Archaeological Survey of Section 163 Hundred of Howard, Coomalie Region

by

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SUMMARY AND RECOMMENDATIONS

Four archaeological sites and background scatters of stone artefacts were located within the proposed development area during the course of this survey. The following recommendations arise from this survey:

1. Average density of background scatters of artefactual material is relatively low within the proposed development area. **It is recommended that permission to disturb the background scatters is granted under the** *Northern Territory Heritage Conservation Act 1991*.

2. The proposed development of this area is likely to destroy the remains of archaeological material in Site Coomalie 1. Given the very disturbed condition and low diversity and density of artefacts indicating low significance for this site, **it is recommended that permission to disturb the site is granted under the** *Northern Territory Heritage Conservation Act 1991*.

3. The proposed development of this area is likely to destroy the remains of archaeological material in Coomalie Site 2. Given the disturbed condition and low diversity and density of artefacts, indicating low significance for this site, **it is recommended that permission to disturb the site is granted under the** *Northern Territory Heritage Conservation Act 1991*.

4. The proposed development may have a slight impact on the remains of archaeological material in Coomalie Site 3, which is located on the outside edge of the boundary of the study area. **It is recommended that all operations personnel are informed of the exact location of Coomalie Site 3, in order to avoid inadvertent damage to archaeological material outside the development area**. If it becomes evident that development activities are likely to impinge upon the site, given its moderate archaeological significance, **it is recommended that detailed on-site recording and salvage collection of material from Coomalie Site 3 should be undertaken before permission to disturb the site is granted under the** *Northern Territory Heritage Conservation Act 1991*.

5. The proposed development of this area is likely to destroy the remains of archaeological material in Site Coomalie 4. Given the very disturbed condition and low diversity and density of artefacts, indicating low significance for this site, **it is recommended that permission to disturb the site is granted under the** *Northern Territory Heritage Conservation Act 1991*.

1. INTRODUCTION

1.1. Consultancy brief

This report describes an archaeological investigation of Section 163 Hundred of Howard in the Coomalie region. Exotic Timbers of Australia LTD commissioned this survey of the proposed development area. The aims of this study were to identify the nature and distribution of any heritage places and archaeological material, determine their relative significance and the likely impact of the proposed development, and make recommendations regarding mitigation. Fieldwork was carried out by qualified archaeologists Trish Bourke and Chris Crassweller in September 2001 and this report was written by Trish Bourke.

1.2. Location and size of the proposed development area.

The proposed development area is located about a kilometre west of the Stuart Highway, and the southern end of the development area is intersected by Batchelor Road (Figure 1). The size of the study area is approximately 4km^2. Land use of the surrounding area includes rural residential, horticultural and mining, with the now closed Woodcutters mine north of the study area. Disturbance from World War Two activities and road construction is evident throughout the area.

2. PHYSICAL ENVIRONMENT

The environmental characteristics of the Coomalie region, which are important in understanding Aboriginal subsistence and settlement patterns, are briefly described below. More detailed descriptions of the geomorphology, geology and vegetation of this region are provided in Guse (1998). The topography of this area is broadly characterised by steeply sloping ridges and hills rising from the surrounding terrain, which is dissected by creeks with small alluvial flats (Christian and Stewart 1953:91).

2.1 Geomorphology

The main geomorphic units within the survey area are the Dissected Foothills, Dissected Uplands and Lowlands (Pietsch 1989). Dissected Foothills are undulating rubbly rises with interspersed low hills and strike ridges of poorly exposed Early Proterozoic metasediments, with skeletal, gravelly and lateritic soils. Dissected Uplands rise to 200 metres above sea level and are formed by prominent, resistant strike ridges and intermittent, low rubbly hills, which have boulder-strewn slopes and rocky crests with shallow skeletal soils. The undulating Lowlands of low to moderate relief have developed over granitic, metamorphic and flat-lying Cambro-Ordovician sedimenatry rocks. A thin veneer of sandy soil covers the granitic and metamorphic rocks and red and calcareous soils are well developed over the sedimenatry rocks (Pietsch 1989).

