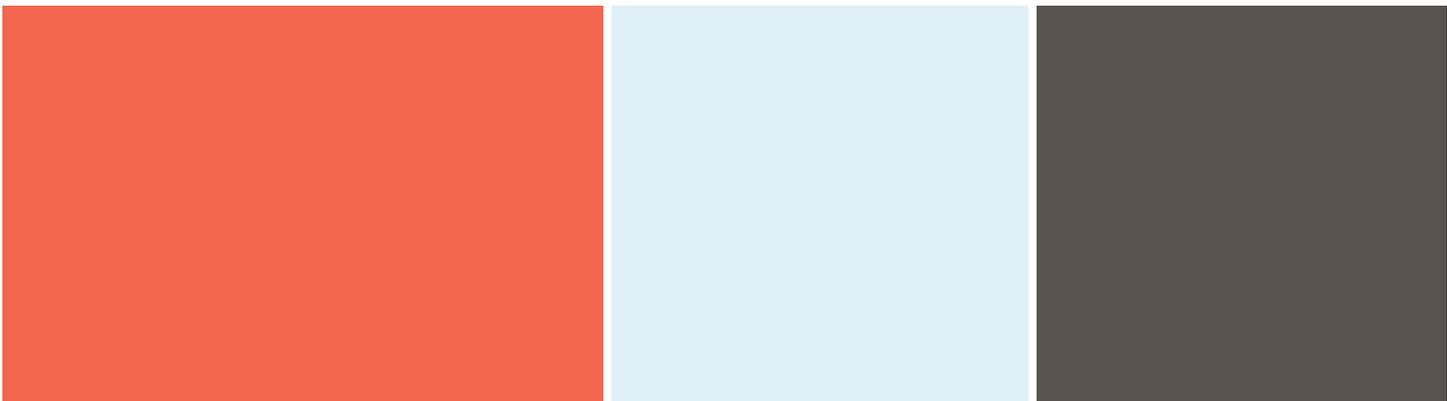


Appendix F

Cultural and Heritage Assessment
Biosis Research



Introduction

Background to Appendices

The rail link to Avalon Airport is part of the Victorian Government's commitment to plan for securing future transport links, and supporting the development of Avalon as Victoria's second international airport and its current role as Victoria's second domestic airport.

Planning for the rail link to date has involved extensive stakeholder and community consultation, and a range of technical, environmental, social and economic investigations to understand the most suitable area for a rail link that best supports the longer term planning needs of the area.

Specialist investigations helped understand the opportunities and constraints of the area between Corio and Werribee, areas outside the Lara to Little River area were investigated to ensure that all potential areas for locating a rail corridor have been considered. The assessment process showed that the study area between Lara and Little River best supports the longer term planning needs of the area.

The findings of these investigations are documented in the Phase One Investigations Report. The following technical appendix should be read in conjunction with the Phase One Investigations Report, which brings together the findings of all the individual specialist consultants' reports and makes recommendations regarding the preferred investigation area.

Special Notes

1. The technical project investigations were undertaken and reports prepared during financial year 2011–2012 and therefore do not reflect further Government financial commitments of \$2.1 million for planning and business case development as announced in the 2012–2013 budget.
2. At the time the technical project investigations were undertaken the usage of Avalon Airport has varied with passenger numbers ranging from between 600,000 and one million per year. The reports quote passenger numbers within this range.



Avalon Rail Link Project, Cultural Heritage Phase One Evaluation Report

March 2012

Project no. 13881

CHMP No	11897
Completed	30/3/2012
Heritage Advisor	Gary Vines
Sponsor	Department of Transport

Report to Department of Transport

Avalon Rail Link Project, Cultural Heritage Phase One Evaluation Report

prepared by

Gary Vines

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CHMP No	11897
Completed	30/3/2012
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File name: Cultural Heritage evaluation DFT4.docx

Document Information:		
Version/date	Internal review by	Date sent to client
Draft 1		25/1/12
Draft 2		16/3/12
Final		30/3/12

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Acknowledgments

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Steven Flack, Delta Freeman	Biosis Research Pty. Ltd.

Abbreviations

AAV	Aboriginal Affairs Victoria (Heritage Services Branch)
AHC	Australian Heritage Commission
AMG	Australian Map Grid
BP	Before Present
CHMP	Cultural Heritage Management Plan
CHP	Cultural Heritage Permit
DCNR	Department of Conservation and Natural Resources (now DNRE)
DNRE	Department of Natural Resources and Environment
DSE	Department of Sustainability and Environment (formerly DNRE)
DOI	Department of Infrastructure
DVC	Department for Planning and Community Development
HV	Heritage Victoria (DSE)
ICOMOS	International Council on Monuments and Sites
LCC	Land Conservation Council
RAP	Registered Aboriginal Party
RNE	Register of the National Estate
VAHR	Victorian Aboriginal Heritage Register (maintained by AAV)
VAS	Victoria Archaeological Survey (now part of AAV and Heritage Victoria)

EXECUTIVE SUMMARY

Biosis Research Pty. Ltd. was commissioned by the Department of Transport to undertake an evaluation of potential investigation areas for a transport link to Avalon Airport in Victoria. The aim of this assessment is to examine the cultural heritage of the study area and to provide a risk assessment and recommendations to assist the Department of Transport to meet any implications for the project arising from any applicable Commonwealth, State or Local Government cultural heritage legislation.

A review of background data has demonstrated that Aboriginal and historical archaeological sites exist within the study area. Additionally, the study area has been assessed as having high potential for the presence of as yet unrecorded archaeological sites.

While the Aboriginal Heritage Act defines cultural heritage sensitivity for the purpose of determining the statutory trigger for a mandatory Cultural Heritage Management Plan (CHMP), more refined archaeological sensitivity mapping has been undertaken in order to assess the potential impacts of various transport corridor investigation areas on cultural heritage values.

A CHMP will be carried out for the project once it has been determined where the rail connection will be constructed.

The significance of the cultural heritage places both recorded and predicted within the study area is considered relatively low, and opportunities exist to avoid, minimise or mitigate any impacts to cultural heritage through corridor selection, detailed design, salvage and management strategies.

Summary of evaluation

Evaluation of the investigation areas shows that overall the investigation area B would have a lesser impact on Aboriginal cultural heritage than Areas A and C, primarily due to the greater length and requirement for a crossing of a major waterway for the latter two investigation areas. Cultural heritage sensitivity mapping has shown that there is a very high potential for significant Aboriginal cultural heritage close to major waterways and reliable water sources (such as Hovells Creek and Little River) while there is a general potential for Aboriginal cultural heritage throughout the investigation areas. Therefore, along with the requirement for crossings of these waterways, the greater the length of any linear project such as a rail line, the greater its potential impact on cultural heritage.

As Area B does not require a crossing of Little River or Hovells Creek, where the greatest number of Aboriginal sites and largest and most significant sites has been shown to be located it is considered to better satisfy the project objective of avoiding and minimising cultural heritage impacts.

Under the Aboriginal Heritage Act 2006 and Aboriginal Heritage Regulations 2007, a Cultural Heritage Management Plan may be mandatory for the project, depending on the final alignment chosen.

Overall Area A is considered to have at least three times the impact on cultural heritage than Area B, and Area C would have about twice the impact of Area B.

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1.0 INTRODUCTION

1.1 Project Background

The State Government has committed \$3 million over two years to enable the planning and development of a rail link to Avalon Airport. This will support the future development of Avalon Airport as Victoria's second international airport and its current role as Victoria's second domestic airport.

The Department of Transport is undertaking a planning study to investigate potential options for a rail corridor to Avalon Airport to allow a direct connection with Melbourne and Geelong. The planning study involves investigations into the technical, environmental, economic and social implications of the proposed rail link.

1.1.1 Study area

The study team initially focused on the area between Little River, Lara and the airport as a possible location for the new rail link to connect the Geelong line with Avalon Airport. However, following consultation and feedback from stakeholders and community members in late 2011 the Department of Transport has expanded its area of investigation. As a direct response to the community input three broad "investigation areas" have been identified, as follows:

- Area A – area between Werribee and Little River
- Area B – area between Little River and Lara
- Area C – area connecting the airport with Corio and running south of Lara;

The three investigation areas are shown in figure 1 below.

The Department of Transport is currently undertaking an assessment of the suitability of each area in conjunction with a range of consultants and experts. These specialists have been engaged to provide support to the project in a number of specialist areas including engineering, cost, transport operational, land use, environment and social considerations.

The purpose of this report is to support the Avalon Airport Rail Link project investigations by comparing the three investigation areas specifically in relation to cultural heritage.

1.1.2 Authorship

Gary Vines managed the project and wrote the report. Delta Freeman undertook additional background research and assisted with production of the report. Steven Flack compiled all the figures.

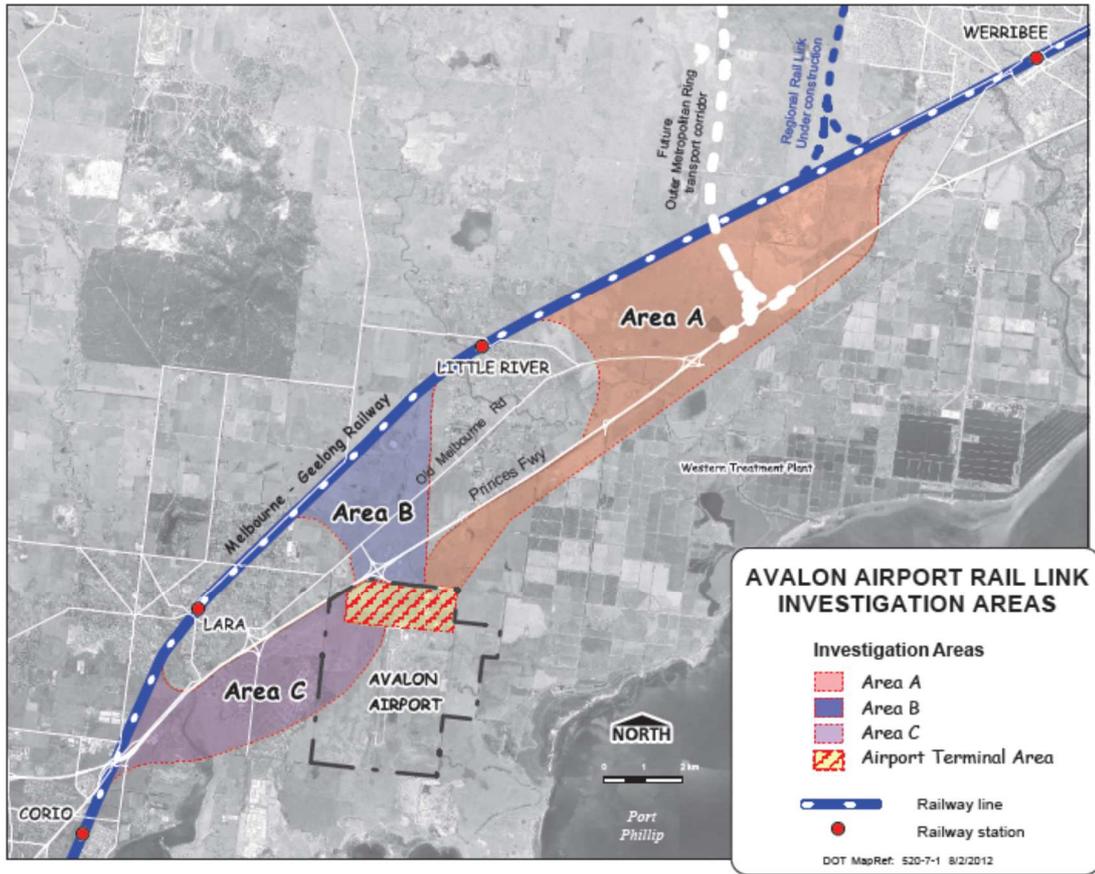


Figure 1: Investigation areas

1.1.3 Rail Layout

It would be possible to develop a number of rail alignments in each of the investigation areas. Any rail alignment, whether they be in Area A, Area B or Area C, would have the same basic layout or configuration. All rail corridor options will be configured to create a new rail link between the Geelong rail line and Avalon Airport allowing trains to operate to the airport from both Melbourne and Geelong. The airport rail link layout is shown diagrammatically below in Figure 2 below.

