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Report

Preliminary Cultural Heritage Study: South Eastern Outfall Rezoning, Jetty Road and Rosebud Avenue, Rosebud, Victoria

Prepared for:

Melbourne Water Corporation

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Ecology and Heritage Partners Pty Ltd

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- Aboriginal Victoria, for access to ACHRIS; and
- Heritage Victoria, for access to HERMES.

Cover Photo: Driveway looking through to 14 Cook Avenue from street, facing west

(Photo by Ecology and Heritage Partners Pty Ltd)

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DOCUMENT CONTROL

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EXECUTIVE SUMMARY

Introduction

Ecology and Heritage Partners was commissioned by Melbourne Water Corporation, to prepare this Preliminary Cultural Heritage Study (PCHS) for the proposed South Eastern Outfall Rezoning in Rosebud, Victoria (Mornington Peninsula Shire Council; Map 1).

The Activity

The Sponsor is proposing the potential future rezoning of the four property parcels for residential purposes. The entire activity area is currently zoned as Public Use 1 – 'Service and Utility' zoning, given the Melbourne Water South Eastern Outfall pipeline running adjacent to the northern boundary of the area (Map 3). The land has previously been identified as surplus to Melbourne Water's land holdings, and will be sold in the near future. Glossop Town Planning, on behalf of Melbourne Water, has prepared preliminary town planning advice regarding the future purposes of the study area, being the rezoning of the land for residential zones such as:

- The General Residential Zone;
- The Neighbourhood Residential Zone; and
- The Residential Zone Growth

In the event that some or all of the land is considered unfeasible for residential purposes, it is likely to be re-zoned to Public Park and Recreation Zone (PPRZ) or Public Conservation and Resource Zone (PCRZ). A portion of the easternmost property parcel, Herman Street Reserve, may be considered to be zoned as such regardless of the rezoning outcome.

As such, the archaeological investigation of the property will add to understanding the suitability of potential works at the site, given the formative stages of the current town planning advice

The Study Area

The study area is located in Rosebud, Victoria (Mornington Peninsula Shire Council). The study area is approximately 5.6 ha in size and is bounded by Rosebud Avenue to the east, Jetty Road to the west, Herman Avenue and a series of residential properties to the north and an unnamed road and residential properties to the south. The study area is also bisected at different intervals by Bayview and Cook Avenue. Murray Anderson Creek bisects Herman Street Reserve, running north-south (Map 1).

Methods

The assessments undertaken included a desktop assessment which consisted of reviews of relevant heritage registers and databases, previous archaeological publications and unpublished reports, and a review of the environmental context of the study area, culminating in a predictive statement and preliminary sensitivity mapping regarding the likelihood of Aboriginal cultural heritage occurring in the study area.

A field survey was also carried out to obtain an overview of landforms across the study area and any obvious areas of previous ground disturbance. This survey constituted a formal archaeological survey (Standard Assessment) as required under the *Aboriginal Heritage Act 2006* for the preparation of a Cultural Heritage Management Plan (CHMP).

Results

Desktop Assessment

The desktop assessment identified a total of 86 registered Aboriginal places within the defined geographic region for the study area. Stone artefacts, as either LDAD's, surface and/or subsurface artefact scatters dominate the recorded site types throughout the region. The closest site to the study area (VAHR 7821-0897 [8 William Hunter Court Rosebud LDAD 1]), comprises a singular sub-surface basalt flake fragment, located 400m south of the current study area. This artefact was found within the unnamed dune deposits (Qd2) that characterise the large geographic region and the majority of the study area. This LDAD is typical of the geological unit, with the vast majority of archaeological sites having previously been recorded within these dune formations and in close relation to waterways. As has been indicated through reviewed archaeological reports, the study area has likely been subject to disturbance, from the clearance of vegetation, to the construction of a possible existing dwelling on site; however, the level of ground disturbance is unknown. Previous reports have also indicated that Aboriginal cultural material is also likely to be found within disturbed A-horizon contexts.

Fewer sites have been recorded within the Dromana Granite (G262) both within and outside of the geographic region, a geological formation within the easternmost property parcel of the study area. Ford and Loizou's (2014) CHMP in an area of similar geology and geomorphology recovered multiple silcrete artefacts between 250-250 mm depths from a dissected sandy rise extending from Arthurs Seat, northeast of the current study area. Past reports have indicated that places in close relation to waterways and rises are areas of high archaeological potential; given that the entire study area is within 200 m of both Murray Anderson Creek and Waterfall Creek, and that the western extent of the study area is composed of the edges of the Cranbourne sands, the likelihood of cultural material being uncovered in these areas is relatively high.

Additionally, no heritage places were listed in the Australian Heritage Database within the search area or study area.

Field Survey

A field survey was carried out on 10 August 2016 by Claire St George and Caiti Holzheimer (Archaeologists/Cultural Heritage Advisors), with Stevie Pepper and Izzy Pepper representing the BLCAC and BWF, respectively.

When is a Cultural Heritage Management Plan Required?

The following considerations were made in relation to the study area regarding the requirement for a mandatory CMP under the *Aboriginal Heritage Act 2006*.

Is the Study Area within an Area of Cultural Heritage Sensitivity?

The entirety of the study area is underlain by an area of cultural heritage sensitivity under the *Aboriginal Heritage Regulations* 2007, being affected by either one or both of the following:

1. r.23 (waterways), a waterway or land within 200 m of waterway if an area of cultural heritage sensitivity (in this case being either Waterfall Creek in the east or Murray Anderson Creek in the west); and
2. r.38 (sand sheets), a sand sheet, including the Cranbourne sand, is an area of cultural heritage sensitivity.

Is the Proposed Activity a High impact Activity?

For the purposes of rezoning, there is no requirement for the preparation of a management plan. Whether a proposed development classifies as 'high impact' under the *Aboriginal Heritage Regulations* 2007 will need to be assessed on a case by case basis. As an example, the following activities are classified as 'high impact'

- the construction of a building or the construction or carrying out of works for a specified use such as a camping or caravan park, a car park, an education centre, a sports and recreation facility, a retail premise or an office (r. 43);
- the construction of specific items of infrastructure, such as a bicycle track, walking track or roadway with a length exceeding 100 m, (r. 44 [1]);
- the construction of three or more dwellings on a lot or allotment (r.45); or
- the subdivision of land (r.46)[1].

Is a Mandatory CHMP Required?

Given that the entirety of the study area is within an area of cultural heritage sensitivity should a developer look to undertake any form of 'high impact' activity within the study area, a mandatory CHMP under the *Aboriginal Heritage Act 2006* ***will be*** required for the works.

[1] Please note this is not an exhaustive list of high impact activities. It is strongly recommended that a developer engage the services of a qualified heritage advisor to determine whether their proposed development classifies as high impact under the *Aboriginal Heritage Regulations* 2007.

Summary of Management Recommendations

Based on the results of the desktop assessment and site survey, the following management recommendations have been formulated for the purpose of informing future development of the land.

Recommendation 1: Requirement for Cultural Heritage Management Plan (CHMPs)

The entirety of the study area contains legislated areas of cultural heritage sensitivity defined under the *Aboriginal Heritage Act 2006*. If the 'activity area' (study area) contains an area of cultural heritage sensitivity as defined by the Regulations and if these parcels are subject to development that meets the definition of a 'high impact' activity under the Regulations, a CHMP will need to be prepared and approved prior to issue of a Planning Permit. Such activities may include one or more of the following as examples: a subdivision of three lots or more (r.46); a road or bike/walking track with a length exceeding 100 m (r.44); buildings and works for specified uses (e.g. car parks, schools, offices, churches/halls, retail premises, etc.)(r.43).

The desktop assessment and field survey results in this report may be used to fulfil the requirements of the desktop and standard assessment component of CHMPs in land parcels covered by this assessment. In that instance, a CHMP may proceed directly to complex assessment under s.58(2) of the *Aboriginal Heritage Act 2006*. However, if a CHMP is commissioned more than six months after the cover date of this report, then a new search of the Victorian Aboriginal Heritage Register should be carried out to ensure that the most current list/locations/extents of relevant Aboriginal Places is used.

As there is no RAP appointed for the study area; the Secretary (DPC) will undertake the role of the RAP (s.65) in evaluating any prepared CHMPs, and a Notification of Intent to Prepare a CHMP must be submitted to Aboriginal Victoria prior to any CHMP works proceeding.

If, in the period between this investigation and commissioning of a CHMP, an individual Sponsor (developer) believes that significant ground disturbance has occurred in an area of cultural heritage sensitivity that may void the entire area of sensitivity in the activity area, then they may consider engaging a qualified cultural heritage advisor to assess the area of SGD and make a recommendation as to whether a CHMP is required.

In sections of an activity area where no ground disturbance or development is proposed, complex assessment is not required.

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1 INTRODUCTION

Ecology and Heritage Partners was commissioned by Melbourne Water Corporation, to prepare this Preliminary Cultural Heritage Study (PCHS) report for the proposed South Eastern Outfall Rezoning in Rosebud, Victoria (Mornington Peninsula Shire Council), hereafter referred to as the 'study area'.

The purpose of the assessment was to identify Aboriginal and historical cultural heritage values that may be present within the study area. Information gathered throughout the assessment was used to determine potential legislative implications (associated with cultural heritage values) for the proposed development works.

1.1 The Study Area

The study area is located in Rosebud, Victoria (Mornington Peninsula Shire Council). The activity area is approximately 5.6 ha in size and is bounded by Rosebud Avenue to the east, Jetty Road to the west, Herman Avenue and a series of residential properties to the north, and an unnamed road and residential properties to the south. The activity area is also bisected at different intervals by Bayview and Cook Avenue. Murray Anderson Creek bisects Herman Street Reserve, running north-south (Map 1).

1.2 The Activity

The Sponsor is proposing the potential future rezoning of the four property parcels for residential purposes. The entire activity area is currently zoned as Public Use 1 – 'Service and Utility' zoning, given the Melbourne Water South Eastern Outfall pipeline running adjacent to the northern boundary of the area (Map 3). The land has previously been identified as surplus to Melbourne Water's land holdings, and will be sold in the near future. Glossop Town Planning, on behalf of Melbourne Water, has prepared preliminary town planning advice regarding the future purposes of the activity area, being the rezoning of the land for residential zones such as:

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As such, the archaeological investigation of the property will add to understanding the suitability of potential works at the site, given the formative stages of the current town planning advice

1.3 Details of Authors

1.3.1 Ecology and Heritage Partners Pty Ltd Cultural Heritage Division

Ecology and Heritage Partners is a professional cultural heritage and ecological consultancy providing high quality technical services in the field of Aboriginal and historical cultural heritage assessment, Cultural Heritage Management Plans (CHMPs), ecological assessment, research and management. The business provides effective and innovative cultural and natural heritage advice to a range of state and local government authorities/agencies, corporate and private clients.

Ecology and Heritage Partners has an established heritage team of ten people led by Oona Nicolson (Director and Principal Heritage Advisor). All of the team are qualified Cultural Heritage Advisors, specialising in Australian archaeology (including Aboriginal, Historical and Maritime). Three members of the team are based in our Geelong office.

1.3.2 Authors

The authors of this PCHS are Claire St George and Caiti Holzheimer. The quality assurance review was undertaken by Oona Nicolson (Director/Principal Heritage Advisor). The field work was undertaken by Claire St George and Caiti Holzheimer (Archaeologists/Cultural Heritage Advisors). Mapping was provided by Monique Elsley (GIS Coordinator) and Tom Kimber (GIS Officer).

Details of the project team are provided in Appendix 2.

1.4 Heritage Legislation

Legislation relevant to the preparation of this PCHS includes the *Aboriginal Heritage Act 2006*, the Commonwealth *Native Title Act 1993*, the Victorian *Planning and Environment Act 1987* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. This legislation is subordinate to the Victorian *Coroners Act 2008* in relation to the discovery of human remains.

1.5 Consultation and Participation in Relation to the Assessment

The following representatives of the BLCAC and BWF participated in the survey conducted as a part of the assessment on the 10 August 2016.

- Stevie Pepper (BLCAC); and
- Izzy Pepper (BWF).

1.6 Limitations

The cultural heritage information used to inform this report is limited to that obtained through desktop assessment and a survey assessment.

The level of assessment undertaken for the site visit ***does*** meet the requirements for a formal archaeological survey in accordance with Heritage Victoria and Aboriginal Victoria guidelines (HV 2008; Duncan et al. 2008; AV 2010). Consultation with the local Aboriginal community has been carried out as part of the survey to ascertain any known cultural heritage values for the study area. This level of assessment is appropriate for determining the broader potential for Aboriginal and/or historical heritage values to be present in the study area and for making recommendations regarding the need or otherwise for further more detailed investigations.

This report is an opportunity to provide a historical context for understanding the study area and to identify potential areas that may contain Aboriginal or historical sites and to identify relevant legislative implications (Section 7). Aboriginal cultural heritage may occur anywhere in the landscape and it is important to note that the assessment of likelihood is based on the balance of probability; it is our opinion based on an assessment of landforms and the extent of previous ground disturbance, compared to the general archaeological character of the region as assessed via desktop review. It is not a categorical statement that Aboriginal cultural heritage will or will not be present.

2 ENVIRONMENTAL CONTEXT

2.1 Geographic Region

The geographic region defined for this CHMP is based on the Coastal Plain geomorphological unit (Eastern Plains 7.1.1) (Map 4). This geographic region reflects the specific vegetation history and resource availability in the coastal plain region and exhibits environmental characteristics that likely influenced Aboriginal occupation. The region defined for this CHMP is bounded by those significant markers on the landscape that would have influenced the movement of groups across the landscape, including Boneo Swamp along the western margin of the region. Thus the geographic region relates specifically to the tangible and intangible values of the landscape and is highly relevant to any Aboriginal cultural heritage that may be present within the activity area.

More generally, the region (and the study area itself) forms a part of the Gippsland Plain bioregion (DELWP 2016a) (Map 4).

2.2 Geology, Geomorphology and Soils

The geology in the geographic region is relatively evenly comprised of unnamed Aeolian coastal dune deposits, consisting of dune sand and swamp deposits of Quaternary (Holocene) in age (Qdl1), and unnamed Aeolian dune deposits consisting of sand, clay and calcareous sand of Quaternary (Pleistocene) in age (Qd2). The activity area itself consists of the Qd2 typical of the geographic region to the west, and Dromana Granite (G262) east of Murray Anderson Creek, described as being of Upper Devonian Age and associated with granite mounds at peaks along the Mornington Peninsula landscape such as Arthur's Seat, Mount Martha and Mount Eliza (McAndrew and Marsden 1973: 46) (Figure 1).

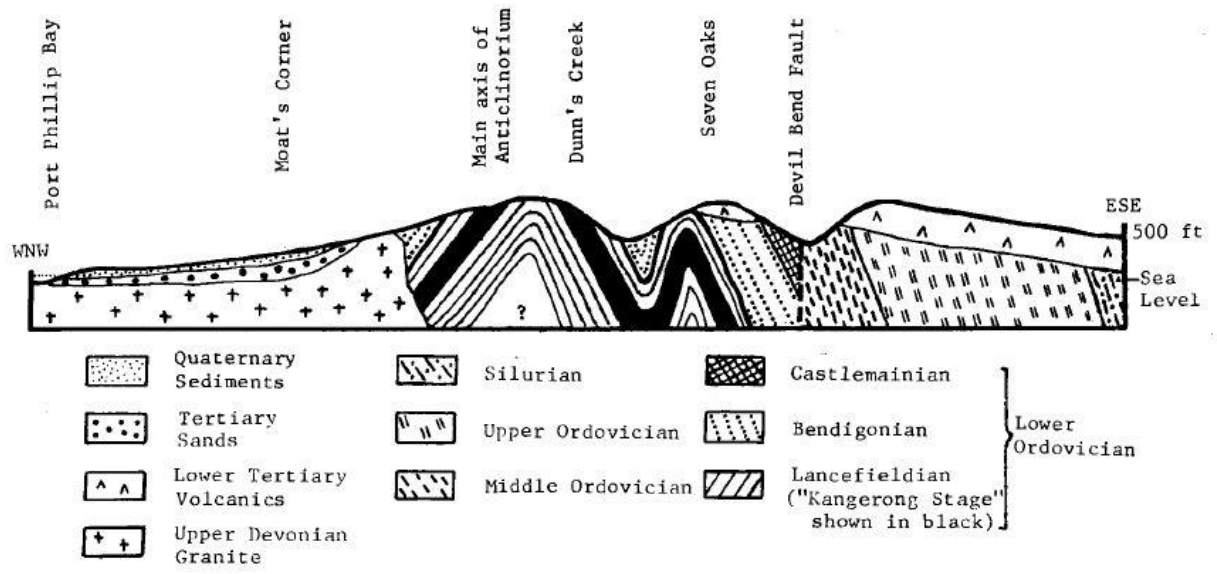


Figure 1: Geological landscape of Mornington Peninsula (McAndrew and Marsden 1973)

The soils within the geographic region are generally either acidic sandy texture soils or deep strongly acidic sands with bleached subsoil and a hard dark 'B' horizon of coffee rock at approximately 800mm (DEDJTR 2016). The floodplains and swamps are characterised by pale yellow and grey texture contrast soils and support a variety of grassland such as Damp Sands Herb-rich Woodland, Coast Banksia Woodland, Swamp Scrub, Wetland formation and Swampy Riparian Woodland (DELWP 2016b).

The geographic region comprises coastal plains with ridges and dune fields geomorphological unit 7.1.1 (Map 6) which consists of flat low lying coastal and alluvial plains with a gently undulating terrain dominated by barrier dunes, flood plains and swampy flats (DEDJTR 2016). The coastal plains with ridges and dunes which are typically located throughout the Brighton, Cranbourne and Tyabb area, are formed over Neogene sediments, generally mantled by a layer of variable sands. Low parallel northwest trending dune ridges lie parallel to the present coastline and are believed to represent stranded Neogene dune ridges or former coastlines (DEDJTR 2016).

2.3 Landforms and Hydrology

The geographic region consists of a series of creek systems and drainages linked to a pre-European swamp located 2 km west of the activity area. Boneo Swamp or Tootgarook Swamp (Wetland ID: 70250) (Figure 1) comprises a shallow freshwater marsh of pre-European and current occurrence and forms part of the greater Port Phillip and Westernport catchment management authority (BIM 2015).

Figure 2: Aerial Image of Tootgarook Swamp and its current condition (Courtesy of Save Tootgarook Swamp 2015).

2.4 Vegetation

Prior to European settlement, the soils types of the activity area would have historically supported a grassy, heathy or bracken-dominated understorey and a ground layer of herbs, orchids and grasses. This vegetation type occurs predominately on flat or undulating areas which are moderately fertile, well-drained deep sand or sandy loam (DELWP 2016b). According to the Department of Environment, Land, Water and Planning (DELWP) mapping of vegetation prior to European colonisation (Pre-1750 EVCs; Map 7), the activity area would have contained vegetation classified as Grassy Woodland (EVC 175) and Gully Woodland (EVC 902), with the vast majority of the area and the geographic region comprising of Damp Sands Herb-rich Woodland (EVC 3). The ecological environment would have comprised vegetation such as Coast Manna Gum, Shining Peppermint and Narrow-leaf Peppermint, and predominantly tall shrubs or small trees such as Black Wattle, Coast Banksia and Saw Banksia. Other vegetation included Austral Bracken, Coast Tea Tree, Coast Wattle, Common Heath and Small-leaved Clematis. The wider geographic region would have also contained vegetation classified as:

- Wetland Formation (EVC 74) - comprising Boneo Swamp;
- Swamp Scrub (EVC 53) – comprising Water Ribbons and Common Reed;
- Coast Banksia Woodland (EVC 2) – comprising Coast Beard-heath and White Elderberry; and

- Swampy Riparian Woodland (EVC 83) – comprising Blackwood, Swamp Paperbark and Woolly Tea Trees, Kangaroo Grass and Wattle Mat-rush.

Many of these types of vegetation would have been utilised by Aboriginal people in the area for food and the creation of weapons and vessels, and would have supported a range of game that could be hunted for food.

In particular, the small sweet white fruits of the Coast Beard-heath eaten when ripened in summer (Gott and Conran 1992: 33). The starchy roots of Austral Bracken were eaten raw or roasted and prepared into a paste (Flood 1980, Gott and Conran 1992: 25; Zola and Gott 1992:37). Small cream-coloured translucent berries (White Elderberry) were also eaten raw and the tough starchy roots of the Small-leaved Clematis were cooked in baskets and then kneaded into a dough (Gott and Conran 1992: 21, 36).

Blackwood, common in the riparian zone is a very hard wood, used for spear-throwers and shields, and according to Gott and Conran (1991: 50) the bark was heated and infused in water to bathe rheumatic joints. The young tubers on Water Ribbons were cooked in earth-ovens and eaten, the leaves of Common Reed were used to make bags and baskets, the oozing gum from Black Wattle and Silver Wattle trunks was used to make gum balls which were either eaten or dissolved in water with flower nectar to make sweet drinks; its bark provided fibre to make coarse string, and was also used for indigestion when infused in hot water (Gott and Conran 1992: 9, 44, 66).

Other plants and fungi were also valuable food and medicine; however, the ethnobotanical records of their use are limited. Eucalypt and tea tree leaves were crushed and soaked in water to prepare medicinal ointments. Bowls and dishes were made from the bark and gnarled growths, for food and water transportation. Canoes were also made from the bark of gum trees. The removal of bark characteristically results in visible modification of the trees that make them identifiable as scarred or culturally modified trees. Other items such as spears, boomerangs and spears were made from the timber of Eucalypts (Nash 2004).

3 ABORIGINAL CONTEXT

The section reviews the Aboriginal context of the activity area and includes an examination of historical and ethnohistorical sources, previously recorded Aboriginal archaeological site types and locations in the geographic region of the activity area, and previous archaeological studies undertaken in the area. Together, these sources of information can be used to formulate a predictive statement concerning what types of sites are most likely to occur in the activity area, and where these are most likely to occur.

3.1 Ethnohistory

The following is a summary of historical and ethnographic accounts of *Bun Wurrung* culture and practices. It is largely derived from non-Indigenous historical sources and does not incorporate the oral history of the contemporary Bun Wurrung community. Such a record would require an exhaustive treatment beyond the scope of the current report. The current summary is thus a limited account of *Bun Wurrung* social and economic life that may facilitate a more detailed interpretation of the archaeological record by way of ethnographic analogy. Such analogy is not without its limitations. This summary is not intended to be a detailed study of the Bun Wurrung people prior and subsequent to European settlement and does not necessarily reflect any opinions or knowledge held by the contemporary *Bun Wurrung* community.

The current desktop review of the ethnohistoric literature details many of the prosaic and ritual behaviours of the *Bun Wurrung* culture, with a particular emphasis on those that may manifest in the archaeological record. The *Bun Wurrung* were bordered to the west and north by the other Kulin tribes, and the Gunai to the east. Linguistically, the *Bun Wurrung* shared more than 75% of their vocabulary with the *Woi wurrung* located to the northwest and around 70% with the Daung wurrung from the north (Clark 1990: 363). Early descriptions about the *Bun Wurrung* are available through the works of George Augustus Robinson, who was Chief Protector of Aborigines in the Port Phillip District, and the works of one of his Assistant Protector, William Thomas. These two made extensive notes about their way of life (Presland 2010:31).

