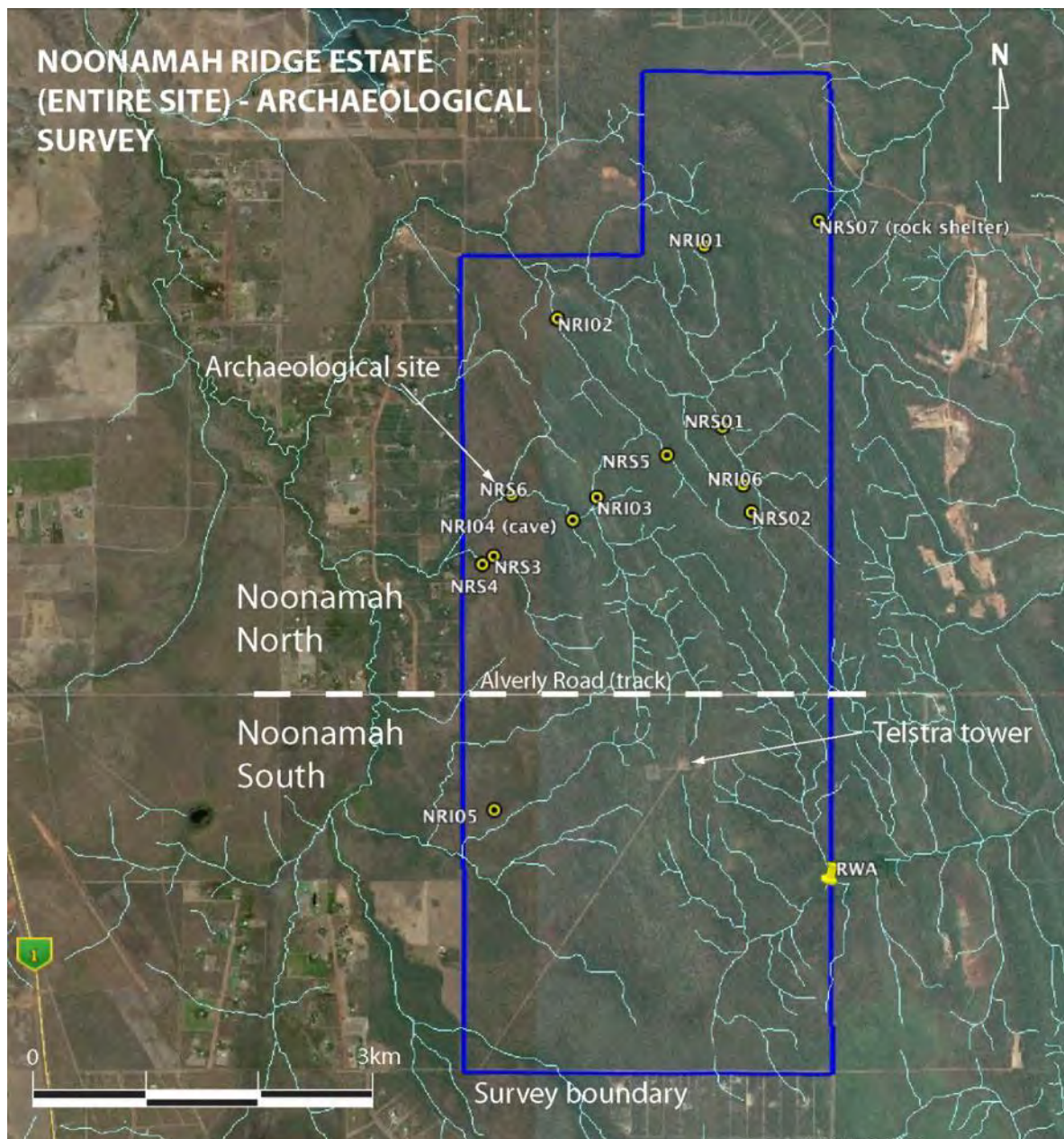


Figure 5. Overall map the survey area (Noonamah Ridge Estate), showing the two distinct regions - north and south (After Google Earth).