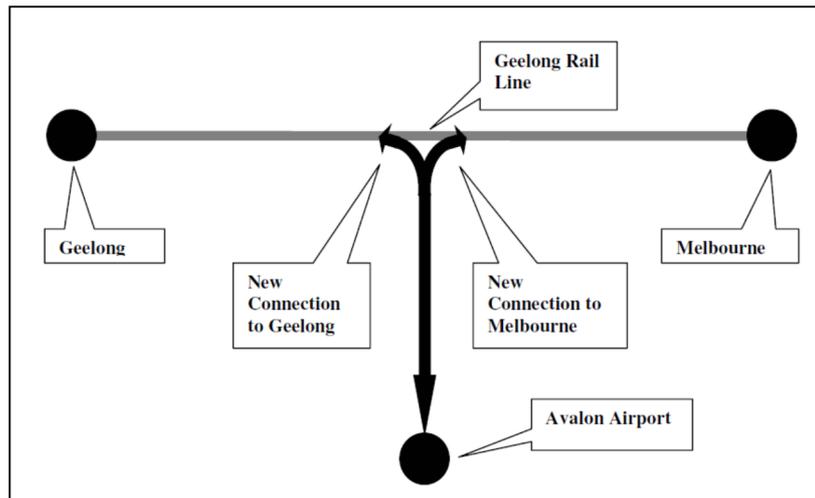


Figure 2: “Direct Route” layout

The purpose of this report is to compare Area A, Area B and Area C from a cultural heritage, perspective for their suitability for development of a new airport rail link.

The Department of Transport is preparing a Phase 1 planning report which brings together the findings all the individual specialist consultant’s reports and makes recommendations regarding the preferred investigation area. The Department of Transport’s planning report should be read in conjunction with this report.

1.1.4 Consultation

Before undertaking archaeological surveys for heritage places there is a statutory requirement to notify the Heritage Service Branch of Aboriginal Affairs Victoria and Heritage Victoria – the State government agencies responsible for Aboriginal and non-Aboriginal heritage places respectively – and to consult with the relevant Aboriginal community. If the survey covers crown land, it may also be necessary to contact the Department of Sustainability and Environment (DSE).

Under the Aboriginal Heritage Regulations 2007, the relevant Registered Aboriginal Party (RAP) for the study area must be consulted in regards to the project, and any future cultural heritage works must involve the RAP. The RAP for this area is the Wathaurung Aboriginal Corporation.

2.0 ENVIRONMENTAL BACKGROUND

This section provides a brief overview of the natural environment, including geology/geomorphology, vegetation, fauna, climate, and land use history. The information provided focuses on factors of the natural environment that are relevant to past human behaviour and archaeological site formation processes.

The environmental and historic background to the study area has previously been described in a separate desktop study by Tardis Archaeology (Murphy & Morris 2011). The current study has reviewed this material and addressed matters pertinent to the assessment of cultural values and potential impacts from the proposed transport link.

2.1 Geology and Landforms

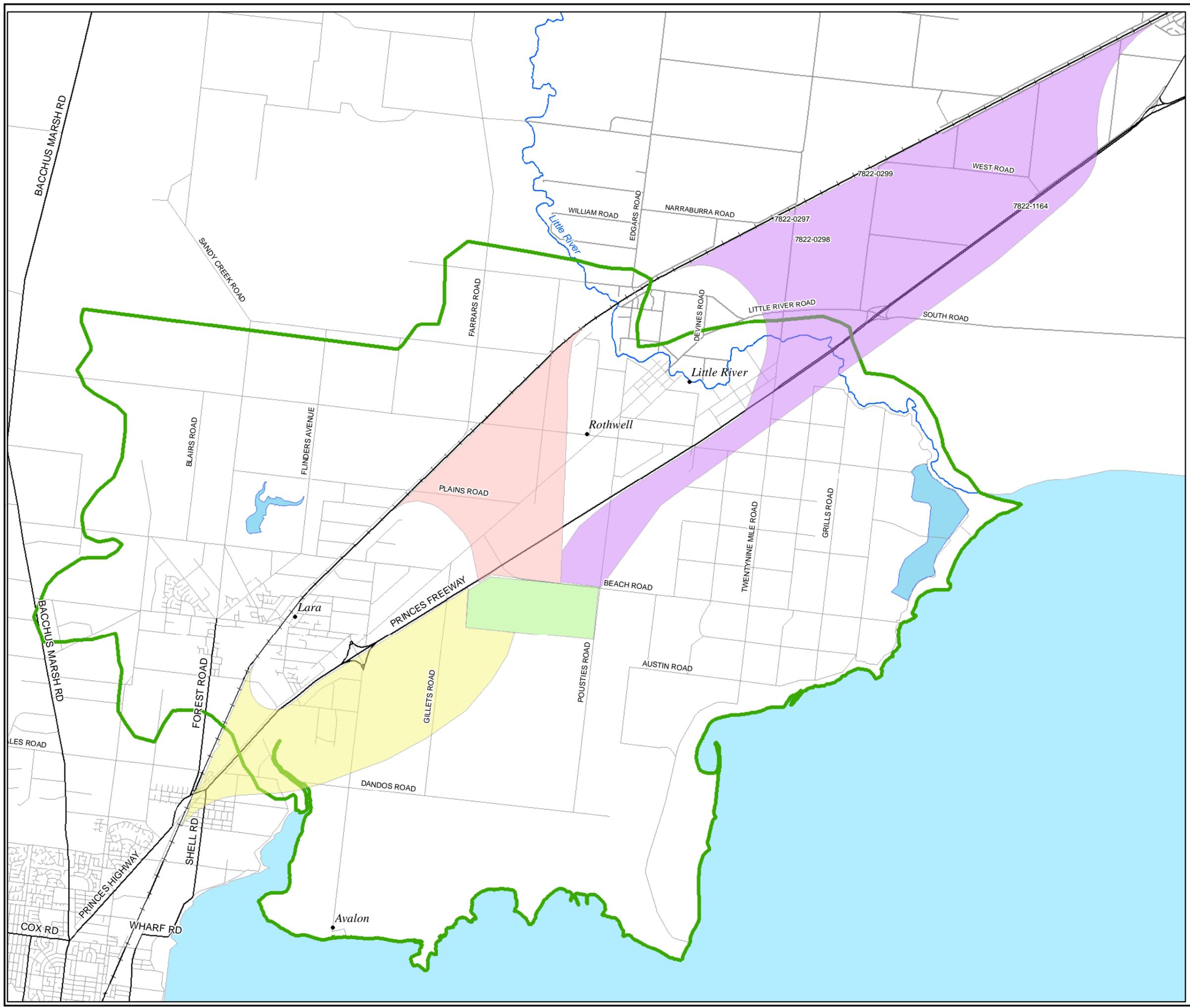
The study area is located at the southern edge of the Werribee Plains, which is an area of flat basalt plain (formed by the Newer Volcanics) that slopes from a general elevation of about 430 metres in the north to sea level (Cochrane et al 1995: 80; LCC 1985: 29). The Newer Volcanics were laid down between 2.5 and 5 million years ago. Rising sea levels at the end of the Pleistocene, around 10,000 years ago, formed Port Phillip Bay and the southern end of the Werribee Plain became a coastal environment. Present sea levels were established approximately 6,000 years ago, but a rise in sea levels around 4,000 years ago raised the sea level approximately 2 metres higher than at present (Rhodes 1994: 3). All the investigation areas are predominantly within this landform.

The southern uplands of the nearby Brisbane Ranges were formed by block faulting in the pre-Tertiary rocks, probably as a result of upward movements in the Tertiary Period (LCC 1985: 28). Tertiary sediments are only significantly exposed in the valleys of the Little River and Hovells Creek (Spencer-Jones 1973:53), where they would be encountered in Investigation areas A and C respectively.

Within Hovells Creek there are also outcrops of Pleistocene sedimentary deposits made up of limestone associated with sand and gravel (Spencer-Jones 1973:53). Swamp and lake deposits occur in some of the larger depressions, along with a band of alluvium associated with Little River flooding, and colluvium presenting as probably sheet wash from sediments eroded from the You Yangs. Water drains off the You Yangs after heavy rainfalls and fills the ephemeral lakes and swamps (Downes n.d.: D-1) such as the Serendip Lake, a former watercourse (Manton 1965: 19).

Stone material suitable for the manufacture of stone artefacts can be found in the area. Quartz, has been found as river pebbles in Little River, to the east, and in veins running through outcrops of ancient granites in the You Yangs approximately 5 kilometres to the north (van Waarden 1986).

While much of the study area is a relatively flat plain, there is a prominent series of undulating ridges running north south and rising about 10 m above the plain which provide good vantage points. While these do not show up on contours of broad scale mapping the 1860s geological survey identified both the linear ridge, and stony rises north of the present Avalon Airfield, as the main prominent features in the area.