The activity area, located in the Rosebud area, is within the traditional lands of the *Bun wurrung* language group as recorded by Europeans after the period of contact (Clark 1990:363-369). At the time of European recording the *Bun wurrung* were composed of six clans, each occupying a specific territory. The activity area is located within the *Yallock balug clan* territory.

Land tenure

According to traditional Indigenous belief, the land between the mouth of the Yarra River and Wilson's Promontory was created by a dreamtime ancestor, Lohan. The country created by Lohan was known as the marr-nebeek (Brough-Smythe 1878 in Barwick 1984: 115). A dialect of the East Kulin language which was known as Bun Wurrung was the required form of speech within the marr-nebeek.

The *Bun Wurrung* are sometimes referred to as the "Westernport tribe" or "coast tribe" (Presland 2010: 20). Their country is located to the east of Port Phillip and Western Port Bays, extending from the south of the Yarra River to the creeks and inlets from the sea into the Werribee River. Along the coast, it extends from the Werribee River to Anderson's inlet, then north to the Dandenong Ranges, Mirboo, Warragul, and upper

Latrobe River (Clark 1990:363). Howitt (2001: 71) likewise mentions that a strip of country stretching from the mouth of the Werribee River to Williamstown and the southern suburbs of Melbourne on the coast around the whole Mornington Peninsula also belonged to the Bun Wurrung.

The *Bun Wurrung* and their northern and western neighbours shared a patrilineal form of moiety system. The Kulin social world was divided into either one of two moieties: the Waa (crow) or Bunjil (eaglehawk) moieties (Clark 1990: 276). There are six main *Bun Wurrung* clans and these are segregated into separate localities as with the rest of the Eastern Kulin clans (Howitt 2001: 127). These clans are: *Bun Wurrung balug* (Point Nepean and Cape Schank), *Mayune balug* (Carrum Swamp, 'Mayune' station), *Ngaruk willam* (Brighton, Mordialloc, Dandenong, and between Mount Eliza and Mount Martha), *Yallock balug* (Bass River, Tooradin), *Yalukit willam* (East of Werribee River, and St. Kilda), and *Yowengarra* (Tarwin River, Wilsons Promontory) (Clark 1990: 365). Although most of the *Bun Wurrung* lived around Mornington Peninsula and Western Port Bay, the estate of one of these clans included a strip of land which stretched around the top of Port Phillip Bay to the Werribee River. This narrow strip, perhaps a few kilometres wide, was part of the estate of the clan named *Yalukit willam* and would have taken in all of Williamstown, most of Altona, and the southern parts of Footscray, Sunshine and Werribee (Presland 2010).

All clans belonged to the *Bunjil* moiety, except the *Burinyung bulluk*, which belonged to the Waa moiety (Presland 2010: 24). As with other Kulin groups, marriage among the *Bun Wurrung* was exogamous, and partners were sorted members from the opposite moiety. Inter-clan marriage was common between the *Bun Wurrung* and their neighbours (Presland 2010: 33).

Resources

As many of the other Australian clans, the *Bun Wurrung* were hunters and gatherers, hunting kangaroo and possum, and a variety of local species including Long-nosed Potoroo, Swamp Antechinus, White-footed Dunnart, Broad-toothed Rat, Feather-tailed Glider and Eastern Pygmy-possum, as well as koalas and wombats. Women gathered the tuberous plants which made up a third of the 940 plant species recorded as a food source. Murnong or yam daisies were eaten raw in spring but cooked at other times. They collected a variety of bulbs, shoots and foliage like the Warrigal Spinach. Beverages included nectar of the Coastal Banksia flowers. As well as a collecting bag, the women carried long digging sticks. These were vital in digging for tubers and collecting shell fish (Presland 2010).

Whilst the *Bun Wurrung* hunted a variety of terrestrial species and collected a wide range of plant resources, they were best-known as the "salt water people", and heavily exploited the coastline and abundant marine resources of Port Phillip, Western Port and the Wilsons Promontory area. The coastal environment that formed much of their traditional territory was the primary food source for the Bun Wurrung. This littoral and maritime adaptation is evidenced by the numerous shell middens on cliffs and sand dunes of Port Phillip, Bass Strait and Western Port (Massola 1959: 180). Other middens can be found at one of their many coastal camps at Mordialloc, Frankston or Warneet on Westernport Bay, and these in particular are attributed to the Mayone bulluk. These large middens represent where Bun Wurrung accessed many of their favourite resources such as bird eggs, fish, shellfish, eels, freshwater mussels and crayfish.

Conflict

Before conflicts with European people arose, the *Bun Wurrung* had several enemies, including the *Braiakolung* and the *Brataulung*, the most westerly clans of the Kurnai or Gunai tribes from the Gippsland region. They would raid the *Bun Wurrung* camps, kill every man and take younger women. These conflicts continued until the mid-1840s (Massola 1959:181). As Ellender (2002) demonstrates, the area of Southern Gippsland around Wilsons Promontory appears to have undergone a change in ownership from *Bun Wurrung* peoples to *Brataulung* around 1844. This change was likely the culmination of a long standing feud between the two groups, and as a consequence, the emergence of a depopulated buffer zone between the *Bun Wurrung* and the Gunai groups. As such, the whole area was vulnerable to appropriation by other groups and European people.

Ritual and Magic

The *Bun Wurrung* beliefs system is shared with the other Kulin clans; however, the ethnographic information regarding the *Bun Wurrung* is scarce. All Kulin groups believed in supernatural magic and the curative powers of medicine-men or witchdoctors. These ritual specialists were thought to project substances in an invisible manner to their victims, especially crystal quartz to inflict damage by means of black magic (Howitt 2001: 357). The *Bun Wurrung* also had a complex cosmology, comprised of spirits including the Toor-roo-dun, which appears related to the Bunyip. All Kulin groups revered a creation spirit, *Bunjil/Lohan* who created all things except women. *Bunjil* carried a large knife with which he made the earth and many mountains rivers and creeks (Smyth 1972: 423). *Bunjil* had a wife *Boi boi* and a brother called *Pallian* (various spellings). *Boi Boi* and *Bunjil* had a son called *Binbeal*, who controlled the heavens and a daughter called *Karakarook*, whose concerns were more earthly. *Pallian* presided over the fish in the rivers and oceans.

Wilsons Promontory was the residence of the powerful spirit-being known as *Lohan*, whose permission was required to safely enter his territory (Smyth 1972: 453). Strangers entering *Bun Wurrung* country were required to undergo a ritual ceremony described by one European observer as 'annert'. The annert involved excavating a small hole, which was filled with water and stirred with a stick in order to make the water muddy. The visitor then was required to consume several mouthfuls of the muddy water. Improper observance of this part of the ritual would result in the visitor's throat ceasing up and subsequent suffocation. Howitt (1904: 403) also details the visitor was also required to eat small quantities of cooked animal flesh, which was placed in their mouth on a pointed stick. They were required to suck the flesh off the stick with their teeth and not their lips.

History

The *Bun Wurrung* were one of the first Victorian clans to be contacted by European people, as early as 1803 at Sorrento. In resistance, they allied with the *Wurundjeri*, forming what early writers called "the two Melbourne tribes" (Massola 1959: 180). Following French and English exploration, there was the failed settlement at Sorrento in 1803, and the settlement at Corinella in 1826.

The *Bun Wurrung* had contact with whalers and sealers from the beginning of the nineteenth century, with the voyages of the Lady Nelson; so it is possible that these early encounters had an impact in the number of individuals later recounted by later settlers during the Protectorate period (Presland 2010: 84). During the mid-1850s attempts to create a permanent settlement failed due to poor soils and the lack of fresh water;

nonetheless, the presence of European people had a devastating influence among the *Bun Wurrung*, with the expansion of chickenpox and other diseases that resulted fatal to the Aboriginal people (Presland 2010: 87).

In 1840, the Assistant Protector ordered the establishment of a protectorate station near what is now Endeavour Hills (Frankston) called Narre Narre Warren; the Western Port Protectorate (Massola 1959: 183). Between 1840 and 1844, Thomas worked in vain to convert the small numbers of Aboriginal people to a sedentary life at Narre Narre Warren (see also Standfield 2011). His efforts collided with the development of a Native Police Corps for Victoria, established firstly in 1837 and then in 1842, whose headquarters were based in the same Protectorate. Most young men were interested in joining the Corps and leave, rather than staying and be farmers (http://www.cclc.vic.gov.au/earlyaboriginalhistory, checked online on April 29 2013). By 1866, no Bun Wurrung were to be seen in the Peninsula, except a few derelicts camping on the Mordialloc Creek; the last of the Bun Wurrung was Jimmy Dunbar who died in 1877 (Massola 1959:183).

In present times, the descendants of the Bun Wurrung are represented by the Bunurong Land Council Aboriginal Corporation (BLCAC) and the Boon Wurrung Foundation (BWF).

Oral History

The BLCAC and BWF did not offer any oral histories relating to the activity area for inclusion in this report.

3.2 Archaeological Character

Archaeological evidence suggests that Aboriginal peoples had occupied all of Australia's environmental zones by 40,000 years BP. Sites such as Keilor and Bend Road in Melbourne and Box Gully on the northern shore of Lake Tyrell have dates extending back to 30–35,000 BP (Flood 1995: 286, Hewitt and Allen 2010, Richards et al. 2007).

The archaeological record of the Greater Melbourne area includes a rich record of artefact scatters, scarred trees and stone arrangements that documents Aboriginal life dating from the Pleistocene through to the immediate pre-European past. Most of these sites point to important relationships between sites and landscapes and resources within the immediate area. The archaeological record of the geographic region demonstrates that artefact scatters (including isolated artefacts); low density artefact distributions, shell middens, earth features and scarred trees are the most common site type found throughout the area. The location of Boneo Swamp, a freshwater marsh south of the activity area, would have provided Aboriginal people with many resources for hunting and gathering, and most importantly with fresh water. Such land was likely subject to irregular inundation and periodic drying, as such, "Aboriginal use of this resource was also likely to have been seasonal. Ethnographic accounts suggest that birds, eggs, fish, yabbies, shellfish, eels and edible swamp plants, together with the focus the swamp provided for foraging terrestrial marsupials, would have made the area an important resource for Aborigines, especially in spring" (Hewitt and Allen 2010: 3).

3.3 Register Searches

3.3.1 Victorian Aboriginal Heritage Register

A search of the Victorian Aboriginal Heritage Register (VAHR) was conducted on 03 August 2016 for sites within the geographic region. Searching an area with this extent ensured that a relevant and representative sample of information was obtained.

The search identified a total of 86 registered Aboriginal sites within the geographic region (see Appendix 3). These sites consist of a total of 138 site components comprising 6 site component types (Table 1). The difference between the number of sites and number of site component types is because several sites contain two or more site component types. No Aboriginal Historical References were identified within the defined geographic region of the activity area.

None of these sites are located within the activity area.

Other sites located in close proximity to the activity area are:

- VAHR 7821-0987 (8 William Hunter Court Rosebud LDAD 1), comprises a singular basalt flake fragment, recovered from 1.1m depth and located 400m south of the current activity area.
- VAHR 7821-0781 (Waterfall Gully 1) is an artefact scatter comprising of 13 stone artefacts made from silcrete, flint, quartzite, coastal flint and quartz, located approximately 800m south of the current activity area. Artefact types included flakes, broken flakes, angular fragments and a singular bipolar core. Artefacts were recovered from depths between 250-860mm depth within sand, southwest of Waterfall Gully Creek. Possible ground disturbance at the site resulting from previous utility installations.
- VAHR 7821-0917 (Waterfall Gully Rd 1) is an LDAD comprising of four quartz artefacts located approximately 800m south of the current activity area. Three broken flakes were recovered between 650-950mm depth, with a singular surface angular fragment recorded.

Table 1: Summary of Previously Identified Aboriginal Place Component Types within the Search Area.

Site Component Type	Quantity	Percentage (%)
Low Density Artefact Distributions	50	36
Artefact Scatters	59	43
Scarred Trees	1	1
Shell Middens	20	14
Earth Feature	3	2
Object Collection	5	4
Total	**138**	**100**

3.3.2 Local Council

The activity area is located within, and is governed by, the Mornington Peninsula Shire Planning Scheme. Planning schemes set out policies and provisions for the use, development and protection of land.

The Heritage Overlay of the Mornington Peninsula Shire Planning Scheme was examined (DELWP 2016). No Aboriginal heritage places listed on the Heritage Overlay are present within the activity area.

3.3.1 Previous Aboriginal Archaeological Investigations

Localised and regional archaeological investigations have established the general character of Aboriginal sites located within the same geographic region as the activity area. This information, together with an environmental context, histories of land use and, historical and ethnohistorical sources, can be used to form the basis for a site prediction statement.

Ford and Loizou (2010) conducted a complex CHMP (#11211) for a proposed retirement village at 1 Bayview Avenue, Rosebud, located approximately 800m south of the current activity area. The study area was located within fluvial alluvium (Qra) and Aeolian dune deposits (Qpd) geological formations, as well as Devonian granite (Dug262) in the southeastern corner of the property. The desktop assessment identified no previously registered Aboriginal places within the study area. Two geomorphological landforms were acknowledged as present, being the former swamp and lagoonal area associated with the Tootgarook Swamp, and dissected plains. The desktop highlighted that Aboriginal cultural heritage as stone artefact scatters was most likely to be found in association with the Devonian granite geology, as part of a rise descending from Arthurs Seat. The standard assessment did not identify any cultural heritage, but in assessing the sandy spur line determined that there was a high potential for Aboriginal cultural heritage. The complex assessment targeted the areas of the dissected plains and the sandy rise, with two 1x1 m test pits and 91 0.3x0.3 m shovel test probes excavated. Two individual stratigraphic profiles were defined per landform, with soil profiles homogenous across the excavated pits of each landform. The sandy rise exhibited a soil profile of multiple sand layers until depths of 520-590 mm, at which point a sterile grey clay base was encountered. Coffee rock inclusions were evident between 200-690 mm. Within the sandy rise test pit, a silcrete flake was recovered between 250-300 mm, with a secondary silcrete flake between 300-350 mm. These artefacts were recorded as VAHR 7821-0816 (Bayview Avenue AS 1). The dissected plains stratigraphy consisted of dark silty sand to depths of 120-190 mm, overlying compacted black clay.

Barker (2014a) completed a complex CHMP (#13029) for the proposed residential development at 189-191 Jetty Road, Rosebud, approximately 100 m south of the current activity area. The desktop assessment identified no previously registered Aboriginal places within the study area, and indicated that Aboriginal cultural heritage was most likely to occur within sand sheets or dune landforms, and in close proximity to water resources. The standard assessment identified significant ground disturbance through the western half of the study area, as the result of the cutting and levelling of sand dunes within the property. The complex assessment consisted of one 1x1 m test pit and 25 0.4x0.4 m shovel test probes. The test pit demonstrated a soil profile of disturbed sand to 300mm depth overlying undisturbed Aeolian sand to depths between 1250-1430 mm with a subsequent coffee rock base at 1300-1420 mm. The shovel test probes exhibited a different soil profile, with Aeolian sands encountered within 200 mm of the surface, indicating ground disturbance. No Aboriginal cultural heritage was recovered.

McAlister (2014) completed a complex CHMP (#13153) for the proposed residential development at 8 William Hunter Court, Rosebud, approximately 400 m south of the current activity area. The study area was located to the east of the Murray Anderson Creek within unnamed dunes soils (Qd2). The desktop assessment identified no previously registered Aboriginal places within the study area. It was determined that the previously recorded Aboriginal sites were generally associated with the areas of water such as the foreshore, the former Tootgarook Swamp and nearby freshwater supplies. Previous subsurface testing had highlighted the deep sand stratigraphy of the area, and that sediments were often disturbed and contained little to no Aboriginal cultural heritage. Where sites had been previously identified, they were in areas of sandy rises or nearby the Tootgarook Swamp. The standard assessment identified no Aboriginal cultural heritage in the study area. The complex assessment comprised of one 1x1 m test pit and eight 0.4x0.4 m shovel test probes were excavated to an average depth of 900 mm. The test pit defined a stratigraphy of loamy sand and sandy clay soils overlying a clay layer at 400 mm, extending to 970 mm at which point grey, sterile sand was encountered. One stone artefact (7821-0897) was recovered from a depth of 1100 mm. All shovel test probes were sterile in nature, with introduced soils present and disturbed sediments evident in the absence of various clay formations.

Brookes and Collins (2015) undertook a complex CHMP (#13709) for the proposed residential development at 461-469 Waterfall Gully Road, Rosebud, approximately 800m south of the current activity area. The study area was located to the west of Murray Anderson Creek within inland dune deposits (Qd1). The desktop assessment highlighted that a CHMP for the site (#10747) had previously recorded an Aboriginal place (VAHR 7821-0781), being a stone artefact scatter, as well as identified a sand dune as an area of cultural heritage sensitivity. The desktop indicated that Aboriginal cultural heritage was most likely to occur within sand sheets or dune landforms, and in close proximity to water resources. It was also asserted that stone artefacts were the most commonly occurring Aboriginal place within the geographic region, and were more likely to be found in subsurface deposits to depths of 1100 mm in sandy soils. The standard assessment identified a single surface quartz artefact (VAHR 7821-0917), located on the lower slopes of the sand dune inside the study area. The complex assessment targeted areas of sand dune that had not been subject to prior testing, with the methodology comprising of one 1x1m test pit and 15 0.4x0.4m shovel test pits. The test pit defined a generally homogenous stratigraphic profile of various undisturbed silty sands overlying a coarse sand base at 1 m onwards. Two flaked quartz artefacts were recovered between 700-800 mm. Three subsurface quartz artefacts were recovered between depths of 600-1000 mm

A summary of archaeological reports relevant to the geographical region of the activity area appears below (Table 2).

Table 2: Archaeological Reports Relevant to the Study Area

Author, Date, Report #	Description and Location	Results
Massola, A. 1959 AAV #373	Massola's collaboration of early European accounts of the Bunurong, to form a brief history of the tribe.	Massola (1959) utilised early European accounts of the Bunurong tribe, among first Victorian Aborigines to make contact with Europeans, in his brief history of the tribe. While their territory extended to Dandenong Ranges they were essentially a coastal tribe, preferring seashore. This can be demonstrated by almost continuous line of middens on cliffs and sand dunes of Port Phillip, Western Port and Bass Straight. Middens often occur on open sandy places. Massola also described the Bunurong relationship with the tribes to the east: the Braiakolung, Brataoulung and the Kurnai tribes. These tribes were considered to be enemies, as they would often commit raids on the Bunurong; killing their men and carrying off their women.
Gaughwin, D. and Sullivan, H. 1984 AAV #193	A discussion of Aboriginal boundaries and movements in the Western Port district.	The paper discusses historical evidence relating to the Bunurong in Western Port and on the Mornington Peninsula. The region would have provided good conditions for hunters and gatherers as a variety of environments were available with diverse food resources. The article compared movements of groups discussed in historical literature to the stated tribal boundaries. This indicated that social and ceremonial movements occurred across the boundaries, but economic and subsistence activities were contained within the tribal boundaries described by Protector Thomas. Historical documentation showed that a wide variety of resources were exploited.
Marshall, B. & Schell, P. 1998 AAV #1370	A desktop investigation of thirty six locations along the Victorian coastline aimed at assessing the impact on cultural heritage by CA/CCG projects and providing future management of Aboriginal resources by CA/CCG projects.	Some project areas were defined as having high densities sites and scientifically important due to deposits of Pleistocene age. Isolated artefacts, surface scatters and shell middens were the dominant sites; rarer sites were scarred trees, isolated hearths, quarry/stone sources, fish traps, art sites and human remains.
Rhodes, D. 2003 AAV #2533	A report assessing the Aboriginal cultural heritage on the Port Phillip coastline and the potential for submerged Pleistocene-early Holocene archaeological sites within Port Phillip and the impacts of the proposed activity on these sites. Channel deepening modifications are proposed within the shipping channels.	The coastline of the bay was analysed by selecting nine soil sampling units located within 300 m of the coast. These sample units were intended to provide a representative sample of Port Phillip's coastal landforms. A desktop assessment of archaeological sites in each sampling unit was carried out. A total of 574 archaeological sites are registered with AAV within 300 m of the Port Phillip coast, the majority of which (81%) are shell middens. 125 sites are within the sampling units selected for this study. Findings show that the majority of the sites in the sampling units (74%) occur within 25 m of the coast; and the majority are located on cliffed sections of the coast, except for Point Cook. It was determined that calcarenite below the Nepean Bay bar may contain Aboriginal cultural heritage. Also, the submerged basalt shelf extending between Williamstown and Point Lillias contains potential for Aboriginal cultural heritage sites.
Mitchell, J. and Loizou, R. 2009 CHMP #10894	Complex CHMP for a commercial development at 4-10 Boneo Road, Rosebud, approximately 150 m south of the current study area	The desktop assessment did not identify any previously recorded places within the study area. A survey was not undertaken due to the highly disturbed nature of the ground surface and therefore a complex assessment was undertaken. One 1x1 m test pits were excavated in each backyard of the study area, with all test pits demonstrating high levels of disturbance with modern refuse being found up to 1300 mm in depth. No Aboriginal sites were identified during subsurface testing.

Author, Date, Report #	Description and Location	Results
Hobbs, J., Petkov, J., Kiddell, H. and Smith, L. 2009 CHMP #10864	Complex CHMP for proposed residential subdivision at 232 Jetty Road, Rosebud, approximately 200m south of the current study area.	The desktop assessment identified no previously registered Aboriginal places in the activity area; however, the site was located on inland sand dunes and sand sheets. The standard assessment did not identify any Aboriginal cultural material. The complex assessment implemented the excavation of ten shovel test probes, excavated to an average depth of 820mm. No Aboriginal cultural material was recovered.
Dugay-Grist, L., Cowled, A. and Maher, M. 2012 CHMP #12002	Complex CHMP for proposed residential subdivision at 206 Jetty Road, Rosebud, approximately 250m northwest of the current study area.	The desktop assessment identified no previously registered Aboriginal places in the activity area, and that the study area had been significantly impacted upon by modern pastoral, agricultural and residential activities. The standard assessment did not identify any Aboriginal cultural material. The complex assessment confirmed the highly disturbed nature of the study area, and a complete lack of cultural deposits suggesting that the area was not utilised as a place of long-term occupation.
Barker, M. 2014b CHMP #12940	Complex CHMP for proposed residential development at 208 Jetty Road, Rosebud, approximately 200m northwest of the current study area.	The desktop assessment identified no previously registered Aboriginal places in the activity area. The standard assessment did not identify any Aboriginal cultural material. The complex assessment consisted of one 1x1m test pit and nine 0.4x0.4 shovel test probes, with a homogenous sand soil profile uncovered. No Aboriginal cultural heritage was identified.
Barker, M. 2014c CHMP #12941	Complex CHMP for proposed residential development at 47A Fairway Grove, Rosebud, approximately 350m northeast of the current study area.	The desktop assessment identified no previously registered Aboriginal places in the activity area. The standard assessment did not identify any Aboriginal cultural material. The complex assessment consisted of one 1x1m test pit and five 0.4x0.4 shovel test probes, with a homogenous sand soil profile uncovered. No Aboriginal cultural heritage was identified.

