

APPENDIX E

A CULTURAL HERITAGE ASSESSMENT OF CULLENSWOOD 2 AND 3, FINGAL VALLEY, EASTERN TASMANIA



CULTURAL
HERITAGE
MANAGEMENT
AUSTRALIA

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2 and 3, Fingal Valley, Eastern Tasmania.

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CLIENT NAME : SEMF

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Abstract

Project Background

Cornwall Coal has commenced proceedings to gain approval for an extension to their current mining operations at ML 1698 P/M. At present Cornwall Coal operate one open-cut mine within the Lease, however forecasts suggest at the current rate of extraction the resource will be exhausted within 12-18 months. Continuity of supply is critical to Cornwall Coal, therefore to remain competitive new deposits need to be identified and the necessary approvals sought well in advance of mine closure.

Cornwall Coal has identified two new areas, Cullenswood 2 and Cullenswood 3 as possible mine expansion areas. The combined survey area for Cullenswood 2 and 3 is approximately 120 hectares (See Figures 1, 2 and 3). Cullenswood 2 is located within the confines of the current Lease (ML 1698 P/M) whereas Cullenswood 3 is located outside but adjacent to the current lease (Refer to Figure 3). It is proposed that Cullenswood 2 will be developed prior to Cullenswood 3, however to increase efficiencies, it has been requested that both sites are assessed simultaneously.

Cultural Heritage Management Australia (CHMA) has been engaged by Cornwall Coal, (through SEMF) to implement a cultural heritage assessment within the bounds of the Cullenswood 2 and 3 areas. This report presents the findings of this assessment.

The Field Survey Assessment Process

The field survey assessment was conducted over a period of 2 days (19-8-2009 to 20-8-2009). Those people involved in the field assessment were:

- Stuart Huys (CHMA archaeologist);
- Vernon Graham (Palawa Senior Aboriginal Heritage Officer).

The survey assessment involved walking a series of survey transects within the bounds of the proposed 120ha study area. The survey transects were aligned so as to provide survey coverage of a representative sample of the various landscape units identified within the study area (See section 2 for more details). In the course of the field investigations, any areas of improved surface visibility were inspected (erosion scalds, stock tracks etc) and all rock outcroppings were inspected.

Figure 4 shows the distribution of the survey transects walked within the bounds of the study area. Section 6.1 of this report presents a more detailed account of the survey assessment process.

Results of the Field Survey

In the course of the field survey investigations, a total of two Aboriginal heritage sites were identified within the bounds of the study area (TASI 10945 and TASI 10946). Both sites are classified as isolated artefacts, and are situated within the south-east portion of the study area, on elevated and level landscape features. In both instances it is anticipated that additional undetected surface and sub-surface artefacts will be associated with these sites. Figure 6 shows the location of these two sites. Section 7.2 provides more detailed descriptions for the two identified sites.

In addition, four Potential Archaeological Deposits (PADs) were identified within the bounds of the study area. These were areas, where no surface artefacts were identified, however, this is assessed as being a product of poor surface visibility, and it is

considered very likely that undetected surface and sub-surface deposits are present in these areas. Figure 6 shows the location of these four areas. The remainder of the study area has been assessed as being of low archaeological sensitivity.

No European (Non Aboriginal) heritage sites were identified within the bounds of the study area. These negative results are assessed as being an accurate reflection of the absence of historic heritage items within the bounds of the study area. It is acknowledged that the study area has been the focus of occasional European activity in the past associated with early exploration and mining activity, however, there are no visible remnants of this past activity present in the study area.

Significance Assessments

The two sites identified within the study area (TASI 10945 and TASI 10946) have been assessed as being of low scientific significance value. The rationale for this assessment is as follows.

- 1) These sites are classified as isolated artefacts. This site type is very common in East Tasmania and is therefore well represented within the archaeological record of the region.
- 2) The stone materials and artefact typologies of the artefacts represented in the assemblage of these two sites are comparatively common and are also well represented in other sites in East Tasmania.
- 3) These sites have been subject to a moderate to high level of prior disturbance associated with past land clearing farming practices such as tree clearing and animal grazing.

It should be noted that both sites have the potential to comprise additional surface and sub-surface artefact deposits. The significance assessments attributed to these sites may therefore change pending the outcomes of additional sub-surface investigations.

Cultural Heritage Management Plan

Heritage management options and recommendations provided in this report are made on the basis of the following criteria:

- Consultation with Vernon Graham (Aboriginal Heritage Officer);
- The legal and procedural requirements as specified in the *Aboriginal Relics Act 1975* (The ACT);
- The results of the investigation as documented in this report; and
- Background research into the extant archaeological and historic record for the study area and its surrounding regions.

The recommendations are aimed at minimising the impact of the proposed developments on any potential cultural resources present within the surveyed areas.

- 1) A limited program of sub-surface archaeological investigations should be implemented within the bounds of the study area. The purpose of the test pitting program will be to determine the presence/absence of Aboriginal artefact material, and the potential distribution patterns of this material within the bounds of the study area. The overall objective of the sub-surface investigations is to generate sufficient additional information in order to develop more informed management strategies for the study area.

- 2) The sub-surface investigations should involve the excavation of a series of twenty (60) test pits within the bounds of the study area. The distribution of these test pits should be as follows.
 - Ten test pits in the immediate vicinity of identified sites TASI 10945 and TASI 10946. The exact positioning of these test pits will be at the discretion of the designated archaeologist and AHO.
 - Ten test pits within the designated bounds of both PADs 1 and 2, in the southern portion of the study area. The exact positioning of these test pits will be at the discretion of the designated archaeologist and AHO.
 - Five test pits within the designated bounds of both PADs 3 and 4, in the north-west portion of the study area. The exact positioning of these test pits will be at the discretion of the designated archaeologist and AHO.
 - Ten test pits to be excavated at random locations within the remaining portions of the study area that has been deemed to be of low or very low sensitivity. These test pits will act as a comparative control, and will further test the validity of the predictive model developed for the study area. The exact positioning of these test pits will be at the discretion of the designated archaeologist and AHO.
- 3) Each of the test pits will be 50cm x 50cm and be excavated in 5cm spits. The soil from these pits will be wet sieved through 3mm mesh sieves. Any artefacts or archaeological materials (Bone, shell, charcoal etc) will be collected, photographed and recorded. A soil profile should be recorded for each excavated test pit, and soil samples taken for pH testing.
- 4) Any artefacts recovered from the salvage and test pitting program will be the focus of a detailed artefact analysis program.
- 5) Once analysed, the salvaged artefacts will be appropriately catalogued and submitted to AHT for curation.
- 6) The findings of this sub-surface test pitting program, as well as the interpretations of the findings will be presented in a report which should act as an addendum to this present report. This report should also include a detailed set of management strategies, which are based on the outcomes of the test pitting program. As a general guide to the structure of these recommendations, if no artefact material was recovered from selected test pitting areas, then it would be recommended that there are no Aboriginal archaeological constraints to development works proceeding in these areas. If archaeological material is discovered then recommendations would be formulated around mitigation strategies for identified sites, including the requirements for applying for relevant permits, the potential scope of additional investigations, or protection strategies for areas of particular significance.
- 7) At the completion of the test pitting program the consultant archaeologist and AHO will meet with AHT to discuss the results of the excavation program, and potential management options for the study area.
- 8) Copies of this present report should be provided to AHT for review and consideration.

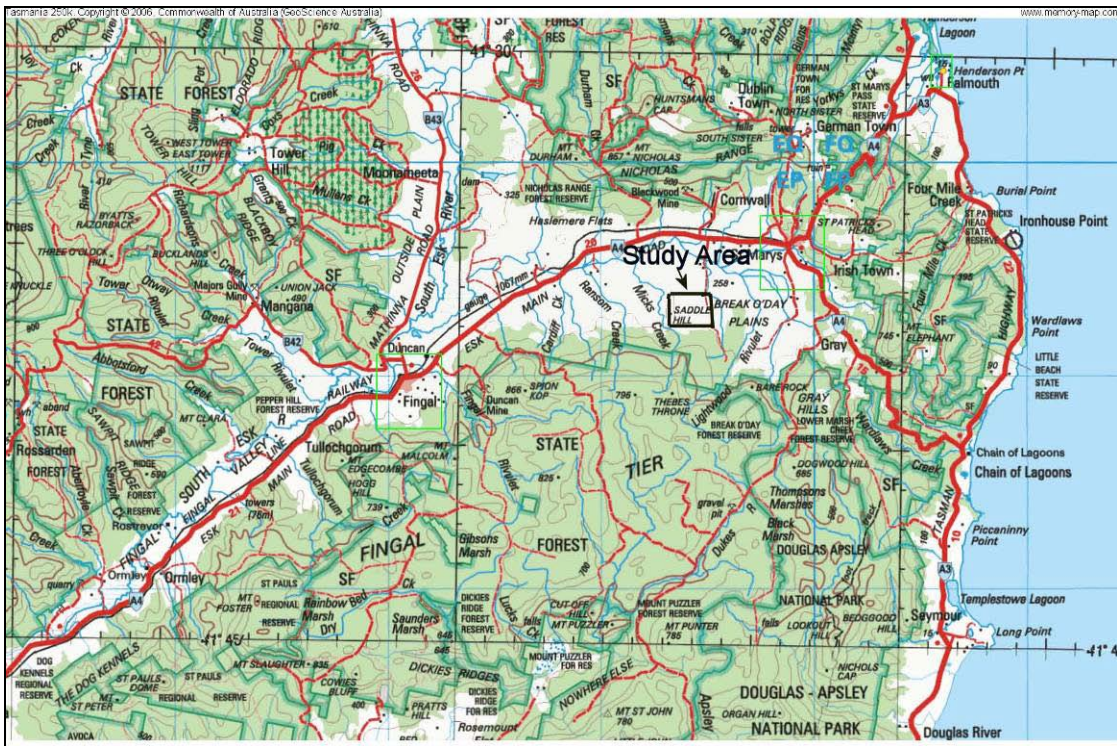


Figure 1: The location of the Study Area (Map Scale 1: 250 000)

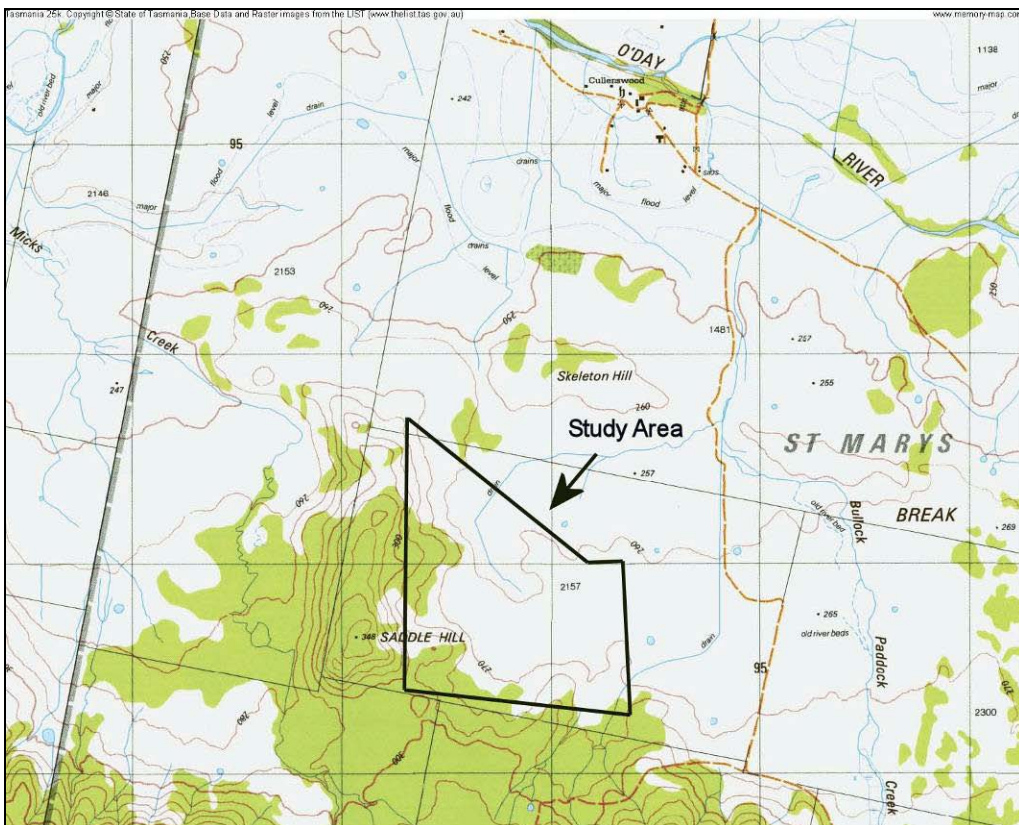


Figure 2: The location of the Study Area (Map Series St Marys 5859: 1: 25 000)

