

Appendix I-1
Archaeological surveys at Lethbridge West and
Andranangoo West, Melville Island, NT.

**ARCHAEOLOGICAL SURVEYS AT LETHBRIDGE WEST AND
ANDRANANGOO WEST, MELVILLE ISLAND, NT.**

A report for URS

On behalf of Matilda Minerals

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SUMMARY

Begnaze was engaged by URS to locate any archaeological sites or objects that may be impacted upon by the proposed mining at the Lethbridge West and Andranangoo West Prospects held by Matilda Minerals Ltd, both located on the north coast of Melville Island, Northern Territory.

No previously recorded archaeological sites were identified in the areas to be disturbed. No archaeological sites were located during the field survey although there was one area that contained a background scatter of shell assessed as having being deposited by humans as a food resource in the past. This background scatter was located at 52 719324E 8743337N (Jahleel 5175 1:100,000 map sheet) on the margins of one of the areas to be disturbed at the Lethbridge West Prospect. It is likely to be disturbed during the mining of the area. To comply with the provisions of the *Northern Territory Heritage Conservation Act 1991* that protects archaeological sites and objects, permission should be sought from the Minister of Environment and Heritage to disturb this background scatter.

It is also recommended that a response mechanism should be set up to mitigate any loss of subsurface archaeological material located during the mining activity. This response should include the cessation of work around the archaeological material and obtaining advice from the Heritage Conservation Services to ensure that the conditions of the *NT Heritage Conservation Act 1991* are not contravened.

TABLE OF CONTENTS

SUMMARY	2.
1.0. INTRODUCTION	4.
1.1. Consultancy Brief.	4.
2.0. ENVIRONMENTAL BACKGROUND	4.
3.0. CULTURAL BACKGROUND	5.
3.1. INTRODUCTION	5.
3.1. Historic record and ethnographic data	5.
3.2. Archaeological background	6.
3.3. Predictive model for location of sites	6.
4.0. FIELDWORK PROCEDURES	6.
4.1. Types of archaeological sites	6.
4.2. Site definition	7.
4.3. Artefact identification.	7.
4.4. Assessment of significance	8.
5.0. RESULTS	8.
5.1. Background Scatter 1	9.
6.0. CONCLUSIONS AND RECOMMENDATIONS	9.
REFERENCES	10.
FIGURES	
Figure 1. Map of LethbridgeWest Mining Prospect	12.
Figure 2. Map of Andranangoo West Prospect	13.

1.0. INTRODUCTION

This report describes the archaeological surveys that were carried out over the areas to be disturbed by the proposed sand mining at the Lethbridge Bay West Prospect and Andranangoo Creek West Prospect, both located on the north coast of Melville Island. Recommendations are made for mitigation procedures that may be needed to protect archaeological sites and objects located during the surveys. Begnaze Pty Ltd was engaged by URS for Matilda Mines to undertake the archaeological survey. The report was prepared for the Aboriginal heritage component of the Environmental Protection and Biodiversity Conservation (EPBC) Referral and Notice of Intent (NOI) for the proposed mining operation.

Melville Island is the larger island of the Tiwi Islands group located approximately 80 kilometres north of Darwin. The proposed mining venture will consist of removing older (Miocene) sand dunes located at the back of the coastal sand dunes. The heavy minerals will be extracted on site with the bulk of the sand returned to the area of the open mine and the surface rehabilitated.

The archaeological surveys took one day for each site and were carried out by one archaeologist, Christine Crassweller and one historic consultant, Bob Alford.

1.1. Consultancy Brief.

The aim of the study is to locate and record any archaeological objects or places to ensure that the provisions of the *Northern Territory Heritage Conservation Act 1991* and the *EPBC Act 1999* and the *Environment and Heritage Legislation Amendment Act (No 1) 2003* are not contravened. The archaeological survey will be carried out as follows:

- The archaeological and heritage study will identify archaeological material within the designated areas by means of a survey carried out in a manner that will ensure the highest possible coverage of the area.
- Any archaeological or heritage places, objects or classes of objects located during the survey will be recorded in such detail as to permit independent assessment of their significance. The location of any archaeological places and objects will include coordinates obtained by a Global Positioning System. All sites will be named in order to identify the sites on the ground.
- After assessing the significance of the archaeological places or objects that will be disturbed by the development, recommendations will be made regarding compliance with the provisions of the *Northern Territory Heritage Conservation Act 1991*.