Legend

Study Area

Investigation Areas

- Airport Station
- Area A
- Area B
- Area C
- Geographic Region

Figure 3: Map of the Geographic Region

0 2
 Kilometers
 Scale: 1:75,000 @ A3
 Coordinate System: GDA 1994 MGA Zone 55



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Date: 23 March 2012, File number: 13881
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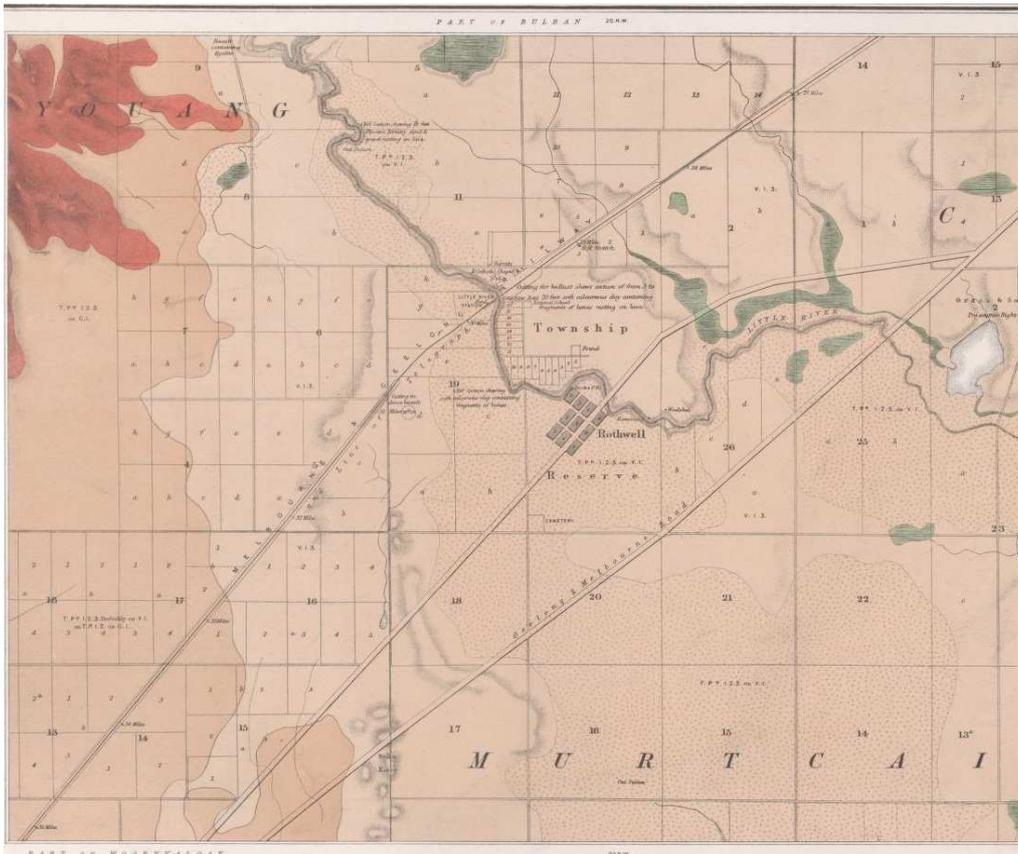


Plate 1: Geological Survey of Victoria Sheet 20 SW 1863. MAP RM 2335/20 .

2.2 Climate

The study area climate is temperate, with warm, dry summers and cool, wet winters (LCC 1985: 32-34). Annual rainfall is relatively low (538 millimetres), due to a rain shadow which forms over the Brisbane Ranges to the west, with most rain falling between May and November. Mean summer maximum temperatures in Geelong are 23° to 24° Celsius in January and February, with minimum winter temperatures at 5° Celsius in June and July (LCC 1985: 32-33). Summer drought conditions inhibit plant growth and create an environment susceptible to fire (LCC 1973: 34-40). In addition, drought conditions confine fresh water to a few perennial water holes or creeks and swamps.

While climatic conditions would not have precluded year round habitation, the extremes of weather, coupled with the unprotected nature of much of the landscape would probably have influenced occupation patterns. High summer temperatures, hot winds and lack of shade trees at one extreme; and exposed areas open to cold south westerlies at the other; are likely to have given reason for people to favour protected campsites, such as the valleys and leeward of ridge lines.

2.3 Flora

Prior to European contact, the study area would have contained a range of plant species, many of which would have been utilised by Aboriginal people for food, medicine and fibre. The basalt plains would have supported dry tussock grasslands including species such as kangaroo grass (*Themeda australis*) which was used to make fishing nets (Zola and Gott 1992: 58). Wallaby and spear grass species, bulbous lilies and orchids would also have thrived on the plains (LCC 1973: 254-255). Myrnong (yam daisy) also provided a widespread staple (Zola and Gott 1992: 7).

The open woodlands would have graded quickly into the surrounding grasslands, which were dominated by kangaroo grass (*Themeda australis*), tussock grass, wallaby and spear grass (LCC 1985, McDougall 1987). Between Lara and Little River there are also areas of remnant swamp diuris, tawny leek-orchid and featherheads (LCC 1985:257). Kangaroo grass from the Werribee plains was used by Aboriginal people to extract fibre for fishing nets, and the seeds may also have been ground and baked (Zola and Gott 1990: 12). Native tussock grass fibres were also used to make string bags, nets and baskets. The yam daisy (*Microseris scapigera*) derived from the grassland areas was also a significant food source for Aboriginal people.

The waterways, natural drainage lines and the swamp and wetland areas of the plains would also have provided a habitat for reed and rush species such as the common reed and Tall Spike Rush (*Eleocharis spachelata*). Tangled lignum would have formed dense thickets on depressed swampy ground (LCC 1985:254). Water plants found around the edges of the river, such as the common reed, were eaten and used as spear shafts, while water ribbons would have been consumed for their edible tubers (Zola and Gott 1990: 122).

These grasslands intergraded with Riverine Plains Grassy Woodland (dominated by Grey Box, Buloke and Drooping Sheoak). Riparian Zone along Little River and Hovell Creek supported Floodplain Riparian Woodland and Creek line Grassy Woodland with Escarpment Shrub land on steeper escarpment. A variety of wetland communities formerly occurred throughout including Plains Grassy Wetland, cane grass Wetland, Lignum Wetland and Aquatic herb field. Many elements of the flora reflect the low rainfall, including white Cypress-pine and fragrant saltbush along steep escarpments and Woolly Buttons at Little River.

2.4 Fauna

Water birds such as swans, ducks, plovers, dotterils, ibis, spoonbills, herons and oyster catchers would have been plentiful on the saltmarshes and lagoons. Mammals such as the Great grey kangaroo (*Macropus giganteus*) and fat tailed dunnart (*Sminthopsis crassicaudata*) would have inhabited the grasslands. Seals may have been hunted of the coast from time to time. Reptiles including a range of skink species and snakes, including tiger snakes, brown snakes and little whip snakes, would have been plentiful, and marine resources including shell and scale fish would have been readily available (LCC 1973: Appendix 3).

Prior to European settlement, animals such as kangaroo, possum, wallaby, emu and many species of small marsupials, reptiles such as Grassland Earless Dragon and striped legless lizard, woodland birds such as Orange-bellied Parrot, Plains-wanderer, Red-chested Button Quail, Swift parrot and numerous waterfowl would have been common. Historic records show that the area held considerably more native species. In

1862 Horace Wheelwright, an English settler who became a professional hunter in the Port Phillip region in the 1850s noted the presence of Tasmanian pademelon, eastern grey kangaroo, potoroo and quoll (LCC 1991: 107).

The destruction of natural habitats following European settlement has limited the amount of information on faunal species in the Lara region that would have been available for use by Aboriginal people (LCC 1985). Larger mammals living on the grasslands may have included eastern grey kangaroos, antechinus, Gunn's bandicoot, and the fat-tailed dunnart that can still be found in dry grassland areas and surrounding agricultural property (LCC 1985:82).

The open wooded areas alongside the waterways would have supported echidnas, brushtailed possums and koalas. Rivers, creeks and wetlands would have been important resource areas for Aboriginal people, with a plenitude of bird species as well as edible frogs, tortoises, and snakes. The waterways of the region were also home to short-finned eels, estuary perch, tupong, river blackfish and a range of galaxias (LCC 1985).

3.0 ABORIGINAL HISTORY

3.1 Ethnohistory and Contact History

Avalon region was within the territory occupied by the Wada wurrung language group at the time of European contact. Wada wurrung territory extended along the coast from Aireys Inlet to the Werribee River and inland as far as Mt Emu and Fiery Creeks. According to the Aboriginal Protector, G.A. Robinson, the Wada wurrung were the most powerful and influential people in the Western District (Clark 1990: 277; Barwick's 1984).

3.1.1 Aboriginal named groups

Eight other language groups bordered the Wada wurrung, however they are often thought to have had particularly important cultural and linguistic affinities with five other tribes to the north and east: the Djadja wurrung, Ngurai-Willam-wurrung, Daung wurrung, Woi wurrung, and Bunurong. Howitt (1904) described this cultural block as the Kulin Nation. In reality, the most important bonds between the disparate 'Kulin' peoples were patrilineal moiety affiliations; the Kulin social world was divided into two named moieties – waa (crow) and bunjil (eagle). Marriage was carried out across moiety lines, with members of bunjil group having to find waa partners, preferably from a distant group (Barwick 1984:104-105). These moiety affiliations shaped allegiances in religious rituals and the settlement of disputes, and could link distant groups by marriage.

Moiety affiliations were held by localised named-groups (often referred to as clans) within each language group. It was these localised groups, rather than the larger language groupings, that were the basic economic, social and residential units of Kulin society. Primary allegiance was owed to the localised named-group, although this could vary according to context and location, and each group held rights to defined territories (Barwick 1984:107). Group members were usually united by common dialect, descent, history, and a shared 'Dreamtime' ancestor, with each group led by influential individuals - known as Nourenit or Arweet amongst the Wada wurrung (Barwick 1984:107). Individuals often inherited rights to local group land through their patriline, however many people also had access rights to the land of their spouse or mother. People would also often travel or reside in the territory of another group so that they could fulfil religious or family obligations, or exercise the privilege - granted to them by family or moiety associations - of exploiting the resources of another estate. Hence most Kulin people could speak a number of different dialects and when living in the territory of another group, would use the speech of its owners (Tindale 1974:131-132).

Journeys were also made to neighbouring language areas for ritual gatherings and marital arrangements. For daily activities and the exploitation of group lands, people often travelled in small residential units or extended family groups.

From the available ethnohistorical sources it is possible to reconstruct a tentative pre-contact subsistence pattern for Aboriginal people in the study region. Much of this information is derived from the reminiscences of William Buckley, an escaped convict who was adopted into the Wada wurrung balug clan (Morgan 1852), and in the papers of George Augustus Robinson, Chief Protector, Port Philip Aboriginal Protectorate (in Clark 1990).

Clark noted that:

Clan heads were known as either Nourenit/Narenit or Arweet. The Wada wurrung were the most powerful and influential people in the western district. During his 1841 tour Robinson met with many Wada wurrung clan heads (Clark 1990: 227).

The Wada wurrung clans who lived on the coast were the first to come into direct contact with the “ngamadjig/amerjig” or white man when Lieut. John Murray in the Lady Nelson, charted part of Indented Head and named Swan Bay’ (Clark 1990: 227).

At the time of European contact there were 25 Wada wurrung clans (Clark 1990, 311). Of these, four clans are likely to have included parts of the study region in their range;

- Wada wurrung balug –between the Barwon and Werribee Rivers.
- Neerer balug – between Geelong and the You Yangs.
- Worinyaloke balug – on the west side of Little River.
- Yaawangii – around You Yang hills

Wada wurrung balug

The Wada wurrung balug are the best documented of the Aboriginal name groups near the activity area, although evidence is sometimes contradictory regarding their location and activities. Massola and Tindale identified them as being between Werribee and Indented Head, Wedge and Scarlett placed them around the Barrabool Hills and south to the coast, while several other writers refer generally to the Geelong area (Clark 1990:330-1).