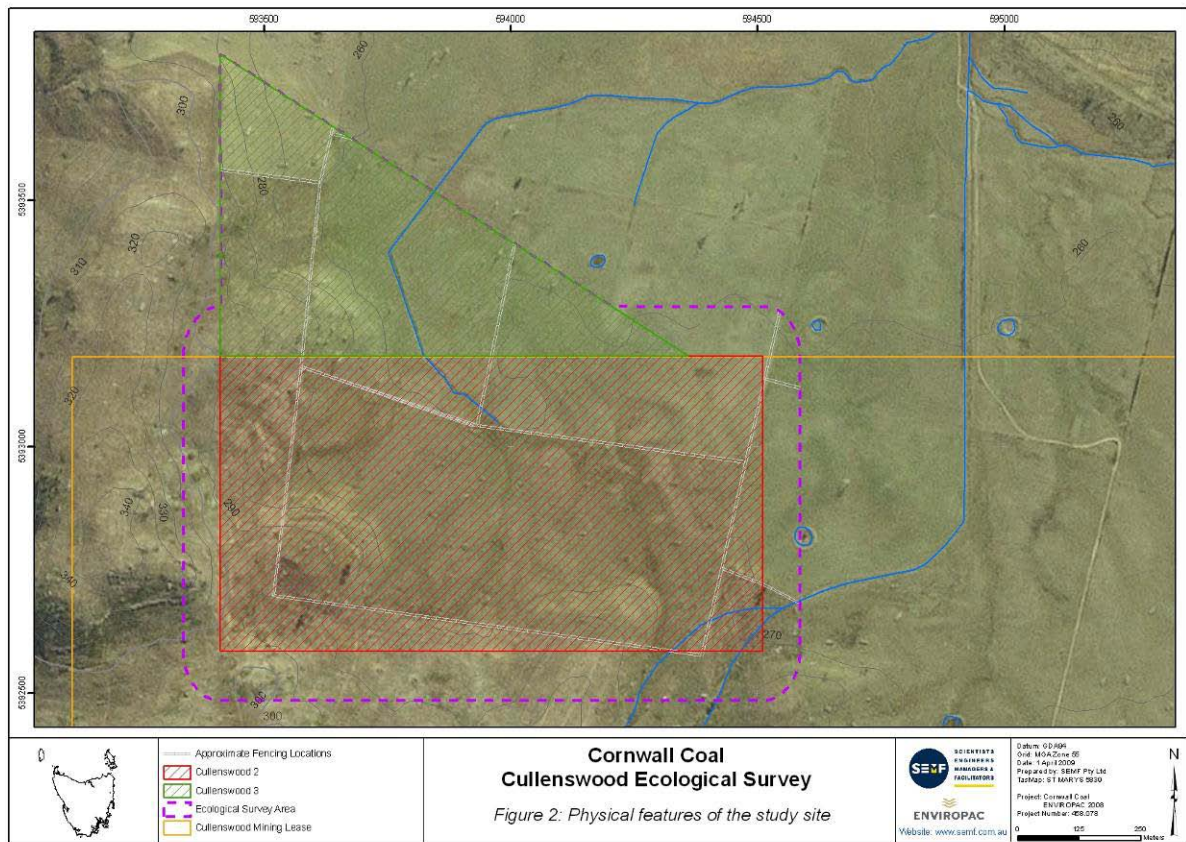


Figure 3: The location of Cullenswood 2 and 3 (Map prepared by SEMF)

1.0 Project Outline

1.1 Project Background

Cornwall Coal has commenced proceedings to gain approval for an extension to their current mining operations at ML 1698 P/M. At present Cornwall Coal operate one open-cut mine within the Lease, however forecasts suggest at the current rate of extraction the resource will be exhausted within 12-18 months. Continuity of supply is critical to Cornwall Coal, therefore to remain competitive new deposits need to be identified and the necessary approvals sought well in advance of mine closure.

Cornwall Coal has identified two new areas, Cullenswood 2 and Cullenswood 3 as possible mine expansion areas. The combined survey area for Cullenswood 2 and 3 is approximately 120 hectares (See Figures 1, 2 and 3). Cullenswood 2 is located within the confines of the current Lease (ML 1698 P/M) whereas Cullenswood 3 is located outside but adjacent to the current lease (Refer to Figure 3). It is proposed that Cullenswood 2 will be developed prior to Cullenswood 3, however to increase efficiencies, it has been requested that both sites are assessed simultaneously.

Cultural Heritage Management Australia (CHMA) has been engaged by Cornwall Coal, (through SEMF) to implement a cultural heritage assessment within the bounds of the Cullenswood 2 and 3 areas. This report presents the findings of this assessment.

1.2 Aims of the Investigation

The principal aims of the present Aboriginal heritage assessment are as follow.

- To locate and document Aboriginal heritage sites and historic sites that may be present within the identified bounds of the study area.
- To assess the archaeological sensitivity values of the study area.
- To assess the scientific and Aboriginal cultural values of identified Aboriginal heritage sites and the heritage values of historic sites.
- To develop a detailed set of management strategies which are aimed at minimising the impacts of the proposed wind farm development on the Aboriginal and historic heritage resources in the study area.

1.3 Project Methodology

A three stage project methodology was implemented for this assessment.

Stage 1 (Pre-Fieldwork Background Work)

Prior to field work being undertaken, the following tasks were completed by Stuart Huys (CHMA archaeologist).

Consultation with Aboriginal Heritage Tasmania

As a first step in the assessment process, Stuart Huys (CHMA) met with Mike Jones (Aboriginal Heritage Tasmania). The purpose of this initial meeting was to advise AHT of the details of the project, and of the proposed commencement dates for field work.

Stuart Huys committed that AHT would be kept informed regarding the findings of the assessment. Mike Jones stated that he was satisfied with the stated methodology to be implemented for the assessment process.

Consultation with Vernon Graham (Aboriginal Heritage Officer)

Vernon Graham is the designated Aboriginal Heritage Officer for the present investigations. As part of Stage 1 works Stuart Huys (CHMA archaeologist) and Vernon Graham were in regular contact. The main purpose of this contact was to discuss the scope of the present investigations, to ratify the proposed methodology for the investigations and to co-ordinate the timeframes for implementing field work.

The collation of relevant documentation for the Project

The following documentation was collated for this project.

- 1: 25 000 topographic maps for the study area.
- Aerial maps for the pipeline route
- Previous archaeological reports undertaken in the general vicinity of the study area.
- Details for previously recorded Aboriginal sites in the general vicinity of the Study Area, through a search of the Tasmanian Aboriginal Site Index (TASI) data base.
- A search of the Tasmanian Historic Places Inventory (THPI).

Stage 2 (Field Work)

Stage 2 involved the field work component of the project. The field survey assessment was conducted over a period of 2 days (19-8-2009 to 20-8-2009). Those people involved in the field assessment were:

- Stuart Huys (CHMA archaeologist);
- Vernon Graham (Palawa Senior Aboriginal Heritage Officer).

The survey assessment involved walking a series of survey transects within the bounds of the proposed 120ha study area. The survey transects were aligned so as to provide survey coverage of a representative sample of the various landscape units identified within the study area (See section 2 for more details). In the course of the field investigations, any areas of improved surface visibility were inspected (erosion scalds, stock tracks etc) and all rock outcroppings were inspected.

Figure 4 shows the distribution of the survey transects walked within the bounds of the study area. Section 6.1 of this report presents a more detailed account of the survey assessment process.

As part of the Stage 2 field work assessment, all details of the findings of the field investigations were discussed between Vernon Graham and Stuart Huys. This included the potential archaeological sensitivity of the study area and potential mitigation strategies.

Stage 3

Stage three of the project involved the production of a Draft and Final Report which includes an analysis of the data obtained from the field surveys, and the development heritage management recommendations. The report was prepared by Stuart Huys (CHMA), in liaison with Vernon Graham (Aboriginal Heritage Officer).

1.4 Survey Coverage, Surface Visibility and Effective Survey Coverage

The term survey coverage refers to the estimated proportion of a study area that has actually been visually inspected as part of a field survey assessment.

For the purpose of this assessment, it has been estimated that a single survey transect can achieve a 10m wide survey inspection coverage. A total of 12km of survey transects were walked within the bounds of the study area. This equates to a coverage of 120 000m².

Surface Visibility refers to the extent to which the actual soils of a ground surface are available for inspection. There are a number of factors that can affect surface visibility, including vegetation cover and the presence introduced gravels or materials.

Surface visibility within the bounds of the study area was generally poor averaging around 10%.

Variations in both survey coverage and surface visibility will have a direct bearing on the ability for a field team to detect Aboriginal heritage sites, particularly such site types as isolated artefacts and artefact scatters. The combination of survey coverage and surface visibility is referred to as effective survey coverage. In this instance, the effective survey coverage of the study area equated to around 1% of the study area (See Table 1).

Table 1: Estimated Survey Coverage, Surface Visibility and Effective Survey Coverage

Total Area Of study area	Estimated Survey Coverage of section	Estimated Surface Visibility within Study Area	Effective Coverage within Study Area
1 200 000m ²	120 000m ² (10% of study area)	10%	12 000m ² or 1% of study area

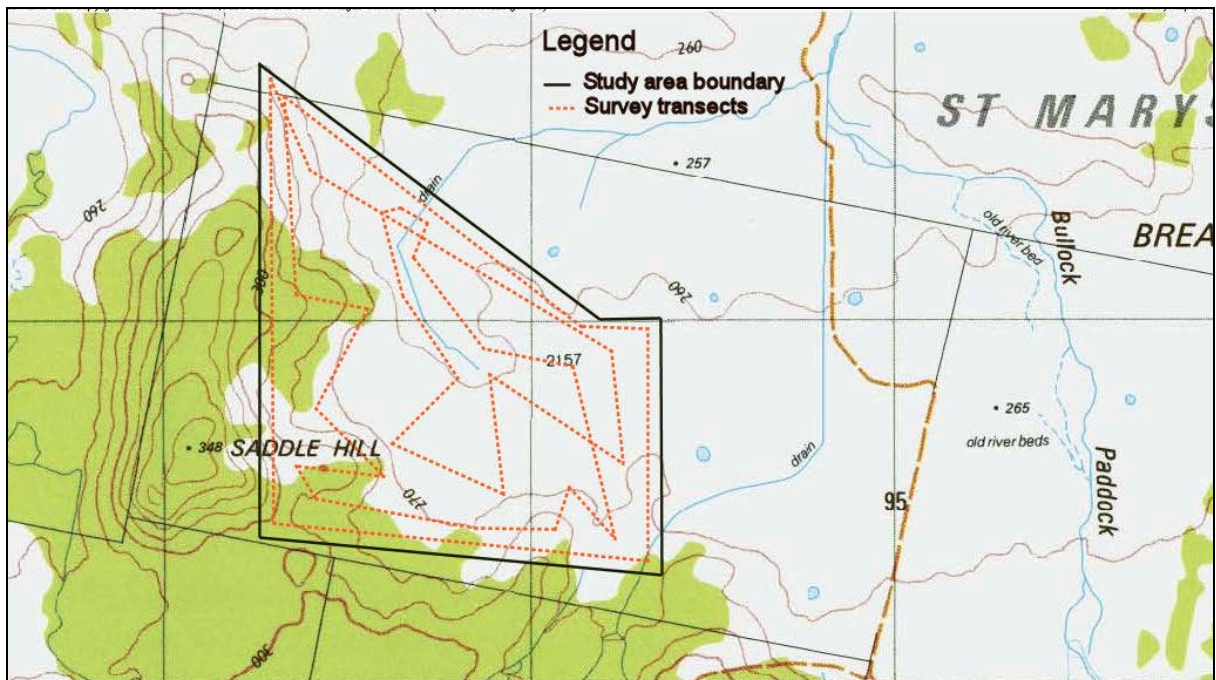


Figure 4: The location of the Study Area (Map Series St Marys 5859: 1: 25 000)

2.0 Environmental Setting

The study area is located on the Break O'Day Plains, within the south-east portion of the Fingal Valley, approximately 5km to the south-west of the township of St Marys. The study area encompasses approximately 120 hectares. The entire native vegetation structure within the bounds of this 120ha area has been cleared as part of farming activity. The dominant vegetation structure within the study area is introduced grass species. The land is presently being used for pastoral purposes.

The terrain encompassed within the bounds of the study area varies considerably. The western portion of the study area encompasses the flat summit and associated side slopes of two small hills. The hills are part of a larger ridge line system that is located to the west of the study area. The summits of these two small hills are generally flat to gently undulating. The side slopes of the hills run from west to east down to the low lying valley floor at a gradient of between 3-10°. The southern portion of the study area encompasses the lower and basal slopes of a large series of ridges and hills that are located to the south of the study area. These slopes run from south to north down to the southern valley floor of the Fingal Valley. The gradient of these slopes generally ranges from between 3-7°. However, in a few areas, these slopes bench to form elevated and level landscape features. The remainder of the study area is characteristically flat to very gently sloping. Much of the northern portion is low lying and prone to inundation. At the time of the survey assessment these low lying areas were under water. Figure 5 presents a 3D image of the topography of the study area.

The underlying geology of the study area is dominated by weathered sand stone. This sandstone appears as outcrops on the hill summit and associated side slopes located in the western portion of the study area.

The soils present within the study area vary both in terms of composition and depth. On the hills in the western portion of the study area the soils are characteristically very shallow gravelly sand loam deposits. The soils on the hill slopes and associated elevated level break of slopes in the southern portion of the study area are generally loosely consolidated sand loam deposits which appear to have considerable depth. The soils on the flat and low lying areas in the central and northern portions of the study area are brown silt/sand loams and again appear to have some depth.

There are no permanent or semi-permanent water courses located within the bounds of the study area. The largest water course located in the vicinity of the study area is the Break O'day River which is situated approximately 2km to the north. Bullock Paddock Creek is a semi-permanent creek line which is located around 1km to the east of the study area. This creek runs from south to north, eventually emptying into the Break O'day River. Another semi-permanent creek line, Micks Creek, is located approximately 1km to the west of the study area and again runs from south to north, emptying into the Break O'day River.

Two small ephemeral drainage lines run from south to north through the study area. There are also a series of small low lying swampy areas that occur within the bounds of the study area.



Figure 5: Three dimensional image showing the topography of the study area



Plate 1: View south along west boundary of Study Area



Plate 2: View east along north boundary of Study Area



Plate 3: View from west boundary at central portion of Study Area



Plate 4: View east along southern boundary of Study Area



Plate 5: Rock outcrops on hill in south-west portion of Study Area



Plate 6: View north at flat, low lying areas in north-east part of study area



Plate 7: View north at drainage line and low lying areas in north-west part of study area



Plate 8: View south-east at low lying swamp areas in central portion of study area



Plate 9: View north from hill on southern edge of study area to low lying areas



Plate 10: View north along slight rise in southern portion of study area

3.0 Historic Background for the Study Area

3.1 Historic Overview for the Fingal valley

The Fingal Valley is located 237 km east of Launceston via the Tasman Highway and 249 km north east of Hobart, in the Break O'Day local council area. Fingal was probably named after Fingal's Cave in the Hebrides, by Roderic O'Connor who first surveyed the area with John Helder Wedge in 1824.

During the 1820's numerous lands were granted to free settlers as the population increased. The agricultural practices moved away from subsistence to pastoralism and the development of the wool industry, which further encroached on Aboriginal lands and resistance increased. The reliance on farming and pastoralism continued with supplements of trapping and shooting.

As in other areas of Tasmania, convicts provided cheap labour for public works and farming and shepherding duties. A Convict station was established at Fingal in 1827. And a Post Office has operated since 1831.