2.0 ENVIRONMENTAL BACKGROUND

Melville Island is characterized by relatively low relief dominated by partially dissected plateaux rising to 100 m above seal level and interspersed by broad valleys, riverine lagoons and estuarine tidal flats (Matilda Minerals 2004).

The main geological units on the Tiwi Islands consist of Tertiary and Upper Cretaceous sandstone and siltstone rocks that are intensely weathered and laterised on the surface with no hard rock exposure. Thorley (1992) suggests that this would have restricted the range of opportunities for a source of the raw material needed in the manufacture of stone artefacts.

The coastline in the proposed mining areas consist of beaches, adjacent to large estuaries and low, exposed, laterite covered Tertiary cliffs approximately 250 metres inland at

the proposed Lethbridge Bay site and laterite covered hills 500 metres from the coast at the proposed Andranangoo Creek site

3.0. CULTURAL BACKGROUND

Ethnohistoric and ethnographic information can provide valuable archaeological data that may assist in the interpretation of the archaeological record. Ethnohistoric accounts of Aboriginal behaviour are important in that they describe social organisations and behaviour before they were altered too much by contact with Europeans. Ethnographic data can be used to construct models that describe the archaeological record in terms of past Aboriginal subsistence and settlement patterns in the region. Both these sources of information should however be used with caution as while the Aboriginal people of a particular area may not have had direct contact with Europeans, new diseases and new knowledge of technologies may have preceded contact

3.1. Historic record and ethnographic data

Basedow (1907) and Foelsche (1882) give early accounts of subsistence activities of Aboriginal groups in the Top End of Australia and they describe swamps and lagoons as being focal points of subsistence activities providing sources of fish, geese, ducks, turtles, crocodiles and their eggs, shell fish and the roots of water lilies and rushes. Away from the lagoons, wallabies, snakes, goannas and other small game were hunted. On the Tiwi Islands Pye (1989:18) records that fish and wallabies were speared, goannas bandicoots, possums and snakes were caught by hand and throwing sticks were used to bring down geese and flying foxes. Major Campbell (1834:156) who was at the first European settlement on Melville Island at Fort Dundas described their weapons and tool as consisting of:

“The spears are from ten to twelve feet long made of a heavy wood, and very sharp pointed: some are plain some are barbed.....”

“The waddies are used as weapons for attack, as well as for killing wild animals and birds. They are made of a heavy wood, twenty two inches long, one and a half in diameter, pointed sharp at one end....”

“Their canoes, water buckets and baskets were made of bark, sown with strips of split cane”

Campbell (1834: 157) also observed that the Aboriginal inhabitants dispersed in the dry season when they generally camped on sandy banks, amongst the mangroves or near swamps and in the wet season their camps were near the sea.

Contact was made with the Aboriginal mainlanders when the Melville Islanders crossed to the mainland in canoes to capture women (Foelsch 1882) or to collect resources (Sunter 1997: 35-36).

The first continuous outside contact that the Aboriginals on the Tiwi Islands was with the Macassan trepangers. While there are no recorded Macassan trepang sites on either Melville or Bathurst Island (Baker 1984: 11), Searcy (1909:45-46) stated that there are the remains of old fireplaces and smoke houses on the north of Melville Island and Pye (1989:7) noted that there is evidence that they visited the islands at Port Cockburn in the Aspley Strait near Garden point and of wrecked praus in the area. Campbell (1834: 155) noted that the Macassans were forbidden to go near Melville Island as the area was used by pirates. Evidence of contact with the Macassans either directly or indirectly can be assumed by their use of dugout canoes and the presence of metal axes (Campbell 1834).

The first European settlement was made at Fort Dundas between 1824 and 1828 on the east side of the Aspley Strait on Melville Island. Further contact with the Tiwi Islanders was hampered by their reputation for resisting intruders. The coast of the Tiwi Islands brought a modest boom the pearling industry in the 1880s and in 1895. Joe and Harry Cooper went to Melville Island to shoot buffalo, the descendants of animals left after Fort Dundas. In 1906 the first catholic mission was set up on the south west of Bathurst Island at Ngui and the Tiwi Islands were declared an Aboriginal Reserve in 1941.

