FURTHER ARCHAEOLOGICAL ASSESSMENT OF A PROPOSED SUBDIVISION OF THE PARK ROAD AREA, AT NEBRASKA ESTATE, SAINT GEORGES BASIN, NEW SOUTH WALES

A report to

SHOALHAVEN CITY COUNCIL

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EXECUTIVE SUMMARY

Nebraska Estate is a proposed residential subdivision at St Georges Basin, on the South Coast of New South Wales. In 1994, a preliminary archaeological survey of Nebraska Estate was undertaken by B. Marshall and C. Webb on behalf of South East Archaeology. Subsequently, plans have been formalised to develop a small portion of the Nebraska Estate, known as the 'Park Road Area', for thirteen residential allotments.

The primary recommendations of the initial archaeological survey assessment of the entire Nebraska Estate were that:

- Major development should not proceed in the archaeologically sensitive floodzone without further investigation, including sub-surface testing; and
- Consent should be sought from the National Parks and Wildlife Service and Jerrinja Local Aboriginal Land Council prior to impacts occurring to the artefact scatter sites located in the Estate.

During review of the initial survey report, the National Parks and Wildlife Service endorsed these recommendations and in addition, requested that further archaeological assessment be undertaken in zones of impact where there is potential for Aboriginal heritage evidence to occur.

South East Archaeology Pty Limited was commissioned by Shoalhaven City Council in March 2001 to undertake the measures necessary to satisfy the requirements of the NPWS and initial report recommendations, in relation to the Park Road Area of the Nebraska Estate. The primary aims of the present investigation were to:

1) Undertake a survey of the specific zones of impact within the Park Road Area;
2) Reassess the potential for sub-surface archaeological deposits to occur, primarily within the floodzone, both in the Park Road Area and the remainder of the Nebraska Estate;
3) Assess the significance of any identified or potential heritage evidence; and
4) Formulate recommendations for the conservation and management of any cultural heritage resources identified or potentially present, in consultation with the local Aboriginal community.

The investigation proceeded by recourse to the archaeological and environmental background of the locality, followed by a field survey undertaken with the assistance of the Jerrinja Local Aboriginal Land Council. The study was completed in April 2001.

The Park Road Area under investigation measures approximately 2.7 hectares in area, although clearing and construction will potentially affect only 2.0 hectares. A sewer pipeline will extend for an additional 90 metres from the Park Road Area to an existing pump station in the floodzone of the Nebraska Estate. Survey was undertaken on foot of the Park Road Area and the proposed sewer pipeline route. The Park Road Area encompasses a single environmental context (gentle simple slope, over fifty metres from a watercourse). The sewer pipeline route traverses a flat and drainage depression (unnamed watercourse). The proposal also involves the replacement of an existing sewer pipeline that extends for several hundred metres south of The Wool Road. However, visual inspection determined that this route is extensively disturbed and no potential exists for heritage evidence.

Total survey coverage (ground physically inspected for heritage evidence) equated to approximately 17.8% of the Park Road Area. Total effective survey coverage (visible ground surface physically inspected) equated to about 0.9% of this area. Despite the constraints of

dense vegetation, the level and nature of effective survey coverage is considered satisfactory to present an effective assessment of the Aboriginal heritage resources identified and potentially present within the study area.

Additional inspection was made of the remainder of the Nebraska Estate, particularly the archaeologically sensitive floodzone, primarily to assess the potential for sub-surface deposits and formulate an Estate-wide strategy for identification and investigation of such contexts.

No Aboriginal heritage sites were identified within the Park Road Area. This is primarily assessed as being a result of low intensity Aboriginal occupation of this environmental context (gentle simple slope, over fifty metres from a watercourse). A low density of artefacts may exist within the areas in which effective survey coverage was not obtained, due to vegetation or sampling constraints, however it is unlikely to represent focused occupation (eg. camping by family groups) or be of scientific significance. Rather, the initial predictions of the archaeological sensitivity of the flat adjacent to the watercourses are upheld, and it is most probable that the flat was a focus of occupation in this locality. Although no heritage evidence was identified in this context, primarily due to low conditions of surface visibility, potential deposits may occur.

No evidence was identified within the Park Road Area and considering the relatively low heritage potential of this area, there are no archaeological constraints to development. The sewer line traverses a very small portion of the archaeologically sensitive flat and considering the limited impacts, further archaeological investigation is not recommended.

In relation to the remainder of the watercourse bordering flats in the Nebraska Estate, if extensive development is to occur it is recommended that sub-surface testing be undertaken in at least one location of such development, preferably close to the recorded Fishermans Road or Pelican Road sites, to test for the presence of heritage evidence and permit an adequate assessment of the nature, scope and significance of any evidence. The Jerrinja Local Aboriginal Land Council has requested that a representative be engaged to monitor initial ground disturbance works in this area if future construction occurs.

TABLE OF CONTENTS

		Page
1.	Introduction	1
2.	Environmental Context	2
3.	Archaeological Context	6
	3.1 Previous Archaeological Research	6
	3.2 Local Aboriginal Culture	10
	3.3 Predictive Model of Site Location	11
4.	Methodology	13
5.	Results and Discussion	14
	5.1 Survey Coverage	14
	5.2 Discussion	15
6.	Aboriginal Consultation	16
7.	Statutory Obligations	17
8.	Mitigation and Management Strategies	19
9.	Recommendations	22
	References	24
	Acknowledgments	27
	Appendix 1: Plates	28
	Appendix 2: Correspondence from Jerrinja Local Aboriginal Land Council	29

FIGURES

Page

Figure 1: Location of Study Area 3

Figure 2: Plan of Nebraska Estate and Location of Previously Recorded Evidence 4

Figure 3: Draft Development Control Plan and Location of Archaeological Survey Areas 5

TABLES

Table 1: Survey Coverage Data 14

1. INTRODUCTION

Nebraska Estate is a proposed residential subdivision at St Georges Basin, on the South Coast of New South Wales (Figure 1). In 1994, a preliminary archaeological survey of Nebraska Estate was undertaken by Brendan Marshall and Cathie Webb on behalf of South East Archaeology (Marshall & Webb 1994). Two small artefact scatter sites and an isolated artefact were located (Figure 2).

The primary recommendations of the initial archaeological survey assessment of the entire Nebraska Estate (Marshall & Webb 1994) were that:

- No further archaeological investigation is required, however activities that impact on the archaeologically sensitive areas in the floodzone should be minimised. If major development occurs in this zone, further archaeological investigation, including sub-surface testing, is required; and
- Consent should be sought from the National Parks and Wildlife Service and Jerrinja Local Aboriginal Land Council prior to impacts occurring to the artefact scatter sites located in the Estate.

During review of the initial survey report, the National Parks and Wildlife Service endorsed these recommendations and in addition, requested that further archaeological assessment involving survey and/or testing be undertaken in zones of impact where there is potential for Aboriginal heritage evidence to occur.

Subsequently, plans have been formalised to develop a small portion of the Nebraska Estate, known as the 'Park Road Area', for thirteen residential allotments (Figures 1 & 3, Plate 1). South East Archaeology Pty Limited was commissioned by Shoalhaven City Council in March 2001 to undertake the measures necessary to satisfy the requirements of the NPWS and initial report recommendations, in relation to the Park Road Area of the Nebraska Estate. The Park Road Area under investigation measures approximately 2.7 hectares in area, although clearing and construction will potentially affect only 2.0 hectares (Figure 3). A sewer pipeline will extend for an additional 90 metres from the Park Road Area to an existing pump station in the floodzone of the Nebraska Estate (Figure 3, Plate 2). The proposal also involves the replacement of an existing sewer pipeline that extends for several hundred metres south of The Wool Road. However, visual inspection determined that this route is extensively disturbed and no potential exists for heritage evidence.

The primary aims of the present investigation were to:

1) Undertake an archaeological survey of the specific zones of impact within the Park Road Area to identify and record any Aboriginal heritage evidence or areas of potential evidence;
2) Reassess the potential for sub-surface archaeological deposits to occur, primarily within the floodzone, both in the Park Road Area and the remainder of the Nebraska Estate;
3) Assess the significance of any identified or potential heritage evidence;
4) Assess the potential impacts of the proposed development upon any Aboriginal heritage evidence identified or potentially present; and
5) Formulate recommendations for the conservation and management of any cultural heritage resources identified or potentially present, in consultation with the local Aboriginal community (Jerrinja Local Aboriginal Land Council).