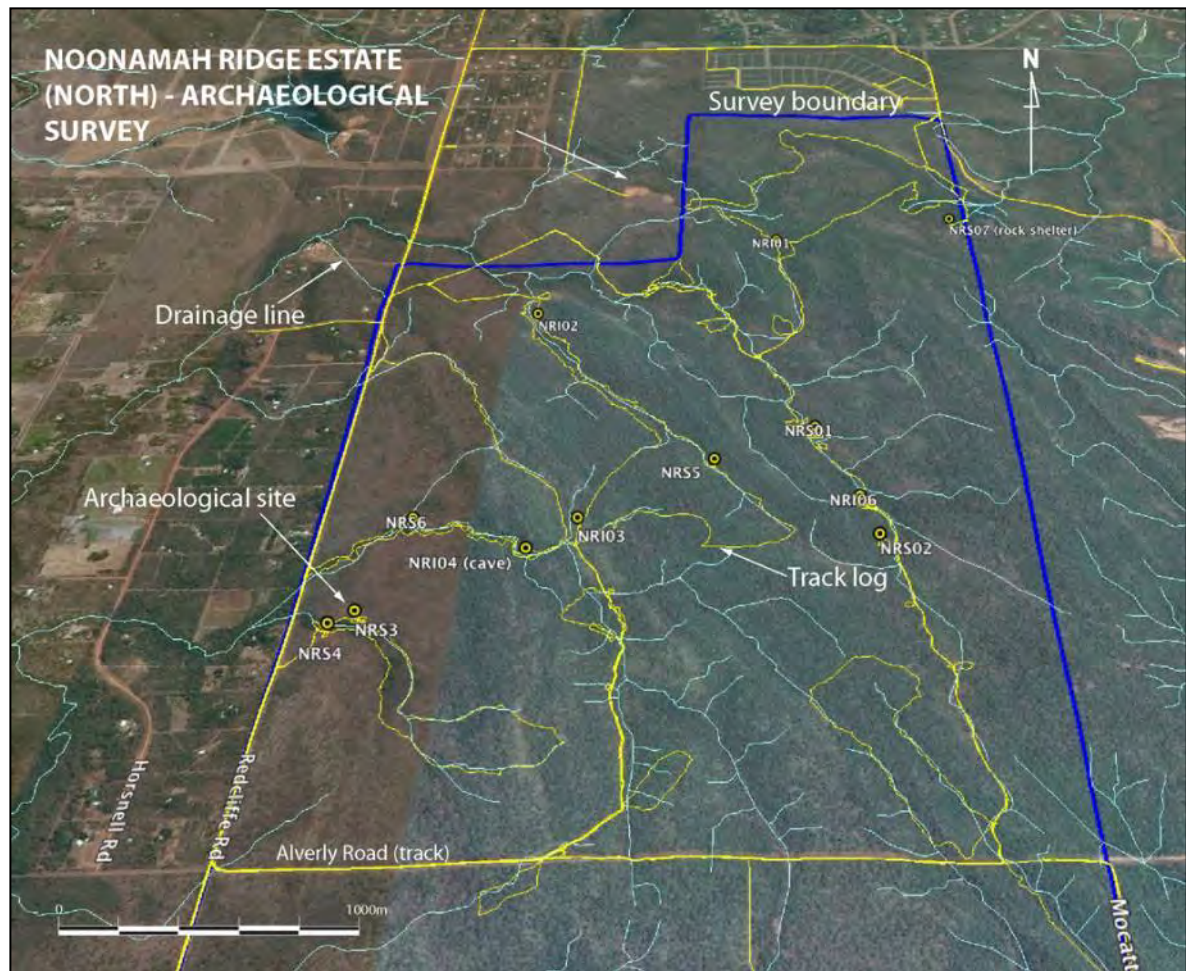


Figure 6. Noonamah Ridge Estate (North), showing archaeological sites, track log (yellow lines) and drainage lines (white lines) (After Google Earth).

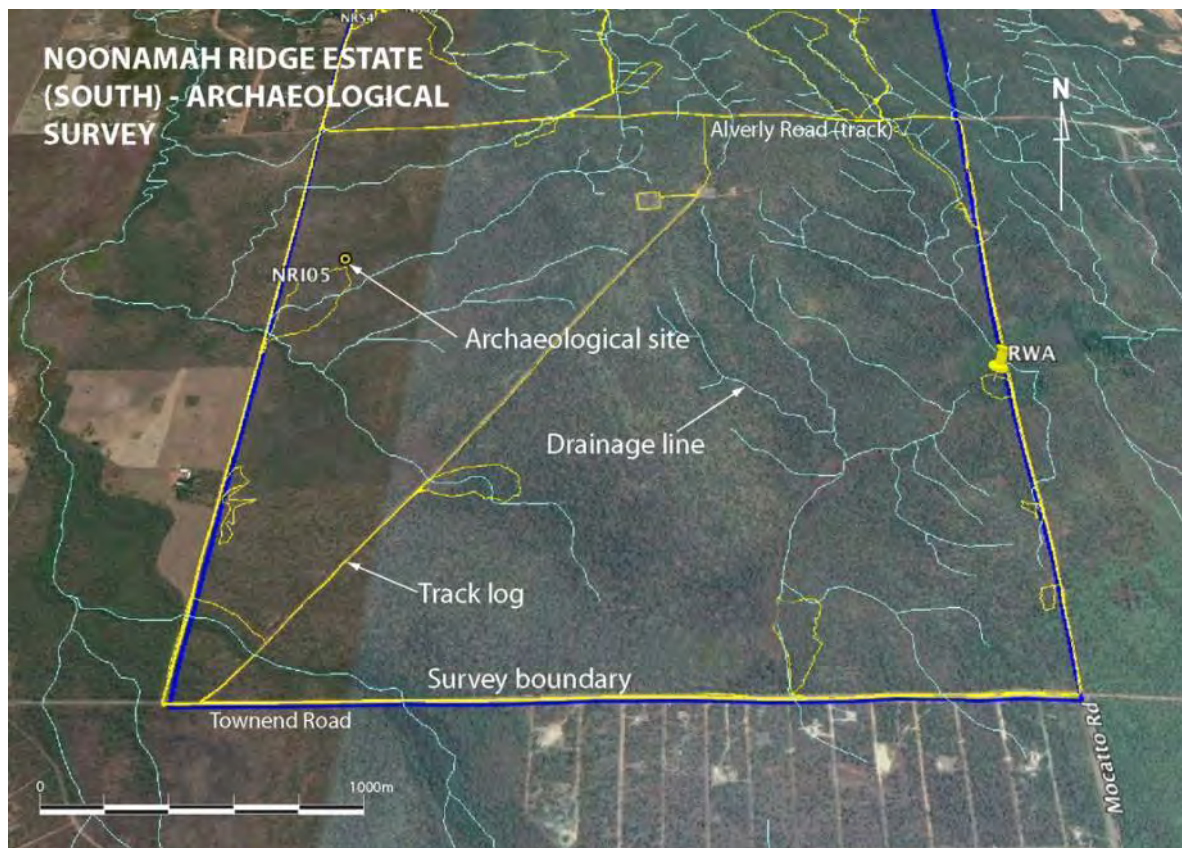


Figure 7. Map of Noonamah Ridge Estate (South), showing archaeological site (Aboriginal) and archaeological site (WWII B-25 bomber, N5-156) (After Google Earth). Note: location of aircraft crash site suppressed.