3.2. Archaeological background

There are no Aboriginal archaeological sites on Melville Island listed on the Archaeological Site Register held at the NT Heritage Conservation Services or on any of the registers held by the Commonwealth Government. There are two possible Macassan sites, both wells, assumed to have been used by the Macassans. Neither of these sites is located near the proposed mining prospects (Bathgate and Lewis 1999). The lack of Aboriginal archaeological sites is a reflection of the lack of archaeological investigations on Melville Island and cannot be used to assume that there are no sites on the island.

3.3. Predictive model for location of sites

As the geology of the Melville Island indicates that the source of raw material used in the manufacture of stone artefacts would have been scarce there is a low potential for locating numerous stone artefact scatters on the island. The ethnographic evidence indicates that camps were observed along the coastline and their presence may be indicated by the remains of marine resources.

There is also the potential for locating Macassan sites along the north coast of Melville Island. If the Macassans visited the island only to replenish water supplies there may be the remains of wells and if they were using the coast line to harvest trepang there may be the remains of stone lines and depressions used to process the trepang.

2.0. FIELDWORK PROCEDURES

Access to both sites was by helicopter from Darwin in January 2005. The archaeological survey over the three proposed mining areas at the Lethbridge West Prospect (Figure 1) consisted of four pedestrian transect along the total length (1200m, 215m and 1033m) of each of the resource areas and two pedestrian transect along the access track from the beach to the proposed mining camp. A 200 square metre area was surveyed over the proposed mine camp location. The survey took one day.

The archaeological surveys over the two proposed mining areas at the Andranangoo West Prospect (Figure 2) consisted of four parallel transects along the smaller (1590m long) eastern resource area and over the eastern section of the large resource area (approximately 1000 m of the total length of 3230m). As there was not enough time to complete four parallel transects over the total length of this resource area, the survey consisted of two zigzag pedestrian transects over the resource area north of the higher lateritic ground. The proposed access road and mine campsite were surveyed as for Lethbridge West. The survey took one day.

4.1. Types of archaeological sites.

There are six types of sites previously recorded in northern Australia and can broadly be defined as follows:

- *Artefact scatters.* These may contain flaked or ground artefacts and hearthstones. They occur as surface scatters of materials or as stratified deposits when there has been repeated occupations.

- *Stone arrangements.* These can range from simple cairns to more elaborate arrangements. These stone arrangements were used in ceremonial activities and represent sacred or totemic sites. Other stone arrangements were constructed for route or territory markers, the walls of huts, fish traps or small walls to stop water from entering a rock shelter or retain the floor.
- *Art sites* include stencils and paintings where material was added to the rock surfaces, or engravings or poundings where the pictures or designs are produced by the removal of material from the rock surface (Clegg 1983).
- *Rockshelter sites* contain a deposit of cultural material that has built up over time and contain flaked or ground stone artefacts, faunal material and other Aboriginal cultural remains.
- *Stone quarries* are generally sites where stone for flaked or edge ground artefacts have been extracted from an outcropping source of rock (Hiscock and Mitchell 1993).
- *Shell middens* contain mollusc material in the form of surface scatters or mounded deposits and represent the remains of human meals.

4.2. *Site definition.*

An archaeological site is defined for this survey as a concentration of artefactual material, such as stone artefacts or shell, with an average density that is 5 times greater than the average density of the background scatter and there are more than ten artefacts or shells which cover an area of at least 2m². A site will have an identifiable boundary where either artefact densities decrease to the extent as to be classified as background scatter or environmental features determine the boundary.

Background scatter is generally a very low density, more or less continuous distribution of isolated artefacts or shell over the landscape. Although these artefacts do not constitute a site they will be given location details for research purposes.

4.3. *Artefact identification.*

A requirement for a successful archaeological project involves the accurate identification of archaeological materials. For an object to be identified as a flaked object it needs to possess one or more of the following:

- a positive or negative ring crack.
- a distinct positive or negative bulb of percussion.
- a distinct erailure scar in an appropriate position below the platform.
- definite remnants of flake scars on dorsal surface or ridges.