George Armytage, an early landholder in the Werribee area, noted that the Wada wurrung balug depended upon fishing in the summer and autumn periods and hunting and the plant food murrnong in the winter and spring period (Bride 1969). This clan was known to have fished for eel at Lake Modewarre, 20km south west of the study area (Morgan 1852).

Neerer balug

The Neerer balug occupied an area between Geelong and the You Yangs. Clark shows the location of this clan at Hovell Creek but neither the clan head nor the moiety of this group was recorded (Clark 1990:326). Hume and Hovell reported an encounter with a local Aboriginal group possibly belonging to this clan.

The only known references regarding the Neerer balug is by George Augustus Robinson, Chief Protector, Port Phillip Aboriginal Protectorate, during a visit to ‘Bacchus’s station’ in 1840. Robinson lists the clan in his diary notes along with numerous other Aboriginal words, probably provided by Wada wurrung people he had met that day (Clark 1998, 201). The clan are described as occupying land between Geelong and the You Yangs (Clark 1990, 311, 326).

Yaawangi

The Wada wurrung clan that occupied the You Yangs was called the Yaawangi. Clark suggests this clan name means ‘Yawang Hills’ and ‘Yawang plains’ = You Yangs’ (Clark 1990:311, Citing Tudehope 1962:234).

In 1835 the Yaawangi clan head was named Murradonnaneuke (and variants), who died in 1835. Clark states that:

‘Buckley expressed fear of this man, although he proved entirely friendly and was closely associated with Wolmudging, the head of the Wada wurrung balug (sic the Barrabool Hills people). In December, 1841 Land Commissioner Addis noted that Murordorake had been killed in 1839 by the ‘Yarra’s (Woi wurrng)’ – his loss was regrettable by colonists because of his support after several 1836 murders (when shepherds refused supplies which the Wada wurrung thought was the compensation promised by Batman’s party).’

Clark lists the approximate territory of Yaawangi as the You Yangs (Clark 1990: 311, Table 15). It may be that members of this clan were mostly based in the You Yangs as Clark has clan locations for two other groups close by; the Worinyaloke balug on the west side of Little River and the Neerer balug between Geelong and the You Yangs (Clark 1990: 335). Like most of the other clans that made up the Wada wurrung, there is little specific historical information on the (Yaawangi). Other than Murordorake, the only other individual discussed (at least by Clark) is Billy Leigh, in relation to his death.

Worinyaloke balugi

Clark identifies this clan as present on the west side of the Little River, based on the sole reference in Robinson’s Papers, who notes that the clan is ‘all dead except Meenmulger, a boy taken to England by Tom Walton. The clan name means ‘Worinyaloke people, after the name of the Little River (Clark 1990:334).

Details of specific cultural activities of Aboriginal people are never specific enough to determine their relative impacts on the land within the three investigations areas. However, the importance of waterways, but as sources of fresh water and other resources, and as landmarks for travel routes have been noted.

3.1.2 Contact with Explorers

In 1802 Lt. John Murray sailed the Lady Nelson past Indented Head, with Matthew Flinders camping there a few months later. During this, and subsequent excursions by Charles Grimes in 1803, numerous Wada wurrung were encountered. Such contacts were fleeting, however to the west, the escaped convict William Buckley lived for nearly thirty years with Aboriginal people of the region, before re-joining European society in 1835 (Brownhills 1955:18-25).

On 16 December 1824 Hamilton Hume and William Hovell encountered some Wada wurrung at a creek they named Kennedy’s Creek (later Hovells Creek). These were likely to have been Neerer balug people. The Aborigines showed some aggression to one of the group when they surprised him alone, then when they saw the size of the expedition they became more circumspect, but were more fearful of the Ngamadjig’s animals than their weapons. However, it was not long before they were pilfering small

items from the party. Short of supplies the expedition returned to Sydney (Clark 1990: 279-280).

By the mid-late 1830s much of the Wada wurrung's traditional lands had been taken up by squatters who extended westwards from Melbourne around Werribee and towards Colac. Wada wurrung numbers declined rapidly in the settlement period. In 1837 Foster Fyans, Commissioner of Crown Lands in Portland Bay, recorded 297 Wada wurrung within a 30 mile radius of Geelong, however by 1858, Fyans regarded the number of surviving men, women and children to be no more than 20 (in Clark 1990: 299). In 1862, a census taken by the Central Board for the Protection of Aborigines recorded only twelve Wada wurrung people in Geelong.

In 1839, the Aboriginal Protectorate was created, and the Wada wurrung people came under the jurisdiction of E.S. Parker and C.W. Sievwright representing the Geelong or Western District Protectorate, although the Protectorate provided little assistance in the form of supplies or protection from pastoralists. In the same year, the Buntingdale Aboriginal Mission was established on the banks of the Barwon River near Birregurra, and it was here that many Aboriginal people from the western district were taken, until the Mission's closure in 1848.

The 1860s saw the establishment of the Central Board for the protection of Aborigines and the creation of Government and Mission stations. Three reserves were proposed in traditional Wada wurrung land: at Steiglitz, Karngurn Reserve (Winchelsea), and Mount Duneed (Clark 1990:300-301). A Geelong depot was also nominated for the distribution of rations. However, the numbers of Wada wurrung were seriously depleted and by 1866, only five Aboriginal people were reported living in Geelong. Through the 1860s and 1870s it appears that many Wada wurrung people were settled at Coranderrk, the Mission established near Healesville in 1863, and at Framlingham reserve. 'King' Billy Leigh, an Aboriginal man living at Woolloomanata Station north of Lara, was possibly the last Wada wurrung living in the area, and died in 1885 (Clark 1990:333, Wynd 1981:239).

Generally, occupation of any particular area was seasonal, characterised by temporary encampments shifting between resources rich zones at different times of the year. Large camp areas were often set up close to rivers and creeks. Such camps were generally occupied by smaller groups within the major clans and lasted a few days, possibly weeks at a time (Presland 1997). Smaller day time or 'dinner Camps' may have been established during sojourns across their territory, when moving between larger camps or during hunting and gathering expeditions.

The most critical factor influencing the location of both types of camp, was the availability of potable water. Unless there was no alternative, sites would have been chosen close to free-flowing waterways or fresh swamps and lakes. Dry conditions on the Werribee Plains in summer may have meant that water sources were sparse and any waterhole, soak or swamp may have been utilised.

The cultural heritage of the study area is within the boundaries of lands that are currently the responsibility of the Wathaurung Aboriginal Co-operative Ltd. As the registered Aboriginal Party, this organisation holds responsibility for cultural heritage matters within their community area.

4.0 POST-CONTACT HISTORY

The first European to sight the plains west of Melbourne was probably Matthew Flinders, who walked from the Investigator along the northeast coast of Corio Bay to the You Yangs (which he named Station Peak) in April 1802.. He described the area as a:

'low plain where the water appeared frequently to lodge; it was covered with small-blade grass but almost destitute of wood, and the soil was clayey and shallow ... Towards the interior there was a mountain [Mount Macedon] ... and so far the country was low, grassy, and very slightly covered with wood ...'.¹

In January 1803 Charles Grimes' party entered Port Phillip with instructions from Governor King to survey the bay and report on its suitability for settlement. They examined the Maribyrnong and Yarra Rivers, making only a brief sojourn to the hills of the basalt plains describing them as

"level at top and full of stones, the land very bad, and very few trees, and appeared so to the mountains..[with] excellent pasture ... thin of timber', [and] 'fine clay for bricks, and abundance of stone'. But he also noted that the area was 'very badly watered'²

Hume and Hovell also passed through the district and crossing Hovells Creek (which they named Kennedys Creek) as part of their overland journey from New South Wales to Corio Bay in 1824 (Brownhill 1955:4). From the vantage of a hill around Sunbury they surveyed the landscape sloping south towards the bay:-

'...we saw a very gratifying sight, this was very extensive plain, extending from W to SE for several miles with patches of forests which appear to separate one plain from another, but the whole appeared in front (say) south to be level, but in parts in the plains rose some hills, shaped conical with only here and there a few trees upon them, and all the soil the best quality....[and] '...never did I behold a more charming and gratifying sight, at least not where it is in its natural state.' (Andrews 1981).

On the 15th December 1824 Hume and Hovell they Jacksons Creek, and crossed the plains of 'Iramoo' (between the Maribyrnong and Werribee Rivers) and towards 'Jillong' (Geelong).

'...I am happy to find that this country is better watered than I first imagined, even in this dry time there is plenty; the worst thing against it is there not being a sufficiency of timber for the purpose of building ... but there is plenty near for fuel... It is all plains and small forests around....we can see at least 50 miles in any direction, it is all plains and small forest around ... the whole is

¹ Cited in John Lack & Olwen Ford, 'Melbourne's Western Region: An Introductory History' (Melbourne's Living Museum of the West, Melbourne Western Region Commission, 1986), p.3

² 'James Flemming, Journal of Exploration of Port Phillip made by Charles Grimes, Surveyor General of New South Wales', in J.J. Shillinglaw (ed.), *Historical Records of Port Phillip*, (Melbourne, Heinemann, 1972), C.E. Sayers (ed.) p.27.

easy travelling *'the soil everywhere were (sic) beyond description good'* ... 'The grass does not appear to have grown more than two or three inches since it was burned last year; the old grass which escaped the fire is very thick and long' ... 'that is supposed to be the levellest (sic) County, and has the best soil' (Andrews, 1981 .202, 207-211).

They named the 'Arndell', (Werribee) River after Hovell's father-in-law and his son. Their return from Corio Bay took a more southerly route, closer to the bay, as 'by doing so we avoided those stones which we had crossed on going' (Andrews, 198:211).

In 1835, John Batman undertook a journey through the west and north of Port Phillip Bay as part of a settlement venture with the Port Phillip Association He initially passed west of the You Yangs and probably crossed the Werribee River in the vicinity of Cobbledick's Ford, describing the view from Mt Iramoo as : '...a view all round, I think I may say 40 miles or more each way, of beautiful plains of the best description of grass (Rex Harcourt 2000:154).

The Port Phillip Association's surveyor, John Wedge, also crossed the area during a survey in September 1835. He subsequently built a hut and established a sheep station in the Werribee district in late 1835 (Wynd 1981).

In 1836, Joseph Sutherland was the first European settler to disembark in Geelong, running sheep into the Brisbane Ranges (Clark 1990:281). John Anthony Cowie and David Stead, also arrived from Van Diemen's Land in 1836 with sheep. They took up land at what is now known as Cowie's Creek, a run which extended from the Moorabool River to Corio Bay (Peel 1974:27). In 1836 a village was established on the foreshore and left bank of the Barwon River, which was proclaimed the township of Geelong in 1838 (Port of Geelong Authority 1959:2).