3.3.2 Summary of Desktop Aboriginal Cultural heritage Assessment

The desktop assessment identified a total of 86 registered Aboriginal places within the defined geographic region for the study area. Stone artefacts, as either LDAD's, surface and/or subsurface artefact scatters dominate the recorded site types throughout the region. The closest site to the study area (VAHR 7821-0897 [8 William Hunter Court Rosebud LDAD 1]), comprises a singular sub-surface basalt flake fragment, located 400m south of the current study area. This artefact was found within the unnamed dune deposits (Qd2) that characterise the large geographic region and the majority of the study area. This LDAD is typical of the geological unit, with the vast majority of archaeological sites having previously been recorded within these dune formations and in close relation to waterways. As has been indicated through reviewed archaeological reports, the study area has likely been subject to disturbance, from the clearance of vegetation, to the construction of a possible existing dwelling on site; however, the level of ground disturbance is unknown. Previous reports have also indicated that Aboriginal cultural material is also likely to be found within disturbed A-horizon contexts.

Fewer sites have been recorded within the Dromana Granite (G262) both within and outside of the geographic region, a geological formation within the easternmost property parcel of the study area. Ford and Loizou's (2014) CHMP in an area of similar geology and geomorphology recovered multiple silcrete artefacts between 250-250 mm depths from a dissected sandy rise extending from Arthurs Seat, northeast

of the current study area. Past reports have indicated that places in close relation to waterways and rises are areas of high archaeological potential; given that the entire study area is within 200 m of both Murray Anderson Creek and Waterfall Creek, and that the western extent of the study area is composed of the edges of the Cranbourne sands, the likelihood of cultural material being uncovered in these areas is relatively high.

4 HISTORICAL CONTEXT

The section reviews the historical (non-Aboriginal) context of the study area and includes an examination of historical sources, previously recorded heritage places and historical archaeological site types and locations in the geographic region of the study area, and previous archaeological studies undertaken in the area. Together, these sources of information can be used to formulate a predictive statement concerning what types of sites are most likely to occur in the study area, and where these are most likely to occur.

4.1 Land Use History of the Study Area

Sealers, whalers and tan bark merchants were some of the first people to observe the Bass Straight and Port Phillip Bay coastlines in the late 1700s (Hollinshed 1982). A survey of the land around Sorrento was completed by Charles Grimes in 1803 and it was established that there was economic potential within the region. The first European settlement then occurred later in 1803 when Collins established a base camp at Sorrento. The settlement at Sorrento however was short lived, a lack of reliable water being one of the key issues, and abandoned soon after. In the mid-1820s another coastal settlement attempt occurred, this time at Corinella (Hollinshed 1982).

Given its coastal location, the Peninsula initially had a flourishing fishing industry. By the late 1830s this industry soon made way for an even more lucrative trade – lime burning. Lime burning was an activity that flourished in the region for close to fifty years (Hollinshed 1982). Lime burning kilns were soon dotted all along the peninsula and to be fully operational each kiln required several people, which resulted in self-sufficient communities behind each kiln. The lime burning industry flourished until there was just too much competition, and alternative materials became available. The last kiln in the peninsula closed in 1916 (Hollinshed 1982).

As lime burning became more popular in the area, more people started to settle in the area and along with lime burning the first permanent settlement along the Mornington Peninsula took the form of pastoral runs, the majority of which were established between 1837 and 1845 (Peatey 2004). These pastoral runs included Edward Hobson's Tootgarook run to the west of Rosebud. The boundaries of these early pastoral runs were often ill-defined, but it is most likely the current study area was within the Tootgarook Run, which covered 6,400 acres when it was gazetted in 1850 (Spreadborough and Anderson 1983: 191).

Once settlement and the various prospering industries were established in the area, one of the biggest issues that faced the coastal communities of Port Phillip and Western Port Bays was the lack of useable roads. The transport of people and goods was initially largely conducted by ship. Edward Hobson purchased a schooner for commercial transport in 1854, naming her 'Rosebud'. The Rosebud township takes its name from this vessel. The vessel was wrecked in 1855 but remained a prominent landmark for many years after (Hollinshed 1982).

The wider study area has been used most recently for recreational purposes, with some illegal dumping of materials and wastes known to have occurred on site. A pipeline associated with the South Eastern Outfall runs along the northern property border, and collects treated water from the Eastern Treatment Plant as

well as the Mt Martha and Boneo sewerage treatment plants (Map 3). Of the four parcel properties addressed, all are described as being vacant land with some remnant vegetation. Herman Street Reserve, the easternmost property parcel, is shown to have a pumping station and shed on the property.

4.2 Register Searches

A search of the relevant historical heritage registers was conducted on 04 August 2016 for historical heritage places within a 1 km radius of the study area

4.2.1 Victorian Heritage Register

The Victorian Heritage Register (VHR), established by the Victorian *Heritage Act 1995*, provides the highest level of statutory protection for historical sites in Victoria. Only the State's most significant historical sites are listed on the VHR. A search of the VHR for information relating to the study area was undertaken. The study area and the surrounding 1 km of land were investigated.

No heritage places were listed in the VHR within the search area or study area.

4.2.2 Victorian Heritage Inventory

The Victorian Heritage Inventory (VHI), established by the Victorian *Heritage Act 1995*, provides the statutory protection for all historical archaeological sites, areas or relics, and private collections of relics, in Victoria. Sites listed on the VHI are not of State significance but are usually of regional or local significance. A search of the VHI for information relating to the study area was undertaken. The study area and the surrounding 2 km of land were investigated.

One historical place was listed on the VHI within the search area. This heritage places was not located within the study area.

4.2.3 Local Council Heritage Overlay

The study area is located within the Mornington Peninsula Shire Council and is governed by the Mornington Peninsula Planning Scheme (PS). Planning schemes set out policies and provisions for the use, development and protection of land. The Heritage Overlay of the Mornington Peninsula Planning Scheme was examined.

A total of five heritage places were identified in the PS within the search area. None of these heritage places were located within the study area.

4.2.4 National Trust of Australia (Victoria) Register

The National Trust of Australia (Victoria) is an independent, not-for-profit organisation that classifies a number of heritage places. Listing by the National Trust does not impose any statutory protection, however often National Trust Register listings are supported by the local council Planning Scheme.

No heritage places were listed in the National Trust Register within the search area or study area.

4.2.5 Victorian War Heritage Inventory

The Victorian War Heritage Inventory (VWHI) was established in 2011 as a means to catalogue Victoria's war history such as war memorials, avenues of honour, memorial buildings, former defence sites and places of commemoration. Places listed on the VWHI do not currently have discrete statutory protection, however many are concurrently listed on the VHR, VHI, or local planning schemes.

No heritage places were listed in the VWHI within the search area or study area.

4.2.6 National, Commonwealth and International Heritage Lists

The Australian Government Department of the Environment (DoE) maintains the National Heritage List (NHL), a register of exceptional natural, Aboriginal and historical heritage places which contribute to Australia's national identity. The DoE also maintains the Commonwealth Heritage List (CHL), a Register of natural, Aboriginal or historical heritage places located on Commonwealth land which have Commonwealth heritage values.

A place can be listed on one or both lists, and placement on either list gives the place statutory protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999).

The World Heritage List (WHL) lists cultural and natural heritage places which are considered by the World Heritage Council to have outstanding universal value. In addition, the DoE also maintains the Register of the National Estate (RNE) which is a list of natural, Indigenous and historic heritage places throughout Australia. Following amendments to the *Australian Heritage Council Act 2003*, the RNE was frozen on 19 February 2007 and no new places were added or removed. In February 2012 the RNE ceased statutory operation and sites listed on the RNE no longer have statutory protection, however items listed on the RNE may continue to be considered during approvals processes.

Listings on the NHL, CHL, WHL and RNE are accessed via the Australian Heritage Database (AHD), managed by DoE.

4.2.7 Summary of Desktop Historical Heritage Assessment

No heritage places were listed in the AHD within the search area or study area.

Table 3: Historic places within a 1km radius of the study area

Register	Site Number	Site Name	Within Study Area?
VHR	H2299	Rosebud Sound Shell	No
HO	HO146	Tornvilla	No
HO	HO82	Rose Cottage	No
HO	HO171	The Broadway	No
HO	HO172	Elenora	No
HO	HO256	House – 741-743 Point Nepean Road, Rosebud	No

5 FIELD SURVEY

5.1 Introduction

A field survey was carried out on 10 August 2016 by Claire St George and Caiti Holzheimer (Archaeologists/Cultural Heritage Advisors), with Stevie Pepper and Izzy Pepper representing the BLCAC and BWF, respectively.

5.1.1 Methodology

The survey involved all participants walking across the study area approximately 5 m apart, where terrain and access allowed. In some portions of the study area, the topography and vegetation did not allow for a standardised distance. Notes and photographs were taken of ground surface visibility, landforms, surface lithology, evidence of previous ground disturbance, and any surface indications of Aboriginal or historical heritage.

5.1.2 Limitations

The field survey ***does*** constitute a formal archaeological survey to fulfil the requirements of AV and HV guidelines.

The survey was only hindered in small areas within the property parcel of 14 Cook Avenue by overgrown vegetation. All other areas were surveyed.

5.2 Results

5.2.1 Landforms

The site survey confirmed the landforms identified during the desktop review of the study area. The landform, being an unnamed dune deposit, runs the length of the study area, with some slight undulations within the landscape close to the western boundary, within Herman Street Reserve (Map 6).

As identified in the desktop review of the study area, the geological composition of the site is divided by the Murray Anderson Creek (Map 5). These geological subsurface formations were clearly reflected in the surface topology of the site. West of the creek and across the majority of the study area, the property parcels comprises of unnamed Aeolian dune deposits consisting of sand, clay and calcareous sands (Qd2).East of the creek consists of the Dromana Granite (G262) resulting from nearby Arthur's Seat. Exposed surfaces across the study area clearly reflected this underlying geomorphology, with a higher sand content evident east of the creek within Herman Street Reserve.

Vegetation also differed west and east of the Murray Anderson Creek, with woodland environs most evident west of the creek (Map 7). This is likely to also be the result of various land use activities, with Herman Street Reserve used for recreational purposes and little vegetation remaining in central areas. Similarly however, the northernmost property parcel, being 181-183 Jetty Road, had very little remnant vegetation and displayed landscaped lawned areas.

The study area was surveyed in four units, on the basis of pre-constructed property parcel division running from east to west. These survey units are:

- Herman Street Reserve;
- 318 Bayview Road;
- 14 Cook Avenue; and
- 181-183 Jetty Road

Herman Street Reserve

This survey unit included land either side of the Murray Anderson Creek, and is bounded to the east by Rosebud Avenue, to the west by Bayview Road, and by residential properties to the north and south. This survey unit comprises of two geological units, being unnamed dune deposits (Qd2) and the Dromana Granite (G262). This survey unit displayed observable differences between east and west of the creek line.

East of the creek, sand content within the soil appears to be much higher and of a larger grain size (Plates 3 and 4). Whilst the geomorphology of the study area is indicated as only being coastal plains (7.1.1), it is likely that the plateau and broad ridges (3.2.1) associated with eruption points such as the nearby Arthur's Seat extend further into Herman Street Reserve. As a result, noticeable rises within grassed areas were observed (Plates 1 and 2). It is also likely that some rises within this portion of Herman Street Reserve are artificial, and are the result of modern use of the reserve. Vegetation east of Murray Anderson Creek was relatively minimal, with some remnant vegetation apparent along the property boundaries and in undisturbed areas (Plate 5). Woodland environs were most evident at the creek line (Plate 6).

West of the creek displayed relatively similar vegetation, being woodland environs. The landform west of the creek similarly undulated near the creek line, however the extent of which was noticeably less so than east of the creek (Plate 7). Small rises within the portion of Herman Street Reserve may also have resulted from modern usage of the site, discussed in 6.2.2. Moving west of Murray Anderson Creek, the landform flattened significantly (Plate 9). The Herman Street Reserve displayed some remnant vegetation, largely concentrated around the Murray Anderson Creek (Plates 8 and 10). Much of the central part of the reserve appears to have been cleared and revegetated with grass (see 6.2.2).

Plate 1: View of undulating landscape east of Murray Anderson Creek in Herman Reserve, facing southeast

Plate 2: Landscape across Herman Street Reserve towards Murray Anderson Creek, facing west

Plate 3: GSV east of Murray Anderson Creek within Herman Street Reserve showing high sand content, facing north

Plate 4: GSV east of Murray Anderson Creek within Herman Street Reserve showing sand, gravel and grass content, facing south

Plate 5: Vegetation along northern property boundary, east of Murray Anderson Creek, facing north

Plate 6: Vegetation on eastern bank of Murray Anderson Creek, facing southwest

Plate 7: Vegetation and landform west of Murray Anderson Creek, facing north

Plate 8: Vegetation west of Murray Anderson Creek, facing northeast

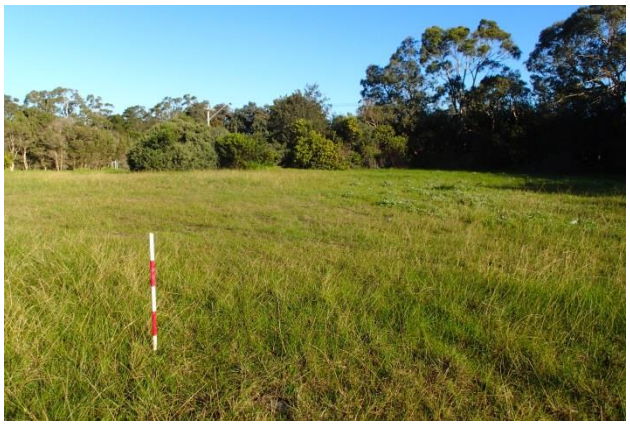


Plate 9: Flattened landform west of Murray Anderson Creek, facing north

Plate 10: Creek woodland environs on west embankment of Murray Anderson Creek, facing northeast

318 Bayview Road

This survey unit is bounded to the east by Bayview Road, to the west by Bass Avenue and to the north and south by residential properties. This survey unit is relatively uniform in nature, with minimal undulations across the area (Plate 11). These small rises within this survey unit are likely to be relatively artificial as the result of modern use of the property. Exposed surfaces were observed, with a high sand content which appears relatively finer in grain size than east of Murray Anderson Creek (Plate 12). Remnant vegetation is evident along the northern and southern boundaries of the survey unit, with central grassed areas (Plate 13).

Plate 11: Landscape within 318 Bayview Road, facing west

Plate 12: GSV demonstrating grass and sandy coverage in 318 Bayview Road, facing north

Plate 13: GSV showing long grass and remnant vegetation towards southern property boundary, facing southwest

14 Cook Avenue

This survey unit is bound to the east by Bass Avenue, to the west and south by Cook Avenue, and to the north by property used by the Kingdom Hall of Jehovah's Witness. This survey unit is relatively uniform in nature, with minimal undulations across the area. The small rises within the survey unit can most likely be attributed to the persisting woodland vegetation within the entire property parcel (Plate 16). Some of these rises, however, are also likely to be relatively artificial in nature as the result of modern use of the property. Remnant vegetation encompasses the vast majority of the survey unit (Plates 14 and 15).

Plate 14: Remnant vegetation and ground coverage within survey unit, viewed from northernmost property boundary, facing southwest

Plate 15: GSV within survey unit showing grass and exposed silty sand sediment, facing east

Plate 16: Slight undulation in landform within survey unit, facing south

181-183 Jetty Road

This survey unit is bound to the west by the junction of Jetty Road and Mornington-Peninsula Freeway, to the south by Cook Avenue, and to the north by private property. This survey unit is relatively uniform in nature, with little to no landscape change (Plate 17). Small areas of sandy rises to the south of the survey unit can be attributed to modern use of the property (Plate 18). Little remnant vegetation was observed along the northern and southern property parcel boundaries.

Plate 17: Survey unit looking towards Morning-Peninsula Freeway, facing west

Plate 18: Artificial sandy rises located along the southern property boundary, facing southwest

5.2.2 Previous Ground Disturbance

Previous ground disturbance through the installation of utilities is known to have occurred at the site, namely the South Eastern Outfall subterranean pipeline. A portion of this 56 km long pipeline runs adjacent to the northern boundary of all addressed property parcels (Map 3). As this pipe runs underground, no visual inspections or photographs could be taken of its location.

The site survey confirmed known ground disturbance at the site, as the result of modern land use activities. Observed ground disturbance across each survey unit includes:

Herman Street Reserve

Various forms of ground disturbance were observed within the Herman Street reserve survey unit. These included:

- Informal pedestrian tracks (Plate 19);
- Informal vehicle tracks (Plate 20);
- Brick, glass and other modern disturbances within ground surface (Plate 21);
- Degraded metal landfill and other modern rubbish above ground (Plate 22);
- Modern structures, including a tin shed most likely associated with the Rosebud & District Pony Club, as well as a brick structure of unknown function (Plate 23);
- Water cycling shed and fencing (Plate 24);
- Artificial channelisation of Murray Anderson Creek (Plate 25);
- Bridge crossing at Murray Anderson Creek (Plate 25); and
- Rosebud & District Pony Club associated infrastructure (Plate 26)

Plate 19: Informal pedestrian tracks, east of Murray Anderson Creek, facing east

Plate 20: Informal vehicle tracks, west of Murray Anderson Creek, facing west

Plate 21: Dispersed broken brick within grassed area, facing south

Plate 22: Landfill adjacent to southern boundary, facing southwest

Plate 23: Unidentified tin shed adjacent to southern property boundary, east of creek, facing southwest

Plate 24: Watercycling shed abutting northern property boundary, facing west

Plate 25: Channelisation of Murray Anderson Creek with artificial bridge in foreground, facing north

Plate 26: Pony Club infrastructure located adjacent to northern boundary, facing west

318 Bayview Road

Ground disturbance observed within this survey unit was limited to:

- Informal vehicle tracks (Plate 28); and
- Informal pedestrian tracks (Plates 27).

Plate 27: Informal pedestrian and vehicle tracks within survey unit, facing west

Plate 28: Ground disturbance resulting from informal vehicle use of the survey unit, facing south

14 Cook Avenue

Ground disturbance observed within this survey unit includes:

- Modern rubbish disposal and landfill; and
- Informal pedestrian tracks.

Plate 29: Informal walking track through survey unit, facing southwest

Plate 30: Modern garden chairs amongst remnant vegetation, facing south

Plate 31: Brick-lined furnace constructed on ground surface within survey unit, facing west

181-183 Jetty Road

Ground disturbance observed within this survey unit is the:

- Informal vehicle tracks (Plate 32);
- Informal pedestrian tracks (Plate 33);
- Artificial soil heaps (Plate 32); and
- Landscaped grassed areas (Plate 33).

Plate 32: Informal vehicle track marks and artificial soil heap along southern property boundary, facing southwest

Plate 33: Landscaped grassed area with informal walking track, facing east

5.3 Results and Conclusions

No Aboriginal artefacts or historical heritage places were identified during the field survey. The archaeological sensitivity and site prediction statement for the study area is provided in Section 6, while the legislative implications for rezoning are discussed in detail in Section 7.

6 ABORIGINAL ARCHAEOLOGICAL SENSITIVITY

This section provides an analysis of the cultural heritage sensitivity of the study area informed by a synthesis of known Aboriginal archaeological sites and locations and archaeological investigations in the desktop assessment, as well as a visual assessment of landforms and disturbances during the site survey.

6.1 Aboriginal Archaeological Site Prediction Statement

The following site prediction statement[2] has been formulated from the review of previous assessments. The statement presented is based on a site type approach. (For further information on site types see AV 2016b).

The review of the previously recorded Aboriginal archaeological sites and previous archaeological investigations indicates that the most likely[3] site types in the study area are stone artefacts scatters and low density artefact distributions (including isolated artefacts). Other potential site types to occur are scarred trees and, to a lesser extent, freshwater shell middens. Site types considered unlikely to occur in the study area are mounds, stone arrangements and Aboriginal burials.

Stone Artefact Scatters are considered likely to occur in the study area. Previous investigations in and around the study area have identified extensive artefact scatters and the Cranbourne sands are considered to be of High cultural heritage sensitivity.

Stone tools were made by hitting one piece of stone, called a core, with another called a 'hammerstone', often a pebble. This would remove a sharp fragment of stone called a flake. Both cores and flakes could be used as tools. New flakes were very sharp, but quickly became blunt during use and had to be sharpened again by further flaking, a process called 'retouch'. A tool that was retouched has a row of small flake scars along one or more edges. Retouch was also used to shape a tool.

Not all types of stone could be used for making tools. The best types of stone are rich in silica, hard and brittle. These include quartzite, chert, flint, silcrete and quartz. Aboriginal people quarried such stone from outcrops of bedrock, or collected it as pebbles from stream beds and beaches. Many flaked stone artefacts found on Aboriginal sites are made from stone types that do not occur naturally in the area. This means they must have been carried over long distances.

Stone tools are the most common evidence of past Aboriginal activities in Australia. They occur in many places and are often found with other remains from Aboriginal occupation, such as shell middens and cooking hearths. They are most common near rivers and creeks. It is easier to find them where there is limited vegetation or where the ground surface has been disturbed, for example by erosion.

[2] The term "site prediction statement" is sometimes referred to as "site prediction model". Ecology and Heritage Partners Pty Ltd prefers the term "statement" as it is more accurate; "statistical modelling" is a rigorous and comprehensive process using empirical data.

[3] Likely is an assessment of site types with a 50% or more likelihood of occurring; Unlikely is an assessment of site types with less than 50% likelihood of occurring.

Artefact scatters are the material remains of past Aboriginal people's activities. Scatter sites usually contain stone artefacts, but other material such as charcoal, animal bone, shell and ochre may also be present. No two scatters are exactly the same.

Artefact scatters can be found wherever Aboriginal occupation has occurred in the past. Aboriginal campsites were most frequently located near a reliable source of fresh water, so surface scatters are often found near rivers or streams where erosion or disturbance has exposed an older land surface.

Low Density Artefact Distributions are considered likely to occur in the study area.

Low density artefact distributions are stone artefact sites that comprise less than 10 artefacts in a 10 x 10 m area and where artefact clusters are all contained within a single 1:100,000 scale mapsheet. LDADs can occur singly and may occur anywhere in the landscape. Surface artefacts may be indicative of further subsurface archaeological deposits. This site type can be found anywhere within the landscape, however, they are more likely to occur within contexts with the same favourable characteristics for stone artefact scatter sites.

Scarred Trees are considered unlikely to occur in the study area.

Aboriginal people caused scars on trees by removing bark for various purposes. The scars, which vary in size, expose the sapwood on the trunk or branch of a tree. Scarred trees are found all over Victoria, wherever there are mature native trees, especially box and red gum. They often occur along major rivers, around lakes and on flood plains.

Shell Middens may occur in the study area.

Shell middens may occur in both freshwater and coastal contexts. Shell middens are accumulations of shell produced by Aboriginal people collecting, cooking and eating shellfish. Shell middens often contain evidence of cooking such as charcoal, ash, fire-stones, burnt earth or burnt clay. Sometimes they also contain animal bones, fish bones, stone tools and Aboriginal burials.

Freshwater shell middens are found along river banks and flood plains, near swamps and lakes, and in sand dunes. They are sometimes found in dry areas, where fresh water was once present. Freshwater shell middens usually occur as fairly thin layers or small patches of shell. The shells usually come from both the freshwater mussel (*Velesunio ambiguus*) and river mussel (*Alathyria jacksoni*). The shells may be the remains of just one meal or hundreds of meals eaten over thousands of years.

Freshwater mussel shells may also be found in Aboriginal oven mounds, but usually only in small quantities. Middens may be visible as scatters of broken mussel shell, exposed along vehicle tracks. If you look closely, you may find mussel shells buried in the surrounding soil. Middens are also commonly visible as scatters of mussel shell eroding down the slopes of dunes. Again, the scatters can usually be traced up the dune to the buried shell layer. Shell fragments in the upcast from rabbit burrows in dunes may also indicate a midden.