2.2. Geology

Numerous geological formations occur in the Coomalie region, which lies in the northwestern part of the Pine Creek Geosyncline (Ahmad et al. 1993; Pietsch and Stuart-Smith 1987). Geological formations within the study area on the (1985) 1:100000 Map of the Geology of the Batchelor-Hayes Creek Region, are Whites Formation and Crater Formation, and minor areas of Dolomite, which comprises stromatolitic magnesite and dolomite. Whites Formation consists of calcareous and carbonaceous pyritic argillite dololutite, dolarenite, rare quartzite and calcareous para-amphibolite. Crater Formation consists of siltstone and shale, conglomerate showing graded bedding in places, sandstone and arkose. Quaternary Alluvium, composed mainly of silt, sand and clay from the creek alluvial deposits occurs in the low-lying areas between hills and along major drainage lines (Ahmad et al. 1993:13). Outcrops of Gerowrie Tuff, which may have been used for artefact manufacture in prehistoric times, occur to the south and east of the survey area,. Outcrops of quartz occur throughout the region.

2.3. Water and Vegetation

The major watercourses dissecting this area are the branches of Coomalie Creek, which although small were still flowing well in October and would provide a permanent water source for past foraging peoples. Vegetation communities in the area consist of tall open eucalypt woodland and include *E. tetrodonta* (Stringybark) in association with

E. miniata (Darwin Woolly Butt) and *E. bleeseri* (Smooth-stemmed Bloodwood) with *Livistona* and *Cycas*, and stands of *Melalaeuca* and grassland in low lying drainage areas (Christian and Stewart 1953:83; Wilson *et al*. 1990:42).

3. ETHNOGRAPHIC BACKGROUND

Ethnographic information may be used with environmental data to predict the nature and distribution of sites in the study area. Although ethnographic data is scarce for this region, the available information indicates that subsistence strategies would have been focused around certain landscape features, such as lagoons, creeks, floodplains and ridges and hills. As well as providing sources of fresh water, lagoons and creeks were exploited for plant resources such as water lilies and rushes, yams, and the fruits of the cycad and pandanus (Dahl 1927:17; Foelsche 1882:12-13). Animal resources such as kangaroos and small game could be waylaid and speared on their regular tracks to water (Foelsche 1882:12-13), while resources such as fish, geese, turtle, crocodile and mussels were available in the lagoons (Dahl 1927:17-18).

Much of the material culture used to exploit these resources consisted of perishable items such as bamboo and reed spears, nets and bags and wood water vessels (Basedow 1907:31-39). The only items of material culture likely to be preserved in the archaeological record are stone spear heads, stone axes, stone pestles and stone hearths, and stone or shell tools used for cutting or scraping (Foelsche 1882; Basedow 1907). The ethnographic information suggests that localities in close proximity to sources of water and to sources of raw material suitable for stone artefact manufacture, such as creeks, lagoons, ridges and hills are likely to contain archaeological material.

4. ARCHAEOLOGICAL BACKGROUND

Very few previous archaeological surveys have been undertaken within 5km of this section. An overview of the distribution of archaeological sites in the wider Coomalie Region by Guse (1998) provides a context for evaluating the significance of any materials found in the study area Although 148 sites are listed on the Museum and Arts Galleries of the NT Site Register witin a 50-kilometre radius of Batchelor, only six archaeological sites have been recorded within the boundaries of the Coomalie Shire (Burns 1996; Guse 1997). These consist of mainly stone artefact scatters, most of which were located on hillcrests and hill slopes in the Dissected Uplands and Dissected Foothills units and associated with water bodies and streams (Guse 1998:30-34).

Within 10km of the survey area one stone artefact scatter has been recorded by Guse (1997) at Lake Bennett and two scatters and a quarry by Burns (1996) along the proposed railway corrider to the south. These sites range in size from 900 to 4800m^2, with average artefact densities ranging between 1 to 15/m^2. The sites generally contain a variety of artefact types including bifacial points, cores, flakes and retouched flakes, and raw materials of Gerowie tuff and white quartz. Sites to the south of the study area tend to be dominated by the raw material Gerowie tuff, while north of the area closer to Darwin in places where surveys have been undertaken such as Berry Springs, quartz is the major raw material component in all sites (Burns 1999; Guse 1995). This pattern reflects the nearest available type of raw material for artefact manufacture.

The results of surveys for development projects in the wider region (eg. Burns 1996; Guse and Gregory 1994; Heritage Surveys 1995; Hiscock and Mitchell 1991; 1992; Mulvaney 1990) indicate a consistent pattern of site distribution. On the basis of this information it is possible to construct a model of predicted site distribution within the study area. This pattern suggests that sites in this region are expected to be predominantly stone artefact scatters. Density of archaeological material is expected to be higher in the Dissected Hills unit and sites are likely to be located on hills or ridges close to sources of raw material suitable for stone artefact manufacture and to sources of water such as creeks billabongs and swamps.