5.1.1 Noonamah Ridge Site 01 (NRS01)

In the northwest sector of the survey area, the main creek has eroded a channel between low-lying laterite terraces, which have formed a cap above the quaternary sands. The terraces offer a flat and relatively dry area for occupation. The lithology is mainly made of quartzites, which Aboriginal people utilised. Noonamah Ridge Site 01 (NRS01) occurs on one of these laterite ridges, on the eastern bank, but consists of only a few artefacts, <6 (Fig. 8). Quartzite and quartz flakes were found in an area approximately 6m² (Fig. 9 and Fig. 10 respectively). GSV was 90% with a GI of 100%.



Figure 8. NRS01 looking across the site back to the track.

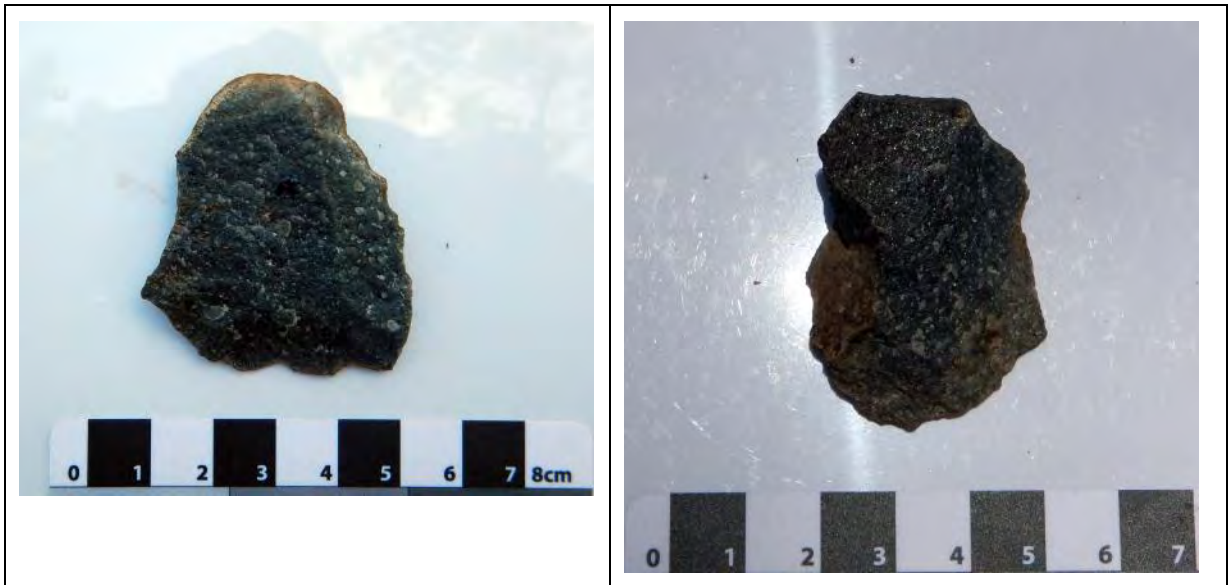


Figure 9. NRS01 quartzite flakes. Scale in 1cm.



Figure 10. NRS01 quartz flakes. Scale in 1cm.

5.1.2 Noonamah Ridge Site 02 (NRS02)

Not all of the laterite ridges appeared to have archaeology, but another site was found on the western side of the main creek, Noonamah Ridge Site 02 (NRS02), similar to the previous discovery (Fig. 11). This site again, had a low-density artefact scatter in an area of approximately 6m², but only contained quartz flakes (Fig. 12). GSV was 80% and GI was 100%.



Figure 11. NRS02 view of the laterite terrace.



Figure 12. NRS02 sample of artefacts. Quartz flakes. Scale in 1cm.

5.1.3 Noonamah Ridge Site 03 (NRS03)

About 200m east of Redcliffe Road a stone artefact scatter, Noonamah Ridge Site 03 (NRS03) was found on the northern bank of a significant creek running off the main quartzite ridges. The site has laterite outcrops, interspersed with flat open sandy areas along its banks, and with good GSV (90%) (Fig. 13). The site comprises of at least two main knapping floors, which utilised the local quartz. The artefact assemblage consists of quartz flakes and debitage, with over 200 artefacts (Fig. 14 and Fig. 15).



Figure 13. NRS03 main view of the knapping floors. Creek is to the right of frame.



Figure 14. NRS03 knapping floor 1, quartz debitage. Scale in 10cm.



Figure 15. NRS03 knapping floor 2, quartz debitage. Scale in 10cm.

5.1.4 Noonamah Ridge Site 04 (NRS04)

Just to west of NRS03, about 100m on the southern bank of the creek, another significant artefact scatter was found, Noonamah Ridge Site 04 (NRS04), typically on a laterite ridge (Fig. 16 and Fig. 17). Somewhat smaller in area, fewer artefacts were found, but density is greater than 12 artefacts (Fig. 18 and Fig. 19). GSV was 80% and GI of 100%.



Figure 16. NRS04 laterite terrace adjacent to creek (right of frame).