The investigation proceeded by recourse to the archaeological and environmental background of the locality, followed by a field survey undertaken with the assistance of the Jerrinja Local Aboriginal Land Council. The study was completed in April 2001.

2. ENVIRONMENTAL CONTEXT

The study area is located between grid reference eastings 279200 - 279450 and northings 6114500 - 6114750 on the Huskisson 9027-4-N 1:25,000 topographic map (Figure 1). The Park Road Area borders The Wool Road to the south, the remainder of the Nebraska Estate to the west and north, and private property to the east. The urban area of St Georges Basin lies one kilometre to the east and the closest point of the coastline of St. Georges Basin is Home Bay, 300 metres to the south-east (Figure 1).

The study area is situated in the coastal lowlands land system, in the immediate hinterland of St. Georges Basin. Elevation is less than ten metres Above-Height-Datum. The Park Road Area comprises a single environmental context, a gentle gradient (1.45-5.45°) simple slope, which is located over fifty metres from a watercourse and has a southerly to westerly aspect (Figure 3, Plate 1). The remainder of Nebraska Estate comprises a similar context, apart from the first and second order drainage depressions that drain a small catchment area and flow into Home Bay. Level to very gently inclined flats are associated with the drainage lines, particularly the second order stream that flows to the west of the Park Road Area. Only the installation of a 90 metre section of a sewer pipeline will impact upon the flat or drainage depression contexts.

The underlying geology of the study area comprises grey micaceous siltstone with silty sandstone (pebbly in parts) of the Permian age Wandrawandian Siltstone, although no outcrops are visible. The soils are typically sandy and generally shallow on the slopes, but silty and of greater depth on the flats and drainage depressions.

The climate of the region can be described as mild, with moderate temperatures and a high annual average rainfall (Mills 1993). Summers are typically warm and winters mild.

The study area has been partially cleared of vegetation, particularly the impact zones in the Park Road Area. Outside of the impact zones, remnant native vegetation will be retained as a buffer zone. Mature trees have been removed by selective logging, but many still remain in the buffer zone. The vegetation in the forested areas comprises a Eucalypt forest community, dominated by Blackbutt (*Eucalyptus pilularis*) and Stringybark, with a dense understorey of wattle (*Acacia* spp.) and *Banksia* spp., and a ground cover of grass and bracken (*Pteridium esculentum*) and other species.

Non-Aboriginal land use practices have influenced the current study area, from possibly as early as the mid-1800s. Timber harvesting (selective extraction of timber) has possibly occurred for over 100 years, as evidenced by the absence of mature trees in some areas and the presence of sawn tree stumps. Much of the Park Road development area has been cleared of vegetation and probably used for grazing and horse agistment. Park Road bisects the study area and leads to rural/residential properties further inland (Plate 1). Minor impacts are associated with a former vehicle track, survey lines and drainage culverts off Park Road.

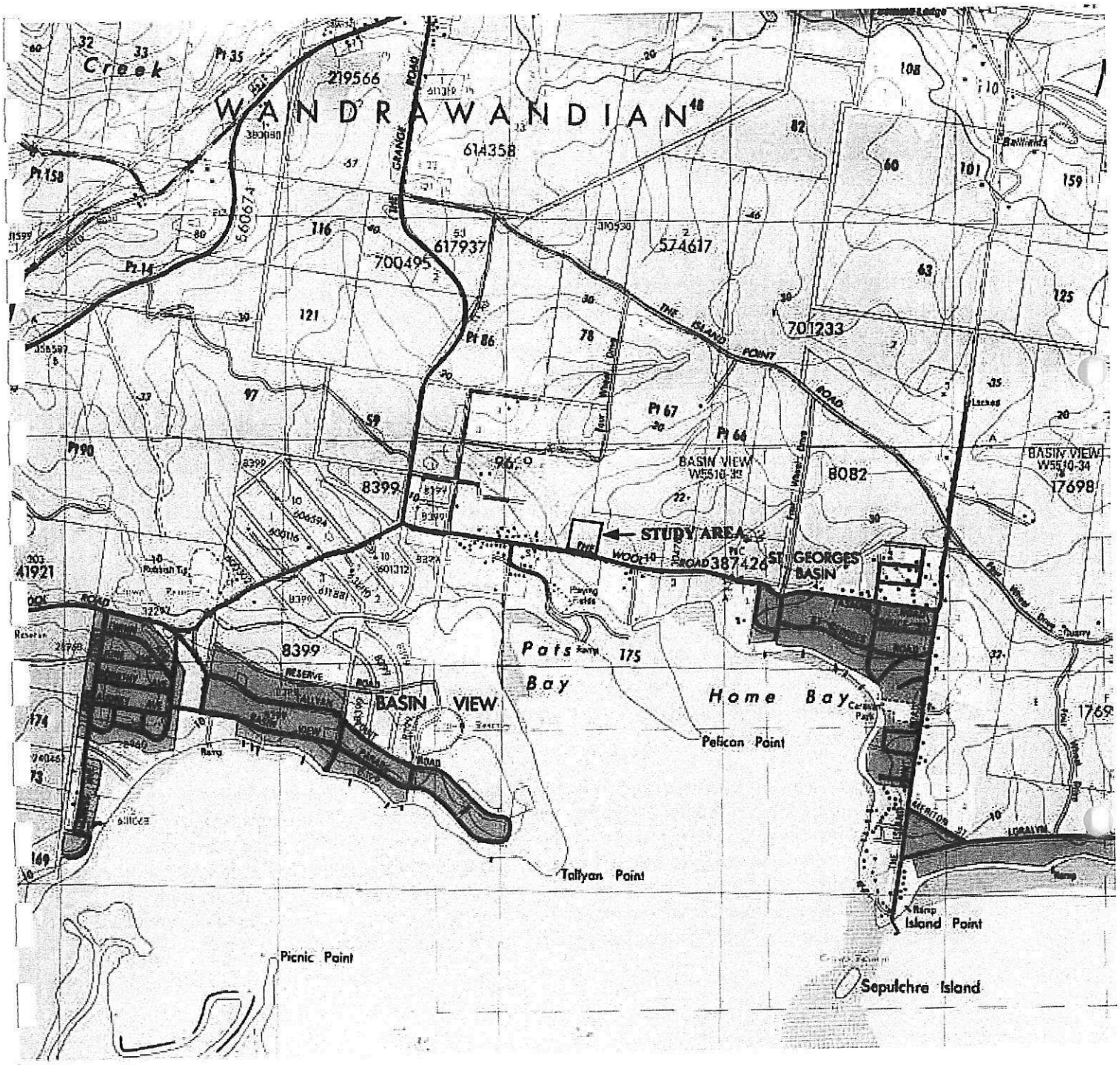

Figure 1: Location of Study Area (Huskisson 9027-4-N 1:25,000 topographic map).

Figure 2: Plan of Nebraska Estate and Location of Previously Recorded Evidence (Marshall & Webb 1994).