During 1832 James Backhouse visited the area and describes it as being sparsely settled. By 1833 the surveyor Wedge was in the Valley planning the township of Avoca that's lots were bought mainly by the population of the Fingal Valley.

A church was built from locally raised funds in 1841 and an associated school was operating by 1844. Fingal State School was established in 1855, one of the oldest continually run schools in Tasmania (<http://paddyrtasmania.tripod.com/id14.html>)

Mining became a new industry with the discovery of Gold in the 1850's and the discovery of coal in 1853, which had to wait for the completion of the railway more than 30 years later. Initially the gold mining operations concentrated on surface deposits and it was the mid 1850's before shaft mining began in the area when larger companies were formed (Scripps 1997).

Coal mining in the Fingal valley developed in the 1880s as did the exploitation of the tin deposits first discovered in 1872. Fingal is still known for the Cornwall Coal mines operating nearby, forestry and agriculture, tourism.

3.2 Previously Recorded Historic Sites in the Vicinity of the Study Area

As part of stage 1 work, a search was carried out of the Tasmanian Historic Places Inventory (THPI) held at the offices of Heritage Tasmania, Department of Environment, Parks, Heritage and the Arts. The search shows no previous records of historical sites located within or in the immediate vicinity of the Study Area.

4.0 Ethno-historic Background

4.1 Aspects of Aboriginal Social Organisation

The following provides a brief overview of the nature of pre-contact Aboriginal groupings, the Aboriginal concepts of land ownership, and the relationship of both these to pre-contact Aboriginal land use in Australia. The purpose being to establish a basic framework of understanding regarding Aboriginal social organisation, within which the archaeology of the study area may be viewed. Such an understanding is an essential pre-requisite to any archaeological research concerned with analysing the relationship between Aboriginal people and their environment.

Within Australia the band is generally considered by anthropologists as the basic social and economic unit in pre-contact Australian Aboriginal society (Service 1966 : Peterson 1976). It is described as a small scale population, comprised of between two to six extended family units, which together cooperate in the food quest (Service 1966). The composition of this group (in terms of numbers) was by no means rigid, with group sizes fluctuating in response to such factors as the availability of resources and visiting kin (Peterson 1975).

Individual bands are seen to occupy and exploit a specific range (Service 1966). The actual delineation of a group's range is problematical, since they are not easily definable. The ideal method of defining the range would be to identify the outermost points of an area used by a group. Yet, as Peterson (1986) points out, the kind of evidence needed to achieve this, (details of daily movements over several years) is not available for any group within Australia. Nor is such evidence likely to be discernible in the archaeological record. The practical alternative, both from an archaeological and an anthropological perspective, is to identify the base camps used over a period by a group. This provides a rough equivalent of the "home range".

Despite the difficulties faced in defining ranges, Peterson (1986) believes there is good evidence for supposing that bands are localised and generally have more or less bounded and exclusive ranges. The most significant evidence being ethnographic accounts recording the elaborate rites of entry accorded to visitors when entering a band's range (see Peterson 1986). There is however, no evidence to suggest that members of a band actively defended the boundaries of these ranges, Peterson (1986).

The band is in essence a land using group, but not a land owning group. Land ownership was vested in "the clan" , which had rights in an area called an estate (Stanner 1965). It is uncertain whether clans within Eastern Australia were strictly patrilineal (as is suggested in other parts of Australia), or whether membership was determined more on the basis of place of birth (White & Cane 1986). Mathews (1906) suggests that a child generally belonged to the "clan country", or territorial group of it's father, the woman usually having moved to her husbands "country" when married.

Individual Bands or Clans were by no means a social or cultural isolate, but rather interacted with each other in a variety of ways. Typically, these interactions involved visitations, marriage, ceremonies and trade. Through these interactions, links were established or re-affirmed between neighbouring bands. The result being the formation of a cluster of bands, wherein there was some sense of collective identity, often

expressed in terms of possessing a common and distinctive language. The collective term often used for such groups of Bands is the Tribe or language group (White & Cane 1986).

4.2 Aboriginal Social Organisation in Tasmania

According to Ryan (Ryan:1996:14), the Aboriginal population of Tasmania was aligned within a broad framework of nine Tribes, with each Tribe comprising between six to fifteen bands. The mean population of each Tribe is estimated to have been between 350 and 470 people, with overall population estimates being in the order of between 3000-5000 people prior to European occupation (Ryan:1996:14). Ryan (1996:15) presents a map showing the approximate boundaries for the nine Tasmanian Aboriginal Tribes. This map shows that the study area probably falls within the boundaries of land occupied by the Oyster Bay Tribe.

The Oyster Bay Tribe occupied the area along the east coast of Tasmania, from St Patricks Head through to the Derwent Estuary, then west to the mouth of the Jordan River. Here the boundary ran north, along the east edge of the Jordan River, through to St Peters Pass, then east through to the watershed of the South Esk and Macquarie Rivers. Their territory encompassed around 7800 square km, which included 515km of coastline. The Tribe consisted of ten bands with an estimated total population of between 700-800 people, making it the largest Tribe in Tasmania (Ryan:1996:17). Of the ten bands that comprised the Oyster Bay Tribe, it is the Leetermairremener that was the band that probably occupied the land that encompasses the Study Area.

Ryan (1996:17) believes that the main components of the Oyster Bay Tribe's diet were shellfish from estuarine beds, kangaroo and possum from the open forests and plains, and a variety of vegetable foods. Their movement through the landscape was largely based on the seasonal availability of food resources. In this sense, the Oyster Bay Tribe could be divided into two distinct groups. The northern group, from North Oyster Bay through to St Patricks Head, and the group from Little Swanport through to the Tasman Peninsula.

The Northern Group would spend the winter on the coastal areas of their territories, feeding primarily on shellfish and marine vegetables. Between August and October this north group would congregate at areas such as Moulting Lagoon and Schouten Island, where there was abundance of birdlife. In October they would then begin to move inland up the St Pauls and Break o' Day Rivers to the Ben Lomond Tier, or up the Meredith River and across the Eastern Tiers to the Elizabeth River. In January, people would begin to move back to the coast to partake in sealing and mutton birding (Ryan 1996:20).

5.0 Background Archaeology

5.1 Archaeological Investigations in the Broader Study Region

The study area falls roughly on the boundary of the midlands and east coast regions of Tasmania. A number of previous archaeological investigations have been undertaken in these two regions over the past three decades. Probably the most comprehensive, and pertinent investigations (to this study) is that of Kee (1990) and Brown (1991).

Sue Kee (1990) implemented the Midlands Regional Aboriginal archaeological site investigation, which was funded through the National Estate Grants Program. The primary objectives of the study were primarily to establish (on the basis of literary and field research) a predictive model of site location for the Midlands Region, and secondly to carry out a limited archaeological excavation with the aim of providing a temporal context for the information generated for the study.

As part of the study, Kee (1990) surveyed 72km within the Midlands area. This survey resulted in the identification of 236 Aboriginal sites. This brought the total number of known Aboriginal sites in the Midlands to 350. The vast majority of these sites are classified as isolated artefacts or artefact scatters. The exception is the coastal fringes in the midlands where shell midden sites tend to predominate. Stone quarries and suitable stone sources for procurement were identified in many locations throughout the Midlands (Kee (1990)).

As part of the analysis of the distribution of sites throughout the Midlands, Kee (1990) divided the Midlands into seven separate landscape divisions. These are Aeolian lunettes, coastal dunes and beaches, estuaries, lakes (uplands and lowlands), lowland hills and plains, upland hills and plains and rivers. The highest number of sites was identified in the Aeolian lunettes and coastal dunes, accounting for around 50% of the total number of sites recorded in the Midlands. Between 20 to 30 Aboriginal sites were recorded in each of the other five landscape divisions. Kee (1990) is of the opinion that the observed pattern of distribution accurately reflects true differences or variations in site densities throughout these different landscape divisions, and is not merely a product of skewed visibility or survey coverage.

Of particular relevance to the present study, is the findings for the Riverine and Uplands hills and plains landscape divisions. A total of 46 sites were recorded in the Riverine landscape division (31 on the Macquarie River and 15 on the South Esk). The majority of these sites are isolated artefacts or small artefact scatters, although a few larger artefact scatters were recorded. Cherty hornfels was the dominant stone material represented in the artefact assemblages of these sites. Kee (1990) was of the opinion that the sites recorded in the Riverine areas reflect occupation where a variety of activities were carried out in association with the use of the Riverine environments of the Midlands, with the rivers serving as travelling routes along the open flood plains, between forays into the adjacent lowlands and uplands. Given that the South Esk and Macquarie Rivers were prone to flooding, Kee (1990) believes that the floodplains would be unsuitable for camping for a large part of the year. No dates have been retrieved for the sites in the Riverine areas, but Kee (1990) suggests that at least some sites may date to the mid Holocene, which is the earliest date of occupation known for the Midlands.

With regard to the Uplands hills and plains landscape division, 29 sites were recorded in this unit. Twenty four of these sites are isolated artefacts or artefact scatters, with the remaining five sites being stone quarries. Sites were reported as occurring in all types of landform elements, with the majority (76%) occurring on the flats or small depressions in undulating plains, lower slopes of hills, or crests of low rises (Kee 1990). Again, cherty hornfels are the dominant stone material type represented in the artefact assemblages in these areas. Kee (1990) interprets the sites in the Uplands hills and plains landscape division as being representative of transient excursions associated with terrestrial hunting. The exception is a site at Mt Morriston, near Ross which is believed to have been used as a base camp location.

One of the features of the findings of the investigations of Kee (1990) is that the vast majority of sites identified as part of the field survey were recorded within ploughed farm paddocks, where the surface visibility is improved and the soils have been churned. This pattern of site location highlights the importance of good surface visibility in identifying sites during field surveys, and demonstrates how varying conditions of surface visibility can potentially skew the results of survey investigations. Kee (1990) does not really adequately address this factor in her assessment. It is plausible that the factor of surface visibility variations could be a major contributor to the pattern of site distribution observed for the Midlands, with site densities being highest in the Aeolian dunes and coastal areas where surface visibility is improved and lowest in the Riverine and Uplands areas where surface visibility is poor. The only way to adequately determine how accurate the perceived pattern of site distribution is in the Midlands region would be through extensive sub-surface investigations within the various landscape divisions.

Steve Brown (1991) carried out the East Coast Archaeological Project, which, like the investigations of Kee (1990), was one of a series of nine regional archaeological investigations funded through the National Estate Grants Program. The primary objectives of the study were to establish (on the basis of literary and field research) a predictive model of site location for the East Coast Region, and to attempt to reconstruct the regional prehistory of the east coast (Brown 1991).

The field survey investigations strategy adopted by Brown (1991), was to divide the east coast region into five broad landform units, these being; offshore islands, coastal and estuarine margins, coastal plains, and finally hills and inland plains. Brown then selected samples of these five landscape units to undertake survey investigations.

The study area falls within the landscape unit classification of hills and inland plains. Within this landscape unit, Brown (1991) surveyed two sample locations, Tea Tree Rivulet, and an area centred on Tooms Lake. At Tea Tree Rivulet, Brown (1991) identified a total of nine sites. Five of these were classified as isolated artefacts with the remaining four sites being open artefact scatters. Brown (1991) noted that surface visibility in this area was poor, and as such the findings were very preliminary in nature. At the Tooms Lake area, Brown (1991) identified a total of eleven sites with all of these being classified as open artefact scatters. Artefact densities at all sites was reported as being low (>0.3 artefacts/m²). Brown (1991) reports that there is a variety of locally available stone resources present in this area, suitable for stone tool manufacturing, including cherty hornfels, quartzite, quartz, chalcedony and chert. Brown (1991) interprets the survey results from this area as indicating that the edges of Tooms Lake was commonly frequented by Aboriginal groups.

Based on his own findings, combined with the findings of previous archaeological investigations in the region, Brown (1991) provides the following summary characteristics for the archaeological record of the highlands of eastern Tasmania.

- Small scatters of artefacts situated on flat or gently inclined ground close to a water source. These site types appear to be more prevalent in areas of sandstone geology as opposed to areas of dolerite geology.
- Artefacts are predominantly waste material, but include a low proportion of worked/utilised flakes. Cherty hornfel is the dominant stone material type represented in the site assemblages.
- Occasional sand stone rock shelter sites comprising small scatters of stone artefacts and occupation deposits.

In general, the pattern of site type distribution in these rugged hills is interpreted as being representative of widespread, but short, infrequent visitation, mainly to areas rich in particular resources such as suitable stone resources (Brown (1991).

In contrast, the archaeological evidence for the larger inland river valleys and lake areas was interpreted as indicating far more intensive Aboriginal activity, and is characterised as follows.

- Stone artefact scatters are numerous.
- The largest open artefact scatters tend to be situated on well drained sandy soils, in slightly elevated positions above river and creek floodplains, with a north aspect.
- Sandstone rock shelters are reasonably common, and those at the bases of sandstone ridges near fresh water sources often contain evidence of occupation.
- The range of artefacts represented in the site assemblages of this area is generally similar to the assemblages of the broader region. The most common artefact types are waste materials, utilised flakes and scrapers. Anvils and hammer stones are also reportedly common. Cherty hornfels are generally the most common stone material type represented in the site assemblages, although this can vary depending on locally available stone materials
- Ochre nodules are commonly found at the largest sites.

In summary, Brown (1991) believes that the available archaeological evidence for the broader East Coast region of Tasmania, indicates that this region may not have been continuously occupied until comparatively recently (6000 years ago). Prior to this, occupation is likely to have been sporadic. Occupation appears to have occurred first in the southern part of the east coast, with people perhaps expanding into this area from the Derwent Valley. Occupation then spread northward, with all areas having been occupied by around 3500 years ago (Brown 1991).

5.2 Previously Recorded Aboriginal Sites in the Vicinity of the Study Area

A search of the Tasmanian Aboriginal Site Index (TASI) data base shows that there are no previously recorded and registered Aboriginal heritage sites located within a 5km radius of the study area.