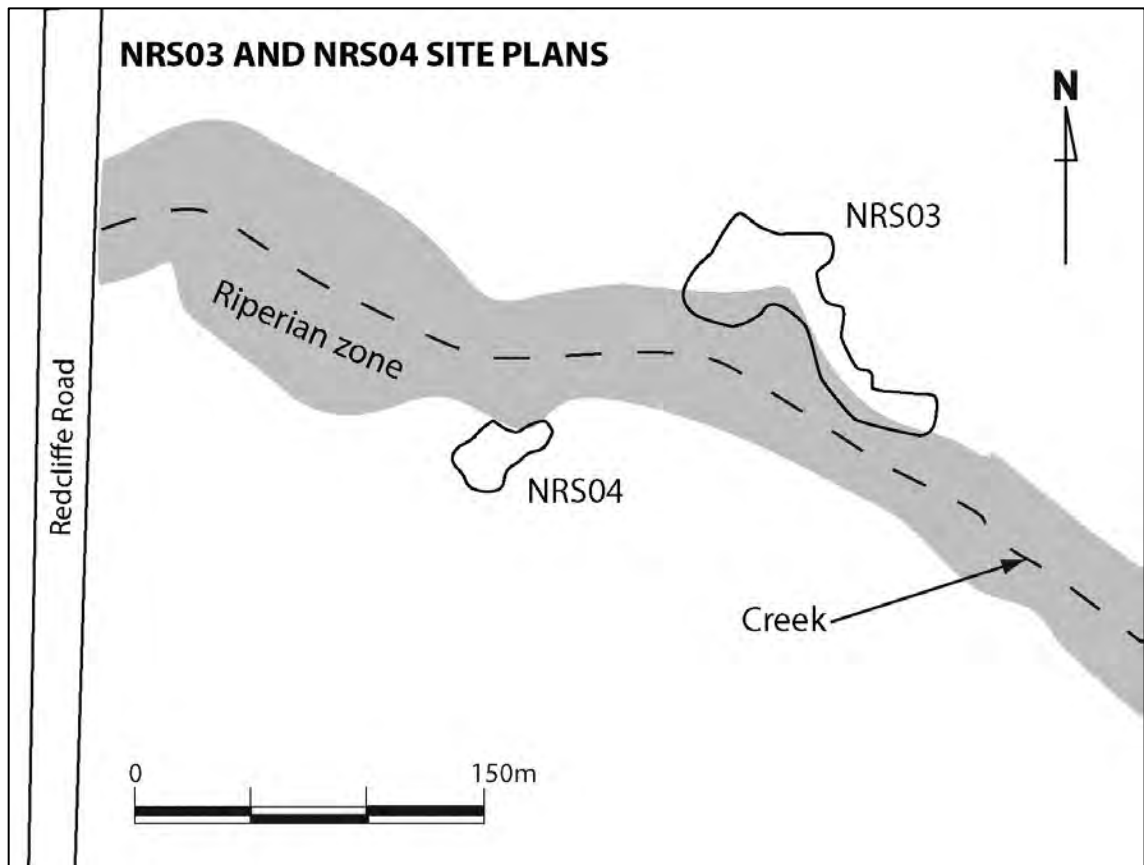


Figure 17. NRS03 and NRS04 site plans.



Figure 18. NRS04 main view of occupation floor.



Figure 19. NRS04 quartz flakes. Scale in 1cm.

5.1.5 Noonamah Ridge Site 05 (NRS05)

In the next ridge valley west of NRS01 occurs a floodplain bounded by quartzite ridges. A transect was done north south along both boundaries of the floodplain. This transition zone afforded good GSV (80%), which revealed another low-density artefact scatter, Noonamah Ridge Site 05 (NRS05) (Fig. 20). Only five artefacts were found, all quartz (Fig. 21). GI was 70% on account of sedimentation and weed coverage.



Figure 20. NRS05 view of site at the edge of predominately wet valley floor.



Figure 21. NRS05 quartz flakes and debitage. Scale in 1cm.

5.1.6 Noonamah Ridge Site 06 (NRS06)

North of the main creek off Redcliffe road, another large creek runs off the quartzite ridges. An isolith was found near a small cave facing the creek, but west of cave is a stone artefact scatter, Noonamah Site 06 (NRS06) with over 12 artefacts, all made of quartz (Fig. 22 and Fig. 23). The site occurs on a cleared, flat sandy patch adjacent to the creek bank. GSV in sandy patches was 90% and GI is 90% on account that the site may be flooded at times.



Figure 22. NRS06 overall view.



Figure 23. NRS06 artefacts. Scale in 1cm.

5.1.7 Noonamah Ridge Site 07 (NRS07)

On the northeast corner of the survey area, in a rainforest pocket off Mocatto Road, a unique site occurs, not on top of a laterite terrace, but underneath one. Access to the site is via a track that goes past yet another dumpsite as in within earshot of the nearby granite quarry.

The laterite cap at Noonamah Ridge Site 07 (NRS07) has been erode from underneath, possibly by an adjacent creek (not flowing at the time of the survey) running off the top of the cap, to reveal a sheltered occupation floor of approximately 23 x 6 x 3m (Figs. 24 – 27). A range of artefacts was found on the surface, including quartzite cores and flakes and quartz flakes (Fig. 28). The vast interior space of the rock shelter looked promising as a rock art site upon approach, but closer inspection revealed a heavily weathered rock surface, not suitable as an art surface. No probing was conducted, but the compacted, sandy occupation floor may have some depth in its deposits.