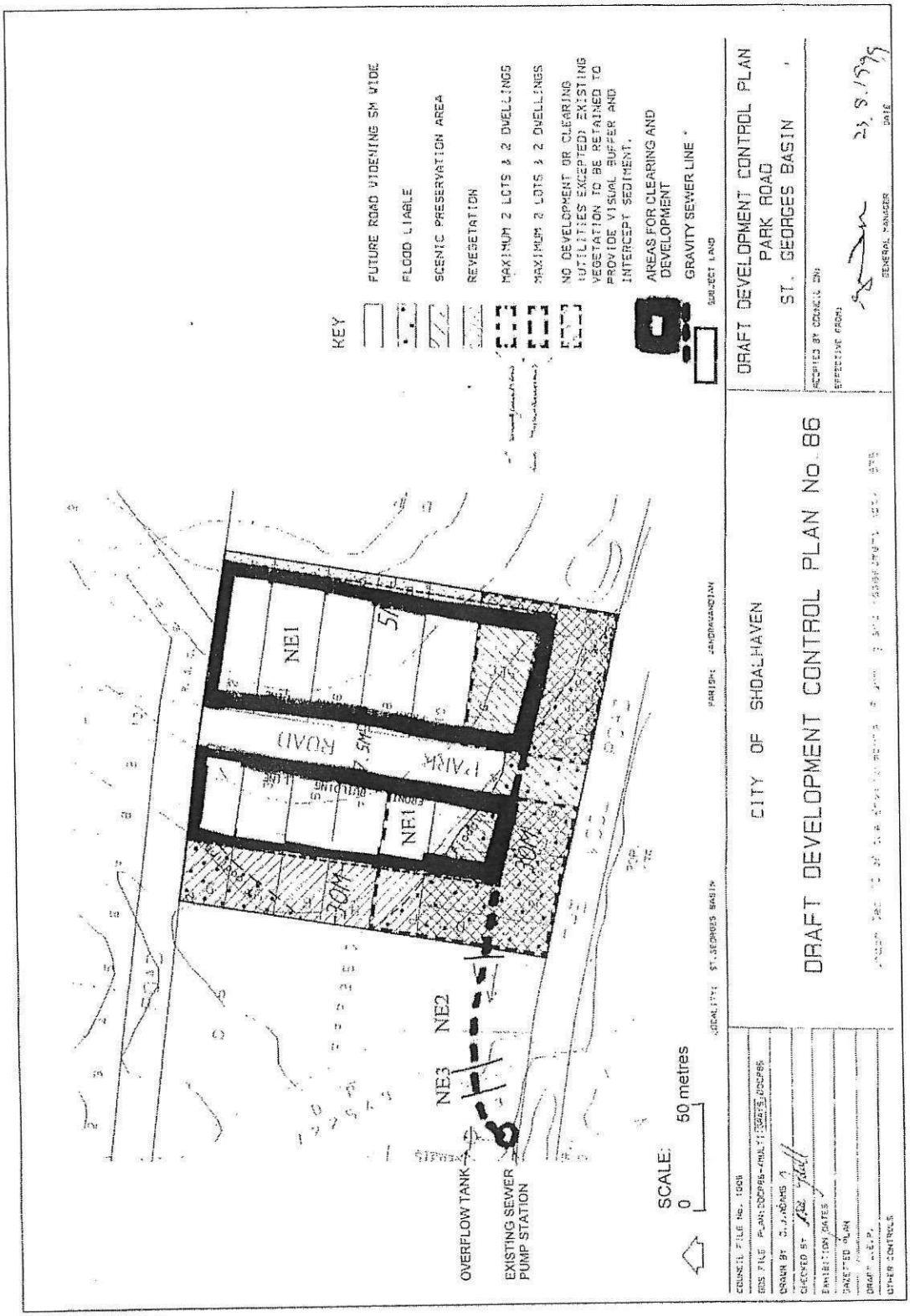

Figure 3: Draft Development Control Plan and Location of Archaeological Survey Areas (courtesy Shoalhaven City Council).

3. ARCHAEOLOGICAL CONTEXT

3.1 Previous Archaeological Research

Prior to the preliminary archaeological investigation in 1994, no Aboriginal heritage sites had been recorded within Nebraska Estate. The survey by Marshall and Webb (1994) resulted in the identification of two artefact scatters (Pelican Road and Fishermans Road) and an isolated artefact (Nebraska Road), all in Nebraska Estate but outside of the present study area. Numerous other sites have been recorded in the St Georges Basin locality, primarily artefact scatters and shell middens.

A number of archaeological surveys and excavations have been undertaken within the locality, for commercial contracting and academic research purposes. Discussion of the most relevant investigations will highlight the range of site types and variety of site contents in the study area and broader region, identify typical site locations, and assist with the construction of a predictive model of site location for the study area.

Marshall and Webb's (1994) investigation of the entire Nebraska Estate encompasses the Park Road Area and land to the west and north (Figure 2). Approximately 10% of the property was inspected on foot, comprising most areas with exposures and surface visibility. Two artefact scatters and an isolated artefact were identified (Figure 2). The Pelican Road site contained 23 artefacts at a low density, mostly quartzite and silcrete flakes, but also several quartz items, two microblade cores, a broken hammerstone and a small sandstone grindstone. It is situated on a flat adjacent to a junction of the second order watercourse with a first order tributary. The Fisherman's Road site was also situated on elevated land adjacent to the main watercourse, with four artefacts recorded. These include a quartzite and two silcrete flakes and a silcrete bondi point. An isolated artefact (chert flake) was located on Nebraska Road, also on elevated ground above a drainage line. Marshall and Webb (1994) concluded that the low-density artefact scatters were typical of those found in the region and not of high significance.

Approximately 500 metres east of the present study area, Kuskie (1995a) investigated Lot 1 DP 796802, The Wool Road. Two small artefact scatters and one isolated artefact were recorded within the seven hectare property, situated several hundred metres north of the shoreline of St Georges Basin. All of the evidence occurred on low gradient simple slopes within fifty metres of a watercourse. The artefacts were predominantly silcrete flakes and flaked pieces, although quartz and chert also occurred.

Four kilometres to the east of the present study area, Kuskie (2000a) undertook sub-surface investigations at site #58-2-261, an artefact scatter initially recorded by Lance and Fuller in 1988 and re-recorded by Silcox in 1991 and 1996 along the old Wool Road. A total of 126 test units were excavated, each measuring 0.25 x 0.25 metres in area, at five metre intervals on a grid laid over part of the site. In total, an area of 7.88 m^2 was excavated and 3.059 m^3 of soil sieved. A total of 131 artefacts and 45 lithic fragments were identified. The artefacts occurred at a mean density of 43/m^3, with a range of up to 449/m^3. Artefacts were present in 57 (45%) of the units excavated (Kuskie 2000a).

Seven different categories of stone material were identified in the lithic item assemblage, silcrete, quartz, acid volcanic, quartzite, banded rhyolite, chert and jasper (Kuskie 2000a). Silcrete was the most common stone used. Eighteen categories of artefacts were identified, along with an additional category of lithic fragments for manuports that could not be confidently assigned to artefactual status. Another artefact type, a ground edge hatchet, had

previously been recorded at the site. Many of the categories represent debris from stone knapping. The knapping is non-specific or demonstrably relates to the production of microblades. The assemblage is typically small in size (almost entirely less than 40 millimetres in maximum dimension), which is a characteristic of microblade assemblages.

Kuskie (2000a) inferred that most of the evidence at site #58-2-261 relates to hunting activity (with spears armed with microliths). Microliths may have been produced on-site (as microblades certainly were) but specific evidence was not identified during the testing exercise. However, the small size of the sample is noted. Should a larger sample have been obtained, a greater range of artefact types, including more items representative of tool-use and other activities (eg. camping) may potentially have been identified.

To the east of this site (#58-2-261), Silcox (1992a) surveyed the 50 hectare 'Worrowing Estate'. A small artefact scatter (site W1) was located on a ridge crest in the southern portion of the Estate, with eight silcrete artefacts. Silcox (1992a:5) also identified three potential site locations (TL1, TL2 and TL3) and recommended that sub-surface investigations be undertaken to test for the presence of artefacts. In 1993 Silcox conducted sub-surface testing at the locations TL1 and TL3. Forty-one 0.25 x 0.25 metre test-units were excavated at TL3, on a low to medium gradient simple slope, adjacent to Worrowing Waterway. Only one artefact, a quartz flaked piece, was located (Silcox 1993). At the TL1 locality, a single transect consisting of twenty-five 0.25 x 0.25 metre test-units was excavated. Only one artefact was located. Silcox (1993) excavated a number of trenches adjacent to the test unit containing the artefact, in ten centimetre spits. Slightly over two square metres were excavated in a controlled manner, resulting in the recovery of 91 artefacts (Silcox 1993). Silcrete was the dominant stone material (44 artefacts), followed by quartz and chert. The majority of artefacts were flakes or flaked pieces, with five cores, two hammerstone fragments and four retouch/use-wear pieces also present. The National Parks and Wildlife Service required further sub-surface testing at site #58-2-298, which was undertaken by Kuskie (1995b). An additional thirty test-units measuring 0.25 x 0.25 metres were excavated in perpendicular transects across the site. Only one artefact was identified in the 0.95 m^3 of excavated deposit.

Two kilometres further to the east, Stone (1995) briefly investigated the proposed 166 hectare Heritage Estates residential development, between Worrowing Waterway and Jervis Bay Road. A cursory one day inspection was made of the property and did not reveal any additional heritage evidence to several sites previously recorded by Attenbrow (1981), during an inspection of proposed water pipelines. One site contained 37 artefacts associated with several pieces of shell, and a second site contained only four artefacts.