5. METHODS

5.1 Survey Procedures

Factors that affect the success of an archaeological survey are well documented. These include the intensity of the survey, which has been closely correlated with the number of sites found, and the ability to identify artefacts (cf. Richardson 1988). Survey intensity is determined by the interval spacing between surveyors and the speed of surveying. The survey methodology chosen by the archaeologist takes into account environmental conditions, such as the extent to which vegetation reduces the ground surface visibility.

Fieldwork for this study was undertaken by Trish Burns and Chris Crassweller in September 2001. The sample survey areas were inspected with interval spacings of 40-50m, giving a medium intensity survey. As discussed above, based on previous surveys, archaeological sites are commonly located on hills or higher ground adjacent to creeks or outcropping rock, so creek banks and ridges in the area were intensively inspected. This survey methodology allowed the location of archaeological material as follows:

- any high density artefact scatters with a dimension greater than 40m, and some sites with dimensions less than this,
- consistent and relatively high density background scatter,
- some isolated stone artefacts.

This survey was carried out in September, after around 60% of the study area had been previously fired. Ground surface visibility in the survey area ranged from 90% on ridges and eroded and burned areas, to <10% in densely grassed areas on some unburned areas of creek banks and alluvial flats. The survey concentrated on less vegetated areas with high ground surface visibility. As expected, and noted in previous surveys (eg. Guse and Gregory 1994), archaeological material was not found on low lying alluvial flats. Areas of erosion around creeks and on the alluvial plains with higher than average visibility, as well as rock outcrops, were inspected closely during the survey.

5.2 Artefact Identification

Accurate identification of archaeological materials is a requirement for successful surveys. Stone objects were identified as artefacts if one or more of the following characteristics were present (after Hiscock 1984:128):

1. A positive or negative ring crack.
2. A distinct negative or positive bulb of percussion.
3. A definite eraillure scar beneath a striking platform.
4. Definite remnants of flake scars (eg. dorsal scars and ridges).

Types of flaked stone artefacts were identified in this study according to characteristics as defined by Hiscock (1984:128-9):

A *flake*: A piece of stone struck off a core which exhibits one or more of the following characteristics: 1). A ring crack where the percussor struck the core.
2). A positive bulb of percussion.
3). An eraillure scar beneath a striking platform

A *core*: A piece of stone with one or more negative flake scars but no positive flake scars.

A *retouched flake*: A flake which exhibits flake scars extending onto the ventral surface and/or deriving from the ventral surface. Flakes which were retouched to form leaf shaped specimens were termed *points* (after Heritage Surveys 1995:6). *Unifacial points* are retouched on one side, and *bifacial points* on both sides.

5.3 Site Definition

In defining what constitutes an archaeological site, archaeologists often draw a distinction between relatively dense, localized concentrations of archaeological material and the sparsely distributed materials of the wider surroundings. This distinction, in which concentrations of archaeological material are termed "sites", while the relatively sparse scatter is called "background scatter", has been employed for the purposes of this study. The variability in density of artefact scatters in an area is a result of not only the nature and intensity of past human activities, but also of geomorphic processes. These processes also affect visibility of the artefactual material in the contemporary landscape (Hiscock 1995).

For the purposes of this study, a concentration of archaeological material, such as stone artefacts, was defined as a site when one or more of the following criteria were met (after Hiscock 1995:3) :

1. More than five artefacts in an area of two square metres.
2. Artefact density of more than 5x the density of background scatter.

Types of prehistoric sites found in this study are defined below (after Hiscock 1995:3):

1. *Artefact scatters*, which may contain flaked or ground artefacts and hearth stones. Artefact scatters may occur as surface scatters of material or as stratified deposits where there have been repeated occupations. These scatters do not necessarily imply that prehistoric people actually camped on the site; rather they indicate only that some type of activity was performed there:
2. *Quarries*, which are localities at which stone has been extracted for flaked or edge-ground artefacts.

5.4 Archaeological Significance

Archaeologists assess the scientific significance of archaeological sites through consideration of two characteristics. The first is the extent to which the archaeological material in a particular site is *representative* of other sites of the same type in the region. Sites that are unusual or unique are defined as having higher archaeological significance than sites that are common. Given that all sites are in a sense unique (Bowdler 1984:2), they are usually considered in terms of which type of site they are (eg. a midden or stone artefact scatter) when assessing how common they are.

The second characteristic used to assess significance is *research potential*, which refers to a site's potential to provide information, which may contribute to archaeological research questions. Well preserved sites and/or those that reflect a wide range of past human activities have a high research potential (after Heritage Surveys 1995).