6.0 Predictive Modelling

6.1 Introduction to Predictive Modelling

Predictive modelling, in an archaeological context, is a fairly straight forward concept and has been utilised by archaeologists in Australia for a number of years as a tool for undertaking research into Aboriginal heritage sites. In summary, predictive modelling involves the collation of information generated from previous archaeological research in a given region, and using this information to establish patterns of Aboriginal site distributions within the landscape of that particular region. On the basis of perceived patterns of site distribution, Archaeologists can then make predictive statements regarding the potential for various Aboriginal site types to occur within certain landscape settings, and can make preliminary assessments regarding the potential archaeological sensitivity of landscape types within a given region.

6.2 Predictive Models; Strengths and Weaknesses

It should be acknowledged that most, if not all predictive models have a number of potential inherent weaknesses which may serve to limit their value. These include, but may not be limited to the following.

- 1) The accuracy of a predictive model is directly influenced by the quality and quantity of available site data and information for a given region. The more data available and the greater the quality of that data, the more likely it is that an accurate predictive model can be developed.
- 2) Predictive modelling works very well for certain types, most particularly isolated artefacts and artefact scatters, and to a lesser extent scarred trees. For other site types it is far more difficult to accurately establish distribution patterns and therefore make predictive modelling statements. Unfortunately, these site types are generally the rarer site types (in terms of frequency of occurrence) and are therefore generally the most significant sites.
- 3) Predictive modelling (unless it is very sophisticated and detailed) will generally not take into account micro-landscape features within a given area. These micro features may include (but is certainly not limited to) slight elevations in the landscape (such as small terraces) or small soaks or drainage depressions that may have held water. These micro features have been previously demonstrated to occasionally be focal points for Aboriginal activity.
- 4) Predictive modelling to a large extent is often predicated on the presence of water courses. However, in some instances the alignment of these water courses has changed considerably over time. As a consequence the present alignment of a given water course may be substantially different to its alignment in the past. The consequence of this for predictive modelling (if these ancient water courses are not taken into account) is that predicted patterns of site distributions may be greatly skewed.

6.3 A Predictive Model of Site Type Distribution for the Study Area

The findings of previous archaeological investigations undertaken within and in the general vicinity of the study area (see Section 5 of this report for details) indicates that the most likely site types that will be encountered within the study area will be artefact scatters and isolated artefacts. In addition, there are three other site types that have been identified in the broader East Tasmanian region that may be encountered in the study area (although it is considered much less likely). These are stone

procurement/quarry sites, occupation shelters, and burial sites. The following provides a definition of these site types and a general predictive statement for their distribution within the study area.

Artefact Scatters and Isolated artefacts

Definition

Isolated artefacts are defined as single stone artefacts. Where isolated finds are closer than 50 linear metres to each other they should generally be recorded as an Artefact Scatter. Artefact scatters are usually identified as a scatter of stone artefacts lying on the ground surface. For the purposes of this project, artefact scatters are defined as at least 2 artefacts within 50 linear metres of each other. Artefacts spread beyond this can be best defined as isolated finds. It is recognised that this definition, while useful in most instances, should not be strictly prescriptive. On some large landscape features for example, sites may be defined more broadly. In other instances, only a single artefact may be visible, but there is a strong indication that others may be present in the nearby sediments. In such cases it is best to define the site as an Isolated Find/Potential Archaeological Deposit (PAD).

Artefact scatters can vary in size from two artefacts to several thousand, and may be representative of a range of activities, from sporadic foraging through to intensive camping activity. In rare instances, camp sites which were used over a long period of time may contain stratified deposits, where several layers of occupation are buried one on top of another.

Predictive Statement:

Previous archaeological research in the region has identified the following pattern of distribution for this site type.

- Stone artefact scatters are numerous within the larger river valley systems.
- The largest open artefact scatters tend to be situated on well drained sandy soils, in slightly elevated positions above river and creek floodplains, with a north aspect.
- Site and artefact densities on the lower lying flood plains of water courses tend to be comparatively lower. This may be reflective of the fact these low lying areas were less favoured as camp locations, due to such factors as rising damp and vulnerability to flooding; and
- Site and artefact densities also tend to be comparatively lower in areas away from water courses, and on moderate to steeply sloping terrain.

Applying this broad pattern of site distribution to the study area, it would be anticipated that the density of sites (artefact scatters), and the density of artefacts associated with these sites would generally be highest on those elevated and generally level landscape units that occur within the study area. These landscape unit types are almost entirely confined to the southern portion of the study area, where basal slopes of a prominent hill range meets the Fingal Valley floor. Site and artefact densities on the steeper hill side slopes in the west portion of the study area would be anticipated to be very low. The remainder of the study area is characteristically flat, low lying land which is prone to inundation, and artefact densities in these areas would be expected to be low to very low.

Stone Procurement/Quarry Sites

Definition

A stone procurement site is a place where stone materials were obtained by Aboriginal people for the purpose of manufacturing stone artefacts. Quarry sites on the other hand have some evidence of the stone being actively extracted using knapping and/or digging. Stone procurement sites are often pebble beds in water courses (where there may be little or no evidence of human activity) or naturally occurring lag deposits exposed on the surface. Quarry sites are usually stone outcrops, with evidence of knapping and pits dug to expose the rock. Concentrations of hammer stones and a thick layer of knapping debris are often present.

Predictive Statement

Previous archaeological research in the East Tasmanian region has shown that the most common source of raw materials for making stone artefacts are outcrops of stone materials such as silcrete, cherty hornfels, quartzites, quartz, and fined grained volcanics. These tend to occur along prominent landscape features, such as the spines of ridges or on hills.

The bedrock geology of the study area is dominated by dolerite, which is exposed as outcrops on the steeper side slopes of the hills in the west portion of the study area. Dolerite is generally not suitable for manufacturing stone artefacts. On this basis, it could be expected that the chances of encountering stone procurement/quarry sites is low.

Rock Shelters

Definition

Such sites may contain deposit and/or art. As the name implies, these sites are formed under rocky outcrops which may either be escarpments hollowed by erosion, or in the case of rocks such as granite shelters, may be located under boulder overhangs.

Predictive Statement

Obviously, rock shelters will only occur in areas where there are rock formations of a suitable size and scale to provide potential shelter for human habitation. In the East Tasmanian region, the most common form of rock shelters are sandstone caves/overhangs. As stated above, the bedrock geology of the study area is dominated by dolerite. Dolerite rarely forms overhangs of a suitable size for human habitation. It is therefore very unlikely that rock shelter sites will be present in the study area.

Burials

Definition

Aboriginal burial grounds may consist of the burial of single or multiple individuals. The remains present at burial sites are often fragmentary and qualified professionals must undertake such identification. It is also important to note that newly discovered burials must be assessed by the police as a potential crime scene.

Predictive Statement

In the East Tasmanian region burials most often occur where soft sediments are present (such as alluvial river deposits, sand dunes, and sand sheet deposits). It should be noted that the survival of bones in the soil is very much dependent on the acidity of the soil. If the soil is too acidic, the bone material will deteriorate quickly. Sand or softer alluvial deposits are present in the southern portion of the study area, and it is possible that this site type may be encountered in this area.

7.0 Results and Discussion

7.1 Summary Results and Discussion for Aboriginal Heritage

In the course of the field survey investigations, a total of two Aboriginal heritage sites were identified within the bounds of the study area (TASI 10945 and TASI 10946). Both sites are classified as isolated artefacts, and are situated within the south-east portion of the study area, on elevated and level landscape features. In both instances it is anticipated that additional undetected surface and sub-surface artefacts will be associated with these sites. Figure 6 shows the location of these two sites. Section 7.3 provides more detailed descriptions for the two identified sites.

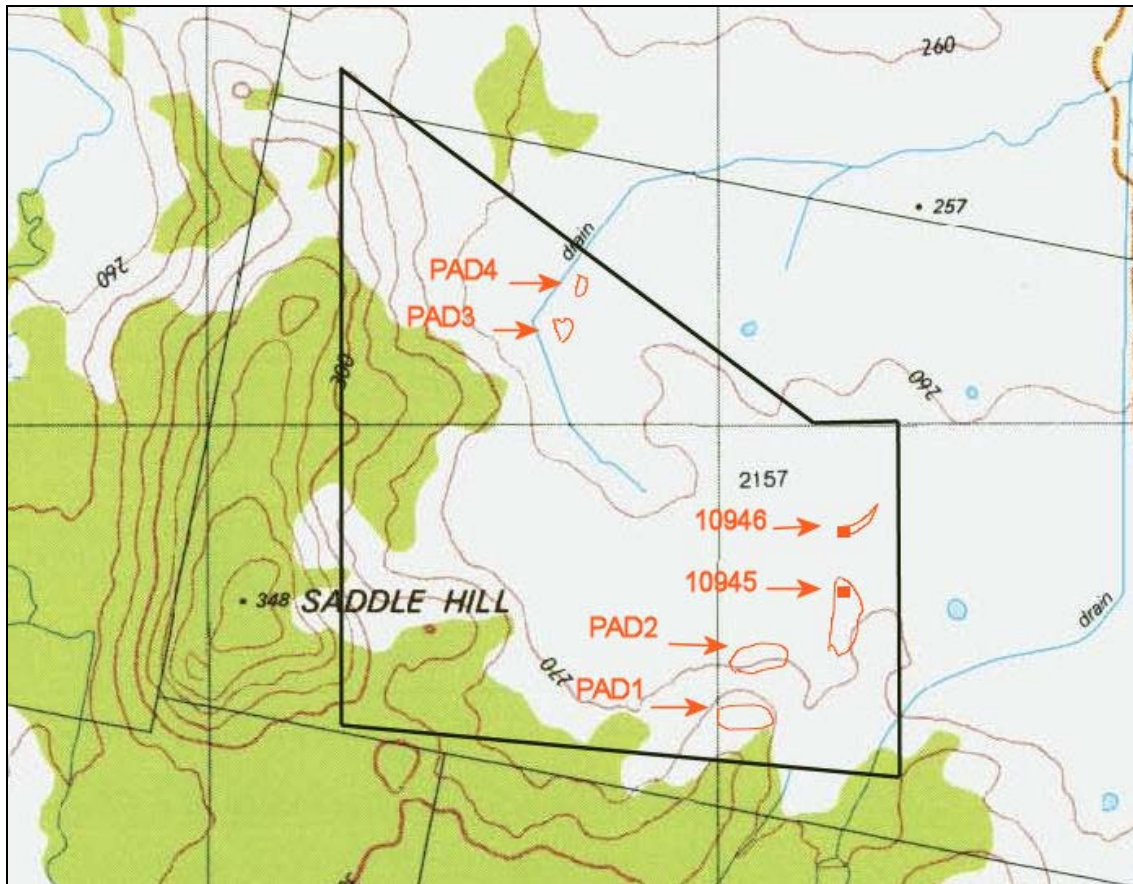


Figure 6: The location of Aboriginal Sites identified within the Study Area
(Map Series St Marys 5859: 1: 25 000)

As specified in section 1.4 of this report, surface visibility throughout the study area was generally poor (averaging 10%), due to grass cover. These constrained conditions of surface visibility significantly reduced the effective survey coverage achieved within the study area, making it very difficult to accurately determine the presence or absence of certain site types, specifically artefact scatters and isolated artefacts. These two site types were highlighted in the Predictive Model of site type location developed for the study area as being the most likely site types to be encountered (See section 6.3 for details). On this basis, it can reasonably be assumed that the low density of artefacts recorded within the bounds of the study area as part of the field survey investigation is an under representation of the actual extent of artefact deposits present in this area. Put

simply, it is very likely that there are additional undetected surface and sub-surface artefact deposits present within the study area.

The Predictive Model of site type location developed for the study area (See section 6.3 for details) anticipated that artefact densities would generally be highest on those elevated and generally level landscape units that occur within the study area. These landscape unit types are almost entirely confined to the southern portion of the study area, where basal slopes of a prominent hill range meets the Fingal Valley floor. The two sites identified during the present investigations were both situated on elevated and level landscape features in this southern portion of the study area. Site TASI 10945 is situated on the termination point of a narrow spine of a small spurline that runs south to north into the valley, and TASI 10946 is situated on a small elevated and level rise. As stated previously, in both instances it is anticipated that additional undetected surface and sub-surface artefact deposits are associated with these sites. With respect to site TASI 10945, it is anticipated that the artefact deposits will be primarily confined to the spine of the spur line between grid references E594277 N5392950 and E594327 N5392855 (WGS 84). At site TASI 10946, it is expected that the artefact deposits will be confined to the narrow flat summit of the rise between grid references E594287 N5393019 and E594327 N5393080 (WGS 84).

There are two other additional specific locations within the southern portion of the study area where elevated and level landscape features. The first is the flat section on the summit of a low relief hill. This area measures approximately 140m (east-west) x 70m (north-south), between grid references E594076 N5392650 and E594210 N5392632 (WGS 84). This area has been designated as PAD1. The second location is situated just to the north of PAD1. It is an area measuring around 60m (east-west) x 20m, and incorporates the very gentle, and elevated basal slopes of a hill. This area is designated as PAD2, and is denoted by grid references E594070 N5392788 and E594132 N5392805 (WGS 84). No sites or artefacts were identified at these two locations, however surface visibility in these areas was very poor (5%). Based on the predictive modelling it would be anticipated that comparatively higher artefact deposits would be present in these two areas. The soils in these two areas are loosely consolidated sandy loams which have the potential to comprise sub-surface artefact deposits.

The Predictive Model developed for the study area anticipated that artefact densities on the steeper hill side slopes would be comparatively low or very low. These steeper side slopes occur in the western portion of the study area and in various locations within the southern portions of the study area. No sites or artefact deposits were identified in these areas during the field survey. It should be acknowledged that surface visibility in these areas was also poor (10-20%), reducing effective coverage. Taking this into consideration, it is still anticipated that artefact densities in these areas will be very low, based on the pattern of site distribution identified for the broader region.

The remainder of the study area is characteristically flat, low lying land which is prone to inundation. Again, no sites or artefacts were identified in these areas, however, surface visibility in these areas was poor, reducing effective coverage. Taking this into consideration, it is still anticipated that artefact densities in these areas will be very low, based on the pattern of site distribution identified for the broader region. The possible exception is two very slight rises that occur in the north-west portion of the study area. Both rises are elevated only 1-2m above the surrounding low lying swamp margins. The first rise is located at grid reference E593914 N5393530 (centre point), and measures

around 30m x 30m. The second rise is located at grid reference E593903 N5393155 (centre point), and measures around 40m x 30m. It is possible that slightly higher concentrations of surface and sub-surface artefact deposits may be present in these areas. These two areas have been designated as PAD3 and PAD4 respectively.