Further east around the margin of St. Georges Basin, a sewerage pumping station and associated pipelines at Wrights Beach, Erowal Bay, were investigated by Silcox (1992b). Two artefact scatters were located on slopes adjacent to Stony Creek. Over 100 artefacts were present in one site and 23 artefacts in the other site. The vast majority of artefacts were manufactured from silcrete.

Navin (1993a) investigated numerous localities in the Jervis Bay hinterland for the St. Georges Basin/Jervis Bay regional effluent management scheme. At location #1, surrounding the Bellfields property several kilometres north of the present study area, Navin (1993a) located two small artefact scatters and an isolated artefact.

Silcox (1991) surveyed the proposed Island Point Road/Wool Road link route, which traverses to within a kilometre north of the current study area. The route extends from The Grange Road to The Wool Road, at St. Georges Basin East, and predominantly follows existing roads. Two small artefact scatters (#58-2-285 and 58-2-286) were located along low

spur ridges (Silcox 1991). One site contained eight quartz artefacts and the other site contained three silcrete, three quartz and two quartzite artefacts.

Lance (1986) investigated the proposed sewerage treatment works, situated on a low ridge, several kilometres east of the current study area. No sites were located within the 500 x 500 metre study area, although an isolated artefact was recorded nearby.

Several kilometres to the north of the present study area, at Tomerong, a number of surveys and excavations have been undertaken in relation to the Princes Highway. Koettig (1989) recorded one artefact scatter and four potential site locations during a survey of the proposed Princes Highway by-pass Option A. Test-excavations were undertaken by Silcox (1989) in four locations. No artefacts were found on an alluvial flat bordering Tomerong Creek, one artefact was found along a low, broad ridge where a small surface scatter had previously been recorded, three artefacts were found on an alluvial flat bordering Suffolk Creek, and ten artefacts were found on a broad, sloping ridge crest. These results led Silcox (1989) to conclude, on limited evidence, that ridge crests were preferred camping areas over the more poorly drained alluvial flats. Navin (1990a) later assessed several alternative routes for the Tomerong by-pass, recording four small artefact scatters, two axe-grinding groove sites, two middens and one isolated artefact.

Four kilometres west of the present study area, Kuskie (1998) surveyed Lot 1 at Bewong. Two sites were recorded during the survey, an artefact scatter and a set of grinding grooves nearby. An artefact scatter (#52-5-294) and an isolated artefact had previously been identified in Lot 1 by Paton and Wood (1995).

A number of studies have also been undertaken in the zone further north-east of the present study area, around Huskisson, Vincentia and Woollamia (*cf.* Navin 1990b, 1991, 1992, 1993b, Navin & Officer 1998, Navin Officer Heritage Consultants 1999a, 1999b, Silcox 1992c). Numerous studies have also been undertaken in the zone south of St. Georges Basin, around Sussex Inlet and Cudmirrah National Park (*cf.* Kuskie 1997a, 1997b, 2000b, 2000c, McConnell 1978, Oakley 1995 and Sullivan 1982). Surveys on the coast and lake margins have resulted in the identification of many shell midden sites, while surveys in the coastal hinterland have tended to result in the identification of stone artefact scatters.

Sullivan (1977) and Cane (1988) recorded numerous sites on the peninsulas surrounding Jervis Bay, including twenty-seven sites on Beecroft Peninsula and twenty-three sites on Bherwerre Peninsula, which extends east of St. Georges Basin. Beecroft Peninsula, the northern arm of Jervis Bay, contains over 130 recorded Aboriginal sites (Cane 1988). These are mostly shell middens and rock shelters with deposit. Over 60 sites have been recorded on Bherwerre Peninsula, the southern arm of Jervis Bay (Sullivan 1977). These are also predominantly middens. Cane (1988) interprets the archaeological evidence as suggesting that early, sporadic occupation of Beecroft Peninsula was followed by permanent, intense occupation within the last 2,000 years.

Occupation dates have been obtained from a number of excavated sites in the region. Lampert (1971a) excavated three rockshelters near Currarong, on the Beecroft Peninsula. Occupation deposits dating to 4,000 years BP were identified (Lampert 1971a). Barz (1977) excavated a shell midden on the eastern shore of St. Georges Basin. Pipi and cockle were the dominant shellfish species present (Barz 1977). A midden excavated by Collier (1975) at Cemetery Point at Wreck Bay contained mostly edible mussel (*Mytilus planulatus*) and occupation was dated to 1,800 years ago. Paton and MacFarlane (1989) excavated Abraham's Bosom rock shelter, near Currarong, and established that occupation of the site also occurred in the Late Holocene period. Initial occupation of the Gnatilia Creek 3 rock shelter has been dated to 1,740±60 BP (*ANU-8426*) (Before Present), with more intensive occupation occurring from 500 years ago (Boot 1994:334).

The nature of Aboriginal occupation on the south coast has been a matter of considerable academic debate. Until recently, researchers have identified higher site densities in the coastal zone than in the coastal hinterland.

Several models have been forwarded to account for this pattern of recorded site distribution. Bowdler (1970) argued that occupation of the coast during summer was intensive, with some exploitation of the hinterland when coastal resources were less abundant. Lampert (1971b) proposed a mixed economic regime on the coast, involving exploitation of littoral, estuarine and land resources, but with a greater emphasis on the littoral component. Poiner (1976) produced a model of occupation based on a strict seasonal regime: abundant coastal resources were exploited during summer, and the coastline and hinterland were both exploited during winter when resources were far less abundant. Flood (1980) argued that the hinterland was only used when coastal resources were in short supply during the winter season.

Attenbrow (1976) proposed a model in which the coast and hinterland were occupied all year round and that movement between the two zones occurred at the family or small group level, rather than at the large population level suggested by Poiner (1976). Attenbrow's model incorporates a higher proportion of terrestrial animal foods in the diet during winter. Hinterland river valleys and highland areas would have been occupied during summer. In winter, the population distribution would have been widespread, based on family groups.

Moving away from the seasonal model of exploitation, Vallance (1983) argued that a range of subsistence strategies would have existed, that varied both within and between seasons and from year to year. Following Vallance's model, Boot (1994) suggests that if this were the case, larger archaeological sites could be expected in areas where large quantities of food were available on a single occasion or on a regular basis, and smaller sites would be the result of short term occupation during movement between such locations.

Surveys by Byrne (1983, 1984) of forests within the hinterland, began to reveal evidence challenging models of occupation focused primarily on the coastline. While the highest site densities were still identified near the coast, high densities were also found in the hinterland 13-18 kilometres from the coastline. Byrne (1983) found there was an absence of sites 3-10 km from the coastline in the Five Forests study. Several researchers developed theories to account for this apparent paucity of evidence. Walkington (1987) suggested campsites were focused along the coastline and this section of the hinterland (3-10 km distance) was only exploited on daily return journeys. Distances further than ten kilometres inland would have required overnight camps in the hinterland (Walkington 1987).

More recently, surveys focused on the hinterland zone north of Batemans Bay, by Australian National University Honours students and PhD candidate Philip Boot, have revealed a vastly different body of evidence. Thousands of sites have been located within the hinterland areas, dramatically changing the pattern of recorded site distribution. It is apparent that the intensity of utilisation of the coastal hinterland is far greater than previously believed and previous researchers may have inadequately accounted for the coastal bias of earlier surveys.

Occupation of the south coast is assumed to date from at least 20,000 years ago, as evidenced by dated sites at Burrill Lake (Lampert 1971b) and Bass Point (Flood 1980). The Bulee Brook 2 site, excavated by Boot (1994) in the hinterland ranges, provides evidence that occupation of this zone had occurred by at least 18,000 years ago.

3.2 Local Aboriginal Culture

The study area lies within the territory of the Wandandian people, described by Tindale (1974) as extending south from the lower Shoalhaven River to the Ulladulla area, and inland to the Shoalhaven River north of Braidwood. The Wandandian people spoke the Dhurga language, which was spoken over an area ranging from the Shoalhaven District, down to Narooma (Eades 1976). However, Navin (1991:8) cites ethnographic observations, which describe the people of the lower Shoalhaven in terms of one district and one dialect, as being evidence that the tribal boundary with the more northerly Wodi Wodi people was located further south of the Shoalhaven River, near Jervis Bay.