6. RESULTS

6.1 Introduction

As a result of this survey four archaeological sites and background scatters of stone artefacts were located in the proposed development area (Figure 1). Area

surveyed covered approximately 60% of the section as indicated by hatching on the map in Figure 1. Historic World War Two sites are not included in the list of prehistoric archaeological sites unless found in association with the latter, but are documented below.

6.2 Background Scatters

Only a few isolated stone artefacts were observed during the survey, all in the Dissected Foothills unit, consisting of flakes manufactured from the raw materials of quartz and tuff, the same type of artefacts observed in the sites described below. Average density of background scatters of artefactual material is relatively low, estimated at less than 0.005/m^2, similar to the low density background scatters recorded in the region during a survey of the proposed railway line by Heritage Surveys (1995). No archaeological material was observed in low-lying alluvial flats, even in areas which had been burnt and visibility was over 70%.

6.3 Archaeological Sites

Four archaeological sites, all stone artefact scatters, one associated with historic World War Two material, were recorded in this survey. (Table 1). Details of the characteristics of these sites are given below.

Table 1. Summary of archaeological sites located within the study area

Site Name	Grid Reference*	Site type	Site area m^2	Average artefact density	Environmental context	Significance
Coomalie 1	728256E 8561190N	Stone artefact scatter	700	1/m^2	Eucalypt woodland/ creek bank	low
Coomalie 2	727767E 8562211N	Stone artefact scatter	630	6/m^2	Eucalypt woodland slope	low
Coomalie 3	727534E 8561273N	Stone artefact scatter	200	7/m^2	Crest of low hill	moderate
Coomalie 4	727956E 8560295N	Stone artefact scatter/ Historic site	-	1/m^2	Rocky ridge on hillslope	low

* 1:50 000 Batchelor topographic mapsheet 5171-4.

6.3.1 Coomalie Site 1 Stone Artefact Scatter

Location

Map: Batchelor (5171-4) 1:50K; AMG Reference 728256E; 8561190N

Coomalie Site 1 is located in open eucalypt woodland adjacent to a dirt track and about 25m from the banks of the Left Branch of Coomalie Creek (Figure 1). A ridge of black rocks lies a couple of hundred metres north of the site.

Site Description

Coomalie Site 1 is a relatively sparse stone artefact scatter situated on a small rise in open eucalypt woodland. Vegetation on the site was sparse at the time of survey and visibility at around 75%. The site lies 25m to the north/north east of the Left Branch of Coomalie Creek in an area heavily disturbed by earthmoving activities. A low density of stone artefacts covers an area some 25m East-West x 28m North-South amongst low outcrops of quartz (Plate 1). Artefact types recorded include flakes, retouched flakes, cores and the broken butts of bifacial points. Raw material is dominated by white milky quartz, with a small quantity of Gerowie tuff and a green milky quartzite present (Plate 2). The quartz does not appear to have been procured from the outcrops on the site and may have been brought in from elsewhere with the tuff and quartzite material. Average artefact density on the site is $1/m^2$ and the maximum density is $5/m^2$.

Significance

Coomalie Site 1 is a small, very disturbed site with low artefact density. Information that could be gained from this disturbed site is minimal relative to other sites in the region, so the site can be considered to be of low archaeological significance.

6.3.2 Coomalie Site 2 Stone Artefact Scatter

Location

Map: Batchelor (5171-4) 1:50K; AMG Reference 727767E 8562211N

Coomalie Site 2 is located at the northern boundary of the development area adjacent to a firebreak fenceline track in open eucalypt woodland (Figure 1). The nearest source of water, the Left Branch of Coomalie Creek, is about half a kilometre to the south. Another branch of Coomalie creek, and associated low-lying paperbark swamps, lie just over a kilometre to the east.

Site Description

Coomalie Site 2 comprises a stone artefact scatter in open eucalypt woodland on sloping ground amongst a small area of low quartz outcrops (Plate 3). Vegetation was sparse at the time of survey, dominated by eucalypt trees and cycad palms with little understory around this site and visibility was about 80%. Site dimensions are 18m North-South by 35m East-West. Artefact types recorded at the site include relatively small flakes, and cores. Raw materials are quartz, Gerowie tuff and occasional quartzite (Plate 4). Quartz is the dominant raw material, with around five quartz artefacts to one tuff artefact seen. Average stone artefact density is estimated at 6-8/m^2. Maximum density is estimated at 10/m^2 and minimum 0.01/m^2. Pieces of ceramic and glass, probably from nearby WWII dumps, are present at this site, but did not appear to have been humanly flaked.