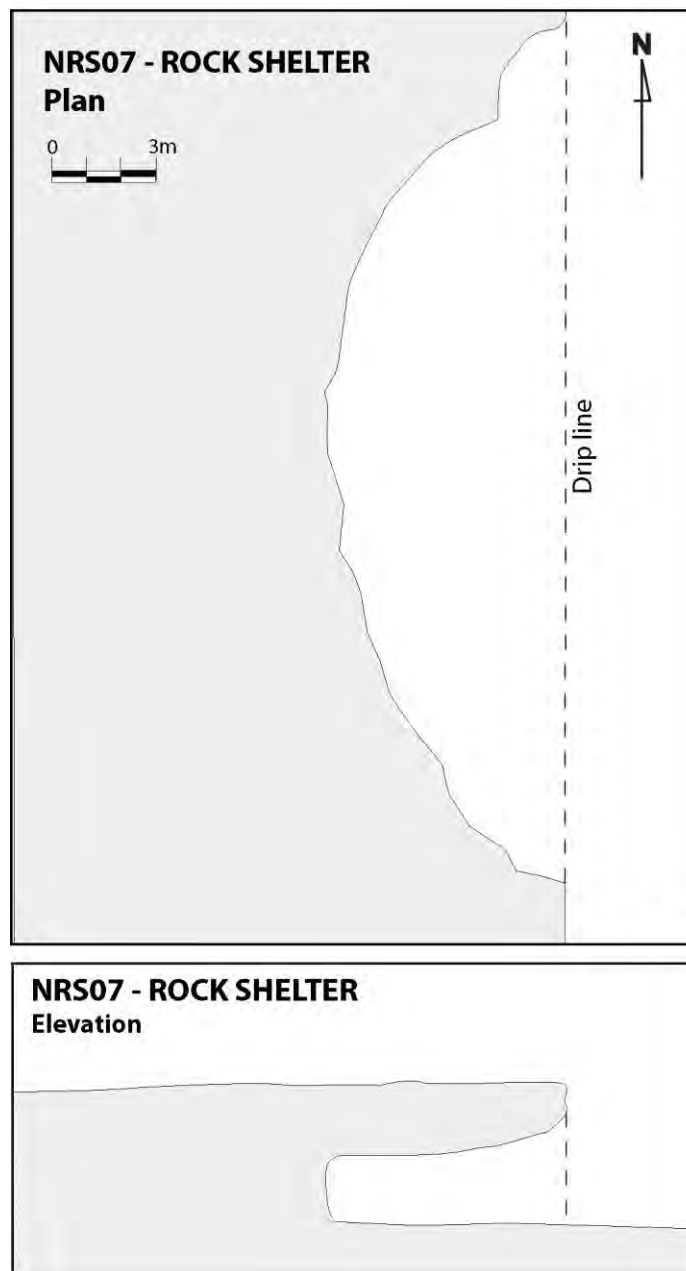


Figure 24. NRS07 site plan and elevation.



Figure 25. NRS07 view from the front approach.



Figure 26. NRS07 view from the southern side, near small waterfall (not flowing). Scale in 20cm.



Figure 27. NRS07 floor view. Scale in 20cm.

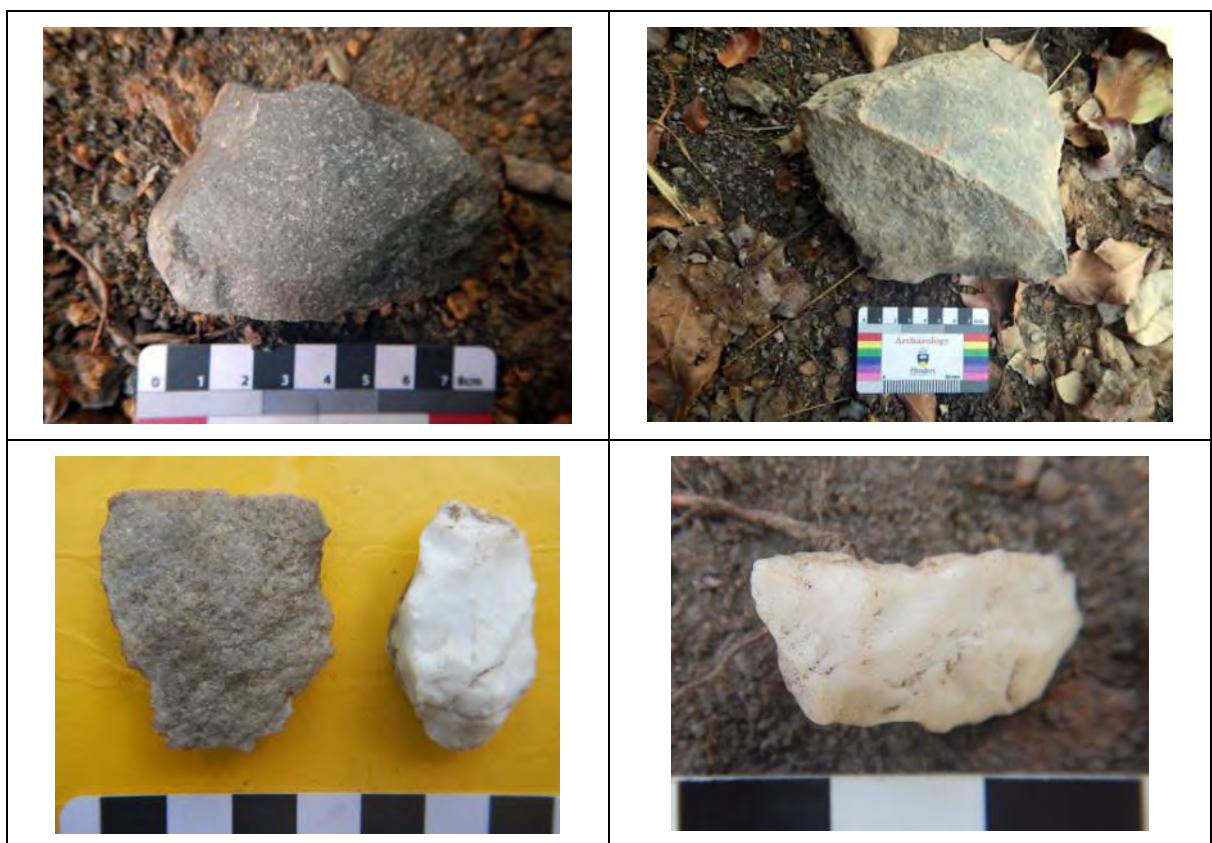


Figure 28. NRS07 quartzite cores (above), quartzite flake and quartz flakes (below). Scale in 1cm.