Stone artefacts are divided into 4 main types (Hiscock 1984:128-129). They are defined as follows:

- *Cores* are pieces of stone that have one or more negative scars and the absence of positive flake scars
- *Unretouched flakes* are pieces of stone that have been struck off another piece of stone and ideally possess platforms, positive bulbs of percussion, concentric ripples, ring cracks and /or erailure scars on the ventral surface.
- *Retouched flakes* are flaked flakes. They are identified by the presence of negative scars that must have been created after the ventral surface of the flake had been created. There will be either negative scars on the ventral surface or negative scars on the dorsal surface, which have been formed by the flake being hit on the ventral surface.
- *Flaked pieces* are stone artefacts that have been formed by knapping but cannot be identified as either a core or a flake.

Other artefact and implement types that have been identified in the region are listed below following characteristics outlined by McCarthy (1976).

- *Unifacial points* are flakes that have been retouched along the margins from one surface, either ventral or dorsal to give or enhance its pointed shape. They are sometimes symmetrical or leaf shaped.
- *Bifacial points* are retouched along both ventral and dorsal surfaces of a flake to enhance or give the artefact its pointed shape. They may have the platform removed and the proximal end rounded.
- *Edge ground axes* have been shaped by the process of flaking, pecking and polishing. They generally have only one working edge that has been ground to a sharp margin although occasionally they may have two leading edges.
- *Grindstones* are characterized by a worn and abraded surface or surfaces. There also may be a concave surface.
- *Hammerstones* have use-wear on the surface in the form of the abrasion, pitting, edge fracturing with some negative scarring.
- *Manuports* are stone material that are not found naturally in an area and must have been carried in by humans.

4.4. *Assessment of significance and heritage management principles*

According to Sullivan and Bowdler (1984) archaeological significance means that it has scientific, archaeological or research value, that is, it has the potential to assist current or future research into problems of human history or other areas of enquiry. The Australian ICIMOS Charter for the Conservation of Places of Cultural Significance, otherwise known as the Burra Charter (Maquis-Kyle and Walker 1992:73) states that the scientific value or research potential of a place depends upon the importance of the data involved, on its rarity, quality or representativeness, and on the degree to which the place or object may contribute to further substantial information. Therefore the significance of a site is firstly related to the intactness or integrity of a site, that is the state of preservation as well as the stratigraphic reliability of the cultural material. Secondly, the representativeness of a site is important either because a site is unusual or because the site has research potential when taken in conjunction with other sites. Thirdly a site may provide chronology extending back into the past.

5.0. RESULTS

The surveyed areas at both the Lethbridge West and Andranangoo West Prospects consist of low sand dunes covered in both open and closed woodlands predominately of *Melaleuca* species, with patches of vine thickets that were particularly dense along the western section of the resource area numbered 3 and 4 at the Lethbridge West prospect (see Figure 1). At the time of the survey a small area of *Melaleuca* woodlands was flooded in the western section of the larger resource area at Andranangoo. At both mining prospects the higher inland survey area was covered in open *Eucalypt* woodlands. At Lethbridge West the boundary between the dune area and the higher ground consisted of a relatively steep, two metre high slope while at Andranangoo the slope was gentler.

During the survey it was noted that at several locations the position given by the hand held GPS did not line up with the physical features on the map. For example at Andranangoo West when the GPS coordinates were read on the peninsula out into the lagoon, the co-ordinates indicated that the location was in the middle of the lagoon, that is the peninsula is further south than indicated on the map.

The surface of the survey areas was covered in leaf litter, which resulted in ground surface visibility in the open woodland area ranging between 10 and 60% while in the closed woodlands and vine thickets the average ground visibility was 15%. No stone artefacts were identified during the survey and it was noted that the sand dune areas were bereft of any stone

at all. Large land snails shell were observed on the surface of the dunes and in sandy areas that had been disturbed by vehicle tracks. There were also numerous scrub fowl mounds at both sites. One background scatter of edible shell was located at Lethbridge West Prospect

5.1. Background Scatter 1.

Location: 52 719324E 8743337N Jahleel 5175 1:100,000 map sheet.