Boot (1994) has undertaken a wide-ranging study of ethnohistorical observations relating to the south coast region, based on original archival sources. Boot (1994) lists the following faunal and floral species which have been recorded in the ethnohistorical sources as having been utilised: fish species including bream, trumpeter, whiting, salmon and shark, eel, whales, seals, marine worms, shellfish including oysters and mussels, possum, kangaroo, wombat, birds, goanna, grubs, honey, kangaroo apple, native cranberry, honeysuckle, pigface, macrozamia, cabbage tree, fruit and yams. Observations of use of these food sources were made within ten kilometres of the coast (Boot 1994).

The material culture of the local Aboriginal population would have included a range of items related to subsistence, cultural and social activities and shelter. Ethnohistorical observations along the coast have been made of the following items: huts, gunyahs, canoes, spears, shell-barbed spears, fishing spears, bark/wood shields, waddy/clubs, spear throwers, boomerangs, hatchets, fish-traps, stone heat retainers, kangaroo teeth adornments, pierced nose adornments, bark drawings, possum skin cloaks, shell fish hooks and grass tree resin (Boot 1994). In the archaeological record few of these items survive. Stone, bone and shell are the materials most frequently represented in archaeological sites.

The burning off of vegetation was a regular practice of Aboriginal people, for purposes of hunting and ease of movement (Lampert & Sanders 1973). Ethnographic evidence collected by Lampert and Sanders (1973) at Beecroft Peninsula suggests that dozens of local plants were utilised for food or implements, for example bracken fern (rhizome roasted in ashes and eaten), wattles (seeds roasted and gum eaten raw, leaves used as a poison in fishing), geebung (fruit eaten), burrawang (*Macrozamia communis*; nuts processed to remove poison and eaten), bangalay and stringybark (bark for canoes) and grass tree (stalks used for spears).

The Shoalhaven region was frequented by non-Aboriginals from 1770, following its sighting by Captain Cook. During the contact period, Aboriginal people were described as being armed and numerous (Cane 1988:29). Cane (1988) characterises the period between 1810 and 1840 as one of exploitation and hostility. This occurred in relation to the early timber-getting and land acquisition. By the 1840s the Aboriginal population had been reduced to small remnant groups along the coast or subsisting around the fringes of the now permanent non-Aboriginal settlements (Cane 1988). There were a number of substantial Aboriginal camps or reserves in the Jervis Bay region, including at 'Bilong' on the northern bank of Currambene Creek, 'Roseby Park' at Orient Point and Wreck Bay, and a large Aboriginal population remains in the area today (Cane 1988).

3.3 Predictive Model of Site Location

A predictive model of site location is constructed to identify areas of high archaeological sensitivity (ie. locations where there is a high probability of archaeological evidence occurring), so it can be used as a basis for the planning and management of Aboriginal heritage. Predictive modelling involves reviewing existing literature to determine basic patterns of site distribution. These patterns are then modified according to the specific environment of the study area to form a predictive model of site location. A sampling strategy is employed to test the predictive model and the results of the survey used to confirm, refute or modify aspects of the model.

The use of land systems and environmental factors in predictive modelling is based upon the assumption they provided distinctive sets of constraints that influenced Aboriginal land use patterns. Following from this is the expectation that land use patterns may differ between each zone, because of differing environmental constraints, and that this may result in the physical manifestation of different spatial distributions and forms of archaeological remains (Hall & Lomax 1993:26).

The predictive model is based on information from the following sources:

- identification of land systems and landform units;
- previous archaeological surveys conducted within the region;
- distribution of recorded sites and known site density;
- traditional Aboriginal land use patterns; and
- known importance of any parts of the study area to the local Aboriginal community.

In certain circumstances, such as where low surface visibility or recent sediment deposition precludes effective assessment of the potential archaeological resource, sub-surface testing may be a viable alternative for further testing the model and assessing the study area.

The following is a brief description of the site types that may occur within the Park Road study area:

ARTEFACT SCATTERS: In most archaeological contexts, an artefact scatter has been defined as either the presence of two or more stone artefacts within 50 or 100 metres of each other, or a concentration of artefacts at a higher density than surrounding low density 'background scatter'. The definition of an artefact scatter 'site' is often an arbitrary one, which offers benefits for planners and cultural resource managers, but is a source of various theoretical/analytical problems for archaeologists. Due to the nature of the underlying evidence, its identification only within exposures created by erosion or disturbance, and the limited suitability of existing definitions, an alternative definition for artefact scatter sites is the presence of one or more stone artefacts within a *survey area* (*cf.* Kuskie 2000d). The boundaries of the site are defined by the boundaries of the survey area, regardless of the visible extent of artefacts. The survey areas are based on discrete, repeated environmental contexts termed *archaeological terrain units* (eg. a particular combination of landform unit and class of slope).

An artefact scatter may consist of surface material only, which has been deflated by erosion, or it more typically involves a sub-surface deposit of varying depth. Other features may be present within artefact scatter sites, including hearths or stone-lined fireplaces, and heat treatment pits.

Artefact scatters may represent the evidence of:

- camp sites, where everyday activities such as habitation, maintenance of stone or wooden tools, manufacturing of stone or wooden tools, management of raw materials, preparation and consumption of food and storage of tools has occurred;
- hunting or gathering events;
- other events spatially separated from a camp site (eg. tool production or maintenance); or
- transitory movement through the landscape.

The detection of artefact scatters depends upon conditions of surface visibility and ground disturbance and whether recent sediment deposition has occurred (*cf.* Dean-Jones & Mitchell 1993). Vegetation cover and deposition of sediments generally obscures artefact scatter sites and prevents their detection during surface surveys. High levels of ground disturbance can also obscure or remove evidence of a site.

Within the present study area, artefact scatters have a high potential to occur along level to very gently inclined flats along the drainage depressions, and a low potential on the gentle simple slopes greater than fifty metres from watercourses.

BURIALS: Human remains tended to be placed in hollow trees, caves or sand deposits. Usually burials are only identified when eroding out of sand dunes or creek banks, or when disturbed by development. Aboriginal communities are strongly opposed to the disturbance of burial sites. The probability of detecting burials during fieldwork is extremely low and their presence in the study area is considered unlikely.

MIDDENS: Shell middens are a common site type in the coastal region. Middens are deposits of shell, the remains of what formed part of the Aboriginal diet. Middens may also include stone, bone or shell artefacts, charcoal, or the remains of small terrestrial or aquatic fauna which were also a part of the diet. Middens exhibit wide variation in terms of their size, preservation and contents, and can provide significant information on land-use patterns, diet, chronology of occupation and environmental conditions.

Shell middens have a moderate to high potential to along the drainage depressions and associated flats, particularly closer to St Georges Basin.

SCARRED TREES: Scarred trees contain scars caused by the removal of bark for use in manufacturing canoes, containers, shields or shelters.

Mature trees, remnants of stands of the original vegetation, have the potential to contain scars.

4. METHODOLOGY

During the initial stages of the investigation, the following persons were consulted:

- [redacted] (Shoalhaven City Council);
- [redacted] Archaeologist, NSW National Parks and Wildlife Service Southern Directorate: and
- [redacted] Jerrinja Local Aboriginal Land Council.

Research into the environmental and archaeological background of the study area preceded the field survey.

Fieldwork was undertaken on 30 March 2001 by the consultant, assisted by an assistant archaeologist [redacted] a representative of the Jerrinja Local Aboriginal Land Council (LALC).

The study area was divided into particular combinations of environmental variables that are assumed to relate to Aboriginal usage of the area. These *Archaeological Terrain Units* were defined on the basis of landform element and class of slope (following McDonald *et al* 1984). They are discrete, recurring areas of land for which it is assumed that the Aboriginal land use and resultant heritage evidence in one location may be extrapolated to other similar locations. Therefore survey areas were defined as the individual archaeological terrain unit that is bounded on all sides by different archaeological terrain units (*cf.* Kuskie 2000d).

Detailed recording of the archaeological survey areas was made on survey recording forms, including environmental variables and Aboriginal heritage resources identified or potentially present. Each survey area was assigned a unique reference code, after the Nebraska Estate initials and a sequential number (eg. NE1, NE2, etc). Surveying was completed within a single survey area, prior to commencing inspection in another area.