In order to test the validity of the predictive statements made above with regard to the distribution of artefact deposits within the bounds of the study area, it would be necessary to implement a limited program of sub-surface investigations.

What can be determined with certainty, based on the findings of the investigations, is that certain site types are not present within the bounds of the study area. These are scarred trees (due the absence of mature native tress in the study area), Stone quarry/procurement sites (based on the absence of suitable stone bedrock material), and rock shelter and art sites, based on the absence of stone outcrops.

It is possible that burials may be present in the study area, however, this possibility is deemed to be very low, based on the rarity of this site type in the broader study region.

7.2 Results and Discussion for European Heritage

No European (Non Aboriginal) heritage sites were identified within the bounds of the study area. These negative results are assessed as being an accurate reflection of the absence of historic heritage items within the bounds of the study area. It is acknowledged that the study area has been the focus of occasional European activity in the past associated with early exploration and mining activity, however, there are no visible remnants of this past activity present in the study area.

7.3 Detailed Descriptions for Aboriginal Sites

The following provides more detailed descriptions for the two Aboriginal heritage sites identified within the bounds of the study area.

Site Name: TASI 10945

Grid Reference: E594309 N5392911 (WGS 84)

Site Type: Isolated Artefact

An isolated artefact was identified on the narrow spine of a small spur line that runs from south-east to north-west down from a prominent hill, into the southern portion of a small valley. The artefact is located at the north-west termination point of the spur. At this point the spine of the spur measures around 15m in width, with the slope of the spine spur running at a gradient of between 1-2°. The side slopes of the spur, in the vicinity of the artefact slopes at a gradient of between 5-7°. A low lying swamp area is situated along the basal western side slopes of the spur. The spine of the spur is elevated around 4m above this swamp.

The artefact is situated on a small erosion scald measuring around 1m x 1m. Surface visibility on this scald was good (80%). Away from the scald, surface visibility was poor (0-5%) due to grass cover. The soils in the vicinity of the artefact are light brown sand loams, which appear to have considerable depth.

Based on predictive modelling, the poor conditions of surface visibility in the immediate surrounds of the site, and the nature of the soil deposits (sand loams with depth) it is considered very likely that there are additional undetected surface and sub-surface artefact deposits associated with this site.

Artefact details

Grey quartzite flake 34mm x 29mm x 6mm



Plate 1: Artefact from TASI 10945



Plate 2: View south at site TASI 10945



Plate 3: View south at site TASI 10945

Site Name: TASI 10946

Grid Reference: E594287 N5393022 (WGS 84)

Site Type: Isolated Artefact

An isolated artefact was identified on the upper slope of a small rise that is situated on the southern margins of a low lying swamp area. This rise is only small, measuring approximately 40m in length and 15m wide, and looping in a semi-circular shape from south-west to north-east around the swamp margin. The summit of the small rise is generally flat and sits at an elevation of around 2-3m above the low lying swamp area. The side slopes of the rise run at a gradient of between 3-5°.

The artefact is situated on a small erosion scald measuring around 3m x 2m, on the upper side slope of the rise (slope gradient 3°). Surface visibility on this scald was good (90%). Away from the scald, surface visibility was poor (0-5%) due to grass cover. The soils in the vicinity of the artefact are light brown sand loams, which appear to have considerable depth.

Based on predictive modelling, the poor conditions of surface visibility in the immediate surrounds of the site, and the nature of the soil deposits (sand loams with depth) it is considered very likely that there are additional undetected surface and sub-surface artefact deposits associated with this site.

Artefact details

White quartz flake 15mm x 7mm x 3mm

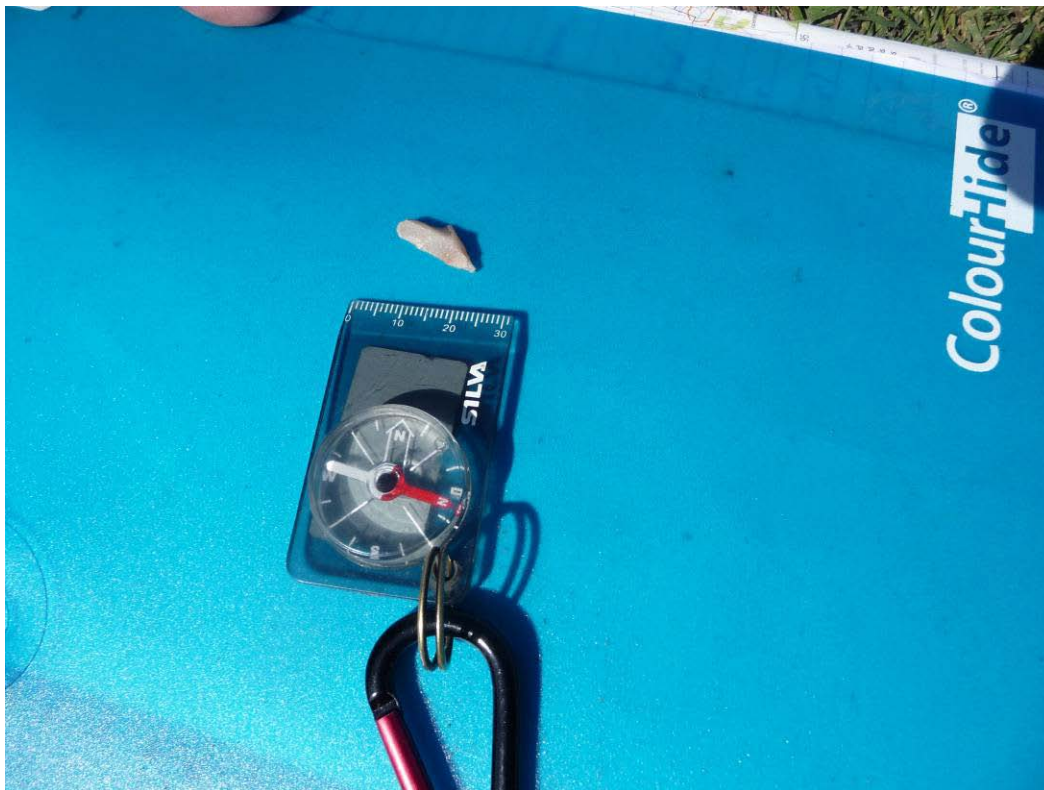


Plate 1: Artefact from TASI 10946



Plate 2: Erosion scald where artefact from TASI 10946 was identified



Plate 3: View east at site TASI 10946

8.0 Site Significance Assessments

The following provides an outline of the processes used to assess the significance of any cultural heritage sites that were identified during the course of the assessment.

8.1 Assessment Guidelines

There are several different ways of defining types of significance, and many practitioners have developed their own system of significance assessment. However, as Sullivan and Pearson (1995) point out, there seems to be a general advantage in using a set of criteria which is already widely accepted. In Australia cultural significance is usually assessed against the Burra Charter guidelines and the Australian Heritage Commission guidelines (ICOMOS 1988, 1999, Lennon and Mathews 1996).

8.2 The Burra Charter

Under the guidelines of the Burra Charter 'cultural significance' refers to the 'aesthetic, historic, scientific, social or spiritual value for past, present or future generations' of a 'place' (ICOMOS 1999:2). The guidelines to the Burra Charter comment :

"Although there are a variety of adjectives used in definitions of cultural significance in Australia, the adjectives 'aesthetic', 'historic', 'scientific' and social' ... can encompass all other values".

The following provides the descriptions given for each of these terms.

Aesthetic Value

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and materials of the fabric; the smells and sounds associated with the place and its use (Marquis-Kyle & Walker 1992).

Historic Value

A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment (Marquis-Kyle & Walker 1992).

Scientific Value

The scientific or research value of a place will depend upon the importance of the data involved or its rarity, quality or representativeness and on the degree to which the place may contribute further substantial information.

A site or a resource is said to be scientifically significant when its further study may be expected to help current research questions. That is, scientific significance is defined as research potential (Marquis-Kyle & Walker 1992).

Social Value

The social value of a place is perhaps the most difficult value for heritage professionals to substantiate (Johnston 1994). However, social value is broadly defined as 'the qualities for which a place has become a focus of spiritual, political, natural or other

cultural sentimental to a majority or minority group' (ICOMOS 1988:30). In *What is Social Value*, Johnston (1994) has provided a clear definition of social value:

"Social value is about collective attachment to places that embody meaning important to a community, these places are usually community owned or publicly accessible or in some other way 'appropriated' into people's daily lives. Such meanings are in addition to other values, such as the evidence of valued aspects of history or beauty, and these meanings may not be apparent in the fabric of the place, and may not be apparent to the disinterested observer". (Johnston 1994:10)

Although encompassed within the criterion of social value, the spiritual value of a place is a new addition to the Burra Charter (ICOMOS 1999:1). Spiritual value is predominantly used to assess places of cultural significance to Indigenous Australians.

The degree to which a place is significant can vary. As Johnston (1994:3) has stated when trying to understand significance a 'variety of concepts [are] used from a geographical comparison ('national', 'state', 'local') to terms such as 'early', 'rare', or 'seminal'. Indeed the Burra Charter clearly states that when assessing historic significance, one should note that for:

any given place the significance will be greater where evidence of the association or event survives in situ, or where the setting are substantially intact, than where it has been changed or evidence does not survive. (ICOMOS 1988:29)

8.3 Significance Criteria Relevant to Indigenous Sites

Indigenous heritage sites and places may have educational, tourism and other values to groups in society. However, their two principal values are likely to be in terms of their cultural / social significance to Aboriginal people and their scientific / archaeological significance. These are the two criteria that are commonly used in establishing the significance of Aboriginal sites. The following provides an explanation of these criteria.

1) Aboriginal Cultural / Social Significance

This relates to the value placed upon a site or suite of sites by the local or regional Aboriginal community. The identification and assessment of those sites that are significant to Aboriginal people is a matter for Aboriginal people. This assessment can only be made by the appropriate Aboriginal representatives of the relevant communities.

2) Scientific (Archaeological) Significance

Archaeological significance values (or scientific values) generally are assessed on the potential of a site or place to generate knowledge through archaeological research or knowledge. Bowdler (1984) states that the scientific significance should be assessed according to timely and specific research questions (research potential) and site representativeness.

Research potential entails the potential of a site or suite of sites for scientific research and excavation. This is measured in terms of a site's ability to provide information on aspects of Aboriginal culture. In this respect, the contents of a site and their state of preservation are important considerations.

Representativeness takes account of how common a site type is (Bowdler 1984). That is, it allows sites to be evaluated with reference to the known archaeological record within the given region. The primary goal of cultural resource management is to afford the greatest protection to a representative sample of sites throughout a region. The corollary of a representative site is the notion of a rare or unique site. These sites may

help to understand the patterning of more common sites in the surrounding area, and are therefore often considered of archaeological significance. The concept of a rarity cannot be easily separated from that of representativeness. If a site is determined to be rare, then it will by definition be included as part of the representative sample of that site type.

The concepts of both research potential and representativeness are ever changing variables. As research interests shift and archaeological methods and techniques change, then the criteria for assessing site significance are also re-evaluated. As a consequence, the sample of site types which are used to assess site significance must be large enough to account for the change in these variables.

8.4 Scientific (Archaeological) Significance for Sites Identified During the Present Investigations

The following provides an assessment of the scientific (archaeological) significance for those Aboriginal sites investigated as part of the present assessment, together with the rationale behind the assessment.

The two sites identified within the study area (TASI 10945 and TASI 10946) have been assessed as being of low scientific significance value. The rationale for this assessment is as follows.

- 1) These sites are classified as isolated artefacts. This site type is very common in East Tasmania and is therefore well represented within the archaeological record of the region.
- 2) The stone materials and artefact typologies of the artefacts represented in the assemblage of these two sites are comparatively common and are also well represented in other sites in East Tasmania.
- 3) These sites have been subject to a moderate to high level of prior disturbance associated with past land clearing farming practices such as tree clearing and animal grazing.

It should be noted that both sites have the potential to comprise additional surface and sub-surface artefact deposits. The significance assessments attributed to these sites may therefore change pending the outcomes of additional sub-surface investigations.

9.0 Statutory Controls and Legislative Requirements

9.1 State Legislation

The protection of Aboriginal cultural heritage in Tasmania is principally governed by the *Aboriginal Relics Act 1975* (The ACT). It should be noted that this Act is presently under review. Under the Act, Aboriginal cultural heritage is defined as any place, site or object made or created by, or bearing the sign of the activities of the original inhabitants of Australia or descendants of such inhabitants on or before 1876.

The Department of Environment, Parks, Heritage and the Arts (DEPHA), through Aboriginal Heritage Tasmania (formerly the Aboriginal Heritage Office) is the state government body that is responsible for administering the Act. The main provisions of the Act are as follows.

- All Aboriginal relics are protected under the Act and it is illegal to destroy, damage, deface, conceal or otherwise interfere with a relic, unless in accordance with the terms of a permit granted by the Minister.
- It is illegal to cause an excavation to be made or any other work to be carried out on Crown Land for the purpose of searching for a relic without a permit.
- It is illegal to sell or offer for sale a relic, or to cause or permit a relic to be taken out of Tasmania without a permit.
- Persons who own or have knowledge of a relic have an obligation to inform the Parks and Wildlife Service and to provide information regarding the location of the relic(s).
- Under Section 7 of the Act, the Minister may, on the recommendation of the Director, declare an area of land containing an Aboriginal relic to be a protected site. It should be noted that with regard to the discovery of suspected Aboriginal skeletal remains, the *Coroners Act 1995* takes precedence.

9.2 Commonwealth Legislation

There are also a number of Federal Legislative Acts that pertain to cultural heritage. The main Acts being *The Australian Heritage Council Act 2003*, *The Aboriginal and Torres Strait Islander Heritage Protection Act 1987* and the *Environment Protection and Biodiversity Conservation Act 1999*

Australian Heritage Council Act 2003 (Comm)

The *Australian Heritage Council Act 2003* defines the heritage advisory boards and relevant lists, with the Act's Consequential and Transitional Provisions repealing the *Australian Heritage Commission Act 1975*. The *Australian Heritage Council Act*, like the *Australian Heritage Commission Act*, does not provide legislative protection regarding the conservation of heritage items in Australia, but has compiled a list of items recognised as possessing heritage significance to the Australian community. The Register of the National Estate, managed by the Australian Heritage Council, applies no legal constraints on heritage items included on this list.