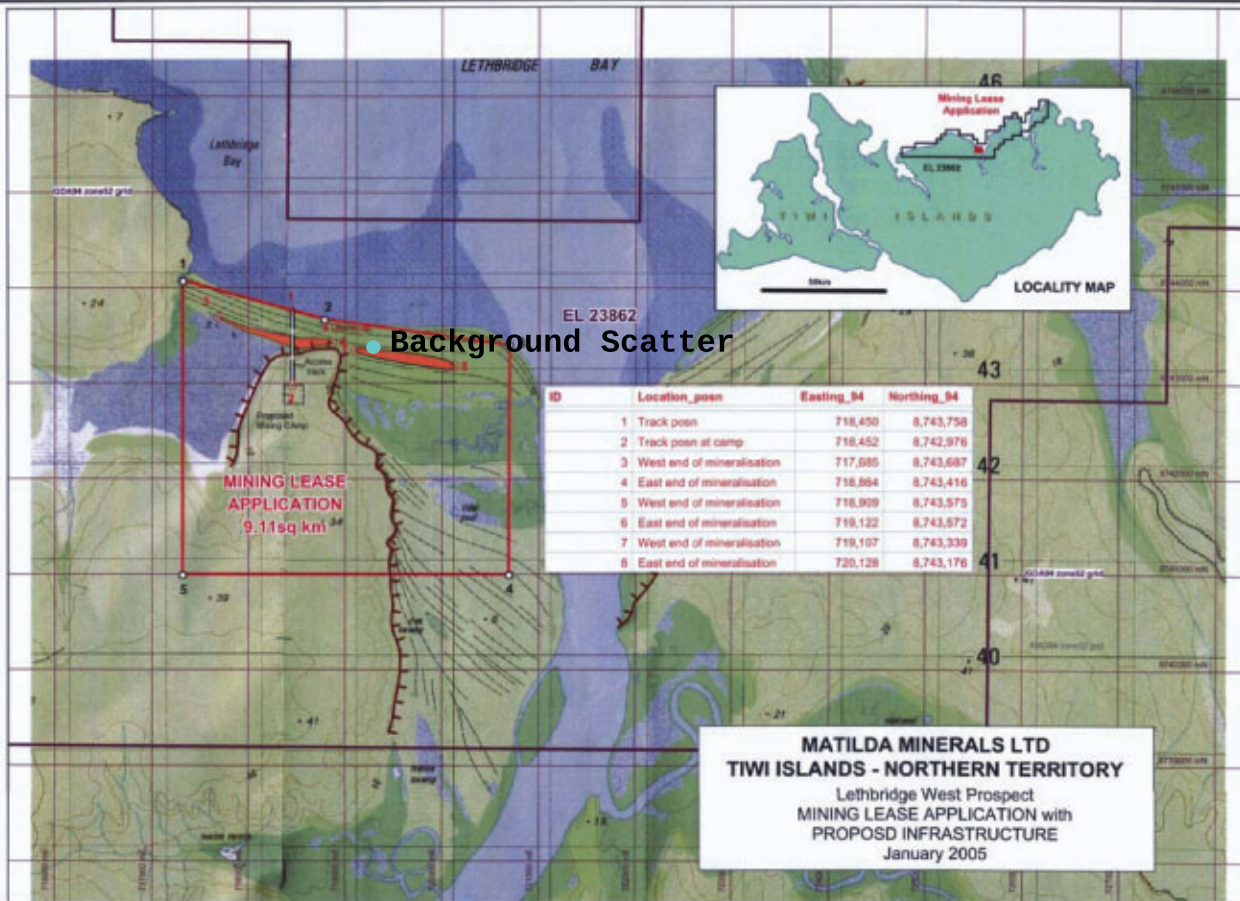
A scatter of one *Terebralia semistriata* and six *Telescopium Telescopium* shells were located in an area of three square metres on the margins of the most eastern resource area at the Lethbridge West Prospect. The scatter was located on the second sand dune from the open sandy beach that was approximately 150 metres to the north. As the natural habitat of these two shell taxa are mangrove areas, and they had all been broken, their presence is more likely attributed to humans using them as a food resource rather than them being washed in during high seas.

Archaeological significance: As the seven shell have been recorded in detail they have a low research potential and have been deemed as possessing low archaeological significance.