Shell middens are also found in many areas along the Victorian coast. They can be located in sheltered positions in the dunes, coastal scrub and woodlands, within rockshelters, or on exposed cliff tops with good vantage points. They can occur near rocky or sandy shores and also close to coastal wetlands, inlets, estuaries, bays and river mouths. Coastal shell middens are found as layers of shell exposed in the sides of dunes, banks or cliff tops, or as scatters of shell exposed on eroded surfaces. They range in size from a few

metres across to many hundreds of metres and can consist of a thin, single layer, or multiple layers forming a thick deposit.

Mounds are considered unlikely to occur in the study area. Historical land clearing and cultivation are likely to have removed all traces of earth mounds in the study area, particularly where land cultivation and/or other developments have occurred.

Aboriginal mounds are places where Aboriginal people lived over long periods of time. Mounds often contain charcoal, burnt clay or stone heat retainers from cooking ovens, animal bones, shells, stone tools and, sometimes, Aboriginal burials.

Mounds usually occur near rivers, lakes or swamps but occasionally some distance from water. They are also found on dunes and sometimes among rock outcrops on higher ground.

Quarries are considered unlikely to occur in the study area.

Aboriginal quarries are the sites where Aboriginal people took stone from rocky outcrops to make chipped or ground stone tools for many different purposes. Not all types of stone were suitable for making tools, so an outcrop of good stone that could be easily quarried was a valuable resource. Aboriginal people quarried different types of stone, each with its own special value and use. Stone tools were made from greenstone, silcrete, quartz, quartzite, basalt and chert. Pigments were made from quarried ochre, and grinding tools were made from sandstone.

Some quarries are small, consisting of just a single protruding boulder. Other quarries incorporate many outcrops and areas of broken stone that can cover thousands of square metres.

Stone Arrangements are considered unlikely to occur in the study area. Historical land clearing and cultivation will have removed all traces of earth mounds in the study area.

Aboriginal stone arrangements are places where Aboriginal people have positioned stones deliberately to form shapes or patterns. The purpose of these arrangements is unknown because their traditional use ceased when European settlement disrupted Aboriginal society. They were probably related to ceremonial activities.

Stone arrangements occur where there are plenty of boulders, such as volcanic areas, and where the land could support large bands of people. Surviving stone arrangements are rare in Victoria, and most are in the western part of the State.

Stony Rises are considered unlikely to occur in the study area. The geological and geomorphological structure of the landscape does not include lava flows usually associated with this type of landform.

Stony Rises are a geological formation that emerges from the smooth lava fields of the western plains of Victoria, a fertile region that for tens of thousands of years supported the lives of its indigenous Aboriginal people. Stony Rises occur in a number of forms but generically comprise loosely consolidated rocks and boulders elevated above the surrounding plain. Ephemeral lakes occur at low points often adjacent to the Stony Rises, and are often interspersed with low-lying, poorly-drained plains (Joyce 2003). Stony rises provided vantage points to local Aboriginal tribes across the tribal territory.

Stony Rises are considered an area of Aboriginal archaeological sensitivity as they are likely to contain stone artefact sites. Stony Rises are known to be the site of Aboriginal stone huts and stone circle arrangements, and can also contain hearth sites. Previous studies have shown a tendency for stone artefacts located in surface and/or subsurface contexts on stony rises. Artefact distribution patterns commonly comprise isolated stone artefacts and diffuse low density artefact scatters occurring across the volcanic plans, with moderate to higher densities of stone artefacts occurring on stony rises and that only occasional isolated stone artefacts may occur away from stony rises. The most significant sites are located on the stony sites near watercourses. Scarred trees may occur where mature native vegetation is located in proximity to former swamps.

Aboriginal Burials are considered unlikely to occur in the study area. Although Aboriginal burials are known to occur along waterways, these site types are extremely rare.

Aboriginal burials are normally found as clusters of human bones eroding from the ground, or exposed during ground disturbance. Aboriginal customs for honouring and disposing of the dead varied greatly across Victoria, but burial was common. Aboriginal burial sites normally contain the remains of one or two people, although cemeteries that contain the remains of hundreds of people buried over thousands of years have been found. Sometimes the dead person was buried with personal ornaments and artefacts. Charcoal and ochre are also often found in burial sites.

Although Aboriginal burials are quite rare in Victoria, they have been found in almost every kind of landscape, from coastal dunes to mountain valleys. They tend to be near water courses or in dunes surrounding old lake beds. Many burials have been found on high points, such as dune ridges, within surrounding flat plains. They are often near or within Aboriginal occupation sites such as oven mounds, shell middens or artefact scatters.

6.2 Legislated Areas of Cultural Heritage Sensitivity

Areas of cultural heritage sensitivity (ACHS) are defined under rr.22-38 of the *Aboriginal Heritage Regulations 2007*. These are legislated areas of sensitivity used primarily to determine triggers for preparation of CHMPs under the *Aboriginal Heritage Act 2006*.

The entire study area is underlain by an area of cultural heritage sensitivity being affected by either one or both of the following:

1. r.23 (waterways), a waterway or land within 200 m of waterway if an area of cultural heritage sensitivity (in this case being either Waterfall Creek in the east or Murray Anderson Creek in the west); and
2. r.38 (sand sheets), a sand sheet, including the Cranbourne sand, is an area of cultural heritage sensitivity.

These areas of cultural heritage sensitivity determine the need for preparation of mandatory CHMPs, subject to the type of development proposed and whether the entire area of cultural heritage sensitivity within each individual study area (e.g. land parcel) has been subject to significant ground disturbance.

6.2.1 Archaeological Potential

Due to the highly sensitive nature of the underlying geomorphology of the study area (being composed of Cranbourne Sands and/or land associated in close proximity with named waterways), the study area is considered to be of high archaeological potential,

The results of previous investigations, together with this assessment has shown this landform to have high potential to retain high density archaeological deposits that may be rare and may have archaeological research values, as well as important cultural values to Aboriginal traditional owners.

6.2.2 Discussion

The predictive sensitivity mapping is based on the results of both desktop research and a site survey.

The predictive sensitivity mapping should be tested during future complex assessments as part of CHMPs, with preference given to using systematic landform-based test excavation specifically designed to test conclusions made in the predictive statement and sensitivity mapping. The predictive statement and sensitivity mapping should then be refined (if necessary) and used as the basis for making design decisions at an individual CHMP/ activity level in consultation with the relevant Aboriginal Stakeholder group (RAP or AV).

7 LEGISLATIVE AND POLICY IMPLICATIONS

7.1 Aboriginal Heritage Act 2006 (State)

7.1.1 Requirements

The *Aboriginal Heritage Act 2006* protects Aboriginal heritage in Victoria. If certain high impact activities are undertaken as stated in the *Aboriginal Heritage Regulations 2007* (the Regulations) then preparation of an Aboriginal Cultural Heritage Management Plan (CHMP) may be required to be approved by AV or the Registered Aboriginal Party (RAP) prior to lodging a planning permit.

Triggers for mandatory preparation of a CHMP include whether certain criteria are met under the Regulations, required by the Minister, or if the activity requires an Environmental Effects Statement (EES) under Sections 46 to 49 of the *Environmental Effects Act 1978*.

The Regulations require a mandatory CHMP if:

1. All or part of the proposed activity is a high impact activity; and
2. All or part of the activity area (study area) is an area of cultural heritage sensitivity (subject to whether the entire area of cultural heritage sensitivity has been subject to *significant ground disturbance*).

'Significant Ground Disturbance (SGD)' is defined in r.4 of the Regulations as meaning disturbance of – (a) the topsoil or surface rock layer of the ground; or (b) a waterway – by machinery in the course of grading, excavating, digging, dredging or deep ripping, but does not include ploughing other than deep ripping… The Victorian Civil and Administrative Tribunal (VCAT) has determined that the words "topsoil or surface rock layer" include the former topsoil or former surface rock layer if that topsoil or surface rock layer is a naturally occurring surface level that is readily ascertainable and does not include the current topsoil or current surface rock layer if established by the mere filling of the land (OAAV 2010: 2).

7.1.2 Implications for the Project

The following considerations are made regarding the requirement for a mandatory CMP under the *Aboriginal Heritage Act 2006*.

Is the Study Area within an Area of Cultural Heritage Sensitivity?

The entire study area is underlain by an area of cultural heritage sensitivity under the *Aboriginal Heritage Regulations 2007*, being affected by either one or both of the following:

3. r.23 (waterways), a waterway or land within 200 m of waterway if an area of cultural heritage sensitivity (in this case being either Waterfall Creek in the east or Murray Anderson Creek in the west); and
4. r.38 (sand sheets), a sand sheet, including the Cranbourne sand, is an area of cultural heritage sensitivity.

Is the Proposed Activity a High impact Activity?

For the purposes of rezoning, there is no requirement for the preparation of a management plan. Whether a proposed development classifies as 'high impact' under the *Aboriginal Heritage Regulations* 2007 will need to be assessed on a case by case basis. As an example, the following activities are classified as 'high impact'

- the construction of a building or the construction or carrying out of works for a specified use (such as a camping or caravan park, a car park, an education centre, a sports and recreation facility, a retail premise or an office (r. 43);
- the construction of specific items of infrastructure, such as a bicycle track, walking track or roadway with a length exceeding 100 m, (r. 44 [1]);
- the construction of three or more dwellings on a lot or allotment (r.45); or
- the subdivision of land (r.46).

Is a Mandatory CHMP Required?

Given that the entirety of the study area is within an area of cultural heritage sensitivity should a developer look to undertake any form of 'high impact' activity within the study area, a mandatory CHMP under the *Aboriginal Heritage Act 2006* ***will be*** required for the works.

7.1.3 Harm to Aboriginal Cultural Heritage

The *Aboriginal Heritage Act 2006* makes no distinction between disturbed or undisturbed archaeological sites when defining Aboriginal places. Thus, even highly disturbed sites are still Aboriginal places and are subject to protection under the Act. Similarly, it makes no distinction whether or not those sites have been previously identified and registered or not – all sites are protected.

This assessment considers that there is some potential for subsurface/disturbed archaeological deposits to be present within the study area.

7.2 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

7.2.1 Requirements

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a national framework for the protection of heritage and the environment and the conservation of biodiversity. The EPBC Act is administered by the Australian Government Department of the Environment (DoE). The EPBC Act established the National Heritage List (NHL), the Commonwealth Heritage List (CHL) and the World Heritage List (WHL) for statutory protection of heritage places of national or international significance. Where Matters of National Environmental Significance (NES), including National Heritage Places, will or may be impacted by a development, then a referral to the Minister will be required to determine whether an approval under the EPBC Act is required.

DoE also administers the Register of the National Estate (RNE). The RNE is no longer a statutory register and listed sites are no longer protected (unless registered on another statutory register).

7.2.2 Implications for the Project

There are no known Matters of NES within the study area.

It is considered unlikely that any cultural heritage sites of National Significance will be located it the study area. Therefore no referral or further works would be required under the EPBC Act 1999.

7.3 Planning and Environment Act 1987 (State)

7.3.1 Requirements

All municipalities in Victoria are covered by land use planning controls which are prepared and administered by State and local government authorities. The legislation governing such controls is the *Planning and Environment Act 1987*. Places of significance to a locality can be listed on a local planning scheme and protected by a Heritage Overlay (or other overlay where appropriate). Places of Aboriginal cultural heritage significance are not often included on local government planning schemes. The study area is governed by the Mornington Peninsula Shire Council Planning Scheme. In addition to the Heritage Overlay, Clause 52.37 of the Particular Provisions provides protection to post boxes constructed before 1930 and dry stone walls constructed prior to 1940 (if listed in the schedule).

7.3.2 Implications for the Project

There are no heritage places and/or dry stone walls listed on the Mornington Peninsula Shire Council Planning Scheme within the study area. Therefore there are no implications for this project.

7.4 Heritage Act 1995 (State)

7.4.1 Requirements

This Act protects all heritage places on the VHR and all non-Aboriginal archaeological sites older than 50 years. If a site is of State Significance it is listed on the VHR and a Permit from Heritage Victoria (HV) is required to disturb it. If an archaeological site is not of State significance it is usually listed on the VHI and Consent from Heritage Victoria would be required to disturb it.

7.4.2 Implications for the Project

Although there are no historical places listed on the Victorian Heritage Register and Victorian Heritage Inventory within the search area, it is considered unlikely that heritage sites that are of significance and warrant protection would be located within the study area. This conclusion is based on the fact the desktop assessment did not identify and information on past occupation and the site survey did not find any evidence of historical occupation or potential areas of historical archaeological significance. Therefore, no further historical heritage investigation is required.

8 CONCLUSION AND RECOMMENDATIONS

8.1 Conclusions

The following conclusion has been made regarding the likely presence of Aboriginal and/or historical heritage within the study area:

- It is considered highly unlikely that the study area will contain historical heritage;
- It is considered highly likely that the study area will contain Aboriginal heritage, particularly in the form of Aboriginal stone artefact scatters, low density artefact distributions; and
- The study area is located within a *mapped* area of cultural heritage sensitivity. Should any proposed development within these areas meet the definition of 'high impact' under the *Aboriginal Heritage Act 2006*, then a mandatory CHMP for that development must be prepared.

8.2 Recommendations

Based on the results of the desktop assessment and site survey, the following management recommendation has been formulated for the purpose of informing future development of the land.

Recommendation 1: Requirement for Cultural Heritage Management Plan (CHMPs)

All land parcels contain legislated areas of cultural heritage sensitivity defined under the *Aboriginal Heritage Act 2006*. If the 'activity area' contains an area of cultural heritage sensitivity as defined by the Regulations and if these parcels are subject to development that meets the definition of a 'high impact' activity under the Regulations, a CHMP will need to be prepared and approved prior to issue of a Planning Permit. Such activities may include one or more of the following as examples: a subdivision of three lots or more (r.46); a road or bike/walking track with a length exceeding 100 m (r.44); buildings and works for specified uses (e.g. car parks, schools, offices, churches/halls, retail premises, etc.)(r.43).

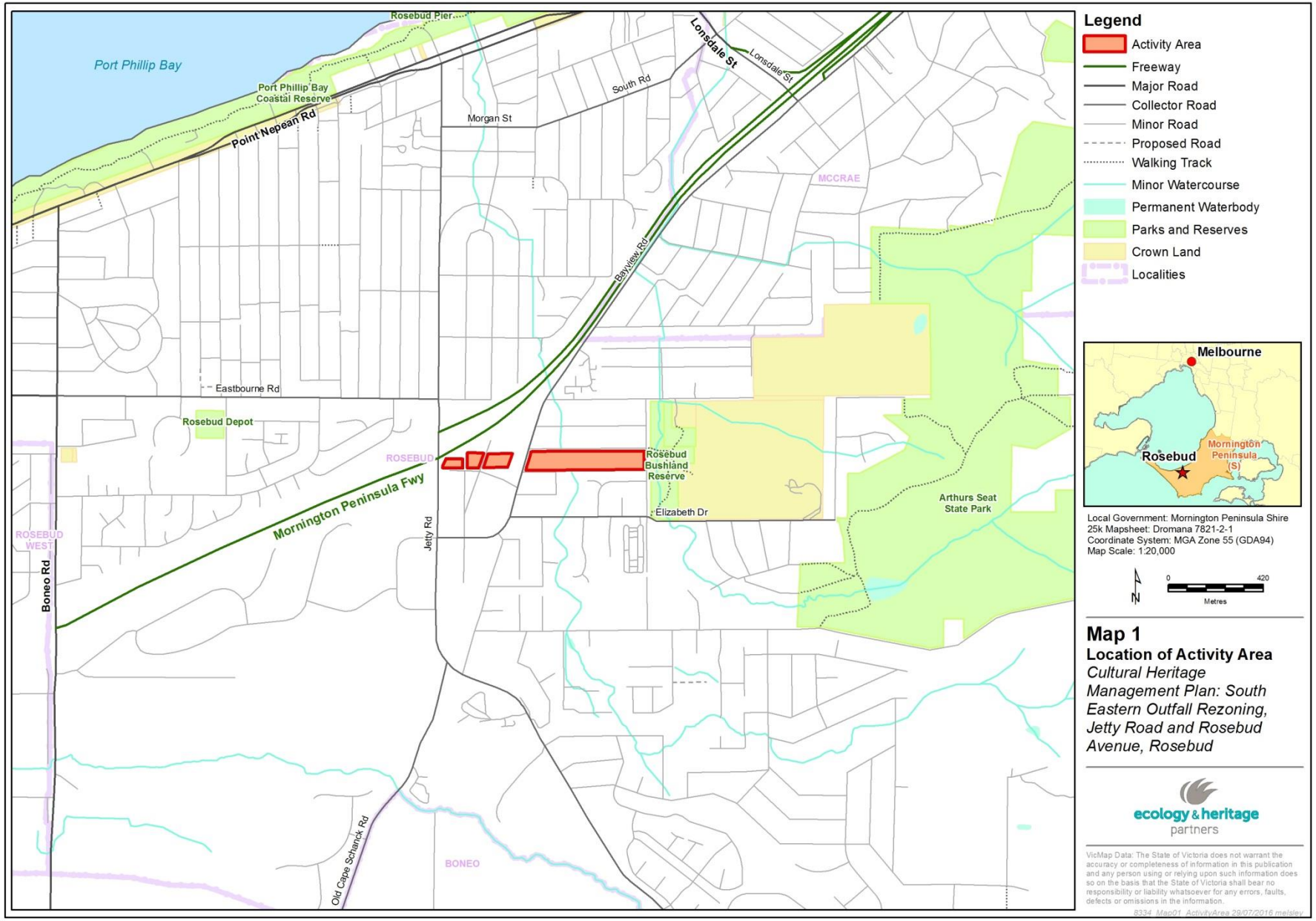
The desktop assessment and field survey results in this report may be used to fulfil the requirements of the desktop and standard assessment component of CHMPs in land parcels covered by this assessment. In that instance, a CHMP may proceed directly to complex assessment under s.58(2) of the *Aboriginal Heritage Act 2006*. However, if a CHMP is commissioned more than six months after the cover date of this report, then a new search of the Victorian Aboriginal Heritage Register should be carried out to ensure that the most current list/locations/extents of relevant Aboriginal Places is used.

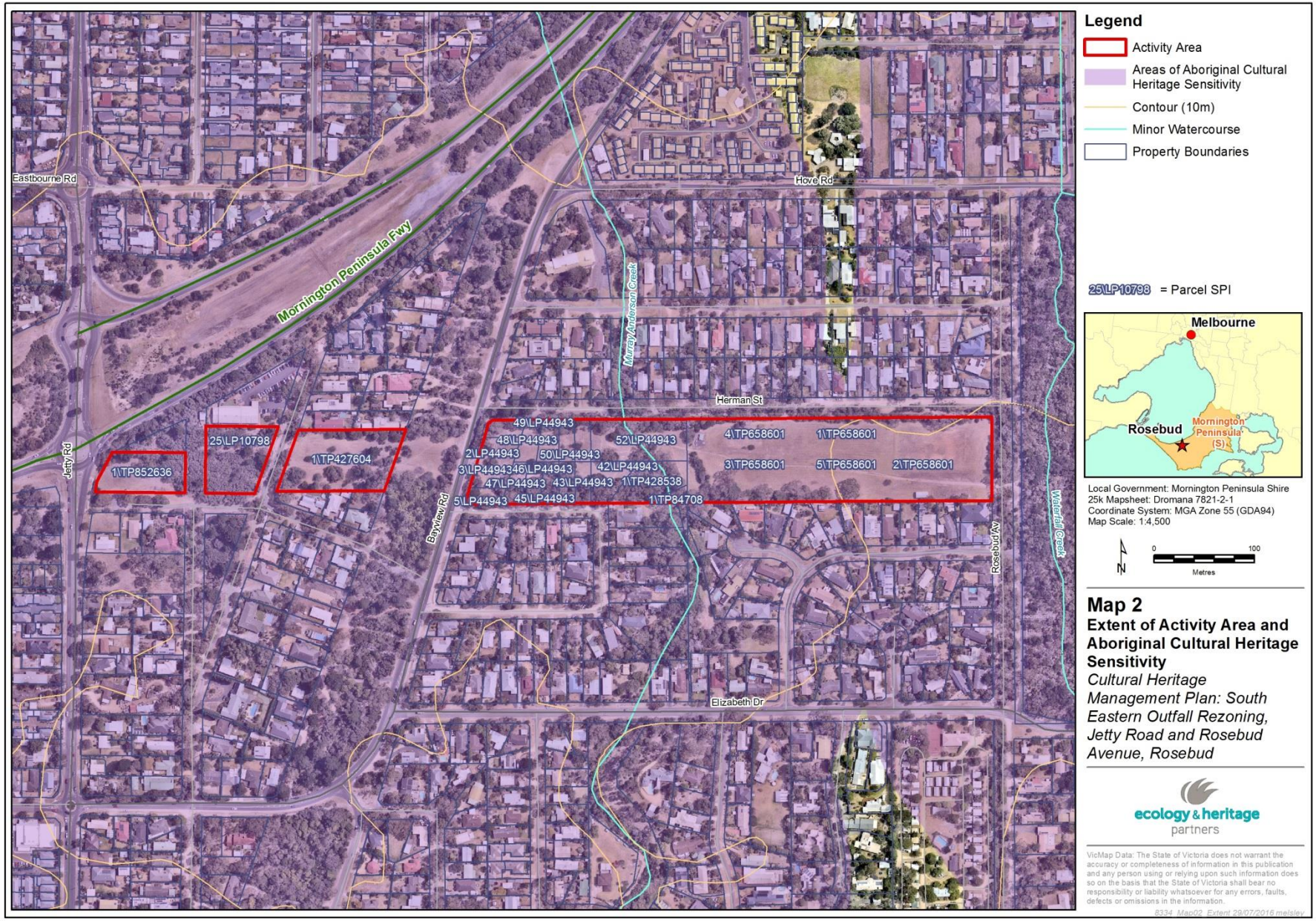
As there is no RAP appointed for the study area; the Secretary (DPC) will undertake the role of the RAP (s.65) in evaluating any prepared CHMPs, and a Notification of Intent to Prepare a CHMP must be submitted to Aboriginal Victoria prior to any CHMP works proceeding.

If, in the period between this investigation and commissioning of a CHMP, an individual Sponsor (developer) believes that significant ground disturbance has occurred in an area of cultural heritage sensitivity that may void the entire area of sensitivity in the study area, then they may consider engaging a qualified cultural heritage advisor to assess the area of SGD and make a recommendation as to whether a CHMP is required.

In sections of an activity area where no ground disturbance or development is proposed, complex assessment is not required.