5.1.8 *Isoliths*

Two springs occur in the northern sector, but only one of these had any surface water. Spring 1 occurs on the main eastern track, on the same track as NRS01 and NRS02 and contained standing water, not flowing (Fig. 29). Spring 2 occurs on the main western track in the northern sector, but no water was seen (Fig. 30). A transect was conducted over the quartzite ridge to the west of Spring 2, but no significant archaeological material was found (Fig. 31).

The first of the six isoliths found during the survey was, however, found in a swale in the northern most part of the northern sector. The artefact, Noonamah Isolith 01 (NRI01) is a quartzite core (Fig. 32 and Fig. 33). To the east of this find are extensive laterite ridges, which skirt the edges of a flood plain (Fig. 34). These ridges have existing tracks used by motocross riders. A transect along the length of these ridges, however, failed to find any archaeology.

The second isolith (NRI02) was found along the main valley heading south of the northern dumpsite (near dumped car) on low-lying laterite ridges found there. The third isolith, NRI03 was found overlooking the main western track, not far from Spring 2. Both finds are quartz flakes (Fig. 34 and Fig. 35).



Figure 29. Spring 1. The only surface water seen during the survey.



Figure 30. Spring 2, dry at the time of the survey.



Figure 31. Typical stoney ridge near Spring 2.



Figure 32. NR101, quartzite core in the northern sector.



Figure 33. Typical stoney ridge near NRI01.



Figure 34. Laterite capped ridges, northern sector.



Figure 35. NRI02, quartz flake.



Figure 36. NRI03, quartz flake.

Mentioned previously was a small cave along the southern bank of a creek line off Redcliffe Road. An isolith (NRI04) was found about 50m from the cave. The cave's floor, however, is too small for occupation (Figs. 37 and Fig. 38).



Figure 37. NRI04, quartz flake near small un-occupied cave.

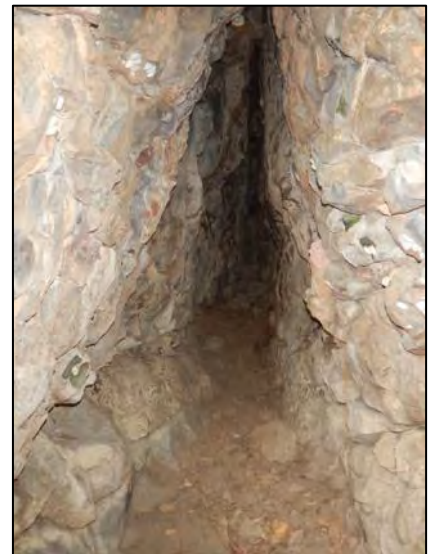


Figure 38. NRI04, adjacent un-occupied cave, with narrow floor (right).

While working off Redcliffe Road south of Alverly Road, a small creek was investigated with the discovery of two flakes on its northern banks (Fig. 39). This constituted the only find in the southern sector, apart from the WWII bomber.

Another visit to Spring 2, however, did produce results, but in an unexpected way. Artefacts were found collected in bowerbird nest (Fig. 40). The occupant had collected, apart from land snail shells and broken driving light lens fragments, quartzite artefacts. Their fresh flake scars and banding produces a sparkling appearance, which evidently catches the eye of not just archaeologists (Fig. 41). The site, however, has been characterised as an isolith, despite the impressive collection of the bowerbird, as they are out of context. No nearby site was seen.



Figure 39. NRI05, east of Redcliffe Road. Scale in 1cm.



Figure 40. NRI06, stone artefacts in a bowerbird nest.



Figure 41. NRI06, quartzite artefacts found in the bowerbird nest.

5.1.9 B-25D Mitchell N5-156

The WWII bomber wreck, B-25D Mitchell bomber, Serial number N5-156, occurs in the southern lot (location suppressed in order to protect the site). The wreck site is not signposted, but a commemorative plaque has been placed on the most intact section of the wreck (Fig. 45 and Fig. 46). The extent of the wreck site and its condition is astounding. Compared to other wrecks of this type in the Northern Territory, it may ironically be the most 'intact'. Mitchell N5-140 off Nightcliff has only its engines and wing root to mark its final resting place. The Aviation Historical Society Northern Territory (AHSNT) has extensively salvaged Mitchell N5-133 on Jahleel Point, Melville Island, and only the centre section of the wing survives *in situ*. Another No. 18 Squadron Mitchell, N5-139, crashed on the Moyle floodplain, but it too was almost entirely salvaged post-war (Australian National Shipwreck Database – Aircraft). The wreck site of N5-156, however, still has many elements, albeit spread over a large area.

The wreck site has great potential to indicate how it crashed. What remains of its wings provides a poignant clue. It is concertinaed, suggesting a high-speed belly landing (Fig. 47). Did the pilot simply fly into the ground? Given that the flight was at night, he may very well have done so. Other sections of the wreck show similar such concertinaing (Fig. 48). The historical account of loss (as minimal as it may be) indicated a fire on board. Pieces of engine cylinder heads are buckled, but they may have burnt post-impact. Other features are clear testament to an on board fire (Fig. 49 and Fig. 50). An incredible amount of small artefacts still remain on site, such as machinegun shells (Fig. 51). The site most likely experienced some salvage (no large engine components were seen), but its fabric is, to a great extent, extant and *in situ*. at time of loss.