Significance

Coomalie Site 2 is a relatively small site with a limited range of artefact types and relatively low artefact density, compared with scatters in the wider region (eg. Burns 1996; Guse 1998). The low density of artefactual material is possibly due to disturbance by collectors and World War Two and road construction activites. The relatively small size of the flakes at this site may reflect what is left after collectors removed larger artefacts, or may indicate that this was a site where scarce, imported stone artefacts were reworked and reduced.

Guse (1998) suggests that medium-large sized artefact scatters with a low diversity of raw material and artefact types found in association with rock outcrops suitable for quarrying, represent short-term logistic encampments of a mobile Aboriginal population focussing on water and raw material sources. At this small site, which has a low diversity of raw material and artefact types, the quartz outcrop does not appear to have been quarried, and it may be that the outcrop serves as a site marker of established travel routes rather than an opportunistically located quarry as Guse (1998:53) suggests. The white milky quartz appears to be of better quality to that of the outcrop and must have been brought to the site from elsewhere as was the tuff and quartzite.

Although there is a paucity of known archaeological sites for the Coomalie region and those that have been recorded through development surveys are likely to be destroyed (Guse 1998:54-5), it is likely that as more surveys are undertaken in this region, more sites that are less disturbed may be recorded. Given this, and the low diversity and density of material in Coomalie Site 2, this site is assessed as having low research potential and can be considered to be of low archaeological significance.

6.3.3 Coomalie Site 3 Stone Artefact Scatter

Location

Map: Batchelor (5171-4) 1:50K; AMG Reference 727534E 8561273N

Coomalie Site 3 appears is located on the outside edge of the western boundary of the development area in open eucalypt woodland (Figure 1). The site is situated on the crest of a discrete low hill at the foothills east of Mount Charles. It lies a few hundred metres from fresh water in the Left Branch of Coomalie Creek to the north and north-east.

Site Description

Coomalie Site 3 is a stone artefact scatter in open eucalypt woodland, positioned on the crest of a low hill overlooking slopes down to a seasonally inundated grassy flat extending to the Left Branch of Coomalie Creek. Vegetation on the hillcrest at the time of survey consisted of large eucalypt trees and fan and cycad palms with shrubby understory and visibility at around 80%. Site dimensions are 20m North-South x 10m East-West. Artefact types identified at this site include flakes and the broken butts of bifacial points. The main raw material type is quartz (around 90%), but tuff is also present. Average artefact density was estimated at 7-10/m^2, and maximum density at 10/m^2.

Significance

Coomalie Site 3 is a relatively small site with a relatively low artefact type diversity and artefact density compared with sites in the wider region. However, the site has a slightly higher density of material than the other two scatters recorded in the near vicinity in this survey and appears less disturbed, probably because it is located further from the main tracks and roads in the area than the other two sites. Given the relative lower level of disturbance and the paucity and likely destruction of the few known sites in the Coomalie region (Guse 1998:54-5) Coomalie Site 3 is assessed as having moderate research potential and can be considered to be of moderate archaeological significance. The site appears to lie on the outside edge of the development boundary, in which case it is not likely to be impacted upon by the development.

6.3.4 Coomalie SITE 4 Stone Artefact Scatter/Historic Site

Location

Map: Batchelor (5171-4) 1:50K; AMG Reference 727956E 8560295N

Coomalie Site 4 is located on one of the foothills ridges two kilometres southeast of Mount Charles and a couple of hundred metres north of Batchelor Road (Figure 3).

Site Description

Coomalie Site 4 is a sparse stone artefact scatter, found in association with World War Two remains that extend for hundreds of metres up the slopes of the rubbly hills southeast of Mount Charles (Plate 5). Vegetation was sparse at the time of survey, consisting of a few eucalypt trees and cycad palms with little understory, so ground surface visibility was good, at around 90%. Artefact types identified at this site include flakes and bifacial points. Raw material types include quartz and tuff.

The relative proportions of quartz and tuff are reversed in this site in comparison to Coomalie sites 1, 2 and 3, with the dominant raw material being tuff (80%) rather than quartz (20%). Average artefact density was estimated at $1/m^2$, and maximum density at $5/m^2$. The area was highly disturbed, with many pounded soil and rock slabs and it is likely that the reversed ratio of artefact raw materials observed at this site is

due to differential collection of more visible white quartz than the black/grey tuff by army personnel during occupation of the army camp.