The Aboriginal and Torres Strait Islander Heritage Protection Act 1987.

This Federal Act is administered by the Department of Environment and Heritage (DEH) with the Commonwealth having jurisdiction. The Act was passed to provide protection for the Aboriginal heritage, in circumstances where it could be demonstrated that such

protection was not available at a state level. In certain instances the Act overrides relevant state and territory provisions.

The major stated purpose of the Act is to preserve and protect from injury and desecration, areas and objects of significance to Aborigines and Islanders. The Act enables immediate and direct action for protection of threatened areas and objects by a declaration from the Commonwealth minister or authorised officers. The Act must be invoked by, or on behalf of an Aboriginal or Torres Strait Islander or organisation. Any Aboriginal or Torres Strait Islander person or organization may apply to the Commonwealth Minister for a temporary or permanent 'Stop Order' for protection of threatened areas or objects of significant indigenous cultural heritage.

The Commonwealth Act 'overrides' State legislation if the Commonwealth Minister is of the opinion that the State legislation (or undertaken process) is insufficient to protect the threatened areas or objects. Thus, in the event that an application is made to the Commonwealth Minister for a Stop Order, the Commonwealth Minister will, as a matter of course, contact the Queensland Environmental Protection Agency to ascertain what protection is being imposed by the State and/or what mitigation procedures have been proposed by the landuser/developer.

In addition to the threat of a 'Stop Order' being imposed, the Act also provides for the following:

- If the Federal Court, on application from the Commonwealth Minister, is satisfied that a person has engaged or is proposing to engage in conduct that breaches the 'Stop Order', it may grant an injunction preventing or stopping such a breach (s.26). Penalties for breach of a Court Order can be substantial and may include a term of imprisonment;
- If a person contravenes a declaration in relation to a significant Aboriginal area, penalties for an individual are a fine up to \$10,000.00 and/or 5 years gaol and for a Corporation a fine up to \$50,000.00 (s.22);
- If the contravention is in relation to a significant Aboriginal object, the penalties are \$5,000.00 and/or 2 years gaol and \$25,000.00 respectively (s.22);
- In addition, offences under s.22 are considered 'indictable' offences that also attract an individual fine of \$2,000 and/or 12 months gaol or, for a Corporation, a fine of \$10,000.00 (s.23). Section 23 also includes attempts, inciting, urging and/or being an accessory after the fact within the definition of 'indictable' offences in this regard.

The Commonwealth Act is presently under review by Parliament and it is generally accepted that any new Commonwealth Act will be even more restrictive than the current legislation.

Environment Protection and Biodiversity Conservation Act 1999 (Comm)

This Act has recently been amended, through the Environment and Heritage Legislation Amendment Act (No1) 2003 to provide protection for cultural heritage sites, in addition to the existing aim of protecting environmental areas and sites of national significance. The Act also promotes the ecologically sustainable use of natural resources, biodiversity and the incorporation of community consultation and knowledge.

The 2003 amendments to the *Environment Protection and Biodiversity Conservation Act 1999* have resulted in the inclusion of indigenous and non-Indigenous heritage sites and areas. These heritage items are defined as:

'indigenous heritage value of a place means a heritage value of the place that is of significance to indigenous persons in accordance with their practices, observances, customs, traditions, beliefs or history;

Items identified under this legislation are given the same penalty as actions taken against environmentally sensitive sites. Specific to cultural heritage sites are §324A-324ZB.

Environment and Heritage Legislation Amendment Act (No1) 2003 (Comm)

In addition to the above amendments to the *Environment Protection and Biodiversity Conservation Act 1999* to include provisions for the protection and conservation of heritage, the Act also enables the identification and subsequent listing of items for the Commonwealth and National Heritage Lists. The Act establishes the *National Heritage List*, which enables the inclusion of all heritage, natural, Indigenous and non-Indigenous, and the *Commonwealth Heritage List*, which enables listing of sites nationally and internationally that are significant and governed by Australia.

In addition to the *Aboriginal and Torres Strait Islander Heritage Protection Act 1987*, amendments recently made to the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* enables the identification and subsequent listing of indigenous heritage values on the Commonwealth and/or National Heritage Lists (ss. 341D & 324D respectively). Substantial penalties (and, in some instances, gaol sentences) can be imposed on any person who damages items on the National or Commonwealth Heritage Lists (ss. 495 & 497) or provides false or misleading information in relation to certain matters under the Act (ss.488-490). In addition, the wrongdoer may be required to make good any loss or damage suffered due to their actions or omissions (s.500).

10.0 Consultation with Aboriginal Communities

The Aboriginal community consultation for this project was undertaken by Vernon Graham (Senior Aboriginal Heritage Officer). The following information provided by Vernon Graham presents the outcomes of this consultation process.

Palawa Heritage Services Pty Ltd- Aboriginal Archaeology

ACN 112 128 015 - ABN 97 112 128 015

Aboriginal Heritage Consultant



Aboriginal Cultural Heritage Survey

Cross Cultural Awareness Training, Arts Traditional Crafts & Photography

Record of Aboriginal Community Consultation

Name of Project	Preliminary Field investigation regarding Aboriginal Cultural Heritage Values in reference to the Proposed Cullenswood Open Cut Coal Mine Number 2 for Cornwall Coal being a Subsidiary Company to Australia Cement.
Name of Person Carrying out Consultation	Vernon Graham / Senior Aboriginal Heritage Officer
Aboriginal Organisation Consulted	Tasmanian Aboriginal Land and Sea Council (TALSC)
Name of Person(s) Consulted	Hank Horton / Manager of TALSC, northern region of Tasmania
Date (s) of Consultation	Phone discussions August 19 th , 2009
Location of Aboriginal Organisation / Sub Branch	900 Mole Creek Rd, Deloraine, Tas 7304

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Summary of Consultation Outcomes

- Informed the Manager of TALSC of the proposal on the 19th August that Vernon Graham Senior Aboriginal Heritage Officer and Principal of Palawa Heritage Services Pty Ltd and the archaeologist Stuart Huys of CHMA Pty Ltd commencement field investigation of the aforementioned proposal.

Signature of Senior Aboriginal Heritage Officer

Date: 31st August 2009

Palawa Heritage Services Pty Ltd- Aboriginal Archaeology

ACN 112 128 015 - ABN 97 112 128 015

Aboriginal Heritage Consultant**Aboriginal Cultural Heritage Survey****Cross Cultural Awareness Training, Arts Traditional Crafts & Photography****Record of Aboriginal Community Consultation**

Name of Project	Preliminary Field investigation regarding Aboriginal Cultural Heritage Values in reference to the Proposed Sassafras / Wesley Vale Irrigation Scheme, Northern Tasmania.
Name of Person Carrying out Consultation	Vernon Graham / Senior Aboriginal Heritage Officer
Aboriginal Organisation Consulted	Tasmanian Aboriginal Land and Sea Council (TALSC)
Name of Person(s) Consulted	Hank Horton / Manager of TALSC, northern region of Tasmania
Date (s) of Consultation	August 25 th , 2009
Location Where Consultation Took Place	900 Mole Creek Rd, Deloraine, Tas 7304

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Summary of Consultation Outcomes

- Spoke with Hank of the aforementioned proposal of the survey findings concerning the field investigations, that there were two Aboriginal sites identified all being isolated artefacts and indicating the study area locality on a topographical map.
- TALSC would like to have a site visit and or if there are any further investigations regarding the methodology being used in identifying heritage in the sub-soils and possibly talk about the management of any Aboriginal Heritage.
- The community would like to know what happens to the artefacts after they have been retrieved from open excavations and or test pitting, the consultant indicated that the artefacts are analysed; the artefacts are measured, sort regarding tool types and then catalogued / spread sheet.
- Does the community have a say in what happens to the artefacts after they have been catalogued in the past the community did have a say.
- There was discussions held regarding the significance of the Aboriginal heritage, the Aboriginal community has only one level of significance retaining to all

Aboriginal heritage / relics.

- Also in discussions it was raised even if there's no evidence of Aboriginal heritage there is still the cultural living landscape as there is the cultural values relating to the land such as bush tucker, medicinal resources and other resource materials; ie wood and rock materials for cultural implements, also it's a possibility that our ancestors walked over these lands and the community today even has a connection with the land mother earth.
- Hank Horton advised that he did not believe that TALSC would require having any input into the preparation of the archaeological report.
- These discussions were between the consultant and the manager of TALSC in the lead up to present the findings from the survey to TALSC committee, a date and time to be determined.
- It was mentioned that may be the Archaeologist/s who are involved in these archaeological surveys' should meet up with the Aboriginal community organisation leaders and the community and discuss issues regarding archaeology.

Signature of Senior Aboriginal Heritage Officer



Date: 31st August 200

Palawa Heritage Services Pty Ltd- Aboriginal Archaeology

ACN 112 128 015 - ABN 97 112 128 015

Aboriginal Heritage Consultant**Aboriginal Cultural Heritage Survey****Cross Cultural Awareness Training, Arts Traditional Crafts & Photography****Record of Aboriginal Community Consultation**

Name of Project	Preliminary Field investigation regarding Aboriginal Cultural Heritage Values in reference to the Proposed Sassafras / Wesley Vale Irrigation Scheme, Northern Tasmania.
Name of Person Carrying out Consultation	Vernon Graham / Senior Aboriginal Heritage Officer
Aboriginal Organisation Consulted	Mersey Leven Aboriginal Corporation (MLAC)
Name of Person(s) Consulted	Tinker Gower / Chair of the Executive Committee & Administrator for MLAC
Date (s) of Consultation	August 25 th , 2009
Location Where Consultation Took Place	8a Stephen St, East Devonport, Tas 7310

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Summary of Consultation Outcomes

- Spoke with Tinker of the aforementioned proposal of the survey findings concerning the field investigations, that there were two Aboriginal sites identified all being isolated artefacts and indicating the study area locality on a topographical map.
- Informed Tinker concerning the proposal that Vernon Graham a Senior Aboriginal Heritage Officer and the Principal of Palawa Heritage Services Pty Ltd and the archaeologist Stuart Huys of CHMA Pty Ltd conducted the field investigation concerning the abovementioned proposal.
- MLAC members would like to have a site visit and or if there's any further investigations regarding the methodology being used concerning excavations to identify heritage in the sub-soils and possibly talk about the management of any Aboriginal Heritage.
- The community would like to know what happens to the artefacts after they have

been retrieved from open excavations and or test pitting, the consultant indicated that the artefacts are analysed; the artefacts are measured, sort regarding tool types and then catalogued / spread sheet.

- Does the community have say a in what happens to the artefacts after they have been catalogued in the past the community did have a say.
- There was discussions held regarding the significance of the Aboriginal heritage, the Aboriginal community has only one level of significance retaining to all Aboriginal heritage / relics.
- Also in discussions it was raised even if there's no evidence of Aboriginal heritage there is still the cultural living landscape as there is the cultural values relating to the land such as bush tucker, medicinal resources and other resource materials; ie wood and rock materials for cultural implements, also it's a possibility that our ancestors walked over these lands and the community today even has a connection with the land mother earth.
- Regarding the cultural values that mother earth / cultural living landscape offer there's also the aquaculture values from the sea (sea foods) and waterways (fresh water resources / food).
- It was mentioned that may be the Archaeologist/s who are involved in these archaeological surveys' should meet up with the Aboriginal community organisation leaders and the community and discuss issues regarding archaeology.

Signature of Senior Aboriginal Heritage Officer



Date: 31st August 2009

Palawa Heritage Services Pty Ltd- Aboriginal Archaeology

ACN 112 128 015 - ABN 97 112 128 015

Aboriginal Heritage Consultant***Aboriginal Cultural Heritage Survey******Cross Cultural Awareness Training, Arts Traditional Crafts & Photography*****Record of Aboriginal Community Consultation**

Name of Project	Preliminary Field investigation regarding Aboriginal Cultural Heritage Values in reference to the Proposed Sassafras / Wesley Vale Irrigation Scheme, Northern Tasmania.
Name of Person Carrying out Consultation	Vernon Graham / Senior Aboriginal Heritage Officer
Aboriginal Organisation Consulted	Mersey Leven Aboriginal Corporation (MLAC)
Name of Person(s) Consulted	Fred Bassett / Deputy Chair of MLAC Executive Committee
Date (s) of Consultation	August 26 th , 2009
Location Where Consultation Took Place	8a Stephen St, East Devonport, Tas 7310

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Summary of Consultation Outcomes

- Spoke with Fred of the aforementioned proposal of the survey findings concerning the field investigations, that there were two Aboriginal sites identified all being isolated artefacts and indicating the study area locality on a topographical map.
- Informed Fred concerning the proposal that Vernon Graham a Senior Aboriginal Heritage Officer and the Principal of Palawa Heritage Services Pty Ltd and the archaeologist Stuart Huys of CHMA Pty Ltd conducted the field investigation concerning the abovementioned proposal.
- MLAC members would like to have a site visit and or if there's any further investigations regarding the methodology being used concerning excavations to

identify heritage in the sub-soils and possibly talk about the management of any Aboriginal Heritage.

- The community would like to know what happens to the artefacts after they have been retrieved from open excavations and or test pitting, the consultant indicated that the artefacts are analysed; the artefacts are measured, sort regarding tool types and then catalogued / spread sheet.
- Does the community have say a in what happens to the artefacts after they have been catalogued in the past the community did have a say.
- There was discussions held regarding the significance of the Aboriginal heritage, the Aboriginal community has only one level of significance retaining to all Aboriginal heritage / relics.
- Also in discussions it was raised even if there's no evidence of Aboriginal heritage there is still the cultural living landscape as there is the cultural values relating to the land such as bush tucker, medicinal resources and other resource materials; ie wood and rock materials for cultural implements, also it's a possibility that our ancestors walked over these lands and the community today even has a connection with the land mother earth.
- Regarding the cultural values that mother earth / cultural living landscape offer there's also the aquaculture values from the sea (sea foods) and waterways (fresh water resources / food).
- It was mentioned that may be the Archaeologist/s who are involved in these archaeological surveys' should meet up with the Aboriginal community organisation leaders and the community and discuss issues regarding archaeology.