In March 1837 Governor Sir Richard Bourke visited Port Phillip and both he and Captain Phillip Parker King recorded their visit. Bourke described the area between the Salt Water (Maribyrnong) River to the 'Exe or Werribee' as 'flat open country, great part of herbage recently burned. No water. Soil poor – grass hardly of the value of that of the Goulburn Plains... bleak ... and cold for sheep.' The party camped at Simpson and Wedge's station on the Werribee, where Bourke describes the landscape as 'bleak in winter and cold for sheep'. King's journal included a pen-and-ink sketch of the exposed plains and noted that the Little River area was: 'a most arid waste; the grass had been burned off. We met no one and saw no living thing but a brown (venomous) snake (Cannon 1981:103).

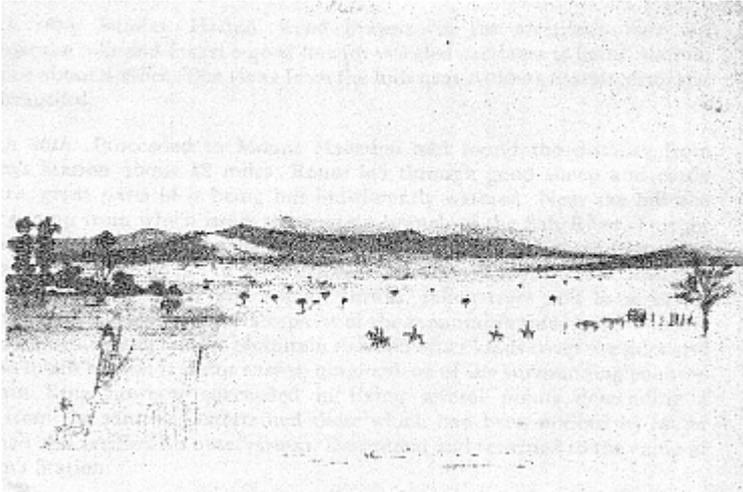


Plate 2: Captain PP King's sketch of the ford at Werribee, looking north towards Melton (1837) (Historical Records of Victoria, Vol.1, p.104)

The grassy volcanic plains between Melbourne and Geelong were ideal for grazing and were quickly taken up by European settlers. Port Phillip Association member Michael Connolly took up land in the Lara area in 1836, with the Woornyalook Parish, or Duckponds (another name for Hovells Creek), listed for the Lara area in 1838 (Spreadborough and Anderson 1983). By the following year, sheep stations had been established for an area of 40kms around Geelong, with the first sale of Crown allotments in the Geelong area, taking place in 1839. (Clark 1990:281).



Plate 3: Skene 1843 Plan of Port Phillip showing squatters' stations and early tracks (National Library MAPRM938)

fertility and low rainfall of the district resulted in the present sparse settlement, which is particularly notable between Little River and Lara, in the vicinity of investigation area B. The focus of settlement at the crossings of watercourses on the Little River and Hovells Creek resulted in a denser settlement pattern in investigation areas A and C respectively.

Little River had its genesis as an inn on the crossing of the creek. In about 1839, the Travellers' Rest or Rothwell Inn was opened at Rothwell on the Little River. It was advertised in the Port Phillip Gazette as "...a commodious dwelling house of ten rooms". The township of Rothwell was officially proclaimed in 1852, but planning was already underway for the Geelong Melbourne railway, and when it was constructed further north, this changed the focus of settlement. During surveying of the railway line, it became evident that the planned route through Rothwell was unsuitable due to the unstable nature of the ground in the area. In fact, the section of the road to the south-west of the Rothwell Inn was known locally as "The Glue Pot", becoming an almost impassable quagmire following heavy rain.



Plate 5: Stanforth 1859 plan showing various routes from Melbourne to Geelong. National Library MAPRM4434.

As a consequence, several different tracks were employed for travel between Melbourne and Geelong, eventually being formalised into two surveyed roads, one running relatively straight and parallel with the coast, and the other diverging at Werribee River and Little River to preferred crossing points. The Rothwell Bridge, erected in 1867, formalised the route until the construction of the Maltby Bypass in the 1960s returned it to the direct alignment.

The town of Lara was established following construction of the Geelong to Melbourne railway in the early 1850s. Subdivision in the area had begun by at least 1853, and focused on the western side of Hovells Creek, near what had been the Lara Lake, although this was subsequently drained (Wynd 1981:146-162). The town was largely as a service centre for surrounding farmers and graziers, but it was not until 1874 that it was named 'Lara'. The nearby creek (and township) also went through a succession

of names (Limeburners Creek, Duck Ponds Creek, Duckponds, Kennedy's Creek (as called by Hume and Hovell), and Woorn Yallock), before being named 'Hovells Creek' in 1872 (Wynd 1981:55). While the town finally settled on 'Lara' in 1874. The town was made the seat of the Corio shire, but was replaced in 1937 when the shire seat moved to North Geelong (Wynd 1981:55).

Little development occurred in the early to mid twentieth century, apart from a feedstock factory and chaff mill in Lara and some suburban expansion around Little River. Little River also can make a claim to fame as the home town and namesake the *Little River Band*, and as one of the main filming locations for the first *Mad Max* movie. The latter is still prominent in local folklore as the filming took over the town for several weeks and various locations used in the film have become iconic for fans, with dedicated web sites, local place names such as Toecutter Hill and a 30th year anniversary celebration held in Little River in October 2006.

5.0 ARCHAEOLOGICAL ASSESSMENTS

5.1 Aboriginal Archaeology

The earliest archaeological work in the region was undertaken by Mitchell (1949), who recorded stone axe quarries at Batesford to the west, and artefact scatters and scarred trees along Little River and the Werribee River to the east of the current study. Massola (1969) also recorded artefact scatters and a shell midden along the Little and an artefact scatter on Hovells Creek at the Woolomanata property. This site included a mix of stone tools, wooden points, oyster shells and European artefacts (Massola 1961).

Du Cros (1989) undertook a large scale archaeological survey of the region west of Melbourne, with her survey extending across to the Brisbane Ranges and Little River (including areas close to the current study). du Cros recorded a total of 96 sites, most of which were surface artefact scatters, but also including scarred trees, axe grinding grooves, stone quarries and freshwater shell middens. Artefact scatters were found in a variety of topographic contexts, however du Cros noted that most sites in the Western region are likely to be found on river or creek flats, terraces or within 100 metres of a major water courses, rather than on the surrounding volcanic plains (du Cros 1989:67).

Archaeological surveys of the You Yangs, five kilometres north of the study area, have yielded a large number of archaeological sites. Mount Rothwell, to the north of the You Yangs, is the site of the Wurdi Youang Aboriginal Stone Arrangement. In 1985, van Waarden undertook a systematic survey of the You Yangs proper. She recorded forty-five sites, the majority of which were artefact scatters, but which also included four rock wells and three rock shelters. A quartz vein was also identified as a likely quarry site. These were located on broad ridges, hill tops and in areas near the northern reaches of Hovells Creek. Artefact densities were generally at a low density, although van Waarden recorded eight larger sites that contained over 50% of the total number of artefacts. The artefact scatters were mainly of quartz, quartzite and silcrete with a range of artefact types including backed blades and thumbnail scrapers – the latter indicating that the sites date to within the last 5000 years.

Intensive survey following the 1985 and 2001 wildfires resulted in 236 sites recorded in the You Yangs Park, and lead the authors to identify this as “the highest density of sites in inland south west victoria” (Webb & Marshall 2002). However, this claim does not take into account the highly unusual survey conditions of 100% ground surface visibility over the entire study area due to decimation of all the vegetation by fire. Also, most of the sites recorded were single artefacts and small low-density scatters and so most likely represent at least in part, the general ‘background’ archaeology of the region.

Ellender and Weaver (1994) also formulated a site prediction model relevant to the broader region of the study area. Following a survey of the Port Phillip Bay region, the model suggests that high site densities are most likely on creeks and around swamp margins, while older sites may be found on earlier land surfaces such as river terraces (Ellender and Weaver 1994:8.6). During their survey of the western side of the bay, Ellender and Weaver recorded two surface artefact sites at Hovells Creek, between the Princes Highway and the coast (VAHR7721-118-119), which contained quartz and silcrete artefacts and shell middens AAV7921/0121 and AAV7921/0122..

A large number of archaeological assessments, surveys and cultural heritage management plans in the vicinity of the activity area help build a picture of Aboriginal archaeology in the area. These show a pattern of concentrated stone artefact sites along the major waterways, some scattered scar trees where old growth native trees survive, and very thinly distributed isolated artefacts and low density stone artefact scatters on stony rises and swamp margins. Even where locations away from a permanent watercourse were considered unusual, the sites were located on stony rises overlooking the Avalon Swamp - a potential resource procurement area, and a more reliable water source prior to drainage and land modifications in the historical period (Lane 1999).

The Aboriginal Affairs Victoria (AAV) database has a record of an account in an 1872 edition of the Geelong Advertiser that reported a human burial, considered to be Aboriginal, within a shell midden along the southern coastline within the current study area (VAHR7721/143). The site was apparently destroyed by quarrying during the nineteenth century. This report was not registered on the AAV (formerly VAS) database at the time of Hughes' and Wesson's survey.

The AAV database also has a historical reference to a Registered Aboriginal Historical Place (AAV11.2-4), located just outside the study area on the eastern coastline at Point Wilson. This is a location at which John Batman, acting on behalf of the members of the Port Phillip Association first met with Wathaurung people at a point that he named "Gellibrand's Harbour" on 31 May 1835. Batman met with 21 women and 24 children. He persuaded them to go to his camp where he gave them blankets, handkerchiefs, bead necklaces, sugar, looking glasses, apples and a tomahawk (AAV database; Clark 1990: 280) (see Figure 2).

In addition, the AAV database lists a stone fish trap recorded at Corio Bay, west of Point Lillias. This is located in the intertidal zone, and comprises lines of basalt rocks. Oral tradition describes it as a known fish trap that worked prior to coastal works along the Avalon coastline (AAV database).

The following table summarises the smaller project-specific archaeological assessments in the activity area and surrounds.