MAPS


Port Phillip Bay
Rosebud Pier
Port Phillip Bay Coastal Reserve
Point Nepean Rd
Morgan St
South Rd
Lonsdale St
Lonsdale St
MCCRAE
Bayview Rd
Eastbourne Rd
Rosebud Depot
ROSEBUD
Rosebud Bushland Reserve
Elizabeth Dr
Arthurs Seat State Park
Mornington Peninsula Fwy
Jetty Rd
ROSEBUD WEST
Boneo Rd
Old Cape Schanck Rd
BONEO
Legend
Activity Area
Freeway
Major Road
Collector Road
Minor Road
Proposed Road
Walking Track
Minor Watercourse
Permanent Waterbody
Parks and Reserves
Crown Land
Localities
Melbourne
Rosebud
Mornington Peninsula (S)
Local Government: Mornington Peninsula Shire
25k Mapsheet: Dromana 7821-2-1
Coordinate System: MGA Zone 55 (GDA94)
Map Scale: 1:20,000
0
420
Metres
Map 1
Location of Activity Area
Cultural Heritage Management Plan: South Eastern Outfall Rezoning, Jetty Road and Rosebud Avenue, Rosebud
ecology & heritage partners
VicMap Data: The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.
8334_Map01_ActivityArea 29/07/2016 melsley


Eastbourne Rd
Mornington Peninsula Fwy
Hove Rd
Murray Anderson Creek
Herman St
Jetty Rd
Bayview Rd
Rosebud Av
Waterfall Creek
Elizabeth Dr
1\TP852636
25\LP10798
1\TP427604
49\LP44943
48\LP44943
52\LP44943
4\TP658601
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Legend
Activity Area
Areas of Aboriginal Cultural Heritage Sensitivity
Contour (10m)
Minor Watercourse
Property Boundaries
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Melbourne
Rosebud
Mornington Peninsula (S)
Local Government: Mornington Peninsula Shire
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Map Scale: 1:4,500
N
0
100
Metres
Map 2
Extent of Activity Area and Aboriginal Cultural Heritage Sensitivity
Cultural Heritage Management Plan: South Eastern Outfall Rezoning, Jetty Road and Rosebud Avenue, Rosebud
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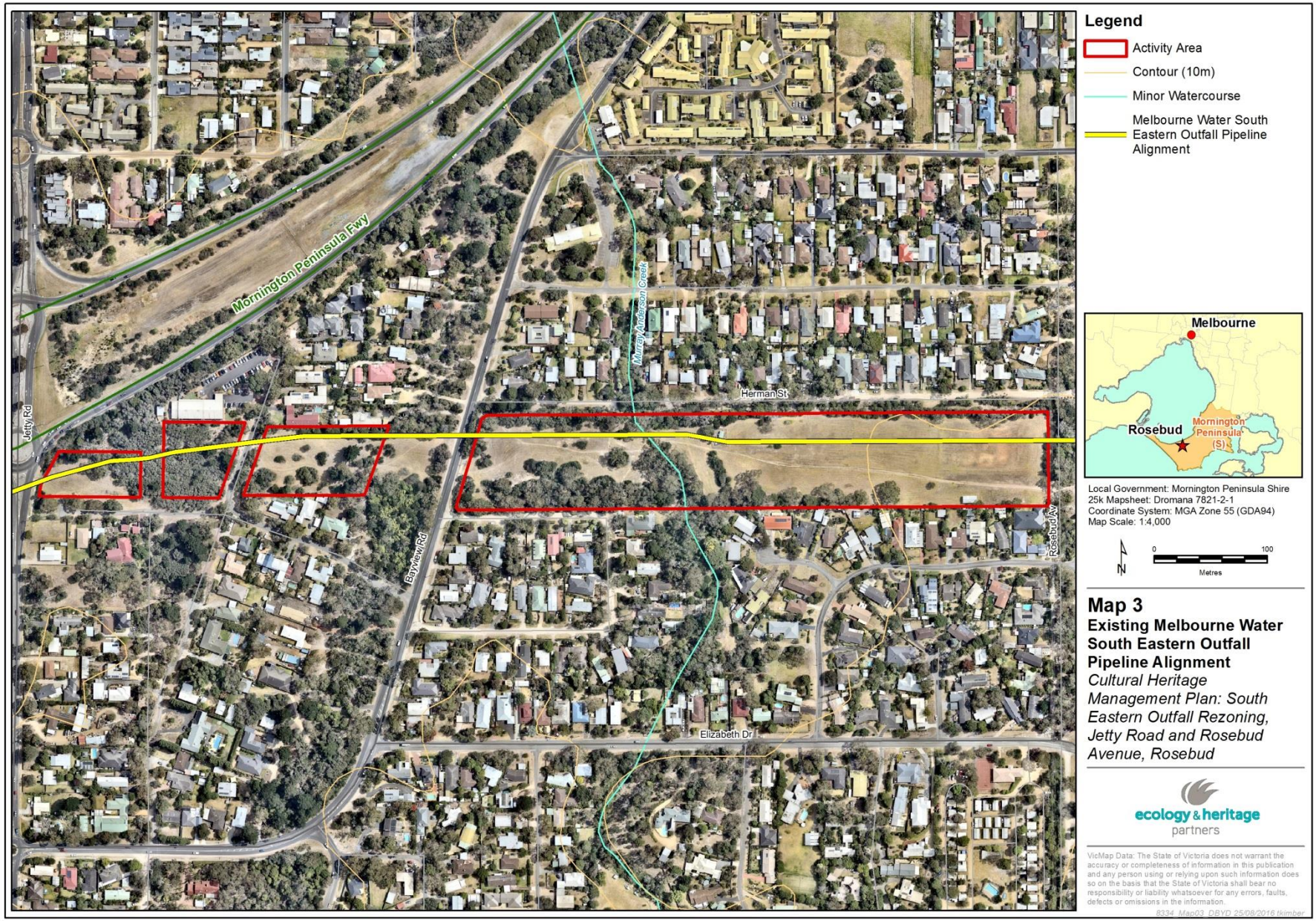
8334_Map02_Extent 29/07/2016 melsley



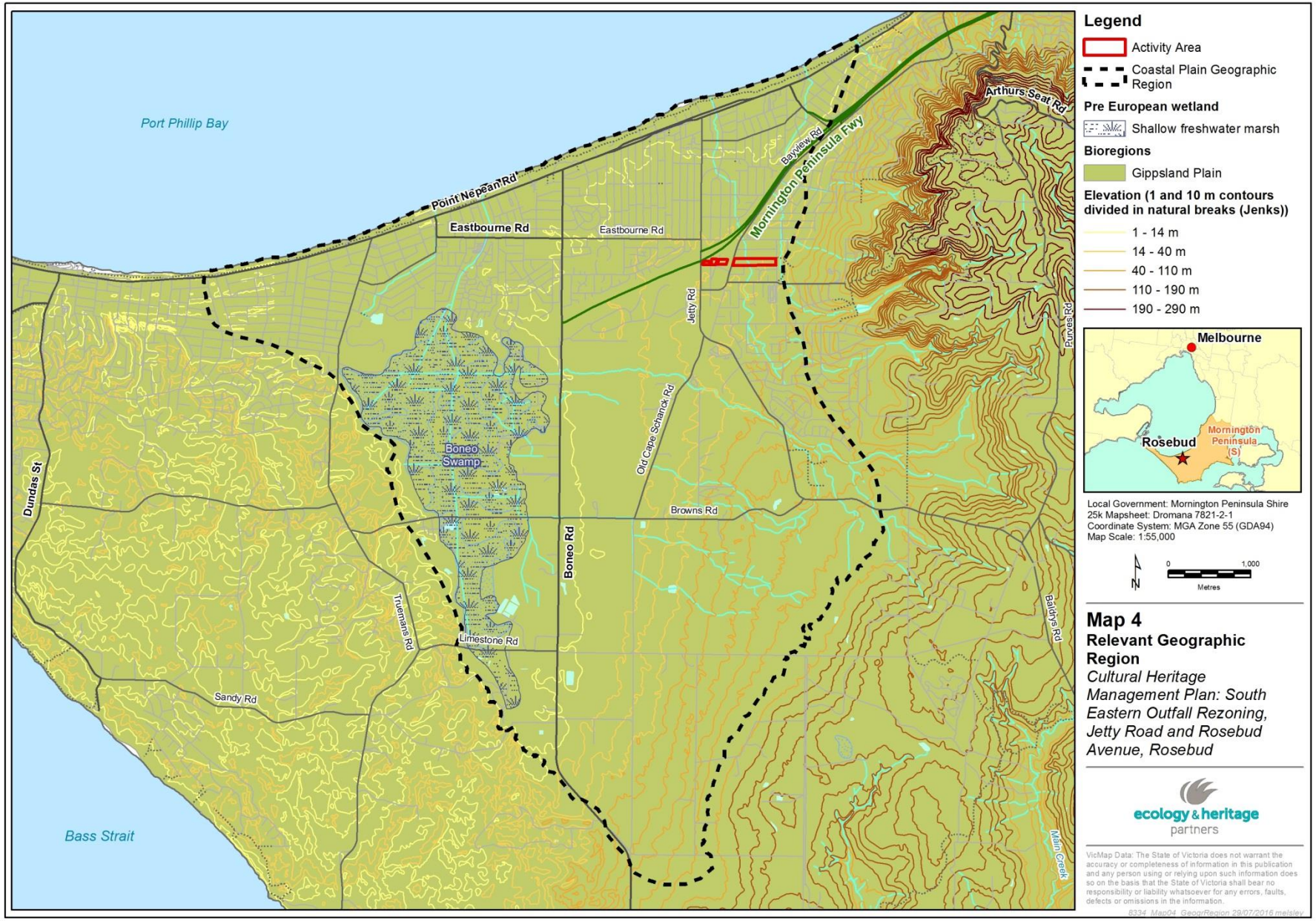
Map 3

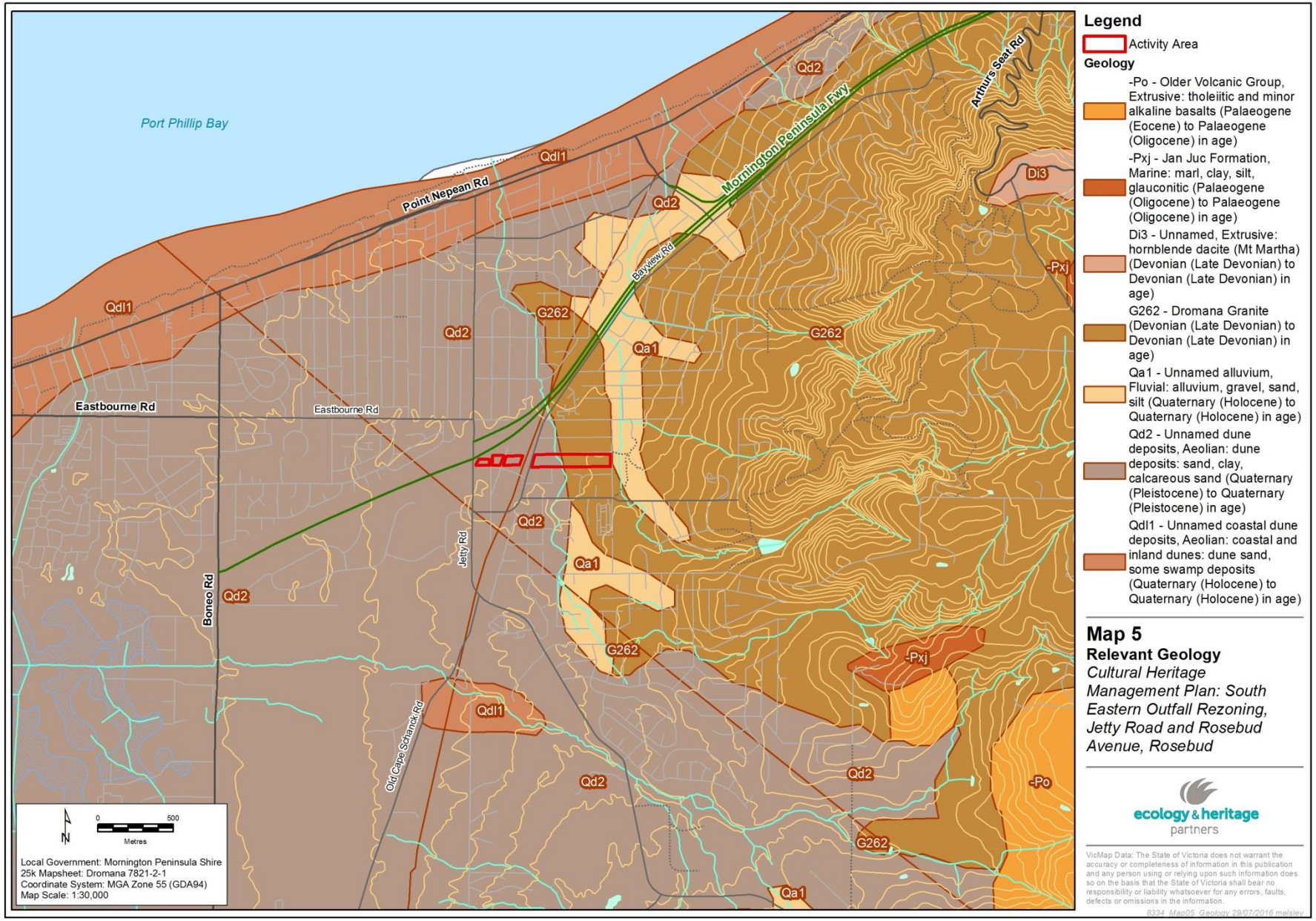
Existing Melbourne Water South Eastern Outfall Pipeline Alignment

Cultural Heritage Management Plan: South Eastern Outfall Rezoning, Jetty Road and Rosebud Avenue, Rosebud

ecology & heritage partners

8334_Map03_DBYD 25/08/2016 tkimber


Port Phillip Bay
Bass Strait
Point Nepean Rd
Eastbourne Rd
Eastbourne Rd
Bayview Rd
Mornington Peninsula Fwy
Arthurs Seat Rd
Jetty Rd
Purves Rd
Old Cape Schanck Rd
Boneo Swamp
Browns Rd
Boneo Rd
Dundas St
Truemans Rd
Limestone Rd
Sandy Rd
Baldrys Rd
Main Creek
Legend
Activity Area
Coastal Plain Geographic Region
Pre European wetland
Shallow freshwater marsh
Bioregions
Gippsland Plain
Elevation (1 and 10 m contours divided in natural breaks (Jenks))
1 - 14 m
14 - 40 m
40 - 110 m
110 - 190 m
190 - 290 m
Melbourne
Rosebud
Mornington Peninsula (S)
Local Government: Mornington Peninsula Shire
25k Mapsheet: Dromana 7821-2-1
Coordinate System: MGA Zone 55 (GDA94)
Map Scale: 1:55,000
N
0
1,000
Metres
Map 4
Relevant Geographic Region
Cultural Heritage Management Plan: South Eastern Outfall Rezoning, Jetty Road and Rosebud Avenue, Rosebud
ecology & heritage partners
VicMap Data: The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.
8334_Map04_GeogrRegion 29/07/2016 melsley



Legend

Activity Area

Geology

-Po - Older Volcanic Group, Extrusive: tholeiitic and minor alkaline basalts (Palaeogene (Eocene) to Palaeogene (Oligocene) in age)

-Pxj - Jan Juc Formation, Marine: marl, clay, silt, glauconitic (Palaeogene (Oligocene) to Palaeogene (Oligocene) in age)

Di3 - Unnamed, Extrusive: hornblende dacite (Mt Martha) (Devonian (Late Devonian) to Devonian (Late Devonian) in age)

G262 - Dromana Granite (Devonian (Late Devonian) to Devonian (Late Devonian) in age)

Qa1 - Unnamed alluvium, Fluvial: alluvium, gravel, sand, silt (Quaternary (Holocene) to Quaternary (Holocene) in age)

Qd2 - Unnamed dune deposits, Aeolian: dune deposits: sand, clay, calcareous sand (Quaternary (Pleistocene) to Quaternary (Pleistocene) in age)

Qdl1 - Unnamed coastal dune deposits, Aeolian: coastal and inland dunes: dune sand, some swamp deposits (Quaternary (Holocene) to Quaternary (Holocene) in age)

Map 5

Relevant Geology

Cultural Heritage Management Plan: South Eastern Outfall Rezoning, Jetty Road and Rosebud Avenue, Rosebud

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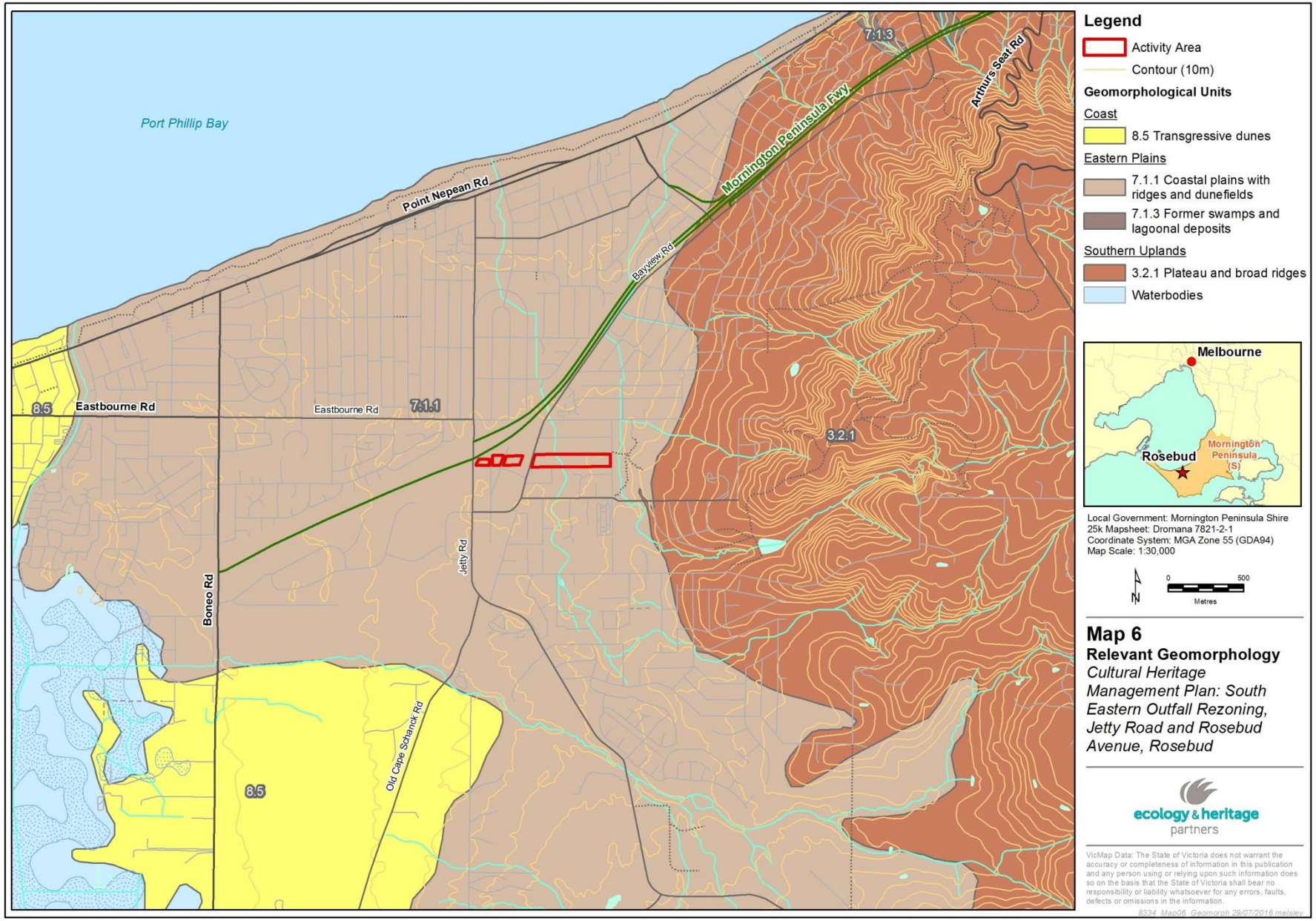
Port Phillip Bay
Point Nepean Rd
Mornington Peninsula Fwy
Arthurs Seat Rd
Bayview Rd
Eastbourne Rd
Eastbourne Rd
Boneo Rd
Jetty Rd
Old Cape Schanck Rd
8.5
8.5
7.1.1
7.1.3
3.2.1
Legend
Activity Area
Contour (10m)
Geomorphological Units
Coast
8.5 Transgressive dunes
Eastern Plains
7.1.1 Coastal plains with ridges and dunefields
7.1.3 Former swamps and lagoonal deposits
Southern Uplands
3.2.1 Plateau and broad ridges
Waterbodies
Melbourne
Rosebud
Mornington Peninsula (S)
Local Government: Mornington Peninsula Shire
25k Mapsheet: Dromana 7821-2-1
Coordinate System: MGA Zone 55 (GDA94)
Map Scale: 1:30,000
N
0
500
Metres
Map 6
Relevant Geomorphology
Cultural Heritage Management Plan: South Eastern Outfall Rezoning, Jetty Road and Rosebud Avenue, Rosebud
ecology & heritage partners
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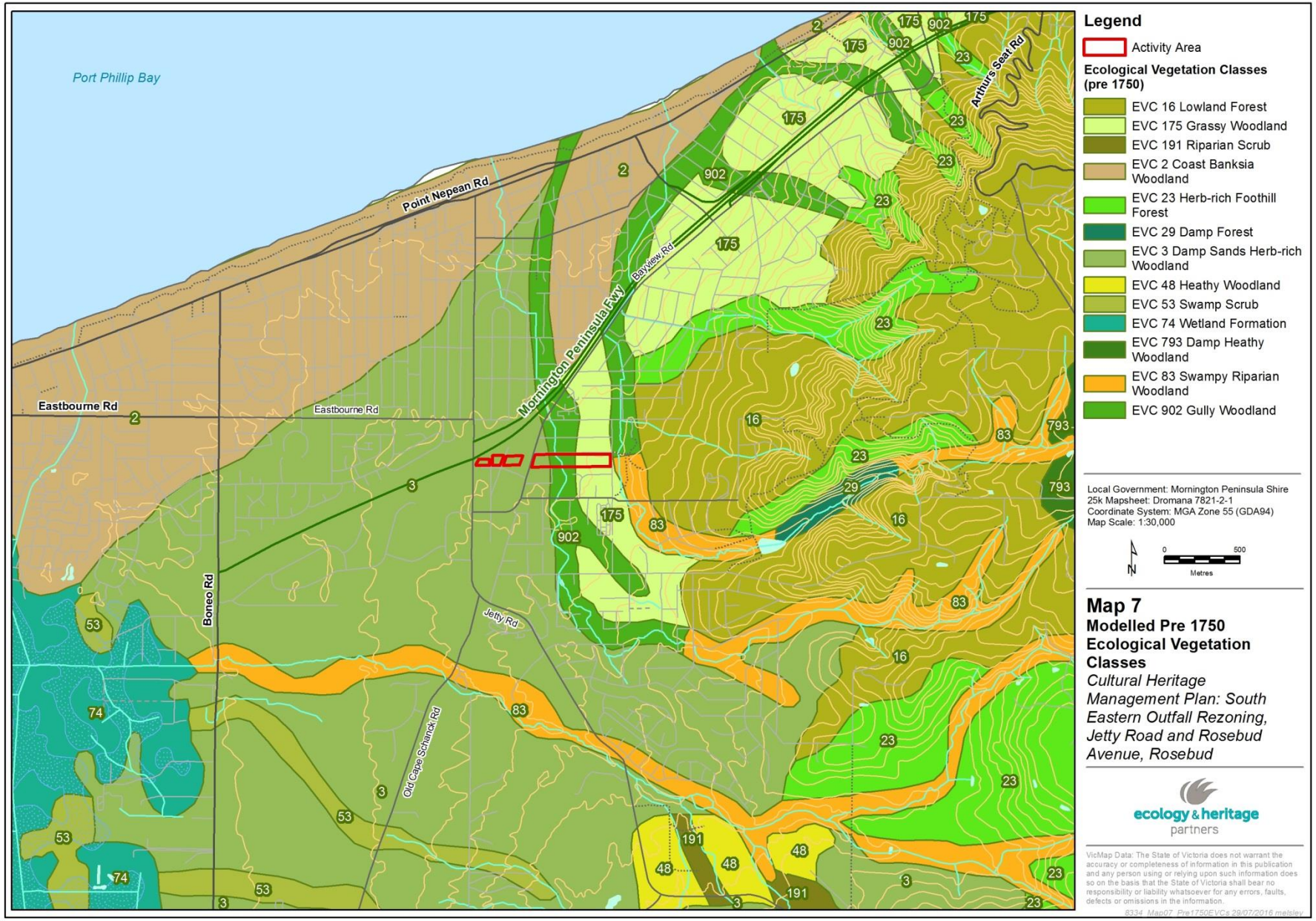
8334_Map06_Geomorph 29/07/2016 melsley