The survey areas were inspected on foot by the three person survey team, focusing on areas with ground surface visibility. Conditions of surface visibility were typically higher along pedestrian and vehicle tracks and clearings and exposures, than in the remainder of the study area which was densely vegetated.

5. RESULTS AND DISCUSSION

5.1 Survey Coverage

The study area was subdivided into three survey areas, all of which were sampled (Table 1, Figure 3).

Essentially the Park Road study area comprised a single archaeological terrain unit, a gentle simple slope, which is located further than fifty metres from a watercourse (Plate 1). Therefore it was recorded as a single Survey Area. The total survey coverage (ground physically inspected for heritage evidence) of this context (Survey Area NE1) equated to 4,800 m^2, or 17.8% of the total survey area. The total effective survey coverage of this area (*visible* ground surface physically inspected) equated to 234 m^2, or 0.9%.

The proposed sewer line, which extends 90 metres west of the Park Road Area, traverses a level/very gently inclined flat and a drainage depression (second order watercourse) (Plate 2). This route and surrounding area was traversed on foot and recorded as survey areas NE2 and NE3 (Table 1). Effective survey coverage was very low in these contexts due to the dense cover of vegetation.

Despite the generally low conditions of surface visibility, the level and nature of effective survey coverage is considered satisfactory to present an effective assessment of the Aboriginal heritage resources identified and potentially present within the study area. Therefore the survey provides a valid basis for determining the probable impacts of the proposal and formulating recommendations for the management of the identified and potential Aboriginal heritage resources.

A cursory inspection was made of the remainder of Nebraska Estate, focusing on the watercourses and adjacent flats. Survey coverage data was not recorded for these areas as the primary purpose of inspection was to re-examine the environmental/cultural contexts and assess the potential for sub-surface deposits. The existing sewer pipeline route south of The Wool Road was inspected, however the route is extensively disturbed and no potential exists for heritage evidence.

A number of mature trees remain in the study area, particularly in the portion of the Park Road Area in which native vegetation will be retained. These trees were inspected for evidence of Aboriginal scarring. While a number of trees host scars, these were not of Aboriginal origin.

Table 1: Survey Coverage Data.

Survey Area #	Landform	Slope	Archaeological Terrain Unit	Total Survey Area (m^2)	Total Sample Area (m^2)	% Sampled of Each Survey Area	% Surface Visibility	Effective Survey Coverage Total (m^2)	% Effective Survey Coverage of Each Survey Area
NE1	simple slope	gentle	gentle simple slope	27,000	4,800	17.8%	1-50%	234	0.9%
NE2	flat	level	level flat	400	160	40%	<1%	<1.6	<0.4%
NE3	drainage depression	gentle	gentle drainage depression	50	10	20%	1%	1	2%

5.2 Discussion

No Aboriginal heritage sites were identified within the Park Road Area. Despite the conditions of low surface visibility, it is considered that a sufficient sample was obtained to identify at least some heritage evidence, if it were to occur at a high density in this environmental context. The results support the earlier findings and conclusions of Marshall and Webb (1994). The potential for Aboriginal sites to occur within this gentle simple slope context, as defined by the predictive model of site location (refer to Section 3.3), is confirmed as being low.

Aboriginal use of the gentle simple slopes that are located further than fifty metres from a watercourse is likely to have consisted of occasional visits in relation to transitory movement or hunting and gathering activities, rather than more focused activity typically associated with encampments. In this locality, more suitable locations for camping occur along the flats associated with the watercourse and closer to the margin of St. Georges Basin where additional food resources were present. Only a ninety-metre length of the sewer pipeline traverses these contexts. Although no evidence was identified on the flats, the effectiveness of the survey in this context was constrained by the dense vegetation cover. Based on the predictive model, it is hypothesised that focused activity such as camping occurred along the creek flats, particularly closer to the margin of St. Georges Basin where subsistence resources from several zones were present.

Considering the survey results and predictive model of occupation, it is concluded that the primary reason for the absence of archaeological evidence within the gentle simple slopes of the Park Road Area is the genuinely low intensity of Aboriginal utilisation of the locality, rather than a result of low conditions of surface visibility. Some potential remains for low-density scatters of stone artefacts, consistent with background discard or unfocused activity, to occur. These are unlikely to be of scientific significance and are common site types in the locality. Obtrusive site types such as scarred trees are unlikely to be present and not have been detected during the survey.

However, along the watercourse bordering flats there remains a high potential for artefactual evidence of camping or other focused or repeated Aboriginal activity. Such evidence is potentially of significance and its further investigation could enable a number of locally relevant research questions to be addressed. The extent, integrity and significance of this potential evidence could only be examined through controlled excavation. Although the potential evidence may have been affected to some extent by human and natural post-depositional processes, the level of impacts in most localities is expected to be low. There exists high potential for deposits on the flats to be of sufficient integrity to be of research value, given that in certain circumstances the impacts of post-depositional processes can be identified and controlled for.

6. ABORIGINAL CONSULTATION

The study area lies within the boundaries of the Jerrinja Local Aboriginal Land Council. [redacted] of the Land Council participated in the initial survey in 1994 (Marshall and Webb) and verbally consented to the proposal proceeding. However, written comment was not provided by the Land Council at that time.

[redacted] Sites Officer, and [redacted] of the Jerrinja LALC were contacted during the initial stages of the present investigation to inform the community of the project and to arrange for the participation of representatives during fieldwork.

The field inspection was undertaken on 30 March 2001. The consultant was assisted by [redacted] of the Jerrinja LALC. [redacted] expressed satisfaction with the level of survey coverage and the consultation process and undertook to discuss the matter with the Land Council Executive and provide a written response outlining the community's views.

A draft copy of this report was supplied to the Jerrinja LALC for their review and comment. Despite numerous requests, the Jerrinja LALC were unable to provide written comment until 12 September, almost six months after the field survey. The draft report was revised in relation to written feedback received from the Jerrinja LALC (Appendix 3). The Jerrinja LALC indicated their satisfaction with the results of the survey and requested that if excavation works occur near the creek on the western boundary of the study area, a representative be engaged to monitor these works (Appendix 3).

Copies of the final report will be forwarded to the Jerrinja LALC.

7. STATUTORY OBLIGATIONS

The NSW *National Parks and Wildlife Act 1974* (as amended) provides the primary basis for the legal protection and management of Aboriginal sites within New South Wales. Implementation of the Aboriginal heritage provisions of this Act is the responsibility of the Aboriginal Heritage Division of the NSW National Parks and Wildlife Service. The rationale behind the Act is to prevent unnecessary or unwarranted destruction of relics and to protect and conserve relics where such action is considered warranted.

With the exception of some artefacts in collections, the Act generally defines all relics to be the property of the Crown. The Act then provides various controls for the protection, management and destruction of these relics. A 'relic' is defined as

> 'any deposit, object or material evidence (not being a handicraft made for sale) relating to indigenous and non-European habitation of the area that comprises New South Wales, being habitation both prior to and concurrent with the occupation of that area by persons of European extraction' [Section 5(1)].

In practice, archaeologists generally subdivide the legal category of 'relic' into different site types, which relate to the way Aboriginal heritage evidence is found within the landscape. The archaeological definition of a 'site' may vary according to survey objectives, however it should be noted that even single and isolated artefacts are protected as relics under the Act.

Under the terms of the NSW *National Parks and Wildlife Act 1974* (as amended), it is an offence for a person to:

- knowingly destroy, damage or deface an Aboriginal relic or place, or knowingly cause or permit the destruction, defacement or damage to an Aboriginal relic or place, without first obtaining the consent of the Director-General of the NSW National Parks and Wildlife Service;

- disturb or excavate any land, or cause any land to be disturbed or excavated, for the purpose of discovering a relic, without first obtaining the consent of the Director-General of the NSW National Parks and Wildlife Service; and

- collect on any land a relic that is the property of the Crown, other than a relic under the control of the Australian Museum, without obtaining appropriate authorisation from the Director-General.

Penalties for infringement of the Act include up to 50 penalty units or imprisonment for six months, or both (or 200 penalty units in the case of a corporation).