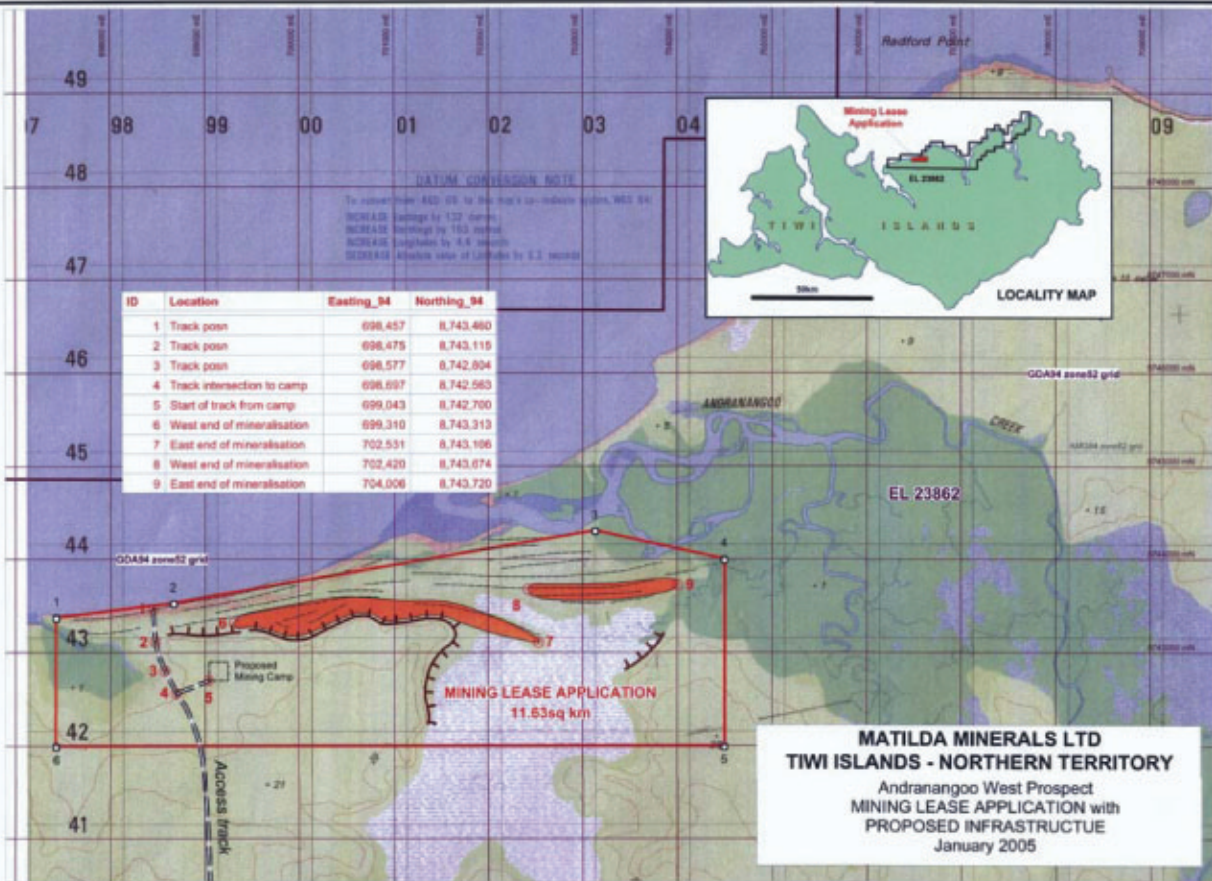
6.0. CONCLUSIONS AND RECOMMENDATIONS

No archaeological sites were located at either Lethbridge West or Andranangoo West Prospects on the north coast of Melville Island. A small background scatter of shell was located at Lethbridge West at 52 719324E 8743337N (Jahleel 5175 1:100,000 map sheet) and is assessed as having low archaeological significance. To comply with the provisions of the *Northern Territory Heritage Conservation Act 1991* permission should be sought from the Minister of Environment and Heritage to disturb this background scatter.

It is also considered that there is a low possibility for the presence of subsurface archaeological material that may consist of shell middens. Therefore before mining commences it is recommended that a response mechanism is set up to ensure that any subsurface material located during the mining is not disturbed and is protected. This response should include the cessation of work around the archaeological material and obtaining advice from the Heritage Conservation Services to ensure that the conditions of the *NT Heritage Conservation Act 1991* are not contravened.



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