Table 1: Aboriginal archaeological survey in the region

Consultant	Year	Location	Results	Relevant investigation area
Murphy and Morris	(2011)	Avalon Rail Link	Desktop only	B
Schell	(2003a)	two blocks of land in Bates Rd, Lara	isolated artefact site (VAHR7721/564).	
Schell	(2003b)	allotment in Flinders Ave, Lara	No sites found	
Marshall	(2002)	Geelong Ring Road eastern bypass	Desktop only	C
Marshall	(2001)	Kees Drive Lara	four previously unrecorded isolated artefact sites (VAHR7721/357-360)	
Marshall and Webb	(2000)	Old Melbourne Road Lara to Little River water pipeline	eight stone artefacts (AAV 7722-0253) on a stony rise within a section of road reserve None of the artefacts were in situ.	A
Lane	(1999)	Princes Highway Little River monitoring of the pipeline construction	twenty-nine artefact scatter sites, twenty-two isolated artefact occurrences and one exposure of an isolated artefact	

Consultant	Year	Location	Results	Relevant investigation area
Muir	(1999)	Princes Highway	small surface artefact scatters at Little River and on Hovells Creek	A & C
Newby and Muir	(1999)	Western Ring Road to Corio Overpass	Previously recorded (VAHR7721/412). artefact scatter (VAHR7722/253) located on the Old Melbourne Road	All
Debney	(1998)	Lara	No sites found	
Marshall	(1998)	near Lara	four isolated artefacts (AAV 7721-0357 – 0360) a few kilometres west of Hovells Creek on the volcanic plains	
Weaver	(1998)	land in Investigator Ave, Lara	One stone artefact scatter (AAV 7721-0355) on a flood plain and gently rising ground. over 300 artefacts comprising fragments, formal tools and cores suggests that nearby sites VAHR7721/104 and 106 could be part of this site.	B
Lane	(1997)	Princes Highway near Little River monitoring of the pipeline construction	two surface artefact scatters (AAV 7721-0116, 7721-0331). (VAHR7721/330)	B
McNiven and Russell	(1997)	Geelong – Lara optical fibre cable route	No sites but - predicted surface artefact scatters and isolated artefacts will be found in close proximity to water courses, while mounds and shell middens will be found in flat, elevated areas close to watercourses and swamps.	All
Webb	(1997a & b)	Princes Freeway, Little River adjacent to Pousties Rd	No sites found	A & B
Webb	(1997c)	two stony rises between Pousties Road and the Avalon Overpass	confirm location of a previously recorded Aboriginal site, VAHR7721/116. isolated artefact (VAHR7721/331).	B
Brown and Lane	(1996)	Lara and Colac gas pipeline	two stone artefact scatters, two isolated artefacts and one scarred tree	
Brown	(1995).	Point Lillias	sub-surface testing that site VAHR7721/157 extends further	
du Cros & Assocs and Arrowsmith, Muir & Assocs	(1995)	Point Lillias EES	two shell middens were recorded (VAHR7721/121-122). sub-surface testing ed (VAHR7721/158).	
du Cros and Associates	(1995)	East Coast Armament Complex Point Lillias Point Wilson	nine Aboriginal sites were (VAHR7721/149-157). Shell deposits isolated artefacts and artefact scatters (VAHR7721/159)	
Ellender and Weaver	(1994)	Port Phillip Bay region	isolated artefact site was found (VAHR7721/120). isolated artefact site Avalon airfield (VAHR7721/117). extensive artefact scatter. VAHR7721/116, shell middens 121 and 122	All
Frankel and Freslov	(1992)	Chemical storage facilities Point Lillias	two previously recorded shell middens AAV7921/0121 and AAV7921/0122	
Hughes and Wesson	1978	Point Wilson coastal area	No sites found	

Sites in the vicinity of the activity area are listed below. However, it should be noted that potential impact to any of these sites is dependent on the detailed alignment position and design option.

Table 2: Previously recorded Aboriginal archaeological sites near the study area.

VAHR Site Number	Site Name	Location	Landform	Site Type	Relevant Investigation Area
	Un-recorded	Plains Rd at railway, north Lara	Lowland Plain	Artefact Scatter	B
7721-0094	Lara Burial	Field West Of Bath Street, Lara	Lowland Plain	Burial / Artefact Scatter	
7721-0104	Hovells Ck	West Bank Of Hovells Creek, nw Station Lake Road, Lara	River Bank	Artefact Scatter	
7721-0106	Forest Road, Lara	Forest Road, Lara	Lowland Plain	Artefact Scatter	
7721-0116	Avalon 1	South Of Princes Hwy Avalon	Hill Crest On Basalt Plain	Artefact Scatter	A & B
7721-0117	Avalon Airfield 1	Avalon Airfield	Hill Crest On Basalt Plain	Artefact Scatter	
7721-0118	Limeburners Lagoon 1	Limeburners Lagoon	Estuary	Artefact Scatter	C
7721-0119	Hovells Creek 1	Hovells Creek	Estuary	Artefact Scatter	C
7721-0120	Point Wilson 1	Point Wilson	Lowland Plain	Artefact Scatter	
7721-0121	Point Lillias 1	Point Lillias	Lowland Plain	Shell Deposit	
7721-0122	Bates Point_1	Bates Point	Lowland Plain	Shell Deposit	
7721-0143	Point Wilson Burial	Point Wilson Burial	Lowland Plain	Shell Deposit Burial/Human Remains	
7721-0158	Point Lillias Test 1	Point Lillias Test	Lowland Plain	Artefact Scatter	
7721-0159	Point Wilson 10	Point Wilson	Lowland Plain	Artefact Scatter	
7721-0330	Pousties Rd 1	South Of Princes Hwy	Lowland Plain	Artefact Scatter	A
7721-0331	Avalon 2	Princes Hwy Alignment	Lowland Plain	Artefact Scatter	A & B
7721-0333	Hovells Creek Lara Near Railway	Hovells Creek Lara Near Railway	River Bank	Artefact Scatter	
7721-0334	Hovells Creek Lara Near Railway	Hovells Creek Lara Near Railway	River Bank	Artefact Scatter	
7721-0335	Hovells Creek Lara Near Railway	Hovells Creek Lara Near Railway	River Bank	Artefact Scatter	
7721-0351	Princes Freeway Service Centre	Princes Freeway Service Centre	Lowland Plain	Artefact Scatter	
7721-0355	West Of Hovells Creek, South Of Investigator Avenue, Lara	West Of Hovells Creek, South Of Investigator Avenue, Lara	Floodplain	Artefact Scatter	B
7721-0357	Darcys Lane 1	Darcys Lane	Lowland Plain	Artefact Scatter	
7721-0358	Darcys Lane 2	Darcys Lane	Lowland Plain	Artefact Scatter	
7721-0359	Darcys Lane 3	Darcys Lane	Lowland Plain	Artefact Scatter	
7721-0360	Darcys Lane 4	Darcys Lane	Lowland Plain	Artefact Scatter	
7721-0412	Princes 1	Princes	Lowland Plain	Artefact Scatter	C
7721-0416	Lara-Colac 15	Lara-Colac	Lowland Plain	Artefact Scatter	
7721-0423	Lara-Colac 16	Lara-Colac	Lowland Plain	Artefact Scatter	
7721-0428	Norlane Artefact Scatter	Norlane Artefact Scatter	Lowland Plain	Artefact Scatter	
7721-0505	Point Lillias.	In The Bay West Of Point Lillias.	Coastal Flats	Fish Trap	
7721-0509	Buckingham St 1	Buckingham St	Lowland Plain	Artefact Scatter	
7721-0510	Buckingham St 2	Buckingham St	Lowland Plain	Artefact Scatter	
7721-0512	Limeburners Bay 1	Limeburners Bay	Estuary	Artefact Scatter	
7721-0513	Limeburners Bay 2	Limeburners Bay	Estuary	Artefact Scatter	
7721-0514	Limeburners Bay 3	Limeburners Bay	Estuary	Artefact Scatter	
7721-0515	Limeburners Bay 4	Limeburners Bay	Estuary	Artefact Scatter	

VAHR Site Number	Site Name	Location	Landform	Site Type	Relavant Investigation Area
7721-0516	Limeburners Bay 5	Limeburners Bay	Estuary	Artefact Scatter	
7721-0517	Limeburners Bay 6	Limeburners Bay	Estuary	Artefact Scatter	
7721-0518	Limeburners Bay 7	Limeburners Bay	Estuary	Artefact Scatter	
7721-0519	Limeburners Bay 8	Limeburners Bay	Estuary	Artefact Scatter	
7721-0520	Limeburners Bay 9	Limeburners Bay	Estuary	Artefact Scatter	
7721-0532	Hovells Creek Rail Reserve 1	Hovells Creek	Estuary	Artefact Scatter	B & C ³
7721-0533	Hovells Creek Rail Reserve 2	Hovells Creek	River Bank	Artefact Scatter	B & C
7721-0534	Hovells Creek Rail Reserve 3	Hovells Creek	River Bank	Artefact Scatter	B & C
7721-0535	Hovells Creek Rail Reserve 4	Hovells Creek	River Bank	Artefact Scatter	B & C
7721-0538	Serendip Ia 4	Serendip	Lowland Plain	Artefact Scatter	
7721-0539	Serendip Ia 1	Serendip	Lowland Plain	Artefact Scatter	
7721-0564	Bates Road 1	Bates Road	Lowland Plain	Artefact Scatter	
7721-0575	Point Wilson Ia 1	Point Wilson	Lowland Plain	Artefact Scatter	
7721-0579	Western Bypass 1	Corio	Lowland Plain	Artefact Scatter	
7721-0580	Western Bypass 2	Corio	Lowland Plain	Artefact Scatter	
7721-0581	Western Bypass 3	Corio	Lowland Plain	Artefact Scatter	
7721-0642	Grand Park Estate 1	Lara	Lowland Plain	Artefact Scatter	
7721-0643	Grand Park Estate 2	Lara	Lowland Plain	Artefact Scatter	
7721-0644	Grand Park Estate 3	Lara	Lowland Plain	Artefact Scatter	
7721-0645	Grand Park Estate 4	Lara	Lowland Plain	Artefact Scatter	
7721-0646	Grand Park Estate 5	Lara	Lowland Plain	Artefact Scatter	
7721-0647	Grand Park Estate 6	Lara	Lowland Plain	Artefact Scatter	
7721-0648	Grand Park Estate 7	Lara	Lowland Plain	Artefact Scatter	
7721-0649	Grand Park Estate 8	Lara	Lowland Plain	Artefact Scatter	
7721-0650	Grand Park Estate 9	Lara	Lowland Plain	Artefact Scatter	
7721-0651	Grand Park Estate 10	Lara	Lowland Plain	Artefact Scatter	
7721-0652	Grand Park Estate 11	Lara	Lowland Plain	Artefact Scatter	
7721-0653	Grand Park Estate 12	Lara	Lowland Plain	Artefact Scatter	
7721-0654	Grand Park Estate 13	Lara	Lowland Plain	Artefact Scatter	
7721-0756	Canterbury Road East 1	Canterbury Road Lara	Lowland Plain	Artefact Scatter	C
7721-0761	Point Lillias Fishtrap	Point Lillias	Lowland Plain	Stone Feature Fish Trap	
7721-0779	Point Wilson As 1	Point Wilson	Lowland Plain	Artefact Scatter	
7721-0791	Point Wilson Ia 2	Point Wilson	Lowland Plain	Artefact Scatter	
7721-0792	Point Wilson Ia 3	Point Wilson	Lowland Plain	Artefact Scatter	
7721-0793	Point Wilson Ia 4	Point Wilson	Lowland Plain	Artefact Scatter	
7721-0800	Pousties Rd 2	South Of Princes Hwy Little River	Lowland Plain	Artefact Scatter	A
7721-0821	Caddys Rd 1	Caddys Rd	Lowland Plain	Artefact Scatter	
7721-0850	Avalon Road 1	Avalon Road Hovells Creek	Estuary & River Bank	Artefact Scatter	C
7721-0851	Avalon Road 2	Avalon Road Hovells Creek	Estuary & River Bank	Artefact Scatter	C
7721-0872	Canterbury Road East 2	Canterbury Road (Rennie St Hovells Creek	River Bank	Artefact Scatter	C
7721-0893	Station Lake Rd 1	Station Lake Rd	Lowland Plain	Artefact Scatter	
7721-0894	Station Lake Rd 2	Station Lake Rd	Lowland Plain	Artefact Scatter	
7721-0904	Dandos Road 2	Dandos Road	Lowland Plain	Artefact Scatter	
7721-0911	Dandos Road 1	Dandos Road	Lowland Plain	Artefact Scatter	
7721-0969	Northern Water Plant 1	Lara	Lowland Plain	Artefact Scatter	
7721-0970	Northern Water Plant	Lara	Lowland Plain	Artefact Scatter	

³Impacts to these sites depend on potential widening of existing railway.