Signature of Senior Aboriginal Heritage Officer



Date: 31st August 2009

Palawa Heritage Services Pty Ltd- Aboriginal Archaeology

ACN 112 128 015 - ABN 97 112 128 015

Aboriginal Heritage Consultant**Aboriginal Cultural Heritage Survey****Cross Cultural Awareness Training, Arts Traditional Crafts & Photography****Record of Aboriginal Community Consultation**

Name of Project	Preliminary Field investigation regarding Aboriginal Cultural Heritage Values in reference to the Proposed Sassafras / Wesley Vale Irrigation Scheme, Northern Tasmania.
Name of Person Carrying out Consultation	Vernon Graham / Senior Aboriginal Heritage Officer
Aboriginal Organisation Consulted	Tasmanian Aboriginal Centre (TAC)
Name of Person(s) Consulted	Mick Mansell – Legal Adviser for TAC and community member
Date (s) of Consultation	Phone discussions – August 19 th , 2009
Location of Aboriginal Organisation	Tasmanian Aboriginal Centre, 198 Elizabeth St, Hobart, Tas 7000s

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Summary of Consultation Outcomes.

- Informed Mick of the aforementioned proposal of the survey findings concerning the field investigations, that there were two Aboriginal sites identified all being isolated artefacts.
- Also in discussions it was raised even if there's no evidence of Aboriginal heritage there is still the cultural living landscape as there is the cultural values relating to the land such as bush tucker, medicinal resources and resource materials, also it's a possibility that our ancestors walked over these lands and the community today even has a connection with the land mother earth.

Signature of Senior Aboriginal Heritage Officer
Date: 31st August 2009

Palawa Heritage Services Pty Ltd- Aboriginal Archaeology

ACN 112 128 015 - ABN 97 112 128 015

Aboriginal Heritage Consultant**Aboriginal Cultural Heritage Survey****Cross Cultural Awareness Training, Arts Traditional Crafts & Photography****Record of Aboriginal Community Consultation**

Name of Project	Preliminary Field investigation regarding Aboriginal Cultural Heritage Values in reference to the Proposed Sassafras / Wesley Vale Irrigation Scheme, Northern Tasmania.
Name of Person Carrying out Consultation	Vernon Graham / Senior Aboriginal Heritage Officer
Aboriginal Organisation Consulted	Tasmanian Aboriginal Centre (TAC)
Name of Person(s) Consulted	Mick Mansell – Legal Adviser for TAC and community member
Date (s) of Consultation	Discussions – August 26 th , 2009
Location Where Consultation Took Place	Tasmanian Aboriginal Centre, 198 Elizabeth St, Hobart, Tas 7000s

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Summary of Consultation Outcomes

- Spoke with Mick of the aforementioned proposal of the survey findings concerning the field investigations, that there were two Aboriginal sites identified all being isolated artefacts and indicating the study area locality on a topographical map.
- Informed Mick concerning the proposal that Vernon Graham a Senior Aboriginal Heritage Officer and the Principal of Palawa Heritage Services Pty Ltd and the archaeologist Stuart Huys of CHMA Pty Ltd conducted the field investigation concerning the abovementioned proposal.
- If possible in the future to have a site visit and or if there's any further investigations regarding the methodology being used concerning excavations to identify heritage in the sub-soils and possibly talk about the management of any Aboriginal Heritage.

- The community would like to know what happens to the artefacts after they have been retrieved from open excavations and or test pitting, the consultant indicated that the artefacts are analysed; the artefacts are measured, sort regarding tool types and then catalogued / spread sheet.
- Does the community have say in what happens to the artefacts after they have been catalogued in the past the community did have a say and input.
- There was discussions held regarding the significance of the Aboriginal heritage, the Aboriginal community has only one level of significance retaining to all Aboriginal heritage / relics.
- Also in discussions it was raised even if there's no evidence of Aboriginal heritage there is still the cultural living landscape as there is the cultural values relating to the land such as bush tucker, medicinal resources and other resource materials; ie wood and rock materials for cultural implements, also it's a possibility that our ancestors walked over these lands and the community today even has a connection with the land mother earth.
- Regarding the cultural values that mother earth / cultural living landscape offer there's also the aquaculture values from the sea (sea foods) and waterways (fresh water resources / food).
- These discussions were between the consultant and Mick in the lead up to present the findings from the survey to a community forum, 30th August at Launceston TAC.
- It was mentioned that may be the Archaeologist/s who are involved in these archaeological surveys' should meet up with the Aboriginal community organisations leaders and the community and discuss issues regarding archaeology.

Signature of Senior Aboriginal Heritage Officer



Date: 31st August 2009

Palawa Heritage Services Pty Ltd- Aboriginal Archaeology

ACN 112 128 015 - ABN 97 112 128 015

Aboriginal Heritage Consultant***Aboriginal Cultural Heritage Survey******Cross Cultural Awareness Training, Arts Traditional Crafts & Photography*****Record of Aboriginal Community Consultation**

Name of Project	Preliminary Field investigation regarding Aboriginal Cultural Heritage Values in reference to the Proposed Sassafras / Wesley Vale Irrigation Scheme, Northern Tasmania.
Name of Person Carrying out Consultation	Vernon Graham / Senior Aboriginal Heritage Officer
Aboriginal Organisation Consulted	Tasmanian Aboriginal Centre (TAC)
Name of Person(s) Consulted	Phil Beeton / Branch President for TAC Launceston and community member
Date (s) of Consultation	Phone discussion August 27 th , 2009
Location of Aboriginal Organisation	TAC Launceston, Tas 7250

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Summary of Consultation Outcomes

- Spoke with Phil of the aforementioned proposal of the survey findings concerning the field investigations, that there were two Aboriginal sites identified all being isolated artefacts.
- Informed Phil concerning the proposal that Vernon Graham a Senior Aboriginal Heritage Officer and the Principal of Palawa Heritage Services Pty Ltd and the archaeologist Stuart Huys of CHMA Pty Ltd conducted the field investigation concerning the abovementioned proposal.
- Also in discussions it was raised even if there's no evidence of Aboriginal heritage there is still the cultural living landscape as there is the cultural values relating to the land such as bush tucker, medicinal resources and resource materials, also it's a possibility that our ancestors walked over these lands and the community today even has a connection with the land mother earth.

- These discussions were between the consultant and Phil in the lead up to present the findings from the survey to a community forum, 30th August at Launceston TAC.

Signature of Senior Aboriginal Heritage Officer

A handwritten signature in blue ink, appearing to be 'V. G. ...', is written over a light yellow rectangular background.

Date: 31st August 2009

Palawa Heritage Services Pty Ltd- Aboriginal Archaeology

ACN 112 128 015 - ABN 97 112 128 015

Aboriginal Heritage Consultant***Aboriginal Cultural Heritage Survey******Cross Cultural Awareness Training, Arts Traditional Crafts & Photography*****Record of Aboriginal Community Consultation**

Name of Project	Preliminary Field investigation regarding Aboriginal Cultural Heritage Values in reference to the Proposed Sassafras / Wesley Vale Irrigation Scheme, Northern Tasmania.
Name of Person Carrying out Consultation	Vernon Graham / Senior Aboriginal Heritage Officer
Aboriginal Organisation Consulted	Tasmanian Aboriginal Land and Sea Council (TALSC)
Name of Person(s) Consulted	Fiona Newson / Manager of TALSC, southern region of Tasmania
Date (s) of Consultation	Phone discussions August 27 th , 2009
Location of Aboriginal Organisation	4 Lefroy St, North Hobart, Tas 7001

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Summary of Consultation Outcomes

- Spoke with Fiona of the aforementioned proposal of the survey findings concerning the field investigations, that there were two Aboriginal sites identified all being isolated artefacts.
- Informed Fiona concerning the proposal that Vernon Graham a Senior Aboriginal Heritage Officer and the Principal of Palawa Heritage Services Pty Ltd and the archaeologist Stuart Huys of CHMA Pty Ltd conducted the field investigation concerning the abovementioned proposal.
- Also in discussions it was raised even if there's no evidence of Aboriginal heritage there is still the cultural living landscape as there is the cultural values relating to the land such as bush tucker, medicinal resources and resource materials, also it's a possibility that our ancestors walked over these lands and the community today even has a connection with the land mother earth.

- These discussions were between the consultant and Fiona in the lead up to present the findings from the survey to a community forum, 30th August at Launceston TAC.

Signature of Senior Aboriginal Heritage Officer



Date: 31st August 2009

Palawa Heritage Services Pty Ltd- Aboriginal Archaeology

ACN 112 128 015 - ABN 97 112 128 015

Aboriginal Heritage Consultant**Aboriginal Cultural Heritage Survey****Cross Cultural Awareness Training, Arts Traditional Crafts & Photography****Record of Aboriginal Community Consultation**

Name of Project	Preliminary Field investigation regarding Aboriginal Cultural Heritage Values in reference to the Proposed Sassafras / Wesley Vale Irrigation Scheme, Northern Tasmania.
Name of Person Carrying out Consultation	Vernon Graham / Senior Aboriginal Heritage Officer
Aboriginal Organisation Consulted	Aboriginal Land Council of Tasmania (ALCT)
Name of Person(s) Consulted	Graham Gardener / Manager
Date (s) of Consultation	Phone discussions August 27 th , 2009
Location of Aboriginal Organisation	Tasmanian Aboriginal Centre, 182 Charles St, Launceston, Tas 7250

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Summary of Consultation Outcomes

- Spoke with Graham of ALCT regarding any assessment concerning projects and or development; he commented that TALSC has the roll in dealing with community consultation, so there was no comment regarding any assessments.
- It was discussed that if there's no evidence of Aboriginal heritage there is still the cultural living landscape as there is the cultural values relating to the land such as bush tucker, medicinal resources and resource materials, also it's a possibility that our ancestors walked over these lands and the community today even has a connection with the land mother earth.

Signature of Senior Aboriginal Heritage Officer
Date: 31st August 2009

Palawa Heritage Services Pty Ltd- Aboriginal Archaeology

ACN 112 128 015 - ABN 97 112 128 015

Aboriginal Heritage Consultant**Aboriginal Cultural Heritage Survey****Cross Cultural Awareness Training, Arts Traditional Crafts & Photography****Record of Aboriginal Community Consultation**

Name of Project	Preliminary Field investigation regarding Aboriginal Cultural Heritage Values in reference to the Proposed Sassafras / Wesley Vale Irrigation Scheme, Northern Tasmania.
Name of Person Carrying out Consultation	Vernon Graham / Senior Aboriginal Heritage Officer
Aboriginal Organisation Consulted	Aboriginal Elders Council of Tasmania (AECT)
Name of Person(s) Consulted	Elders of AECT x 2 names to remain confidential
Date (s) of Consultation	June 24 th , 2009
Location Where Consultation Took Place	163 St John St, Launceston, Tas 7050

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Summary of Consultation Outcomes

- Spoke with two Elders of AECT regarding of the aforementioned proposal of the survey findings concerning the field investigations, that there were two Aboriginal sites identified all being isolated artefacts.
- Informed the elders concerning the proposal that Vernon Graham a Senior Aboriginal Heritage Officer and the Principal of Palawa Heritage Services Pty Ltd and the archaeologist Stuart Huys of CHMA Pty Ltd conducted the field investigation concerning the abovementioned proposal.
- Also in discussions it was raised even if there's no evidence of Aboriginal heritage there is still the cultural living landscape as there is the cultural values relating to the land such as bush tucker, medicinal resources and resource materials, also it's a possibility that our ancestors walked over these lands and the community today even has a connection with the land mother earth.
- These discussions were between the consultant and Elders in the lead up to

present the findings from the survey to a community forum, 30th August at
Launceston TAC.

Signature of Senior Aboriginal Heritage Officer

A handwritten signature in blue ink, appearing to be 'V. G. ...', is written over a light yellow rectangular background.

Date: 31st August 2009

11.0 Cultural Heritage Management Plan

Heritage management options and recommendations provided in this report are made on the basis of the following criteria:

- Consultation with Vernon Graham (Aboriginal Heritage Officer);
- The legal and procedural requirements as specified in the *Aboriginal Relics Act 1975* (The ACT);
- The results of the investigation as documented in this report; and
- Background research into the extant archaeological and historic record for the study area and its surrounding regions.

The recommendations are aimed at minimising the impact of the proposed developments on any potential cultural resources present within the surveyed areas.

- 1) A limited program of sub-surface archaeological investigations should be implemented within the bounds of the study area. The purpose of the test pitting program will be to determine the presence/absence of Aboriginal artefact material, and the potential distribution patterns of this material within the bounds of the study area. The overall objective of the sub-surface investigations is to generate sufficient additional information in order to develop more informed management strategies for the study area.
- 2) The sub-surface investigations should involve the excavation of a series of sixty (60) test pits within the bounds of the study area. The distribution of these test pits should be as follows.
 - Ten test pits in the immediate vicinity of each of the identified sites TASI 10945 and TASI 10946. The exact positioning of these test pits will be at the discretion of the designated archaeologist and AHO.
 - Ten test pits within the designated bounds of both PADs 1 and 2, in the southern portion of the study area. The exact positioning of these test pits will be at the discretion of the designated archaeologist and AHO.
 - Five test pits within the designated bounds of both PADs 3 and 4, in the north-west portion of the study area. The exact positioning of these test pits will be at the discretion of the designated archaeologist and AHO.
 - Ten test pits to be excavated at random locations within the remaining portions of the study area that has been deemed to be of low or very low sensitivity. These test pits will act as a comparative control, and will further test the validity of the predictive model developed for the study area. The exact positioning of these test pits will be at the discretion of the designated archaeologist and AHO.
- 3) Each of the test pits will be 50cm x 50cm and be excavated in 5cm spits. The soil from these pits will be wet sieved through 3mm mesh sieves. Any artefacts or archaeological materials (Bone, shell, charcoal etc) will be collected, photographed and recorded. A soil profile should be recorded for each excavated test pit, and soil samples taken for pH testing.
- 4) Any artefacts recovered from the salvage and test pitting program will be the focus of a detailed artefact analysis program.
- 5) Once analysed, the salvaged artefacts will be appropriately catalogued and submitted to AHT for curation.
- 6) The findings of this sub-surface test pitting program, as well as the interpretations of the findings will be presented in a report which should act as an addendum to this present report. This report should also include a detailed set of management

strategies, which are based on the outcomes of the test pitting program. As a general guide to the structure of these recommendations, if no artefact material was recovered from selected test pitting areas, then it would be recommended that there are no Aboriginal archaeological constraints to development works proceeding in these areas. If archaeological material is discovered then recommendations would be formulated around mitigation strategies for identified sites, including the requirements for applying for relevant permits, the potential scope of additional investigations, or protection strategies for areas of particular significance.