Port Phillip Bay
Point Nepean Rd
Eastbourne Rd
Eastbourne Rd
Boneo Rd
Mornington Peninsula Fwy
Bayview Rd
Jetty Rd
Old Cape Schanck Rd
Arthurs Seat Rd
Legend
Activity Area
Ecological Vegetation Classes (pre 1750)
EVC 16 Lowland Forest
EVC 175 Grassy Woodland
EVC 191 Riparian Scrub
EVC 2 Coast Banksia Woodland
EVC 23 Herb-rich Foothill Forest
EVC 29 Damp Forest
EVC 3 Damp Sands Herb-rich Woodland
EVC 48 Heathy Woodland
EVC 53 Swamp Scrub
EVC 74 Wetland Formation
EVC 793 Damp Heathy Woodland
EVC 83 Swampy Riparian Woodland
EVC 902 Gully Woodland
Local Government: Mornington Peninsula Shire
25k Mapsheet: Dromana 7821-2-1
Coordinate System: MGA Zone 55 (GDA94)
Map Scale: 1:30,000
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0
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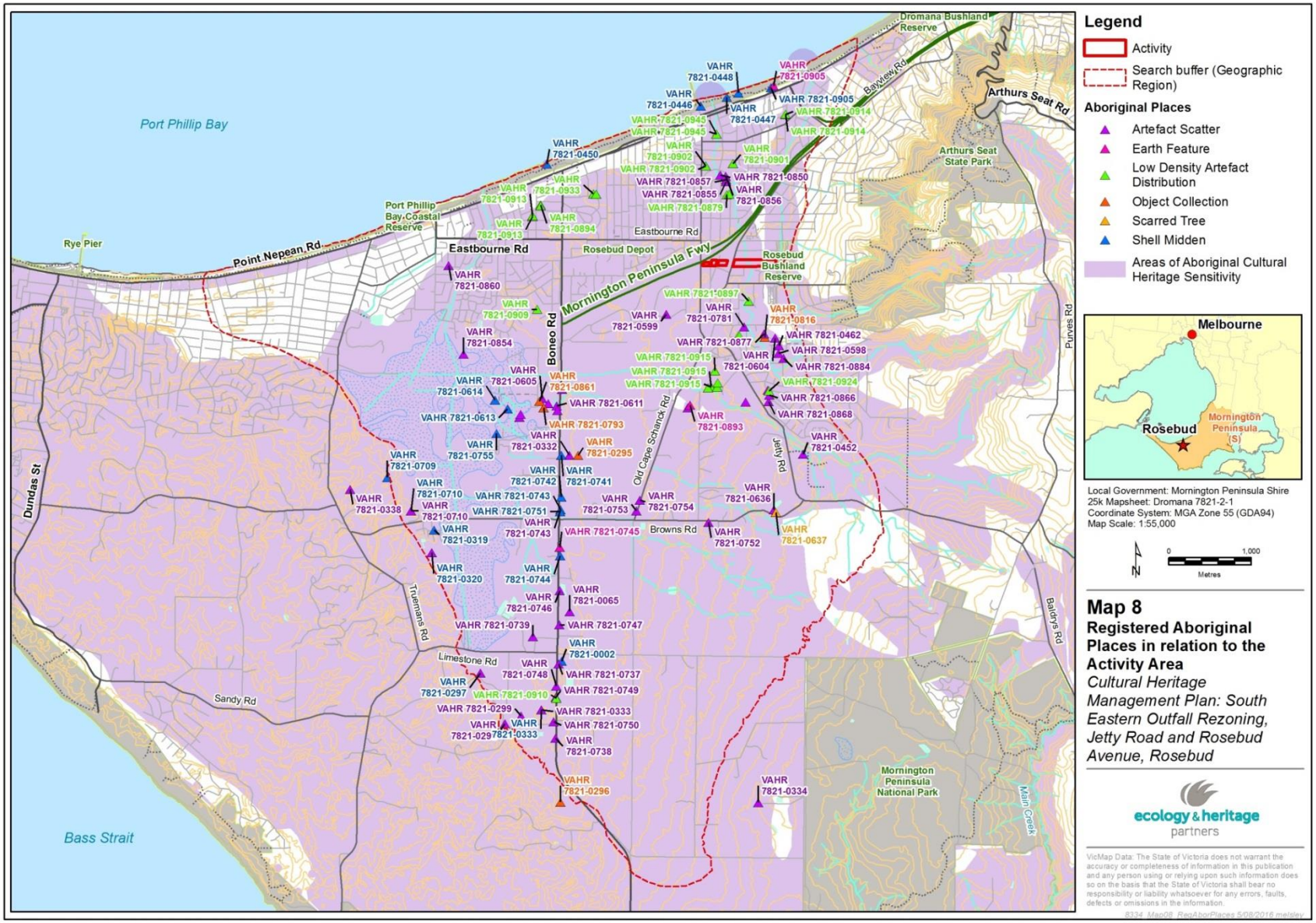
Metres
Map 7
Modelled Pre 1750 Ecological Vegetation Classes
Cultural Heritage Management Plan: South Eastern Outfall Rezoning, Jetty Road and Rosebud Avenue, Rosebud
ecology & heritage partners
VicMap Data: The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.
8334_Map07_Pre1750EVCs 29/07/2016 melsley


Legend
Activity
Search buffer (Geographic Region)
Aboriginal Places
Artefact Scatter
Earth Feature
Low Density Artefact Distribution
Object Collection
Scarred Tree
Shell Midden
Areas of Aboriginal Cultural Heritage Sensitivity
Melbourne
Rosebud
Mornington Peninsula (S)
Local Government: Mornington Peninsula Shire
25k Mapsheet: Dromana 7821-2-1
Coordinate System: MGA Zone 55 (GDA94)
Map Scale: 1:55,000
0
1,000
Metres
Map 8
Registered Aboriginal Places in relation to the Activity Area
Cultural Heritage Management Plan: South Eastern Outfall Rezoning, Jetty Road and Rosebud Avenue, Rosebud
ecology & heritage partners
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8334_Map08_RegAborPlaces 5/08/2016 melsley
Port Phillip Bay
Bass Strait
Dromana Bushland Reserve
Arthurs Seat State Park
Arthurs Seat Rd
Bayview Rd
Port Phillip Bay Coastal Reserve
Rye Pier
Point Nepean Rd
Eastbourne Rd
Rosebud Depot
Mornington Peninsula Fwy
Rosebud Bushland Reserve
Boneo Rd
Purves Rd
Dundas St
Old Cape Schanck Rd
Jetty Rd
Browns Rd
Truemans Rd
Limestone Rd
Sandy Rd
Baldrys Rd
Mornington Peninsula National Park
Main Creek

APPENDICES

Appendix 1: Heritage Legislation

A1.1 *Aboriginal Heritage Act 2006* (State)

The *Aboriginal Heritage Act 2006* protects Aboriginal cultural heritage in Victoria. A key part of the legislation is that Cultural Heritage Management Plans (CHMPs) are required to be prepared by Sponsors (the developer) and qualified Cultural Heritage Advisors in accordance with the Aboriginal Heritage Act 2006 and the accompanying *Aboriginal Heritage Regulations 2007*. A CHMP is the assessment of an area (known as an 'activity area') for Aboriginal cultural heritage values, the results of which form a report (the CHMP) which details the methodology of the assessment and sets out management recommendations and contingency measures to be undertaken before, during and after an activity (development) to manage and protect any Aboriginal cultural heritage present within the area examined.

The preparation of a CHMP is mandatory under the following circumstances:

- If the *Aboriginal Heritage Regulations 2007* require a CHMP to be prepared (s. 47);
- If the Minister of Aboriginal Affairs Victoria requires a CHMP to be prepared (s. 48); or
- If an Environmental Impact Statement (EIS) is required by the *Environment Effects Act 1978* (s. 49).

The *Aboriginal Heritage Regulations 2007* require a CHMP to be prepared:

- If all or part of the proposed activity is a 'high impact activity'; and
- If all or part of the activity area is an area of 'cultural heritage sensitivity'; and
- If all or part of the activity area has not been subject to 'significant ground disturbance'.

The preparation of a CHMP can also be undertaken voluntarily. Having an approved CHMP in place can reduce risk for a project during the construction phase by ensuring there are no substantial delays if sites happen to be found. Monitoring construction works is also rarely required if an approved CHMP is in place.

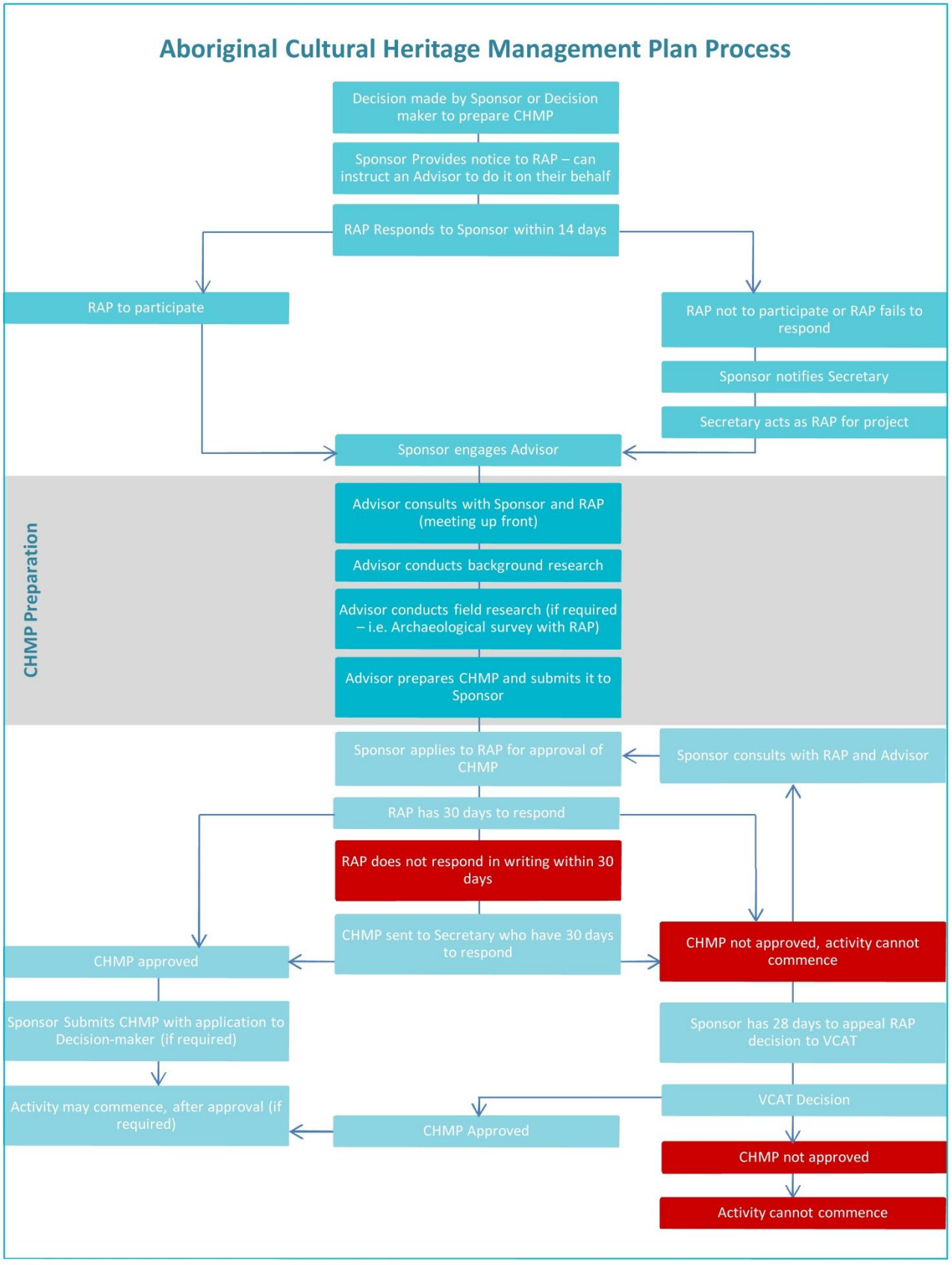
Approval of a CHMP is the responsibility of the Registered Aboriginal Party who evaluates the CHMP and then it is lodged with the Secretary of the Department of Planning and Community Development (DPCD) to take affect or, the Secretary of the DPCD (AV)[4]. They will be examining the CHMPs in detail with key points including:

- Addressing whether harm to heritage can be avoided or minimised;
- All assessments (including test excavations) must be completed before management decisions are formulated; and
- Survey and excavation must be in accordance with proper archaeological practice and supervised by a person appropriately qualified in archaeology.

There are three types of CHMPs that may be prepared (*The Guide to Preparing a CHMP* 2010). These are:

- Desktop; Standard; and Complex.

[4] In 2013, The DPCD was abolished and OAAV (now AV) was transferred to the Department of the Premier and Cabinet (DPC). However the wording within the Act still retains reference to the Secretary of DPCD.


Aboriginal Cultural Heritage Management Plan Process
Decision made by Sponsor or Decision maker to prepare CHMP
Sponsor Provides notice to RAP – can instruct an Advisor to do it on their behalf
RAP Responds to Sponsor within 14 days
RAP to participate
RAP not to participate or RAP fails to respond
Sponsor notifies Secretary
Secretary acts as RAP for project
Sponsor engages Advisor
CHMP Preparation
Advisor consults with Sponsor and RAP (meeting up front)
Advisor conducts background research
Advisor conducts field research (if required – i.e. Archaeological survey with RAP)
Advisor prepares CHMP and submits it to Sponsor
Sponsor applies to RAP for approval of CHMP
Sponsor consults with RAP and Advisor
RAP has 30 days to respond
RAP does not respond in writing within 30 days
CHMP sent to Secretary who have 30 days to respond
CHMP approved
CHMP not approved, activity cannot commence
Sponsor Submits CHMP with application to Decision-maker (if required)
Sponsor has 28 days to appeal RAP decision to VCAT
Activity may commence, after approval (if required)
CHMP Approved
VCAT Decision
CHMP not approved
Activity cannot commence

A desktop CHMP is a literature review. If the results of the desktop show it is reasonably possible that Aboriginal cultural heritage could be present in the activity area, a standard assessment will be required.

A standard assessment involves a literature review and a ground survey of the activity area. Where the results of ground survey undertaken during a standard assessment have identified Aboriginal cultural heritage within the activity area, soil and sediment testing, using an auger no larger than 12 cm in diameter, may be used to assist in defining the nature and extent of the identified Aboriginal cultural heritage (Regulation 59[4]).

Where the results of ground survey undertaken during a standard assessment have identified Aboriginal cultural heritage within the activity area or areas which have the potential to contain Aboriginal cultural heritage subsurface, a complex assessment will be required. A complex assessment involves a literature review, a ground survey, and subsurface testing. Subsurface testing is the disturbance of all or part of the activity area or excavation of all or part of the activity area to uncover or discover evidence of Aboriginal cultural heritage (Regulation 62[1]).

It is strongly advised that for further information relating to heritage management (e.g. audits, stop orders, inspectors, forms, evaluation fees, status of RAPs and penalties for breaching the Act) Sponsors should access the AV website (http://www.aboriginalaffairs.vic.gov.au/).

The flow chart above also assists in explaining the process relating to CHMPs.

A1.2 *Native Title Act 1993* (Commonwealth)

Native Title describes the rights and interests of Aboriginal and Torres Strait Islander people in land and waters, according to their traditional laws and customs. In Australia, Aboriginal and Torres Strait Islander people's rights and interests in land were recognised in 1992 when the High Court delivered its historic judgment in the case of Mabo v the State of Queensland. This decision overturned the legal fiction that Australia upon colonisation was terra nullius (land belonging to no-one). It recognised for the first time that Indigenous Australians may continue to hold native title.

Native Title rights may include the possession, use and occupation of traditional country. In some areas, native title may be a right of access to the area. It can also be the right for native title holders to participate in decisions about how others use their traditional land and waters. Although the content of native title is to be determined according to the traditional laws and customs of the title holders, there are some common characteristics. It may be possessed by a community, group, or individual depending on the content of the traditional laws and customs. It is inalienable (that is, it cannot be sold or transferred) other than by surrender to the Crown or pursuant to traditional laws and customs. Native Title is a legal right that can be protected, where appropriate, by legal action.

Native Title may exist in areas where it has not been extinguished (removed) by an act of government. It will apply to Crown land but not to freehold land. It may exist in areas such as:

- Vacant (or unallocated) Crown land;
- Forests and beaches;
- National parks and public reserves;

- Some types of pastoral leases;
- Land held by government agencies;
- Land held for Aboriginal communities;
- Any other public or Crown lands; and/or
- Oceans, seas, reefs, lakes, rivers, creeks, swamps and other waters that are not privately owned.

Native Title cannot take away anyone else's valid rights, including owning a home, holding a pastoral lease or having a mining lease. Where native title rights and the rights of another person conflict the rights of the other person always prevail. When the public has the right to access places such as parks, recreation reserves and beaches, this right cannot be taken away by Native Title. Native Title does not give Indigenous Australians the right to veto any project. It does mean, however, that everyone's rights and interests in land and waters have to be taken into account.

Indigenous people can apply to have their native title rights recognised by Australian law by filing a native title application (native title claim) with the Federal Court. Applications are required to pass a test to gain certain rights over the area covered in the application. The Native Title Tribunal (NNTT) was established to administer application processes. Once applications are registered, the NNTT will notify other people about the application and will invite them to become involved so all parties can try to reach an agreement that respects everyone's rights and interests. If the parties cannot agree, the NNTT refers the application to the Federal Court and the parties argue their cases before the Court.

As a common law right, native title may exist over areas of Crown land or waters, irrespective of whether there are any native title claims or determinations in the area. Native Title will therefore be a necessary consideration when Government is proposing or permitting any activity on or relating to Crown land that may affect native title[5].

A1.3 *Planning and Environment Act 1987* (State)

All municipalities in Victoria are covered by land use planning controls which are prepared and administered by State and local government authorities. The legislation governing such controls is the *Planning and Environment Act 1987*. Places of significance to a locality can be listed on a local planning scheme and protected by a Heritage Overlay (or other overlay where appropriate). Places of Aboriginal cultural heritage significance are not often included on local government planning schemes.

A1.4 *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a national framework for the protection of heritage and the environment and the conservation of biodiversity. The EPBC Act is administered by the Australian Government Department of the Environment and Energy (DoEE). The Australian Heritage Council assesses whether or not a nominated place is appropriate for listing on either the National or Commonwealth Heritage Lists and makes a recommendation to the Minister on that basis.

[5] The information in this section was taken from the Department of Sustainability and Environment, Fact Sheet on Native Title, 2008

The Minister for the Environment and Energy makes the final decision on listing. DoEE also administers the Register of the National Estate, although this register no longer has statutory force.

The objectives of the EPBC Act are:

- To provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;
- To promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;
- To promote the conservation of biodiversity;
- To provide for the protection and conservation of heritage;
- To promote a cooperative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples;
- To assist in the cooperative implementation of Australia's international environmental responsibilities;
- To recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and
- To promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in cooperation with, the owners of the knowledge.

A1.5 *Coroners Act 2008* (State)

The Victorian *Coroners Act 2008* requires the reporting of certain deaths and the investigation of certain deaths and fires in Victoria by coroners to contribute to the reduction of preventable deaths. Of most relevance to heritage is the requirement for any “reportable death” to be reported to the police (s. 12[1]). The *Coroners Act 2008* requires that the discovery of human remains in Victoria (s. 4[1]) of a person whose identity is unknown (s. 4[g]) must be reported to the police.

Appendix 2: Author Details

Claire St George

Claire is a senior archaeologist at Ecology and Heritage Partners with over six years consulting experience in Australian Archaeology. Claire completed her archaeology degree with Honours at Flinders University in 2009 and has subsequently worked extensively in both metropolitan and remote areas of Victoria (in particular the Mornington Peninsula, Phillip Island and western and northern Victoria). Claire has experience in a variety of other cultural heritage related tasks including: project management, background research, archaeological survey, subsurface testing programs and salvage excavation, Aboriginal and non-Aboriginal site identification, site recording and photography, communication and consultation with: regulatory bodies (AV and HV), Agents, landowners and RAPs and stone artefact recording, analysis and interpretation.

Claire is practised in the management and preparation of Cultural Heritage Management Plans (CHMPs) for evaluation and approval by Aboriginal Victoria (AV) and Registered Aboriginal Parties (RAPs), as well as the provision of cultural heritage advice under the *Aboriginal Heritage Act 2006* in the form of Heritage Assessments and Due Diligence Assessments. She has been the sole or primary author on over 30 approved CHMPs to date.

Her formal qualifications and affiliations include:

- Bachelor of Archaeology (1st Class Honours) Flinders University (2009);
- Full Member, Australian Association of Consulting Archaeologists Inc. (AACAI) and current Membership Secretary National Executive Committee AACAI;
- Full International Member, International Council on Monuments and Sites (ICOMOS);
- Member, Australian Archaeology Association (AAA);
- Member, World Archaeological Congress (WAC); and
- Fellow, Australian Anthropological Society.

Caiti Holzheimer

Caiti is a technical officer at Ecology and Heritage Partners Pty Ltd with over two years' experience in Australian archaeology. Caiti completed her archaeology degree with Honours at La Trobe University in 2015. Her thesis focused on historical archaeology, in particular the analysis and comparison of two nineteenth-century cesspits. Caiti has been involved in historical excavations since 2014 and has participated in a number of historical excavations within inner Melbourne. Caiti was trained in the analysis of both European and Aboriginal artefacts during her undergraduate studies at La Trobe University, and is readily utilises these skills in her role as technical officer. As a field archaeologist, Caiti has contributed to a number of Aboriginal cultural heritage investigations, assisting with constructing detailed desktop assessments, fieldwork, and the identification and interpretation of Aboriginal cultural heritage material. Her formal qualifications include:

- Bachelor of Archaeology (Honours), La Trobe University (2015).

Monique Elsley

Monique has extensive experience with ArcGIS desktop software for the production of mapping products and data analysis. Her first stint in the spatial industry was as a Cartographer at Lonely Planet Publications, in 2006 - 2007. Responsibilities included creating maps for and assisting with the finalisation of regional and city maps for soon to be released guidebooks, and updating the existing database with information obtained from aerial imagery and provided by authors. Following this, Monique gained employment as a Geomatics Research Scientist at the Department of Primary Industries from 2007 – 2009, and again in 2010 - both in a full-time and part-time capacity. Her work involved producing GIS data layers and maps for various projects, analysing results, undertaking a literature review, and contributing to technical reports and journals. Projects she was involved in focussed on climate change adaptation, Victorian land use and developing agricultural ecological zones. Most recently, whilst completing her PhD, Monique undertook casual lecturing and tutoring roles at RMIT. This included developing materials for a new practical exercise with the aim of teaching students how to produce quality maps using ESRI's ArcGIS software. Her formal qualifications include:

- Doctor of Philosophy, RMIT (2013);
- Bachelor of Applied Science (Geospatial Science) (Honours), RMIT (2008); and
- Bachelor of Applied Science (Multimedia Cartography), RMIT (2007).