Significance

Coomalie Site 4 is more highly disturbed and of lower artefact diversity and density than other similar type sites in the wider region (eg. Burns 1996), in which stone artefact scatters are found in association with historic material. Thus the site can be considered to contain little research potential and to be of low archaeological significance.

6.4. Historic World War Two Sites

Numerous historic World War Two sites are found in this region, and the remains of a large army camp is located on a hilltop (GR 727684E 8559823N) and extending over much of the slopes near the Mount Charles section of the study area. These sites generally contain raised, compacted earthen floors and cement slabs (Plates 6 and 7). Also observed in a number of historic dumps were 44-gallon drums, bottle glass of a variety of colours and shapes, some marked 1943, ceramic plates and conductors and various kinds of metal, including galvanised iron, cast iron saucepans, tin containers and a white enamel mug scratched with the intials JN.

A built rock wall observed on top of a large rock outcrop (Plate 8) located near the northeastern boundary of the survey area at GR 729050E 8561910N may also be of World War Two origin. Similar types of historic sites, predominantly the remains of mining, railway and military activities, dot the landscape along the old railway line and hill crests in the vicinity of Adelaide River to the south. Details of the remains of some of these military camps in the region are provided in Dermoudy (1989).

7. DISCUSSION

The distribution of sites located in this survey correspond with ethnographic and archaeological patterns identified in the wider region as discussed above. All archaeological material is located on low hills and ridges or creek banks, in close proximity to permanent water sources. These Coomalie sites are generally disturbed, and smaller in dimension, containing less variety of artefact types and raw materials than those recorded in the wider region (eg. Burns 1996; Guse 1998).

Quartz, which crops out locally, is the dominant raw material, but exotic raw materials, mainly Gerowie tuff has been transported long distances to the sites, possibly from outcrops of this material that occur to the south and east of the section. Guse (1998) suggests that medium-large sized artefact scatters with a low diversity of raw material and artefact types found in association with rock outcrops suitable for quarrying, represent short-term logistic encampments of a mobile Aboriginal population focussing on water and raw material sources.

Of interest at these sites, is that these low quartz outcrops amongst which the stone artefact scatters are found, do not appear to have been quarried. The white milky quartz appears to be of better quality to that of the outcrop and may have been brought to the site from elsewhere as was the tuff and quartzite. It may be that the outcrop serves as a site marker of established travel routes rather than an opportunistically located quarry as Guse (1998:53) suggests. Future archaeological investigations are required in this region, to locate more sites and obtain further information on human settlement and subsistence patterns, in particular with regard to stone artefact procurement, transport, use and discard, in the region.

8. RECOMMENDATIONS AND MITIGATION PROCEDURES

Four archaeological sites and background scatters of stone artefacts were located within the proposed development area during the course of this survey. The following recommendations arise from this survey:

1. Average density of background scatters of artefactual material is relatively low within the proposed development area. **It is recommended that permission to disturb the background scatters is granted under the** *Northern Territory Heritage Conservation Act 1991*.

2. The proposed development of this area is likely to destroy the remains of archaeological material in Site Coomalie 1. Given the very disturbed condition and low diversity and density of artefacts indicating low significance for this site, **it is recommended that permission to disturb the site is granted under the** *Northern Territory Heritage Conservation Act 1991*.

3. The proposed development of this area is likely to destroy the remains of archaeological material in Coomalie Site 2. Given the disturbed condition and low diversity and density of artefacts, indicating low significance for this site, **it is recommended that permission to disturb the site is granted under the** *Northern Territory Heritage Conservation Act 1991*.

4. The proposed development may have a slight impact on the remains of archaeological material in Coomalie Site 3, which is located on the outside edge of the boundary of the study area. **It is recommended that all operations personnel are informed of the exact location of Coomalie Site 3, in order to avoid inadvertent damage to archaeological material outside the development area**. If it becomes evident that development activities are likely to impinge upon the site, given its moderate archaeological significance, **it is recommended that detailed on-site recording and salvage collection of material from Coomalie Site 3 should be undertaken before permission to disturb the site is granted under the** *Northern Territory Heritage Conservation Act 1991*.

5. The proposed development of this area is likely to destroy the remains of archaeological material in Site Coomalie 4. Given the very disturbed condition and low diversity and density of artefacts, indicating low significance for this site, **it is recommended that permission to disturb the site is granted under the** *Northern Territory Heritage Conservation Act 1991*.

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