- 7) At the completion of the test pitting program the consultant archaeologist and AHO will meet with AHT to discuss the results of the excavation program, and potential management options for the study area.
- 8) Copies of this present report should be provided to AHT for review and consideration.

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Glossary of Terms

Aboriginal Archaeological Site

A site is defined as any evidence (archaeological features and/or artefacts) indicating past Aboriginal activity, and occurring within a context or place relating to that activity. The criteria for formally identifying a site in Australia varies between States and Territories.

Artefact

A portable object that has been humanly made or modified (see also stone artefact).

Assemblage (lithic)

A collection of complete and fragmentary stone artefacts and manuports obtained from an archaeological site, either by collecting artefacts scattered on the ground surface, or by controlled excavation.

Broken Flake

A flake with two or more breakages, but retaining its area of break initiation.

Chert

A highly siliceous rock type that is formed biogenically from the compaction and precipitation of the silica skeletons of diatoms. Normally there is a high percentage of cryptocrystalline quartz. Like chalcedony, chert was valued by Aboriginal people as a stone material for manufacturing stone tools. The rock type often breaks by conchoidal (shell like) fracture, providing flakes that have hard, durable edges.

Cobble

Water worn stones that have a diameter greater than 64mm (about the size of a tennis ball) and less than 256mm (size of a basketball).

Core

A piece of stone, often a pebble or cobble, but also quarried stone, from which flakes have been struck for the purpose of making stone tools.

Core Fragment

A piece of core, without obvious evidence of being a chunky primary flake.

Cortex

The surface of a piece of stone that has been weathered by chemical and/or physical means.

Debitage

The commonly used term referring to the stone refuse discarded from knapping. The manufacturing of a single implement may result in the generation of a large number of pieces ofdebitage in an archaeological deposit.

Flake (general definition)

A piece of stone detached from a nucleus such as a core. A complete or substantially complete flake of lithic material usually shows evidence of hard indenter initiation, or occasional bending initiation. The most common type of flake is the 'conchoidal flake'.

The flake's primary fracture surface (the ventral or inside surface) exhibits features such as fracture initiation, bulb of force, and undulations and lances that indicate the direction of the fracture front.

Flake fragment

An artefact that does not have areas of fracture initiation, but which displays sufficient fracture surface attributes to allow identification as a stone artefact fragment.

Flake portion (broken flake)

The proximal portion of a flake retaining the area of flake initiation, or a distal portion of a flake that retains the flake termination point.

Flake scraper

A flake with retouch along at least one margin. The character of the retouch strongly suggests shaping or rejuvenation of a cutting edge.

Nodules

Regular or irregular cemented masses or nodules within the soil. Also referred to as concretions and buckshot gravel. Cementing agents may be iron and/or manganese oxides, calcium carbonate, gypsum etc. Normally formed in situ and commonly indicative of seasonal waterlogging or a fluctuating chemical environment in the soil such as; oxidation and reduction, or saturation and evaporation. Nodules can be redistributed by erosion. (See also 'concretion').

Pebble

By geological definition, a waterworn stone less than 64 mm in diameter (about the size of a tennis ball). Archaeologists often refer to waterworn stones larger than this as pebbles though technically they are cobbles.

Quartz

A mineral composed of crystalline silica. Quartz is a very stable mineral that does not alter chemically during weathering or metamorphism. Quartz is abundantly common and was used by Aboriginal people throughout Australia to make light-duty cutting tools. Despite the often unpredictable nature of fracture in quartz, the flakes often have sharp cutting edges.

Quartzite

A hard silica rich stone formed in a sandstone that has been recrystallised by heat (metaquartzite) or strengthened by slow infilling of silica in the voids between the sand grains (Orthoquartzite).

Retouch (on stone tools)

An area of flake scars on an artefact resulting from intentional shaping, resharpening, or rejuvenation after breakage or blunting of a cutting edge. In resharpening a cutting edge the retouch is invariably found only on one side (see also 'indeterminate retouched piece', retouch flake' etc).

Scraper

A general group of stone artefacts, usually flakes but also cores, that one or more retouched edges thought to have been used in a range of different cutting and scraping activities. A flake scraper is a flake with retouch along at least one margin, but not qualifying for attribution to a more specific implement category. Flake scrapers sometimes also exhibit use-wear on the retouched or another edge.

Silcrete

A hard, fine grained siliceous stone with flaking properties similar to quartzite and chert. It is formed by the cementing and/or replacement of bedrock, weathering deposits, unconsolidated sediments, soil or other material, by a low temperature physico-chemical process. Silcrete is essentially composed of quartz grains cemented by microcrystalline silica. The clasts in silcrete bare most often quartz grains but may be chert or chalcedony or some other hard mineral particle. The mechanical properties and texture of silcrete are equivalent to the range exhibited by chert at the fine-grained end of the scale and with quartzite at the coarse-grained end of the scale. Silcrete was used by Aboriginal people throughout Australia for making stone tools.

Site Integrity

The degree to which post-depositional disturbance of cultural material has occurred at a site.

Stone Artefact

A piece (or fragment) of stone showing evidence of intentional human modification.

Stone procurement site

A place where stone materials is obtained by Aboriginal people for the purpose of manufacturing stone artefacts. In Australia, stone procurement sites range on a continuum from pebble beds in water courses (where there may be little or no evidence of human activity) to extensively quarried stone outcrops, with evidence of pits and concentrations of hammerstones and a thick layer of knapping debris.

Stone tool

A piece of flaked or ground stone used in an activity, or fashioned for use as a tool. A synonym of stone tool is 'implement'. This term is often used by archaeologists to describe a flake tool fashioned by delicate flaking (retouch).

Use wear

Macroscopic and microscopic damage to the surfaces of stone tools, resulting from it's use. Major use-wear forms are edge fractures, use-polish and smoothing, abrasion, and edge rounding bevelling.

Appendix 1

Project Brief

Aboriginal Heritage Investigation Consultancy Brief for Archaeologists

Consultants are reminded that in undertaking work related to Aboriginal heritage values they are expected to consult with the Aboriginal community, and to utilise the expertise of Aboriginal community members in accounting for the breadth of Aboriginal cultural values. Consultants should have a Tasmanian Aboriginal community representative working with them on any projects involving Aboriginal cultural heritage material in Tasmania.

1. Background

Project Proponent:	Cornwall Coal on behalf of Cement Australia
Contact Person:	Jacqui Allan
Address:	GPO Box 897 Hobart, Tasmania
Phone:	62 311 211
Email:	jacqui.allan@semf.com.au

Project Proposal:

Cornwall Coal have commenced proceedings to gain approval for an extension to their current mining operations at ML 1698 P/M. At present Cornwall Coal operate one open-cut mine within the Lease, however forecasts suggest at the current rate of extraction the resource will be exhausted within 12-18 months. Continuity of supply is critical to Cornwall Coal, therefore to remain competitive new deposits need to be identified and the necessary approvals sought well in advance of mine closure.

Cornwall Coal wish to have two new areas, Cullenswood 2 and Cullenswood 3 surveyed for Aboriginal Heritage. The survey area is approximately 120 hectares (See Figure 1). Cullenswood 2 is located within the confines of the current Lease (ML 1698 P/M) whereas Cullenswood 3 is located outside but adjacent to the current lease (Refer to Figure 2). The landowner of the Cullenswood 3 proposal has given consent to Cornwall Coal for the following activities to take place. Cullenswood 2 will be developed prior to Cullenswood 3, however to increase efficiencies, it is requested that both sites are assessed simultaneously.

Areas outside the study area shown in Figure 2 are not to be surveyed as there are sufficient control programs that prevent disturbance to such areas.

For reference, an Aboriginal (Archaeological) Heritage Survey was conducted prior to approval of the Cullenswood 1 operation. This survey was conducted by Vernon Graham, Senior Aboriginal Heritage Officer, Aboriginal Heritage Consultancy.

2. Study Area

Location:	Esk Highway, Fingal 7214 TASMANIA
Region:	Fingal Valley, Tasmania
Map Sheet:	St Marys 1:25,000
Grid Reference:	Refer to Figure 2.

For general site location and detailed plan of the study area, please refer to Figures 1 & 2.

3. Objectives and Tasks

- (a) Conform to the documents *Practice Notes for Consulting Archaeologists* and *Aboriginal Heritage Investigation Report Guidelines*, developed by Aboriginal Heritage Tasmania of the Department of Environment Parks Heritage and the Arts.
- (b) Review the Tasmanian Aboriginal Site Index (TASI) for sites within and adjacent to the study area. The cultural heritage characteristics of the general area must be taken into account in the assessment of values (see (j) below).
- (c) Conduct background research and review previous unpublished reports and other documents related to the study area.
- (d) Locate, document and assess the Aboriginal heritage values of the study area through a systematic survey.
- (e) Describe each site identified including its location and its contents.
- (f) Describe each site's condition and the impacts upon it.
- (g) Describe the relationship between each site and the landscape, including but not necessarily limited to: local habitat, geology, geomorphology and hydrology.
- (h) Describe the inter- and intra-site variability including, but not limited to, site patterning, artefact types, reduction sequences, and raw materials and their sources.
- (i) Incorporate the significance of the Aboriginal values identified by the Aboriginal community representative.
- (j) Assess the cultural landscape of the study area and consider the cultural resource potential of the wider area.
- (k) Where present, identify areas of high cultural resource potential within the study area, particularly sub-surface remains, and recommend any further research required.
- (l) Assess any potential impacts of the proposed project/development on the Aboriginal heritage sites identified within the study area.
- (m) Provide conservation policy guidance and specific recommendations for managing and mitigating impact to Aboriginal cultural heritage values identified.
- (n) Provide site information (completed TASI Site Recording Forms and/or Site Update Forms) to Aboriginal Heritage Tasmania for registration on the TASI database.
- (o) Construct an account of Aboriginal use patterns of the places and area based on archaeological, physical, ethno-historical, historical and oral evidence. The account should present an interpretation of the story of the place and area.
- (p) Consult with Aboriginal Heritage Tasmania regarding the project/development proposal, survey methodologies, mitigation recommendations and to ensure compliance with the *Aboriginal Relics Act 1975*.

(q) Consult with (or ensure the Aboriginal community representative consults with) Aboriginal organisation(s) and/or people(s) with an interest in the study area in order to obtain their views regarding the cultural heritage of the area.

(r) Complete and submit an accurate report to the project proponent and AHT.

4. Documentation

Documentation submitted to AHT must conform to the *Aboriginal Heritage Investigation Report Guidelines*, prepared by Aboriginal Heritage Tasmania, Department of Environment, Parks, Heritage and the Arts.

The consultant will submit to Aboriginal Heritage Tasmania the following documentation:

(a) Tasmanian Aboriginal Site Index (TASI) Recording forms for all Aboriginal heritage places located and updated site record forms for all previously recorded sites revisited.

(b) A compact disc containing a photographic record of the sites located and/or inspected and their settings and any other relevant evidence. All photographs must be referenced in a log presented as an Excel spreadsheet which links photographs to numbered sites. Photographs of sites are to include a scale and a blackboard showing the place name, field name/number, the date and the recorder's initials.

(c) Copies of other relevant documents including field notes, plans, aerial photographs and maps.

(d) The compact disc should also contain GIS files of the tracks of transects carried out and the sites located. Where landscape characterisations are required, boundaries should be provided as GIS layers.

(e) A Final Report (see item 5).

5. Final Report

The Final Report must conform to the *Aboriginal Heritage Investigation Report Guidelines*, and meet the standards and requirements of the **current** *Practice Notes for Consulting Archaeologists* prepared by Aboriginal Heritage Tasmania, Department of Environment, Parks, Heritage and the Arts.

Note: All figures, tables and references to sites recorded during the project must show TASI site register numbers allocated by Aboriginal Heritage Tasmania, not field designations.

6. Restrictions and Requirements

(a) It is a requirement that all consultants working on Aboriginal heritage in Tasmania liaise with Aboriginal Heritage Tasmania prior to commencing work and particularly to discuss sampling and survey methodology.

(b) The consultant must not damage or interfere with any Aboriginal heritage site.

(c) Excavations, auguring or other forms of sub-surface sampling will be permitted only if appropriate consultation with Aboriginal Heritage Tasmania has been undertaken and any required permits are obtained.

(d) The consultant will supervise any field assistants assigned to the project.

(e) The consultant may be required to undertake occasional public relations duties.

(f) The project proponent may produce further copies of the Final Report under the authorship of the consultant, however all TASI location information must be kept confidential.

(g) The consultant may publish data obtained during the project but may not publish the Final Report without the permission of the project proponent, however all TASI location information must be kept confidential.

(h) All costs associated with the project will be met by the project proponent. The consultant must not incur costs without the prior approval of the project proponent.

7. Timing and Reporting

(a) If a permit to interfere with or destroy a site is required prior to completion of the final report an interim report of sufficient detail must be submitted to AHT to allow the Minister to make an informed decision. In this particular instance the requirements of this report should be discussed with the Manager, AHT.

(b) A Draft Final Report must be submitted to the project proponent by the [insert date].

(c) The Final Report and all additional documentation shall be submitted to the project proponent by the [insert date].

(d) A copy of the Final Report should be submitted to Aboriginal Heritage Tasmania.

(e) All site recording forms, photographs and associated documentation must be submitted to Aboriginal Heritage Tasmania upon completion of the project.

Project Proponent	Consultant
Name: Cornwall Coal	Name:
Signed:	Signed :
Date:	Date:

8. Attachments: Site Location - Figure 1

Survey Site - Figure 2