Figure 42. Main fuselage section, N5-156 wreck site. Scale in 20cm.



Figure 43. Commemorative data plate, N5-156.



Figure 44. Concertinaed wing section, N5-156. Scale in 20cm.



Figure 45. Concertinaed section, N5-156. Scale in 20cm.



Figure 46. Cylinder head, N5-156. Scale in 1cm.



Figure 47. Burnt section, testament to the fire on board at time of loss, N5-156. Scale in 20cm.



Figure 48. Machinegun, .50 calibre shells, N5-156. Scale in 1cm.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The proposed development of a rural estate referred to as Noonamah Ridge Estate, 36km. south of Darwin, has the potential to impact on archaeological sites, both Aboriginal Heritage sites and Historic sites. An archaeological survey was conducted there in November 2014 to locate likely areas of high archaeological significance. The survey discovered seven archaeological sites, one of which is highly significant in terms of being able to provide information on how Aboriginal people in the past utilised this country.

An historic WWII bomber crash site was verified and also assessed as being highly significant in terms of its relative 'intact' fabric, which may indicate to archaeologists how site formation processes have occurred at the site, both at the time of loss and during the intervening years since WWII.

The survey results indicate that Aboriginal people were mainly exploiting the low-lying and flat laterite ridges adjacent to main creeks and waterways. Water is always a key determinate as to where people lived in the environment and it would appear that occupation was focused in the northern sector of the survey area where there is dissection of the country by the quartzite ridges and major waterways. People were utilising locally sourced raw materials, mainly quartzites and quartz, to produce stone tools. No fine-grained materials were found. The following recommendations arise from this report.

6.2 Recommendations

6.2.1 Recommendation 1 – avoidance

- The first and preferred management option is to avoid the archaeological sites noted in this report. If areas where archaeological sites occur are unavoidably required for the development, then a mitigation phase of the research should be enacted to comply with obligations under the *Heritage Act* (2012).

6.2.2 Recommendation 2 – specific site recommendations

- NRS01 and NRS02 have medium significance as the range of artefacts found at these sites can provide information on stone tool technologies used in the region.
- NRS03 is highly significant by virtue of two or more knapping floors found at the site, which can provide insights into the reduction sequences used to produce stone tools. The extent of debitage indicates that this site would have been important to Aboriginal people as a 'home camp', where they would have returned to time and time again in their seasonal movements.
- NRS04 is virtually adjacent to NRS03 and is only separated from that site by virtue of being on the other side of the creek. The site has medium significance, as artefact densities were far lower than NRS03.
- NRS05 was found in adjacent to a swamp, at the edge of the quartzite ridges. The site is of low significance, as it most likely represents a singular knapping event.
- NRS06 occurs just north of NR03, but the densities of artefacts are far lower. The site may represent a singular knapping event, or is just the remnant of a once much larger site, now obscured by sediment deposition and/or periodic flooding.

- NRS07 is a rock shelter with surface finds of flakes and cores. The vertical surfaces of the shelter are heavily weathered and are not suitable as a rock art surface. The site is of high significance because of the excavation potential it offers. It is unique to the Darwin region as there is no other rock shelter site recorded this close to Darwin. The large occupation floor, however, was formed by erosion, not by deposition. A test excavation should be conducted there to determine if there is any depth to the deposit and whether dating samples can be obtained. This may, therefore, be the first dated archaeological sequence since research was undertaken on the shell middens of Darwin Harbour.
- All isolated stone artefacts (isoliths) are assessed as low significance on account of their lack of context. Most are of a poor quality material, difficult to determine manufacture techniques.

6.2.2 Recommendation 3 – B-25D Mitchell N5-156

- Debris from the crash site covers a large area and so a protection zone with a radius of 200 metres from the site centroid should be implemented to stop further contamination of the site (Fig. 49). Contamination of archaeological sites involves practices such as artefact souveniring, or moving artefacts around the site. Each of the waypoints in the figure are concentrations of artefacts or single pieces that define the extent of the site. Further study of the nature and distribution of these finds may indicate how the aircraft crashed.
- The crash site is scientifically highly significant as further site mapping may reveal how the aircraft crashed. It is not a war grave, as the Dutch pilot was interred in Indonesia post-war. The site is, however, unique by its relatively intact fabric, not possible to see at any other B-25 wreck in the Northern Territory. Further historical research is required to determine who the rest of the crew were and what happened to them. The operational history of the aircraft should be reconstructed, as it is not well documented.
- The site itself should be a significant historical feature in the proposed estate and perhaps managed in much the same way as other historic crash sites around the territory, such as the B-24J Liberator on Cox Peninsula. Quite often now, the place where a death occurs, especially where military personnel were killed while defending Darwin from the Japanese, should be places of commemoration as a way of saying thankyou. The site is, therefore, a significant testimonial to the cooperation between Australian and Dutch airmen during WWII in the common struggle against the Japanese.