Oona Nicolson

Oona Nicolson is a Director and the Principal Heritage Advisor at Ecology and Heritage Partners Pty Ltd. She is a heritage specialist with over 20 years of experience in the archaeological consulting sector, working in Victoria, South Australia, New South Wales and Tasmania. Oona regularly appears before VCAT and independent panels as an Expert Witness in the areas of Aboriginal and historical heritage. Oona has extensive experience in over 800 projects with a wide variety of Agents.

Oona's skills include project management, peer reviews, background research and due diligence assessments, archaeological survey, subsurface testing and salvage excavation, Aboriginal and non-Aboriginal site identification, recording and photography, site significance assessment, development of recommendations to mitigate the impact of development upon Aboriginal and non-Aboriginal historical heritage, flaked stone artefact and historical artefact recording and interpretation, communication and consultation with regulatory bodies (AV and HV), Agents, landowners, RAPs and community representatives, preparation of conservation management plans, expert witness statements, Permits and Consents to Disturb for Heritage Victoria, Historical Heritage Assessments and, desktop, standard and complex Aboriginal CHMPs. Her formal qualifications and memberships include:

- Bachelor of Arts (Honours in Archaeology; First Class), Flinders University (1996);
- Bachelor of Arts (Australian Archaeology and Australian Studies), Flinders University (1995);
- Current Archaeology (Alternate) Member of the Victorian Heritage Council;
- Maritime Archaeology Certificate: Part 1 (Part 2 pending), AIMA and NAS (U.K.);
- Australian Association of Consulting Archaeologists Inc. AACAI (Full Member and past National President);

- Member, Australian Archaeological Association (AAA);
- Fellow of the Victorian Planning and Environmental Law Association;
- Accredited UDIA EnviroDevelopment Professional (Accredited August 2012)
- UDIA Urbanisation and Infrastructure Committee; and
- Heritage member of the South Australian Chamber of Mines and Energy (SACOME) Sustainability and Development Committee.

Appendix 3: List of Previously Identified Sites within the Geographic Region

VAHR Site Number	Site Name	Component Number	Component Type	Within Activity Area?
7821-0002	Bone	7821-0002-1	Shell Midden	No
7821-0003	Tootgarook Swamp	7821-0003-1	Artefact Scatter	No
7821-0065	Boneo Road 1	7821-0065-1	Artefact Scatter	No
7821-0295	Boneo Road 2	7821-0295-1	Object Collection	No
7821-0296	Boneo Road 3	7821-0296-1	Object Collection	No
7821-0297	Sailors Lagoon 1	7821-0297-1	Shell Midden	No
		7821-0297-2	Artefact Scatter	
7821-0298	Sailors Lagoon 2	7821-0298-1	Artefact Scatter	No
7821-0299	Sailors Lagoon 3	7821-0299-1	Artefact Scatter	No
7821-0319	Fingal	7821-0319-1	Shell Midden	No
7821-0320	Carlogie Golf Course	7821-0320-1	Shell Midden	No
		7821-0320-2	Artefact Scatter	
7821-0332	Boneo Rd 4	7821-0332-1	Artefact Scatter	No
7821-0333	Boneo Rd 5	7821-0333-1	Shell Midden	No
		7821-0333-2	Artefact Scatter	
7821-0334	Boneo Rd 6	7821-0334-1	Artefact Scatter	No
7821-0338	Trumans Road	7821-0338-1	Artefact Scatter	No
7821-0357	Tootgarook Axe	7821-0357-1	Artefact Scatter	No
7821-0446	Rosebud Midden 1	7821-0446-1	Shell Midden	No
7821-0447	Rosebud Midden 2	7821-0447-1	Shell Midden	No
7821-0448	Rosebud Midden 3	7821-0448-1	Shell Midden	No

VAHR Site Number	Site Name	Component Number	Component Type	Within Activity Area?
7821-0450	Rosebud Midden 5	7821-0450-1	Shell Midden	No
7821-0452	Peninsula Gardens 1	7821-0452-1	Artefact Scatter	No
7821-0462	Mt Arthur Ave 1	7821-0462-1	Artefact Scatter	No
7821-0598	Josi Place 1	7821-0598-1	Artefact Scatter	No
7821-0599	Widoop 1	7821-0599-1	Artefact Scatter	No
7821-0604	Lovely Meadows 1	7821-0604-1	Artefact Scatter	No
7821-0605	Thamer Street 1&2	7821-0605-1	Artefact Scatter	No
7821-0610	Thamer Street 3	7821-0610-1	Artefact Scatter	No
7821-0611	Thamer Street 4	7821-0611-1	Artefact Scatter	No
7821-0612	Thamer Street 5	7821-0612-1	Artefact Scatter	No
7821-0613	Thamer Street 6	7821-0613-1	Artefact Scatter	No
		7821-0613-2	Shell Midden	
7821-0614	Thamer Street 7	7821-0614-1	Artefact Scatter	No
		7821-0614-2	Shell Midden	
7821-0636	Spring SS 1	7821-0636-1	Artefact Scatter	No
7821-0637	Spring ST 1	7821-0637-1	Scarred Tree	No
7821-0709	Burin 1	7821-0709-1	Shell Midden	No
7821-0710	Burin 2	7821-0710-1	Shell Midden	No
		7821-0710-2	Artefact Scatter	
7821-0737	Boneo Pipeline 1	7821-0737-1	Artefact Scatter	No
7821-0738	Boneo Pipeline 2	7821-0738-1	Artefact Scatter	No
7821-0739	Boneo Pipeline 3	7821-0739-1	Artefact Scatter	No

VAHR Site Number	Site Name	Component Number	Component Type	Within Activity Area?
7821-0740	Boneo Pipeline 4	7821-0740-1	Artefact Scatter	No
7821-0741	Boneo Pipeline 5	7821-0741-1	Artefact Scatter	No
		7821-0741-2	Shell Midden	
7821-0742	Boneo Pipeline 6	7821-0742-1	Artefact Scatter	No
		7821-0742-2	Shell Midden	
7821-0743	Boneo Pipeline 7	7821-0743-1	Artefact Scatter	No
		7821-0743-2	Shell Midden	
7821-0744	Boneo Pipeline 8	7821-0744-1	Artefact Scatter	No
		7821-0744-2	Shell Midden	
7821-0745	Boneo Pipeline 9	7821-0745-1	Artefact Scatter	No
		7821-0745-2	Earth Feature	
7821-0746	Boneo Pipeline 10	7821-0746-1	Artefact Scatter	No
7821-0747	Boneo Pipeline 11	7821-0747-1	Artefact Scatter	No
7821-0748	Boneo Pipeline 12	7821-0748-1	Artefact Scatter	No
7821-0749	Boneo Pipeline 13	7821-0749-1	Artefact Scatter	No
7821-0750	Boneo Pipeline 14	7821-0750-1	Artefact Scatter	No
7821-0751	Boneo Pipeline Disturbed Shell Mideen and Artefact	7821-0751-1	Artefact Scatter	No
		7821-0751-2	Shell Midden	
7821-0752	Browns Road 1	7821-0752-1	Artefact Scatter	No
7821-0753	Old Cape Schanck Road 1	7821-0753-1	Artefact Scatter	No
7821-0754	Old Cape Schanck Road 2	7821-0754-1	Artefact Scatter	No
7821-0755	Boneo Park 1	7821-0755-1	Shell Midden	No

VAHR Site Number	Site Name	Component Number	Component Type	Within Activity Area?
7821-0756	Boneo Park 2	7821-0756-1	Artefact Scatter	No
7821-0781	Waterfall Gully 1	7821-0781-1	Artefact Scatter	No
7821-0793	Scotch Court Rosebud Site 1	7821-0793-1	Artefact Scatter	No
7821-0816	Bayview Avenue AS 1	7821-0816-1	Artefact Scatter	No
		7821-0816-2	Object Collection	
7821-0850	Rosebud Artefact Scatter 1	7821-0850-1	Artefact Scatter	No
7821-0854	Village Glen 1	7821-0854-1	Artefact Scatter	No
7821-0857	Leon Avenue 2	7821-0857-1	Artefact Scatter	No
7821-0856	Leon Avenue 3	7821-0856-1	Artefact Scatter	No
7821-0855	Leon Avenue 1	7821-0855-2	Artefact Scatter	No
7821-0860	Hakea Ave 1	7821-0860-1	Artefact Scatter	No
7821-0861	Scotch Court, Rosebud West	7821-0861-2	Object Collection	No
7821-0867	Peninsular Sands Rosebud 2	7821-0867-1	Artefact Scatter	No
7821-0868	Peninsular Sands Rosebud 3	7821-0868-1	Artefact Scatter	No
7821-0866	Peninsular Sands Rosebud 1	7821-0866-1	Artefact Scatter	No
7821-0793	Scotch Court Rosebud Site 1	7821-0793-2	Object Collection	No
7821-0877	Waterfall Gully Artefact Scatter 1	7821-0877-1	Artefact Scatter	No
7821-0879	Leon Avenue Rosebud LDAD	7821-0879-1	Low Density Artefact Distribution	No
		7821-0879-2		
7821-0884	31 Mt Arthur Avenue AS1	7821-0884-1	Artefact Scatter	No
7821-0893	161 Old Cape Schanck Rd Site Complex	7821-0893-1	Artefact Scatter	No
		7821-0893-2	Earth Feature	

VAHR Site Number	Site Name	Component Number	Component Type	Within Activity Area?
7821-0894	25 Dalgleish Ave LDAD	7821-0894-1	Low Density Artefact Distribution	No
		7821-0894-2		
		7821-0894-3		
7821-0897	8 William Hunter Court Rosebud LDAD 1	7821-0897-1	Low Density Artefact Distribution	No
7821-0901	13 Mark Street, Rosebud LDAD1	7821-0901-1	Low Density Artefact Distribution	No
		7821-0901-2		
		7821-0901-3		
7821-0902	Jetty Road 1	7821-0902-1	Low Density Artefact Distribution	No
		7821-0902-2		
		7821-0902-3		
		7821-0902-4		
		7821-0902-5		
7821-0905	Rosebud Foreshore Coastal Shell Midden 6	7821-0905-1	Shell Midden	No
		7821-0905-2	Earth Feature	
7821-0909	Boniyong LDAD	7821-0909-1	Low Density Artefact Distribution	No
7821-0910	Boneo Road LDAD 2, Boneo	7821-0910-1	Low Density Artefact Distribution	No
7821-0913	50 Whitehead Grove Rosebud West LDAD1	7821-0913-1	Low Density Artefact Distribution	No
		7821-0913-2		
		7821-0913-3		
		7821-0913-4		

VAHR Site Number	Site Name	Component Number	Component Type	Within Activity Area?
7821-0916	310-330 Jetty Road Artefact Scatter 1	7821-0916-1	Artefact Scatter	No
7821-0914	36 Parkmore Road Rosebud LDAD	7821-0914-1	Low Density Artefact Distribution	No
		7821-0914-2		
7821-0915	310-330 Jetty Road Rosebud LDAD 1	7821-0915-1 to 7821-0915-13	Low Density Artefact Distribution	No
7821-0917	Waterfall Gully Rd 1	7821-0917-1	Low Density Artefact Distribution	No
		7821-0917-2		
		7821-0917-3		
		7821-0917-4		
7821-0924	Peninsula Sands Rosebud 4	7821-0924-1 to 7821-0924-7	Low Density Artefact Distribution	No
7821-0945	Wilson LDAD	7821-0945-2	Low Density Artefact Distribution	No
		7821-0945-3		
		7821-0945-4		

Appendix 4: AV Practice Note: Significant Ground Disturbance

Aboriginal Heritage Act 2006 Practice Note: Significant Ground Disturbance

This Practice Note provides guidance about the meaning of **significant ground disturbance** as it relates to requirements to prepare Cultural Heritage Management Plans under the *Aboriginal Heritage Act* 2006*.

The Practice Note covers:

- when a Cultural Heritage Management Plan is required
- why significant ground disturbance should be assessed
- what significant ground disturbance means
- who needs to provide proof
- how to determine significant ground disturbance
- who can determine this
- what is the role of the responsible authority
- how Aboriginal cultural heritage is protected in areas of significant ground disturbance.

Background

The *Aboriginal Heritage Act* 2006 (Act) and Aboriginal Heritage Regulations 2007 (Regulations) provide protection in Victoria for all Aboriginal places, objects and human remains regardless of their inclusion on the Victorian Aboriginal Heritage Register or whether they are located on public or private land.

When is a Cultural Heritage Management Plan required?

A Cultural Heritage Management Plan is required for an activity (i.e. the use or development of land) if the activity:

- is a high impact activity
- falls in whole or in part within an area of cultural heritage sensitivity.

The terms 'high impact activity' and 'cultural heritage sensitivity' are defined in the Regulations.

A Plan must also be prepared when an activity requires an Environmental Effects Statement, or when the Minister for Aboriginal Affairs requires.

High impact activities are categories of activity that are generally regarded as more likely to harm Aboriginal cultural heritage. Most high impact activities provided for in the Regulations are subject to a requirement that the activity results in significant ground disturbance. The term 'significant ground disturbance' is defined in the Regulations.

Areas of cultural heritage sensitivity are landforms and land categories that are generally regarded as more likely to contain Aboriginal cultural heritage. A registered Aboriginal cultural heritage place is also an area of cultural heritage sensitivity.

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If part of an area of cultural heritage sensitivity (other than a cave) has been subject to significant ground disturbance that part is not an area of cultural heritage sensitivity.

If a Cultural Heritage Management Plan is required for an activity it must be approved before the sponsor can obtain any necessary statutory authorisation for the activity and/or before the activity can start. For more information about Cultural Heritage Management Plans see Aboriginal Affairs Victoria's (AAV) website (www.aboriginalaffairs.vic.gov.au).

Why should significant ground disturbance be assessed?

It is important to assess significant ground disturbance when considering whether a cultural heritage management plan is required because:

- A Cultural Heritage Management Plan does not need to be prepared for a high impact activity if all the area of cultural heritage sensitivity within the activity area has been subject to significant ground disturbance.
- Some types of activity will not be a high impact activity, meaning a Cultural Heritage Management Plan would not need to be prepared, if the activity does not cause significant ground disturbance.

The Regulations specify the landforms and land categories that are areas of cultural heritage sensitivity. Areas of cultural heritage sensitivity are displayed in a series of maps available on AAV's website. The areas delineated on these maps however do not take account of the past history of land use and development that may have caused significant ground disturbance in localised areas.

How is significant ground disturbance defined?

'Significant ground disturbance' is defined in r.4 of the Regulations as meaning disturbance of –

(a) the topsoil or surface rock layer of the ground; or

(b) a waterway –
by machinery in the course of grading, excavating, digging, dredging or deep ripping, but does not include ploughing other than deep ripping.

The words 'disturbance', 'topsoil', 'surface rock layer', 'machinery', 'grading', 'excavating', 'digging', 'dredging', 'ploughing' (other than deep ripping) are not defined in the regulations and therefore have their ordinary meanings.

The Victorian Civil and Administrative Tribunal (VCAT) has determined that the words "topsoil or surface rock layer" include the former topsoil or former surface rock layer if that topsoil or surface rock layer is a naturally occurring surface level that is readily ascertainable and does not include the current topsoil or current surface rock layer if established by the mere filling of the land.

Ploughing (other than deep ripping) to any depth is not significant ground disturbance. Deep ripping is defined in the regulations to mean 'ploughing of soil using a ripper or subsoil cultivation tool to a depth of 60 centimetres or more'. None of the words used in this definition are defined, and therefore have their ordinary meanings. VCAT has determined that a ripper or subsoil cultivation tool must be distinguished from conventional ploughs or topsoil cultivation tools such as disc ploughs or rotary hoes which are not sufficient to show significant ground disturbance.

Deep ripping will result in significant ground disturbance regardless of the degree of disturbance caused to the topsoil or surface rock layer of the ground.

Who needs to provide proof that land has been subject to significant ground disturbance?

The burden of proving that an area has been subject to significant ground disturbance rests with the applicant for a statutory authorisation for the activity (or the sponsor of the activity). The responsible authority may assist by providing the applicant access to any relevant records it has about past land use and development.

How can a sponsor determine whether significant ground disturbance has occurred?

The responsible authority should require evidence of support for claims that there has been significant ground disturbance of an area. The levels of inquiry outlined below provide some guidance about what information should be required to satisfy a responsible authority (depending on the circumstances of each case) that significant ground disturbance has occurred. The levels of inquiry are listed in order of the level of detail that may be required. An assessment of whether significant ground disturbance has occurred should be dealt with at the lowest possible level in order to avoid unnecessary delay or cost to applicants.

Little weight should be given to mere assertions by applicants or land owners that an activity area has been subject to significant ground disturbance.

Level 1 – Common knowledge

The fact that land has been subject to significant ground disturbance may be common knowledge. Very little or no additional information should be required from the responsible authority.

For example, common knowledge about the redevelopment of a petrol station with extensive underground storage tanks.

Level 2 – Publicly available records

If the existence of significant ground disturbance is not common knowledge, a responsible authority may be able to provide assistance from its own records about prior development and use of land, or advise the applicant about other publicly available records, including aerial photographs.

These documents may allow a reasonable inference to be made that the land has been subject to significant ground disturbance. In such event, no further inquiries or information would be needed by the responsible authority. The particular records and facts relied upon should be noted by the responsible authority as a matter of record.

For example, a former quarry site subsequently filled, but where the public records show the area of past excavation.

Level 3 – Further information

If 'common knowledge' or 'publicly available records' do not provide sufficient information about the occurrence of significant ground disturbance, the applicant may need to present further evidence either voluntarily or following a formal request from the responsible authority. Further evidence could consist of land use history documents, old maps or photographs of the land or statements by former landowners or occupiers. Statements should be provided by statutory declaration or similar means.

For example, the construction of a former dam on a farm.

Level 4 – Expert advice or opinion

If these levels of inquiry do not provide sufficient evidence of significant ground disturbance (or as an alternative to level 3), the applicant may submit or be asked to submit a professional report with expert advice or opinion from a person with appropriate skills and experience. Depending on the circumstances, this may involve a site inspection and/or a review of primary documents. If there is sufficient uncertainty some preliminary sub-surface excavation or geotechnical investigation may be warranted.

An expert report should comply with VCAT's practice note on expert evidence.

The responsible authority must be reasonably satisfied that the standard of proof presented by the applicant shows that all of the land in question has been subject to significant ground disturbance.

A level 1 or 2 inquiry will commonly provide sufficient information as to whether or not the activity area has been subject to significant ground disturbance, and a level 3 or 4 inquiry should not be required as a matter of course.

There will be cases when the responsible authority is simply not persuaded or where there remains genuine doubt about significance ground disturbance regardless of the level of inquiry. In these circumstances the default position is that a Cultural Heritage Management Plan is required. This is in line with the purpose of the Act and Regulations to provide for the protection of Aboriginal cultural heritage in Victoria.

Who can provide expert advice about significant ground disturbance?

A person needs to have expertise to decide, based upon an inspection of the land or interpreting primary documents, whether the land has been subject to significant ground disturbance.

A cultural heritage advisor may not necessarily have this expertise. Under section 189 of the Act, an advisor must have a qualification directly relevant to the management of Aboriginal cultural heritage such as 'anthropology, archaeology or history' or have extensive experience or knowledge in relation to the management of heritage. An advisor appropriately qualified in archaeology may be able to assist where excavation is required to determine significant ground disturbance.

Other experts such as a land surveyor, geomorphologist or civil engineer could also have the necessary expertise (depending on the circumstances). For example, a civil engineer should have the qualifications and experience to determine the extent of previous engineering works along a watercourse or road, and therefore the extent of significant ground disturbance.

What is the role of the responsible authority?

The responsible authority determines whether a Cultural Heritage Management Plan is required for an activity. It may require the applicant to provide information to satisfy it that an area has been subject to significant ground disturbance.

Evaluating information relating to the occurrence of significant ground disturbance may be critical in deciding whether a Cultural Heritage Management Plan is required and therefore whether a statutory authorisation can be granted. This question should be resolved at an early stage in planning a proposed development. Applicants for statutory authorisations and the responsible authority should therefore seek to agree at an early stage about whether a Cultural Heritage Management Plan is required. In the event of a dispute this can be brought without delay to VCAT for resolution. The responsible authority should take care to document the steps taken in each case.

What if Aboriginal cultural heritage is discovered in an area determined to have been subject to significant ground disturbance?

It is possible that there are Aboriginal cultural heritage places, objects or human remains within areas determined to no longer be areas of cultural heritage sensitivity due to significant ground disturbance. It is also possible that Aboriginal cultural heritage could be harmed by activities which do not amount to high impact activities.

These Aboriginal places are still protected under the Act. In particular, it is an offence under sections 27 and 28 of the Act to harm Aboriginal cultural heritage unless acting in accordance with a Cultural Heritage Permit or approved Cultural Heritage Management Plan (regardless of whether a Plan was required).

** This Practice Note is based on VCAT's determination about significant ground disturbance. For further details see VCAT, Reference No. P1020/2008 – Mainstay Australia vs Mornington Peninsula SC and Reference No. P1204/2010 – Colquhouns & Ors vs Yarra SC.*

Appendix 5: Glossary

Items highlighted in ***bold italics*** in the definition are defined elsewhere in the glossary.

Acronym	Description
Aboriginal Cultural Heritage Likelihood	An area assessed by a Cultural Heritage Advisor as having potential for containing either surface or subsurface Aboriginal archaeological deposits. This term is used in this report to differentiate between *legislated* ***areas of cultural heritage sensitivity*** and areas considered by an archaeologist to be sensitive.
Aboriginal Place	An Aboriginal cultural heritage site registered on the ***VAHR***, cf. ***Aboriginal Site***.
Aboriginal Site	A location containing Aboriginal cultural heritage, e.g. ***Artefact scatter***, ***isolated artefact***, ***scarred tree***, ***shell midden***, whether or not the site is registered in the ***VAHR***, cf. ***Aboriginal Place***.
Angular Fragment	An artefact which has technologically diagnostic features but has no discernible ventral or dorsal surface and hence is unidentifiable as either a flake or a core
Area Of Cultural Heritage Sensitivity	An area specified as an area of cultural heritage sensitivity in Division 3 or Division 4 of Part 2 of the *Aboriginal Heritage Regulations 2007*.
Artefact Scatter	Stone artefact scatters consist of more than one stone artefact. Activities associated with this site type include stone tool production, hunting and gathering or domestic sites associated with campsites. Stone artefacts may be flakes of stone, cores (flakes are removed from the stone cores) or tools. Some scatters may also contain other material such as charcoal, bone, shell and ochre.
Assemblage	The name given to encompass the entire collection of artefacts recovered by archaeologists, invariably classified into diagnostic items used to describe the material culture.
Backed	When one margin of a flake is retouched at a steep angle, and that margin is opposite a sharp edge. The steep margin is formed by bi-polar or hammer and anvil knapping. Also used to describe artefacts with backing, e.g. Backed artefact.
Backed Artefact	A class of artefact employed by archaeologists to describe artefacts which are backed. Sometimes divided into elouera, bondi point, microlith and geometric.
Bipolar	A flaking technique where the object to be reduced is rested on an anvil and struck. This process is identified by flakes with platform angles close to 90 degrees as well as apparent initiation from both ends. Some crushing may also be visible.
Burials	Aboriginal communities strongly associate burial sites with a connection to country and are opposed to disturbance of burials or their associated sites. General considerations for the presence of burial sites are the suitability of Subsurface deposits for digging purposes; with soft soil and sand being the most likely. They are more likely near water courses or in dunes near old lake beds or near the coast. Burials are often located near other sites such as oven mounds, ***shell middens*** or ***artefact scatters***.
Chert	A cryptocrystalline siliceous sedimentary stone.
CHMP	**Cultural Heritage Management Plan**. A plan prepared under the *Aboriginal Heritage Act 2006*.
Core	An artefact which has technologically diagnostic features. Generally this class of artefact has only negative scars from flake removal, and thus no ventral surface, however, for the purposes of this research core has been employed to encompass those artefacts which were technically flakes but served the function of a core (ie. The provider of flakes).
Cortex	The weathered outer portion of a stone, often somewhat discoloured and coarser compared with the unweathered raw material.
Decortications	The process of removing cortex from a stone (generally by flaking).