VAHR Site Number	Site Name	Location	Landform	Site Type	Relavant Investigation Area
	2				
7721-0971	Northern Water Plant 3	Lara	Lowland Plain	Artefact Scatter	
7721-0996	Melbourne-Geelong Interconnector 1	Corio	Lowland Plain	Artefact Scatter	
7721-0997	Melbourne-Geelong Interconnector 2	Corio	Lowland Plain	Artefact Scatter	
7721-1175	Broderick Road As 1	Broderick Road	Lowland Plain	Artefact Scatter	
7722-0131	Shaw's Farm 1	East Bank Of Little River	River Bank	Earth Feature Soil Deposit	
7722-0132	Shaw's Farm 2	Shaw's Farm	Lowland Plain	Artefact Scatter	
7722-0133	Shaw's Farm 3	Shaw's Farm	Lowland Plain	Earth Feature Soil Deposit	
7722-0134	Shaw's Farm 4	Shaw's Farm	Lowland Plain	Artefact Scatter	
7722-0135	Shaw's Farm 5	Shaw's Farm	Lowland Plain	Artefact Scatter	
7722-0227	Edgar 1	You Yangs Rd Little River	Lowland Plain	Scarred Tree	B
7722-0248	You Yangs Road Reserve	You Yangs Road Reserve		Artefact Scatter	
7722-0253	Old Melbourne Rd As	Old Melbourne Rd Little River	Lowland Plain	Artefact Scatter	B
7722-0258	You Yangs Road No 1	You Yangs Road		Artefact Scatter	
7722-0259	You Yangs Road No 2	You Yangs Road		Artefact Scatter	
7722-0260	You Yangs Road 3	You Yangs Road		Artefact Scatter	
7722-0518	Little River Rail Reserve 1	Little River Bank Little River – Near Railway	River Bank	Artefact Scatter	B
7722-0519	Little River Rail Reserve 2	Little River Bank Little River – Near Railway	River Bank	Artefact Scatter	B
7722-0520	Serendip Ia 2	Serendip	Lowland Plain	Artefact Scatter	
7722-0521	Serendip Ia 3	Serendip	Lowland Plain	Artefact Scatter	
7722-0522	Serendip Ia 5	Serendip	Lowland Plain	Artefact Scatter	
7722-0745	Melbourne-Geelong Interconnector 5	Corio	Lowland Plain	Object Collection Artefact Scatter	
7722-0748	Melbourne-Geelong Interconnector 6	Corio	Lowland Plain	Artefact Scatter	
7821-0015	Little River	Little River	River Bank	Artefact Scatter	
7821-1771	Flinders Reserve 2	Little River Bank Little River – Near Railway	River Bank	Artefact Scatter	
7821-1772	Bmx Track 1	Little River Bank Little River – Near Railway	River Bank	Artefact Scatter	
7821-1773	Little River Reserve 1	Little River Bank Little River – Near Railway	River Bank	Artefact Scatter	
7821-2044	Point Wilson Rd 1	Princes Freeway Service Centre	Lowland Plain	Artefact Scatter	
7822-0015	Little River	Little River	Lowland Plain	Artefact Scatter	
7822-0085	Wsf 1	Western Treatment Plant Little River	Lowland Plain	Artefact Scatter	
7822-0086	Wsf 2	Western Treatment Plant Little River	Lowland Plain	Scarred Tree	
7822-0087	Wsf 3	Western Treatment Plant Little River	Lowland Plain	Artefact Scatter	
7822-0088	Wsf 4	Western Treatment Plant Little River	Lowland Plain	Artefact Scatter	
7822-0089	Wsf 5	Western Treatment Plant Little River	Lowland Plain	Earth Feature Soil Deposit	
7822-0204	Bulban Rd 1	Bulban Rd	Lowland Plain	Artefact Scatter	
7822-0205	Bulban Rd 2	Bulban Rd	Lowland Plain	Stone Feature Stone Arrangement	
7822-0296	Broadle Lane	Geelong Rail Line	Lowland Plain & Drainage Line	Artefact Scatter	
7822-0297	Rockleigh 1	Geelong Rail Line East Of	Lowland Plain &	Artefact Scatter	A

VAHR Site Number	Site Name	Location	Landform	Site Type	Relavant Investig-ation Area
		Little River Newtons Road Manor	Drainage Line		
7822-0298	Rockleigh 2	Manor	Lowland Plain & Drainage Line	Artefact Scatter	A
7822-0299	Rockleigh 3	Geelong Rail Line E Little River	Lowland Plain & Drainage Line	Artefact Scatter	A
7822-0300	Rothwell Bridge	Rothwell Bridge	River Bank	Artefact Scatter	
7822-0301	Taracombe 1	Little River	River Bank	Artefact Scatter	
7822-0302	Reece's Farm 1	Little River	River Bank	Artefact Scatter	
7822-0303	Reece's Farm 2	Little River	River Bank	Artefact Scatter	
7822-0304	Little River Reserve	Little River Reserve	River Bank	Artefact Scatter	
7822-0305	Rockleigh 4	Geelong Rail Line East Of Little River	Lowland Plain & Drainage Line	Artefact Scatter	A
7822-0432	Little River 1	Little River	River Bank	Artefact Scatter Earth Feature Soil Deposit	
7822-0433	Little River 2	Little River	River Bank	Earth Feature Soil Deposit	
7822-0434	Little River 3	Little River	River Bank	Artefact Scatter	
7822-1073	Princes 2	Princess Highway	Lowland Plain	Artefact Scatter	A
7822-1074	Little R/Princes Fwy Sas 1	Near Princes Freeway At Little River Crossing	Lowland Plain & River Bank	Earth Feature Soil Deposit Artefact Scatter	A
7822-1076	Princes 5	Near Princes Freeway At Little River Crossing	Lowland Plain & River Bank	Artefact Scatter	A
7822-1161	Princes Fwy W.-Little R. N.	Near Princes Freeway At Little River Crossing	Lowland Plain & River Bank	Artefact Scatter	
7822-1162	Princes Fwy W-Lollypop Ck 1	Princes Fwy W-Lollypop Ck	River Bank	Artefact Scatter	
7822-1163	Princes Fwy W-Lollypop Ck 2	Princes Fwy W-Lollypop Ck	River Bank	Earth Feature Soil Deposit	
7822-1164	Princes Fwy W-Cherry Tree Ck 1	Princes Fwy W-Cherry Tree Ck	River Bank	Earth Feature Soil Deposit	
7822-1325	Rothwell Bridge West	Rothwell Bridge	River Bank	Artefact Scatter	
7822-1770	Flinders Reserve 1	Near Princes Freeway At Little River Crossing	Lowland Plain & River Bank	Artefact Scatter	B
7822-1771	Flinders Reserve 2	Flinders Reserve	River Bank	Artefact Scatter	B
7822-1772	Bmx Track 1	Bmx Little River	River Bank	Artefact Scatter	B
7822-1773	Little River Reserve 1	Little River Reserve	River Bank	Artefact Scatter	B
7822-2044	Point Wilson Rd 1	Point Wilson Rd	Lowland Plain	Artefact Scatter	A
7822-2163	GasNet TA (H1)	Princess Freeway near Little River crossing	Lowland Plain	Artefact Scatter	A
7822-2346	Western Treatment Plant 1	Western Treatment Plant	Lowland Plain	Artefact Scatter	
7822-2347	Western Treatment Plant 2	Western Treatment Plant	Lowland Plain	Artefact Scatter	
7822-2348	Western Treatment Plant 3	Western Treatment Plant	Lowland Plain	Artefact Scatter	
7822-2349	Western Treatment Plant 4	Western Treatment Plant	Lowland Plain	Artefact Scatter	
7822-2350	Western Treatment Plant 5	Western Treatment Plant	Lowland Plain	Artefact Scatter	
7822-2716	Regional Rail Link 1	West Werribee	Lowland Plain	Artefact Scatter	A
7822-2762	Regional Rail Link Early Works 1	West Werribee	Lowland Plain	Artefact Scatter	A
7822-2883	Regional Rail Link Signalling (Lollypop Creek) 1	West Werribee	Lowland Plain	Artefact Scatter	A
7822-2884	Regional Rail Link Signalling (Lollypop Creek) 2	West Werribee	Lowland Plain	Artefact Scatter	A
AAV11.2-4	Gellibrand Harbour	Gellibrand Harbour	Coastal	Historical Place	

While the recorded Aboriginal sites are a biased sample due to the unrepresentative nature of previous surveys, they still demonstrate a pattern of Aboriginal occupation (including location, density and distribution). A clear pattern is evident in the greatest number of sites and the densest artefact scatters occurring in the immediate edge of the Little River valley escarpment, and to a lesser extent the edge of the Hovells Creek floodplain, or elevated ground extending back between 5 and 30 m. Lower density artefact sites are found on stony rises, ridges and other prominences near ephemeral swamps. The consequence of this is that the two investigation areas which would involve crossings of one or other of the waterways (Area A or C) would have a substantially greater impact than Area B.

5.2 Historical Sites

Few non-Aboriginal archaeological investigations have been conducted within the study area. As a result three historical archaeological sites have been recorded within the study area (see Table 3).

Historical archaeological surveys have generally been carried out in conjunction with the Aboriginal archaeological surveys described above. Due to the sparse settlement in the area between Lara and Little River, these have resulted in few historical archaeological sites being recorded.



Plate 6: Little River Railway Bridge



Plate 7: Rothwell Bridge - with former ford in foreground

The following table summarises results of historical survey in the region:

Table 3: Historical archaeological survey in the region

Consultant	Year	Location	Results	Relevant investigation area
Murphy and Morris	(2011)	Between rail line and Avalon airport	Desktop only	B
Schell	(2003a)	two blocks of land in Bates Rd, Lara	No new sites	
Schell	(2003b)	allotment in Flinders Ave, Lara	No new sites	
Marshall	(2002)	Geelong Ring Road	No new sites	C
Marshall and Webb	(2000)	Lara to Little River water pipeline	No new sites	All
Newby and Muir	(1999)	Western Ring Road to Corio Overpass	(H7822-0235). waste water irrigation ditches associated with the Metropolitan Farm	
Weaver	(1998)	land in Investigator Ave, Lara	No new sites	B
Lane	(1997)	Princes Highway near Little River	(H7721/054) dry stone enclosure	B
McNiven and Russell	(1997)	Geelong – Lara optical fibre cable route	No new sites	All
Webb	(1997a & b)	Princes Freeway, Little River adjacent to Pousties Rd	No new sites	A & B
Webb	(1997c)	two stony rises between Pousties Road and the Avalon Overpass	No new sites	B
Brown and Lane	(1996)	Lara and Colac gas pipeline	No new sites	C
du Cros and Associates	(1995)	Point Lillias	H7721/0011 1860s house; H7721/0012 coastal lagoon stone breakwater terracotta drain; H7721/0013 low basalt windbreak; H7721/0014 two basalt markers; H7721/0015 basalt quarry	

Historic places in the vicinity of the investigation areas are listed in the following table. It should be noted that potential impact to any of these sites is dependent on the detailed alignment position and design option for the proposed rail link.