Consents regarding the use or destruction of relics are managed through a National Parks & Wildlife Service permit system. The issuing of permits is dependent upon adequate archaeological assessment and review, together with an appropriate level of Aboriginal community liaison and involvement. To excavate or disturb land for the purposes of discovering a relic, approval of a 'Preliminary Research Permit' application is typically required, as was obtained for the present investigation. To enable unmitigated destruction of relics, a 'Consent to Destroy Permit' must be obtained. To enable the mitigated destruction of relics, involving measures such as collection and/or salvage excavation, a 'Consent to Destroy and Permit to Salvage' is required. The Director-General may attach any terms and conditions they see fit, to any Consent granted for the above activities. Failure to comply with a term or condition is deemed to be a contravention of the Act.

An appeals process is available whereby an applicant, dissatisfied with the refusal of the Director-General to grant Consent, or with any conditions or restrictions attached to Consent, may appeal to the Minister. The Minister may refuse to grant an appeal or partially or wholly grant an appeal. The decision of the Minister on the appeal is final and is binding on the Director-General and the appellant.

Under the *National Parks and Wildlife Act 1974*, 'Archaeological Areas' may also be declared over private land, where relics or Aboriginal places are located, with the consent of the owner or occupier.

While the primary legislation offering protection to Aboriginal heritage in New South Wales is enacted by the state, several Acts administered by the Commonwealth may also be relevant.

The *Aboriginal and Torres Strait Islander Heritage Protection Act, 1984*, provides for the protection of areas and objects which are of significance to Aboriginal people in accordance with Aboriginal tradition. The Act allows Aboriginals to apply to the Minister to seek protection for significant Aboriginal areas and objects. The Minister has broad powers to make such a declaration should the Minister be satisfied that the area or object is a significant Aboriginal area or object and is under immediate threat of injury or desecration. An 'emergency declaration' can remain in force for up to thirty days. It is an offence under the Act to contravene a provision of a declaration. Provisions are made for penalties of up to $50,000 for a corporation found guilty of contravening the Act and up to $10,000 and imprisonment for a maximum of five years, for a person found guilty of contravening the Act.

Under the Act, 'Aboriginal tradition' means:

> 'the body of traditions, observances, customs and beliefs of Aboriginals generally or of a particular community or group of Aboriginals, and includes such traditions, observances, customs or beliefs relating to particular persons, areas, objects or relationships' (Section 3).

A 'significant Aboriginal area' refers to:

> an area of land or water in Australia being of 'particular significance to Aboriginals in accordance with Aboriginal tradition' (Section 3).

A 'significant Aboriginal object' refers to:

> an object (including Aboriginal remains) of 'particular significance to Aboriginals in accordance with Aboriginal tradition' (Section 3).

For the purposes of the Act, an area or object is considered to be injured or desecrated if:

> a) in the case of an area, it is used or treated in a manner inconsistent with Aboriginal tradition; or the use or significance of the area in accordance with Aboriginal tradition is adversely affected by reason of anything done in or near the area; or passage through or over, or entry upon the area by any person occurs in a manner inconsistent with Aboriginal tradition; and
>
> b) in the case of an object, it is used or treated in a manner inconsistent with Aboriginal tradition (Section 3).

Under the *Aboriginal and Torres Strait Islander Heritage Protection Act, 1984*, the discovery of Aboriginal burials must be reported to the Minister.

8. MITIGATION AND MANAGEMENT STRATEGIES

Three key aspects of the development require consideration:

- Development of the Park Road Area;
- Installation of the sewage line in association with the Park Road Area; and
- Development of the remainder of Nebraska Estate.

Development of the Park Road Area will result in impacts to up to 2 hectares of the 2.7 hectare area (Figure 3). Impacts will occur through the construction of roads and housing and installation of essential services, along with increased human visitation and the subsequent effects on erosion, etc. However, for individual housing allotments, impacts will not necessarily involve the total surface area of each allotment.

Installation of the sewage line will affect a linear area of approximately 90 metres length (outside of the Park Road Area) by up to five metres width (Figure 3). This route traverses the watercourse and flat, in which archaeological deposits have a high potential to occur. The creek flats extend over a large area (Figure 2) and installation of the sewer line will only impact a very small portion of this context and its associated potential deposits.

Development plans have not been formalised for the remainder of Nebraska Estate, particularly the areas of high archaeological potential along the flats adjacent to the main watercourse. Therefore it is uncertain at present whether impacts to the archaeologically sensitive zone will be minor or more extensive in nature.

Specific strategies are considered below for the management of the identified and potential Aboriginal heritage resources within the Park Road Area and the broader Nebraska Estate.

A key consideration in selecting a suitable strategy is the recognition that Aboriginal heritage is of primary importance to the local Aboriginal community, and that decisions about the management of the sites should be made in consultation with the local Aboriginal community (as represented by the Jerrinja Local Aboriginal Land Council).

Strategy A (Further Investigation):

In circumstances where a site is identified, but the extent of the site, the nature of its contents, its level of integrity and/or its level of significance cannot be adequately assessed solely through surface survey (generally because of conditions of low surface visibility or sediment deposition), sub-surface testing may be an appropriate strategy to further assess the site.

Testing is also appropriate in locations where artefact or midden deposits are predicted to occur through application of a predictive model of site location, in order to identify whether such deposits exist and their nature, extent, integrity and significance.

Test excavations can take the form of shovel pits, mechanically excavated trenches or surface scrapes. A permit is required from the NSW National Parks and Wildlife Service to undertake sub-surface testing. Approval can take up to eight weeks, following receipt by the NPWS of all necessary information. A research design specifying the aims and methods is an essential component of a Permit application and therefore requires approval from the NPWS. A letter of comment is also required from the relevant local Aboriginal community (as represented by the Jerrinja Local Aboriginal Land Council).

This is a pro-active strategy, which should result in the identification, assessment and management of the Aboriginal heritage resource prior to any development activity occurring.

Following assessment of each Aboriginal site, management strategies as outlined below (B - E) can be applied.

Strategy B: Conservation:

The suitability of conservation as a management option has long been recognised (*cf.* Burton, Koettig & Thorpe 1990:8). This strategy is suitable for all heritage sites, but particularly those of high archaeological significance and/or high cultural significance.

Significantly, a sample of the environmental/cultural contexts that will be impacted by development of the Park Road Area will also be conserved in the buffer zone surrounding the impact area (Figure 3). Hence, impacts to any potential resources in the development area are offset to some extent by conservation of similar resources in the buffer zone.

Strategy C: Mitigated Destruction (Salvage):

In circumstances where a site is of moderate or high significance within a local context, but the options for conservation are limited and the surface collection of artefacts or excavation of deposits could yield benefits to the Aboriginal community and/or the archaeological study of Aboriginal occupation, the strategy of salvage can be considered.

Salvage may include the collection of surface artefacts or systematic excavation of artefact or midden deposits, as part of a Consent to Destroy and Permit to Salvage required from the National Parks and Wildlife Service. This strategy is the primary means of minimising impacts to Aboriginal heritage from development projects where the option of conservation is not feasible. Given the absence of identified heritage evidence from the study area, salvage is not under consideration.

Strategy D: Unmitigated Destruction:

The strategy of unmitigated destruction involves the proponent making application to the NSW National Parks and Wildlife Service for a Consent to Destroy Permit for any known relics that will be affected by the proposal. This permit must be obtained prior to the commencement of works affecting the evidence, because all relics are protected under the terms of the *NSW National Parks and Wildlife Act, 1974*. This strategy is typically suitable when a site is of low scientific significance, the local Aboriginal community holds no objections, and it is unfeasible to implement any other strategy. Given the absence of identified heritage evidence from the study area, this strategy is not under consideration.

Strategy E (Monitoring):

An alternative strategy for zones where archaeological deposits are predicted to occur is to monitor construction, particularly any initial earthmoving and soil removal works, for the presence of artefacts, shell or skeletal remains.

Monitoring is the primary strategy for managing the possible occurrence of Aboriginal skeletal remains. Monitoring for the presence of shell and stone artefacts is also often of value to the Aboriginal community, who may be seeking to identify and salvage material that was not visible on the surface during a preliminary study. The sieving of graded deposits is also a practical measure that enhances the benefits of monitoring for artefacts.

Monitoring for artefacts (in preference to sub-surface testing) is not a widely accepted method within the context of a scientific investigation, because it could result in substantial and costly delays to construction, late revisions to development plans, and/or cause undesirable impacts to sites of cultural or scientific significance. However, when Development Consent is

granted, monitoring for the presence of artefacts and other features during initial earthworks can be of scientific benefit and benefit to the Aboriginal community. Monitoring undertaken in these circumstances may enable the identification and retrieval of cultural evidence that may not otherwise have been recorded or salvaged.