Acronym	Description
Deep Ripping	The ploughing of soil using a ripper or subsoil cultivation tool to a depth of 60 cm or more (see ***significant ground disturbance***).
DEPI	**Department of Environment and Primary Industries.** The Victorian State Government department responsible for management of natural heritage in Victoria.
DoE	**Department of the Environment**. The Commonwealth Government department responsible for management of heritage sites on the World, National or Commonwealth Heritage lists.
DPC	**Department of the Premier and Cabinet**. The Victorian State Government department, of which ***AV*** is a part, responsible for management of Aboriginal cultural heritage in Victoria.
DTPLI	**Department of Transport, Planning and Local Infrastructure**. The Victorian State Government department, of which **HV** is a part, responsible for management of historical heritage in Victoria.
EPBC Act	**Environment Protection and Biodiversity Conservation Act 1999** (Commonwealth)
Fabric (Heritage)	Any physical element, feature, material or finish that is associated with the heritage values in all or part of a structure, place, object, feature or site. The original heritage fabric is any such physical element that was an integral part of the original heritage site.
Feature (Archaeological)	A collection of one or more contexts representing some human non-portable activity that generally has a vertical characteristic to it in relation to site stratigraphy.
Flake	An artefact which has technologically diagnostic features and a ventral surface.
High Impact Activity	An activity specified as a high impact activity in Division 5 of Part 2 of the *Aboriginal Heritage Regulations 2007*.
Heritage Place	A *registered* historical site listed on a heritage planning instrument that affords statutory protection to the site.
Heritage Values	The values of a heritage site that relate to its historical, social, cultural, spiritual, architectural, archaeological or technological significance.
Historical Heritage Likelihood	An area assessed by a Heritage Advisor as having potential for containing either surface or subsurface historical archaeological deposits or fabric.
Historical Site	An historical site, whether or not recorded in the ***VHR***, ***VHI*** or other historical site database (cf. ***Heritage Place***).
HHA	**Historical Heritage Assessment**. An assessment of the historical heritage values of a defined study area by a qualified heritage consultant.
HO	**Heritage Overlay**. A list of Heritage Places of local significance with statutory protection under a local government planning scheme.
HV	**Heritage Victoria**. A division of ***DTPLI*** responsible for management of historical heritage in Victoria.
Isolated Finds Or Artefacts	Isolated finds refer to a single artefact. These artefacts may have been dropped or discarded by its owner once it was of no use. This site type can also be indicative of further subsurface archaeological deposits. These site types can be found anywhere within the landscape, however, they are more likely to occur within contexts with the same favourable characteristics for stone artefact scatter sites.
LDAD	**Low Density Artefact Distribution**. A category of ***Aboriginal Place*** type in the ***VAHR*** comprising single stone artefacts and/or distributions of multiple stone artefacts at concentrations of less than 10 artefacts in a 10 x 10 m area.
Manuport	An object which has been carried by humans to the site.

Acronym	Description
MPA	**Metropolitan Planning Authority**. Agency responsible for planning and coordinating infrastructure development in Melbourne's growth areas: Casey, Cardinia, Hume, Melton, Mitchell, Whittlesea and Wyndham.
NHL	**National Heritage List**. A register of heritage places, under the EPBC Act, of heritage places of national significance.
AV	**Aboriginal Victoria**. A division of ***DPC*** responsible for management of Aboriginal cultural heritage in Victoria. (previously known as the Office of Aboriginal Affairs Victoria, or AV)
Oriented Length	Dimension measured according to the following criteria: The length of the flake from the platform, at 90˚ to force indicators such as ring-crack, bulb of percussion, force ripples and striations, to the opposing end. Where there were an insufficient number of features present to take this measurement, such as when the flake was broken, this variable was not recorded (sometimes referred to as percussion length).
Oriented Thickness	Dimension measured at 90˚and bisecting the oriented width dimension. This was done from the ventral surface to the dorsal surface (sometimes referred to as percussion thickness).
Oriented Width	Dimension measured at 90˚ and bisecting the oriented length dimension. This was done from one margin to the other. As this measurement and oriented thickness, both rely on oriented length, these were not recorded where the oriented length was not recorded (sometimes referred to as percussion width).
Procurement	The process of obtaining raw material for reduction.
PSP	**Precinct Structure Plan**. A master plan to guide development in a specified section of one of Melbourne's growth areas (cf. ***MPA***).
Quarries	Stone quarries were used to procure the raw material for making stone tools. Quarries are rocky outcrops that usually have evidence of scars from flaking, crushing and battering the rock. There may be identifiable artefacts near or within the site such as unfinished tools, hammer stones, anvils and grinding stones.
Quartz	A crystalline form of silica.
RAP	**Registered Aboriginal Party**. An Aboriginal organisation with responsibilities relating to the management of Aboriginal cultural heritage for a specified area of Victoria under the *Aboriginal Heritage Act 2006*.
Raw Material	The kind of stone the artefacts were manufactured from.
Reduction	The process of removing stone flakes from another piece of stone. Generally this is performed by striking (hard hammer percussion) one rock with another to remove a flake.
Registered Cultural Heritage Place	An Aboriginal site recorded in the ***VAHR***, cf. ***Aboriginal site***.
Retouch	Retouch is when a ***flake*** is removed after the manufacture of the original flake. This sequence can be observed when a flake scar is present and encroaches over the ventral surface and thus must have been made after the initial flake removal. Recorded whether retouch was absent or present on the artefact.
RNE	**Register of the National Estate**. A commonwealth-managed register of heritage assets; as of 2012 the RNE no longer provides statutory protection to heritage places.
Rock Shelter	A concave area in a cliff where the cliff overhangs; or a concave area in a tor where the tor overhangs; or a shallow cave, where the height of the concave area is generally greater than its depth.

Acronym	Description
Scarred Trees	It is known that the wood and bark of trees have been used for a variety of purposes, such as carrying implements, shield or canoes. The removal of this raw material from a tree produces a 'scar'. The identification of a scar associated with aboriginal custom as opposed to natural scarring can be difficult. The scar should be of a certain size and shape to be identifiable with its product; the tree should also be mature in age, from a time that aboriginal people were still active in the area.
Significant Ground Disturbance	Disturbance of topsoil or surface rock layer of the ground or a waterway by machinery in the course of grading, excavating, digging, dredging or ***deep ripping***, but does not include ploughing other than ***deep ripping***.
Silcrete	A silicified sedimentary stone, often with fine inclusions or grains in a cryptocrystalline matrix. Because of the nature of the grains in silcrete (a hindrance in knapping/flaking predictability) the stone is sometimes heat treated. This exposure to heat can be identified by the presence of pot-lidding as well as a 'lustre' to the stone which is otherwise absent in the stones' natural state. Exposure to sufficient heat homogenises the stone matrix and improves the knapping (flake path) predictive potential (Crabtree & Butler 1964; Mandeville and Flenniken 1974; Purdy 1974; Domanski and Webb 1992; Hiscock 1993; Domanski *et al*. 1994). Similar to indurated mudstone, it has also been demonstrated that silcrete from the hunter valley often turns a red colour after being exposed to heat (Rowney 1992; Mercieca 2000).
Stone Arrangements	Stone arrangements are places where Aboriginal people have deliberately positioned stones to form shapes or patterns. They are often known to have ceremonial significance. They can be found where there are many boulders, such as volcanic areas and are often large in size, measuring over five metres in width.
Taphonomy	The study of the processes (both natural and cultural) which affect the deposition and preservation of both the artefacts and the site itself.
Technology	A form of artefact analysis which is based upon the knapping/ manufacturing process, commonly used to subsequently infer behaviour patterns, cultural-selection and responses to raw material or the environment.
Thumbnail scraper	A conceptual class of artefact employed to describe small rounded retouched flakes with steep margins (based on the classification by Mulvaney and Kamminga 1999).
VAHR	**Victorian Aboriginal Heritage Register**. A register of Aboriginal cultural heritage places maintained by ***AV***.
VHI	**Victorian Heritage Inventory**. A register of places and objects in Victoria identified as historical archaeological sites, areas or relics, and all private collections of artefacts, maintained by ***HV***. Sites listed on the VHI are not of State significance but are usually of regional or local significance. Listing on the ***VHR*** provides statutory protection for that a site, except in the case where a site has been "D-listed".
VHR	**Victorian Heritage Register**. A register of the State's most significant heritage places and objects, maintained by ***HV***. Listing on the VHR provides statutory protection for that a site.
WHL	**World Heritage List**. A register of heritage places, under the EPBC Act, of heritage places of international significance.

REFERENCES

Australia International Council of Monuments and Sites (ICOMOS), 2013a. The Burra Charter. The Australia ICOMOS Charter for Places of Cultural Significance. Australia ICOMOS.

Australia ICOMOS 2013b. The Burra Charter and Archaeological Practice. http://australia.icomos.org/wp-content/uploads/Practice-Note_The-Burra-Charter-and-Archaeological-Practice.pdf.

Barker, M. 2014a. 189-191 Jetty Road, Rosebud, Proposed 10 Unit Residental Development: CHMP 13029. Unpublished report submitted to Davill Projects Pty Ltd by Benchmark Heritage Management

Barker, M. 2014b. 208 Jetty Road, Rosebud, Proposed 7 Unit Residential Development: CHMP 12940. Unpublished report submitted to Rubyco Constructions by Benchmark Heritage Management

Barker, M. 2014c. 47A Fairway Grove, Rosebud, Proposed 2 Unit Development: CHMP 12941. Unpublished report submitted to Rubyco Constructions by Benchmark Heritage Management

Barwick, D., 1984. Mapping the past: An atlas of Victorian Clans 1835-1904, *Aboriginal History* **8**(2): 100-132.

Bowdler, S., 1981. Unconsidered trifles? Cultural resource management, environmental impact statements and archaeological research in New South Wales. *Australian Archaeology* **12**: 123-133.

Bowdler, S., 1984. Archaeological significance as a mutable quality. In S. Sullivan and S. Bowdler (eds.) *Site Surveys and Significance Assessment in Australian Archaeology: Proceedings of the 1981 Springwood Conference on Australian Prehistory*, pp. 1-9. Department of Prehistory, Research School of Pacific Studies, ANU, Canberra.

Brooke, J. and Collins, S. 2015. Residential Development, 461-469 Waterfall Gully Road, Rosebud: CHMP 13709. Report submitted to Danlavin Pty Ltd by Ochre Imprints

Brown, S., 2008. Mute or Mutable? Archaeological Significance, Research and Cultural Heritage Management in Australia. *Australian Archaeology* **67**: 19-30.

Bureau of Meteorology (BOM), 2016. http://www.bom.gov.au. Accessed 27 June 2016.

Burke, H. and Smith, C., 2004. *The Archaeologists Field Handbook*, Allen & Unwin, Crows Nest, New South Wales.

Byrne, D., Brayshaw H. and Ireland, T., 2001. *Social Significance: a discussion paper.* National Parks and Wildlife Services NSW, Research Unit, Cultural Heritage Division, Hurstville.

Clark, I. D. 1990. *Aboriginal languages and Clans: An Historical Atlas of Western and Central Victoria, 1800-1900, Number 37*. Department of Geography and Environmental Science, Monash University, Melbourne, Victoria.

Crabtree, D. E. and Butler, B. R., 1964. Notes on experiments in flint knapping: 1. Heat treatment of silica minerals. *Tebiwa* **7**: 1–6.

Department of Economic Development, Jobs, Transport and Resources (DEDJTR), 2016. *Geomorphological Framework*. vro.depi.vic.gov.au/dpi/vro/vrosite.nsf/pages/landform_geomorphological_framework, accessed 4 August 2016.

Department of Environment, Land, Water and Planning (DELWP), 2016a. *Biodiversity Interactive Map*. http://mapshare2.dse.vic.gov.au /MapShare2EXT/imf.jsp?site=bim, accessed 4 August 2016.

DELWP, 2016b. *Environmental Vegetation Classes*. http://www.depi.vic.gov.au/environment-and-wildlife/biodiversity/evc-benchmarks, accessed 4 August 2016.

DELWP, 2016c. *Planning Schemes*. http://www.dse.vic.gov.au/planningschemes, accessed 4 August 2016.

Dodson J.R., Fullagar, R. and Head, H., 1988. *The Naive Lands*. Longman-Cheshire, Melbourne.

Domanski, M., Webb, J. A. and Boland, J., 1994. Mechanical properties of stone artefact materials and the effect of heat treatment. *Archaeometry* 36: 177–208.

Domanski, M. and Webb, J. A., 1992. Effect of heat treatment on siliceous rocks used in prehistoric lithic technology. *Journal of Archaeological Science* 19: 601–614.

DSE, 2004a. *EVC/Bioregion Benchmark for Vegetation Quality Assessment: Gippsland Plain Bioregion: EVC 74: Wetland Formation*. Department of Sustainability and Environment, Melbourne, Victoria

DSE, 2004b. *EVC/Bioregion Benchmark for Vegetation Quality Assessment: Gippsland Plain Bioregion: EVC 53: Swamp Scrub*. Department of Sustainability and Environment, Melbourne, Victoria

DSE, 2004c. *EVC/Bioregion Benchmark for Vegetation Quality Assessment: Gippsland Plain Bioregion: EVC 2" Coast Banksia Woodland.* Department of Sustainability and Environment, Melbourne, Victoria

DSE, 2004d. *EVC/Bioregion Benchmark for Vegetation Quality Assessment: Gippsland Plain Bioregion: EVC 68: Swampy Riparian Woodland*. Department of Sustainability and Environment, Melbourne, Victoria

Dugay-Grist, L., Cowled, A. and Mather, M. 2012. 206 Jetty Road, Rosebud: 5 Unit Development: CHMP 12002. Unpublished report submitted to Neil Calvi by Grist Archaeology

Ellender, I. 2002. The Yowenjerre of South Gippsland: Traditional Groups, Social Boundaries and Land Succession *The Artefact* 25(1): 9-18.

Flood, J., 1980. *The Moth Hunters: Aboriginal prehistory of the Australian Alps*. Australian Institute of Aboriginal Studies, Canberra.

Flood, J., 1995. *Archaeology of the Dreamtime*. Angus & Robertson. Sydney, New South Wales.

Ford, A. and Loizou, R. 2010. Peninsula Manor Retirement Village, 1 Bayview Avenue, Rosebud, Victoria: CHMP 11211. Unpublished report submitted to Huon Health Care Pty Ltd by ERM.

Gammage, B., 2011. *The Biggest Estate on Earth: How Aborigines made Australia.* Allen and Unwin, Sydney.

Gaughwin, D. 1981. Sites of Archaeological Significance in the Western Port Catchment. Unpublished report to the Environmental Studies Division, Ministry for Conservation, Victoria by the Division of Prehistory, Latrobe University.

Gaughwin, D. and Sullivan, H. 1984. Aboriginal boundaries and movements in Western Port, Victoria. *Aboriginal History*, 8: 80-99.

Gell, P. A., Stuart, I-M. and Smith, J. D., 1993. The response of vegetation to changing fire regimes and human activity in East Gippsland, Victoria, Australia. *The Holocene* 3(2): 150-160.

Gott, B., 2005. Aboriginal Fire Management in South-Eastern Australia: Aims and Frequency. *Journal of Biogeography* 32: 1203-1208.

Gott, B. and Conran, J., 1991. *Victorian Koorie Plants: some plants used by Victorian Koories for food, fibre, medicines and implements*. Aboriginal Keeping Place, Hamilton.

Hewitt, G. and Allen, J., 2010. Site disturbance and archaeological integrity: The case of Bend Road, an open site in Melbourne spanning pre-LGM Pleistocene to late Holocene periods. *Australian Archaeology* 70: 1-16.

Hiscock, P., 1993. Bondaian technology in the Hunter Valley, New South Wales, *Archaeology in Oceania* 28: 65–76.

Hobbs, J., Petkov, J., Kiddell, H. and Smith, L. 2009.Residential Multi-Unit Development, 232 Jetty Road, Rosebud: CHMP 10864. Unpublished report submitted to HAS Nominees Pty Ltd by Dr Vincent Clark & Associates

Holdaway, S. and Stern, N., 2004. *A Record in Stone: The Study of Australia's Flaked Stone Artefacts.* Museum Victoria and Aboriginal Studies. Melbourne, Victoria.

Hollinshed, C. N. and Bird, E. C. F., 1930- & Goss, Noel, Flinders (Vic: Shire) Council 1982, *Lime Land Leisure: Peninsular history in the Shire of Flinders,* Shire of Flinders, Rosebud, Vic

Howitt, A.W., 2001. *The Native Tribes of South-East Australia*. Aboriginal Studies Press, Canberra, Australian Capital Territory.

Joyce, E. B., 2003. *Western Volcanic Plains.* CRC LEME, School of Earth Sciences, University of Melbourne.

Kershaw, A.P., D'Costa, D.M., McEwan, Mason J.R.C. and Wagstaff, B.E., 1991. Palynological evidence for Quaternary vegetation and environments of mainland southeastern Australia. *Quaternary Science Reviews* 10: 391-404.

Lambeck, K. and Chappell, J., 2001. Sea Level Change Through the Last Glacial Cycle. *Science* 292: 679-686.

Lourandos, H. 1997. *Continent of Hunter Gatherers: New Perspectives in Australian Prehistory.* Cambridge University Press, Cambridge.

Mandeville, M. D. and Flenniken, J. J. 1974. A comparison of the flaking qualities of Nehawka chert before and after thermal pretreatment. *Plains Anthropologist* 19: 146–148.

Markgraf V., J.R. Dodson, A.P. Kershaw, M. S. McGlone and Nichols, N.. 1992. Evolution of late Pleistocene and Holocene climates in the circum-south Pacific land areas. *Climate Dynamics* 6: 193-211.

Marshall, B. & Schell, P. 1998. Coast Action/Coast Care 1998/99 Aboriginal Archaeological Desktop Study, Victoria. Unpublished report prepared for DNRE Coast Division by Austral Heritage Consultants, Coburg, Victoria.

Massola, A., 1959. History of the Coast Tribe. *Victoria Naturalist* 76(7): 180-183.

McAlister, R. 2014. Proposed residential development at 8 William Hunter Court, Rosebud: CHMP 13153. Unpublished report submitted to Ryan Camilleri by Heritage Insight Pty Ltd

McAndrew, J. and Marsden, M. A. H., 1973. *Regional Guide to Victorian Geology.* School of Geology, University of Melbourne, Melbourne.

Mercieca, A., 2000. Burnt and broken: an experimental study of heat fracturing in silcrete. *Australian Archaeology* 51: 40–47.

Mills, K., Gell, P., Hesse, P., Jones, R., Kershaw, P., Drysdale, R. and McDonald, J., 2013. Paleoclimate studies and natural-resource management in the Murray-Darling Basin I: past, present and future climates. *Australian Journal of Earth Sciences* (2013): 1-14.

Mitchell, J. and Loizou, R. 2009. Residential Subdivision at 230 Jetty Road, Rosebud: CHMP 10894. Unpublished report submitted to Teresa Chala by Alpha Archaeology

Mulvaney, J. and Kamminga, J., 1999. *The Prehistory of Australia*. Allen and Unwin. Sydney, New South Wales.

Nash, D., 2004. *Aboriginal Plant Use in south-eastern Australia*. Australian National Botanic Gardens, Canberra.

Pearson, M. and Sullivan, S., 1995. *Looking after heritage places: The basics of heritage planning for managers, landowners and administrators.* Melbourne University Press, Melbourne.

Peatey, R. 2004. *Setting the spirit free: the pioneers of the southern Mornington Peninsula*. Rosebud: R. Peatey Publishing.

Pickett, E. J., Harrison, S.P., Hope, G., Harle, K., Dodson, J.R., Kershaw, A.P., Prentice, I.C., Backhouse, J., Colhoun, E.A., D'Costa, D., Flenley, J., Grindrod, J., Haberle, S., Hassell, C., Kenyon, C., Macphail, M., Martin, H., Martin, A.H., McKenzie, M., Newsome, J.C., Penny, D., Powell, J., Raine, J.I., Southern, W., Stevenson, J., Sutra, J-P., Thomas, I., van der Kaars, S., and Ward, J., 2004. Pollen-based reconstructions of biome distributions for Australia, Southeast Asia and the Pacific (SEAPAC region) at 0, 6000 and 18,000 ^{14}C yr BP. *Journal of Biogeography* 31: 1381-1444.

Presland, G., 2008. *The place for a village. How nature has shaped the City of Melbourne.* Melbourne, Victoria: Museum Victoria.

Presland, G., 2010. *First People: The Eastern Kulin of Melbourne, Port Phillip and Central Victoria*. Museum Victoria, Melbourne, Victoria.

Purdy, B.A., 1974. Investigations concerning the thermal alteration of silica minerals: an archaeological approach. *Tebiwa* 17: 37–66.

Rhodes, D. 2003. Victorian Channel Deepening Project EES: Aboriginal Cultural Heritage. Existing Conditions Report. Unpublished report to Parsons Brinckerhoff and POMC by TerraCulture Pty Ltd.

Rowney, M., 1992. Heat treatment on the rocks: A study of heat treatment detection methods. Unpublished B.A. (Hons) thesis, Department of Prehistoric and Historical Archaeology. University of Sydney, Sydney, New South Wales.

Smyth R. Brough. 1876 (1972). *The Aborigines of Victoria and other parts of Australia*. John Ferris, Government Printer, Melbourne, Victoria.

Spreadborough, R. and Anderson, H., 1983. *Victorian Squatters*. Red Rooster Press, Ascot Vale, Vic.

Sullivan, S., 2012. Aboriginal Sites and ICOMOS Guidelines. In S. Sullivan and R. Mackay *Archaeological Sites: Conservation and Management,* pp. 256-7. Original from *Historic Environment* **3**(1): 29-30.

Thom, B., Hesp, B. and Bryant, E., 1994. Last glacial 'coastal' dunes in Eastern Australia and implications for landscape stability during the Last Glacial Maximum. *Palaeogeography, Palaeoclimatology, Palaeoecology* **111**: 229-248.

Zola, N. and Gott, B., 1992. *Koorie Plants, Koorie People: traditional Aboriginal food, fibre and healing plants of Victoria*. Koorie Heritage Trust, Melbourne.