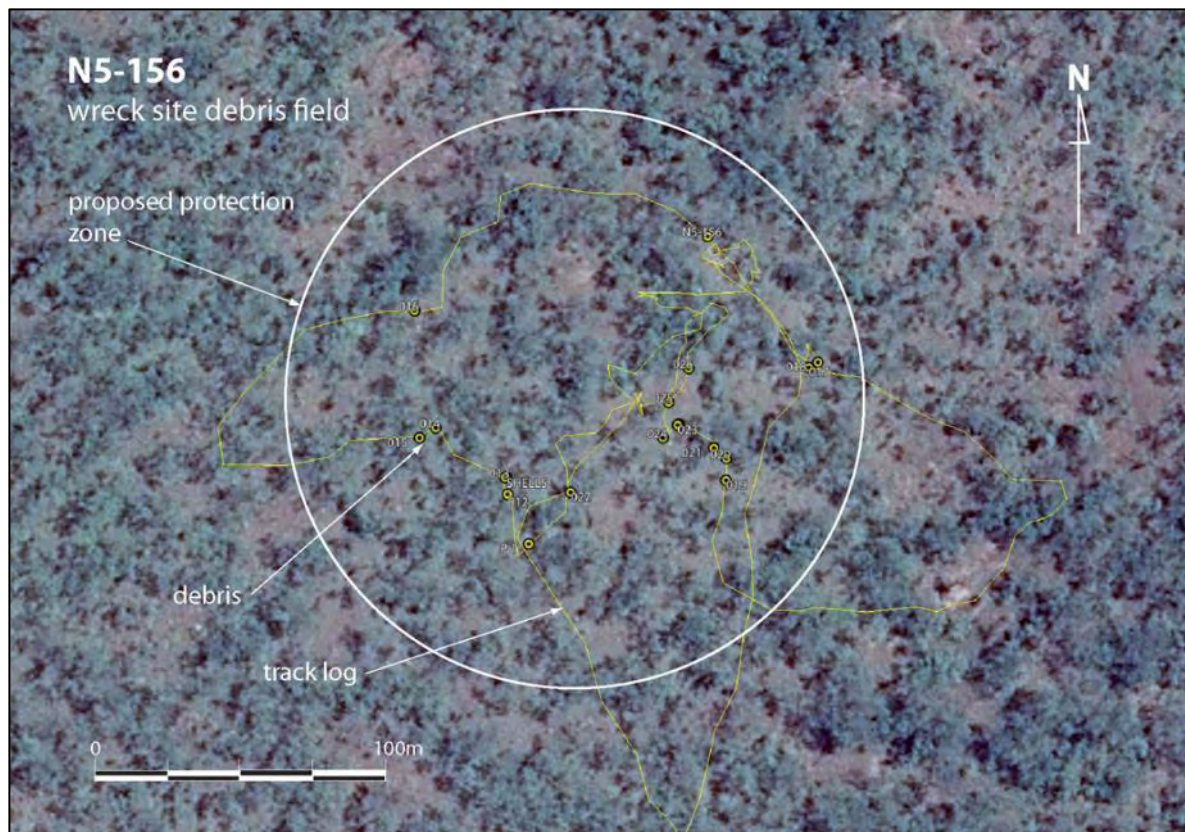


Figure 49. Map of wreck site debris field, N5-156 (After GoogleEarth).

REFERENCES

Books and Internet material

Australian National Shipwreck Database – Aircraft.

URL: <https://dmzapp17p.ris.environment.gov.au/shipwreck/public/wreck/search.do>. Accessed 3 December 2014.

Alford, B. 2014. 'B-25 Mitchell N5-156'. Pacific Wrecks Forum. URL:

<http://www.pacificwrecks.com/forum/viewtopic.php?f=2&t=5051&sid=7b230e113fee25eeec95a46e7831fcea>. Accessed 25 November 2014.

Baughner, J. 2009. B-25 Mitchell in Dutch Service. URL:

http://www.joebaughner.com/usaf_bombers/b25_23.html. Accessed 25 November 2014.

Burke, H. and Smith, C. 2004. *The archaeologist's field handbook*. Allen and Unwin, N.S.W.

Helson, P. 1997. The forgotten Air Force: the establishment and employment of Australian air power in the North-Western Area 1941-1945. Unpublished Master of Arts Thesis at Honours level, The University College of the University of New South Wales.

Holdaway, S. and Stern, N. 2004. *A record in stone: the study of Australia's flaked stone artefacts*. Museum Victoria and AIATSIS, Melbourne.

Hurst, D. 2001. *The fourth ally: the Dutch forces in Australia in WWII*. Published by the author. 43 Percy Crescent Chapman ACT 2611.

McCarthy, F. 1976. *Australian Aboriginal stone implements*. Australian Museum Trust, Sidney.

Royal Australian Air Force. Historical Section. 1995. *Units of the Royal Australian Air Force, a concise history: Volume 3, Bomber Units*. Australian Government Publishing Service, Canberra.

Wallace, G. 1983. *Are you there Don R? Being the true story of the 18 Squadron N.E.I. – RAAF Forces from 1942 to 1950. The everyday life of its airmen and the air war in Darwin. As compiled from the scrap books of a despatch rider who served with the Squadron for 18 months*. Published by the author. 1/90 Windsor Crescent, Surrey Hills, Victoria.

Wallace, G. 1984. *Up in Darwin with the Dutch*. Published by the author. 1/90 Windsor Crescent, Surrey Hills, Victoria.

National archives

National Archives of Australia. Series number: A659. Control Symbol: 1941/1/7663. Title: Keesmaat, Cornelius Antonius Hendrikus - Naturalisation. National Archives of Australia, Canberra, A.C.T. [not cited – ordered from NAA].

National Archives of Australia. Series number: A12508. Control Symbol: 16/1074. Title: Keesmaat Cornelis A G born 16 November 1903; Prange age 22; nationality Dutch; travelled per CHARON arriving in Fremantle on 5 January 1940. National Archives of Australia, Canberra, A.C.T.

National Archives of Australia. Series number: PP302/1. Control symbol: WA15710. Title: Cornelius Antonius Keesmaat. National Archives of Australia, Perth, W.A. [not cited – ordered from NAA].