9. RECOMMENDATIONS

The following recommendations are made on the basis of legal requirements under the *NSW National Parks and Wildlife Act,* 1974, and the results of the investigation and consultation with the Jerrinja Local Aboriginal Land Council:

- No Aboriginal heritage evidence has been identified within the Park Road Area. The potential for Aboriginal heritage evidence to occur within this area is assessed as being low. Hence, there are no Aboriginal heritage constraints to the proposal and no further archaeological investigation is recommended. The proposed buffer zone should be retained to enable the conservation of a sample of potential heritage evidence;

- No Aboriginal heritage evidence has been identified along the proposed sewer pipeline route between the Park Road Area and the existing pump station or along the existing route south of The Wool Road. The potential for Aboriginal heritage evidence to occur on the watercourse bordering flats traversed by the route is assessed as being high. However, the creek flats extend over a large area and installation of the sewer line will only impact a very small portion of this context and its associated potential deposits. Hence, no further archaeological investigation is recommended;

- Development plans have not been formalised in relation to the remainder of Nebraska Estate. If extensive development is to occur in the areas of high archaeological potential along the flats adjacent to the main watercourse it is recommended that sub-surface testing be undertaken in at least one location of such development, preferably close to the recorded Fishermans Road or Pelican Road sites. The purposes of excavation would be to test for the presence of heritage evidence and permit an adequate assessment of the nature, scope and significance of any evidence. Any further investigation involving salvage or test excavation should only be undertaken by an archaeologist qualified and experienced in Aboriginal heritage in full consultation with the Jerrinja Local Aboriginal Land Council. A Preliminary Research Permit is required from the NSW National Parks and Wildlife Service, which involves a written letter of comment from the local Aboriginal community and a detailed research design. The NPWS aims to process such applications within eight weeks of receipt of all necessary information;

- The Jerrinja Local Aboriginal Land Council has requested the presence of a representative to monitor excavation works if development occurs along the watercourse in the western portion of Nebraska Estate. The proponent should give full consideration to this request;

- The proponent is reminded that under the terms of the *National Parks and Wildlife Act, 1974* it is an offence to knowingly destroy, damage or deface an Aboriginal relic without obtaining the prior written permission of the Director-General of the NSW National Parks and Wildlife Service;

- Any previously unrecorded Aboriginal sites or relics detected during the course of development should be immediately reported to the NSW National Parks and Wildlife Service Southern Directorate and advice sought as to the appropriate course of action.

- Three copies of this report should be forwarded to:

  Cultural Heritage Unit Manager
  Southern Directorate
  NSW National Parks and Wildlife Service
  PO Box 2115
  Queanbeyan NSW 2620

- A single copy of this report should be forwarded to:

  Secretary
  Jerrinja Local Aboriginal Land Council
  PO Box 167
  Culburra NSW 2540

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APPENDIX 1: PLATES

Plate 1. [redacted] (Jerrinja LALC) and archaeologist [redacted] (South East Archaeology Pty Ltd) inspecting verges of Park Road, in Park Road Area.

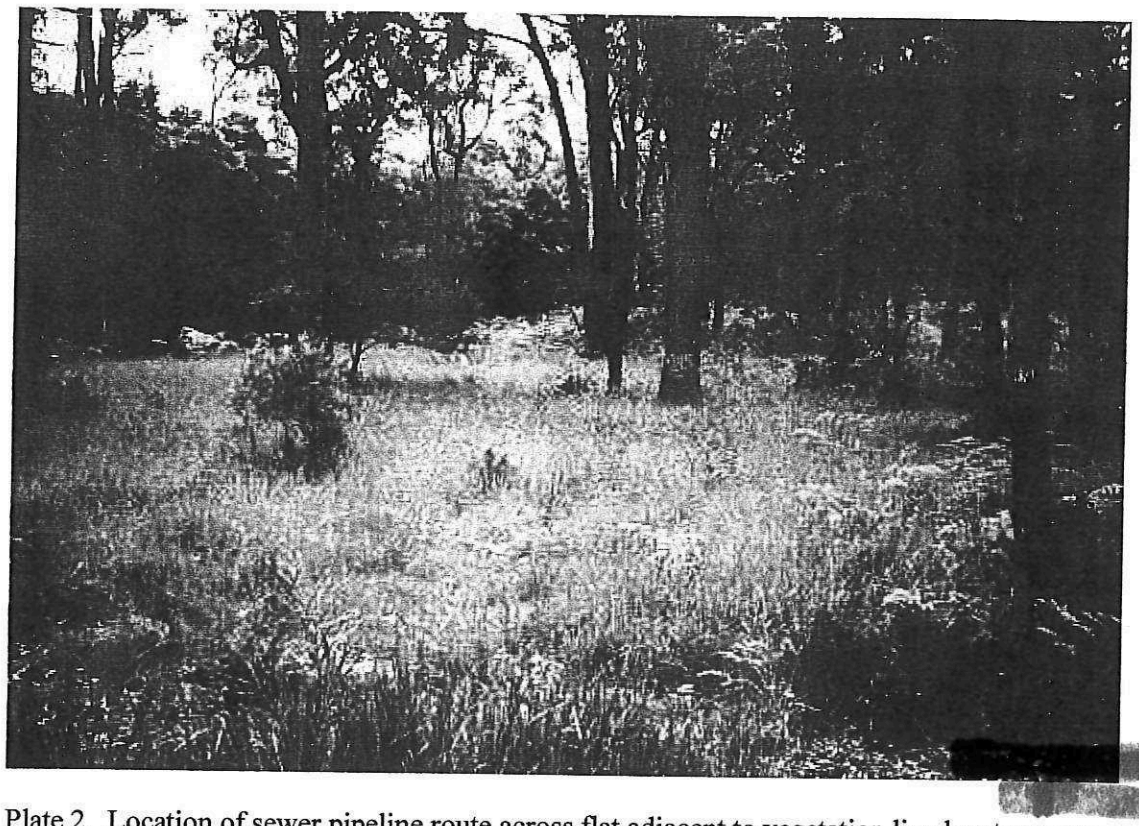

Plate 2. Location of sewer pipeline route across flat adjacent to vegetation lined watercourse.

APPENDIX 2: CORRESPONDENCE FROM JERRINJA LOCAL ABORIGINAL LAND COUNCIL

JERRINJA LOCAL ABORIGINAL LAND COUNCIL

Office: Roseby Park
Orient Point NSW 2540
Postal Address: PO Box 167
Culburra Beach NSW 2540
Phone: (02) 4447 4207
Fax: (02) 4447 4230

Peter Kuskie
South East Archaeology
24 Bumford Street
HUGHES ACT 2600

RE; ARCHAEOLOGICAL SURVEY PROPOSED RESIDENTIAL SUBDIVISION ST GEOGRES BASIN

On 31 MARCH 2001, a Archaeological survey of the above proposal was conducted.

The survey was carried out by Archaeologist Peter Kuskie and myself, Senior Sites Officer from the Jerrinja L,A,L,C.

The survey of the proposed development, commenced with the inspection of the Eastern section the proposed subdivision development and a road dividing the two [2] proposed areas.

The survey of the Eastern section and dirt road revealed no evidence of any archaeological sites during the inspection.

The survey of the Western section of the proposal also revealed no evidence of archaeological sites in the immediate areas of the proposed development.

The survey of tracks [dirt and grass covered] within the proposed areas was inspected. They also reveled no evidence of any archaeological material. Visibility along the dirt tracks was 100%. The grass covered tracks gave limited visibility, 0% to 40%. Therefore making it harder to locate any evidence of archaeological material in the immediate areas of impact.

The survey of the proposed development was transacted by foot.

The main reason the survey, did not located any evidence of archaeological sites was due to the proposed development area been well covered with trees [large/small] very thick shrubs and grass cover The only areas likely to determent if any archaeological material did existed in the immediate area of impact it would have been exposed on the tracks.

The Jerrinja L,A,L,C, was informed of the survey outcome and are satisfied with the results.

The Jerrinja L,A,L,C, main concerns are, if there is any further development, especially near the creek on the western boundary a member from the community, should be on site to monitor any excavation activities.

Yours Sincerely

[redacted]nior Sites Officer for the Jerrinja L.A.L.C.