Table 4: Cultural Heritage Places recorded in the vicinity of the investigation areas

Heritage listing and number Number ⁴	Site Type	Location	Relevant investigation area
H7721-0054	Pousties Road Dry Stone Enclosure	Little River	A
H7721-0086	Lara Homestead Ruins (Factory? & Cottages)	Serendip Sanctuary Lara	
H7721-0116	Hovells Creek Bridge Abutment	Geelong Rail Line Over Hovells Creek Lara	C
H7822-0325	Wilsons Road Cottage Ruin	Off Wilson Rd. South of Little River	
HO279 VHR H1723	Pirra Homestead	108-112 Windermere Road Lara, Greater Geelong City	
H7721-0244	Canterbury Road East House Site	Canterbury Road East	
H7822-0326	Rothwell Inn Ruins	Old Melbourne Road Rothwell	
HO73	Homestead	Old Melbourne Road Rothwell	
HO82	Rothwell Reserve	Old Melbourne Road And Rothwell	
HO298 VHR H1454	Rothwell Bridge	Old Melbourne Road Rothwell	
D7822-0337	Little River Weir	Off Rothwell Road, Rothwell	
HO91 VHR H1572	Little River Railway Station & Goods Yard	Geelong Railway, Little River	B
HO280	Lara Homestead	Lara	
D7721-0077	Lara Drainage Culvert	Off old Melbourne Road Lara	
VHR H1547 HO1731	Hume & Hovel Monument	Rennie Street Lara	
H7721-0065	Bluestone Cobbles & Artefact Scatter	Forest Rd off ramp Princes Freeway Corio	
D7822-0715	Open-cut basalt quarry	Geelong Railway north of Little River	

Rowe and Huddle (1998-2000) conducted a Heritage Study of the outer areas of the City of Greater Geelong. These sites have also been listed on the City of Greater Geelong Planning Scheme. Most local and state heritage places are located in and around Little River township. These include the site of the Travellers Rest Inn at Rothwell, Rothwell Bridge, Little River station and rail bridge, and Rothwell Bridge.

The landscape of the region has long been recognised as a significant part of local and visitor cultural heritage. Post card and photographic views of the plains and You Yangs feature prominently in perceptions of this cultural landscape. Among the depictions are some fine art works such as Fred Williams *You Yangs* series of paintings, along with the use of the area as a filming location.

Important views include those towards the You Yangs from the elevated sections of both the Old Melbourne road between Little River and Lara, and the Freeway between

⁴ HO## = Heritage Overlay; VHR## = Victorian Heritage Register; H#### = Heritage Inventory; D#### = 'Delisted' site, Heritage Victoria.

the Service Centre and Avalon overpass, as well as views from the railway line both north to the You Yangs, and south to Corio Bay and the Bellarine Peninsula beyond.

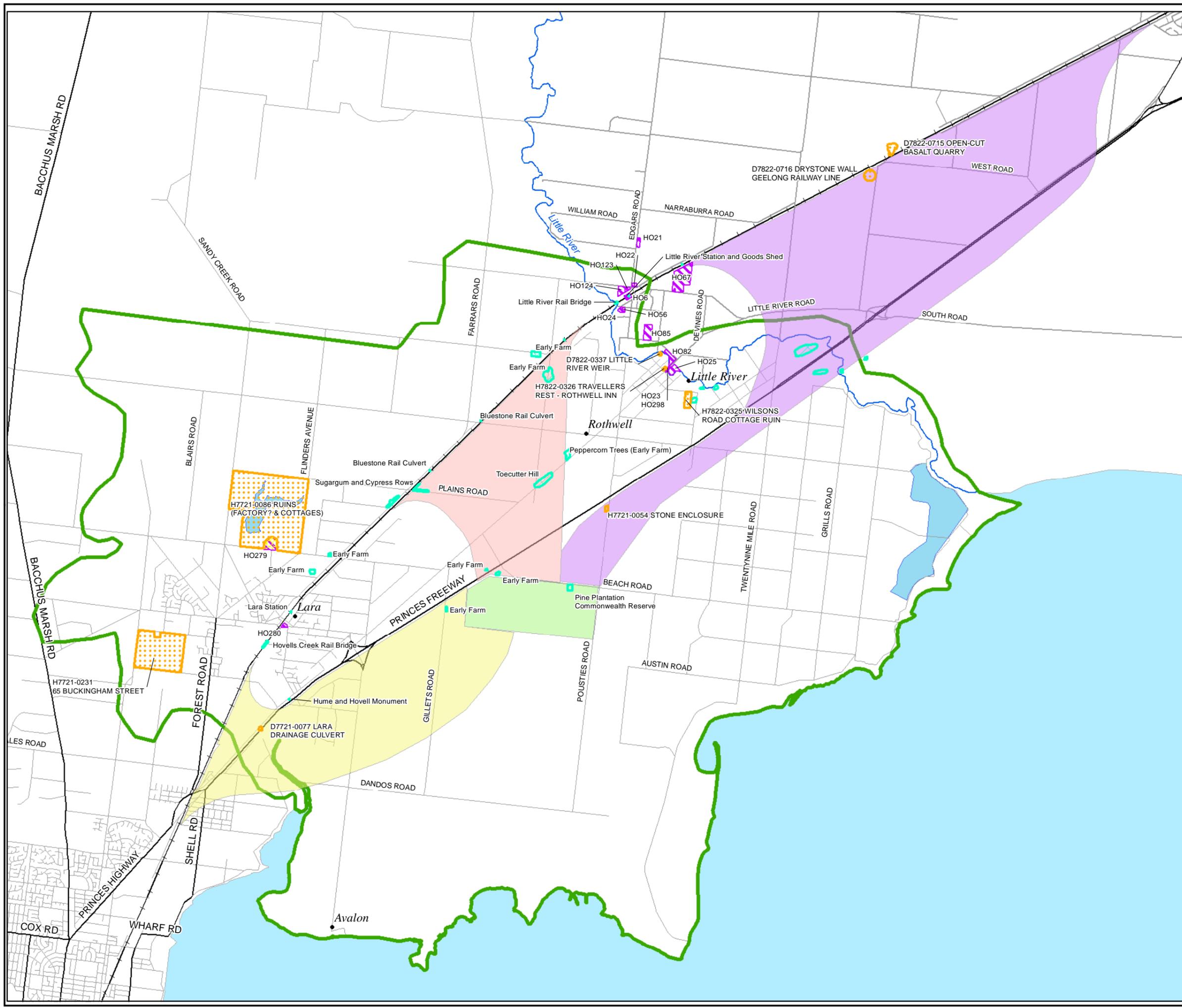


Plate 8: Example of significant views towards the You Yangs from Old Melbourne Road with pepper trees from historic farm site.



Plate 9: View across Toecutters Hill on Old Melbourne Road west of Little River.

More enclosed landscapes are to be found within Little River and Hovells Creek, which in some sections from secluded steep-sided valleys.



Legend

- Heritage Register Site
- Historically Significant Site
- Heritage Overlay
- Heritage Inventory Site

Study Area

Investigation Areas

- Airport Station
- Area A
- Area B
- Area C
- Geographic Region

Figure 5: Previously Recorded Historic Sites within the Geographic Region

0 2
 Kilometers
 Scale: 1:75,000 @ A3
 Coordinate System: GDA 1994 MGA Zone 55

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5.3 Discussion and predictive modelling

Cultural heritage assessments in the investigation areas are of varying quality and coverage, and while there has been quite intensive investigation of some areas nearby, such as the You Yangs, Pont Wilson and specific urban and utility development projects and a number of larger regional assessments, these have not looked in sufficient detail at cultural heritage values within the present activity area and environs to provide sufficiently fine resolution for demonstrating potential Aboriginal heritage.

Both survey and site results, however, strongly reinforce the established models for site distribution. These can be summarised as follows:

- Most large or dense occupation was within 100m of reliable waterways and coastal foreshore. – in this case Port Phillip Bay, Little River and Hovells Creek.
- Some hills and stony rises have evidence of temporary camps – while there are no hills some small ridges and stoney rises in the activity area provide vantage points.
- Scarred trees are found where suitable old growth native species survive. _ few opportunities exist in the present activity area.
- Burials occur only where there are soft sediments – such as sand dunes or river alluvium – such locations are restricted in the present activity area to only the Little River and Hovvells Creek crossing points.

What this modelling does not allow for is the micro topography climate and resource distribution that might determine occupation within the broader area. The following predictive model tries to address this.

Predictive modelling for historical sites can be done at very high level, but is generally of little value for forward planning. However, available historical resources, existing site survey and mapping, and detailed analysis of historical plans and aerial photographs allows more focussed identification of specific locations of archaeological potential. This has been done in the case of the areas potentially impacted by the transport link investigation areas, with the results shown on the accompanying figures.

5.3.1 Refined Site Prediction Model

The approach to determining potential impacts to cultural heritage has been in two directions. Previous studies and existing heritage listings have been summarised and plotted on maps to indicate sites and areas of sensitivity which are already identified and potentially may be impacted by the proposed transport link. Secondly, a more refined sensitivity model has been prepared, based on interpretation of landform, historical mapping, environmental factors, available resources, Aboriginal occupation patterns and ethnographic data.

The refined sensitivity modelling and mapping employing detailed analysis of source data, mapping and field survey, has only been carried out in detail for the investigation area B. However, interpolation of this data has been used to provide a higher level assessment of other broad options in investigation areas A and C.

5.3.2 Mapping method

Pre settlement wetlands, and vegetation patterns, soil types, field identification of vantage points, former swamps and drainage lines (cleared and drained in the historic period for farming) and interpretation of slope angle, shelter from prevailing winds, suitable creek crossing points and other topographic and geological features, have all been used to determine potential Aboriginal site locations.

Wetland areas and stony rises, were considered the most critical geographic features for site determination, and so were initially mapped from 1:24,000 topographic maps, with additional data from early Parish Plan feature surveys, the 1860s Geological Survey, and the DSW 1788 EVC and wetland mapping. The assumptions made from these were then field checked and advantage was taken of an unusual rain event in mid-December 2011, when over 80mm of rain fell on the Avalon area. This clearly demonstrated both the natural (pre-drained) water level on some swamps, and in the abundance of birdlife attracted to the water within hours of the storms.

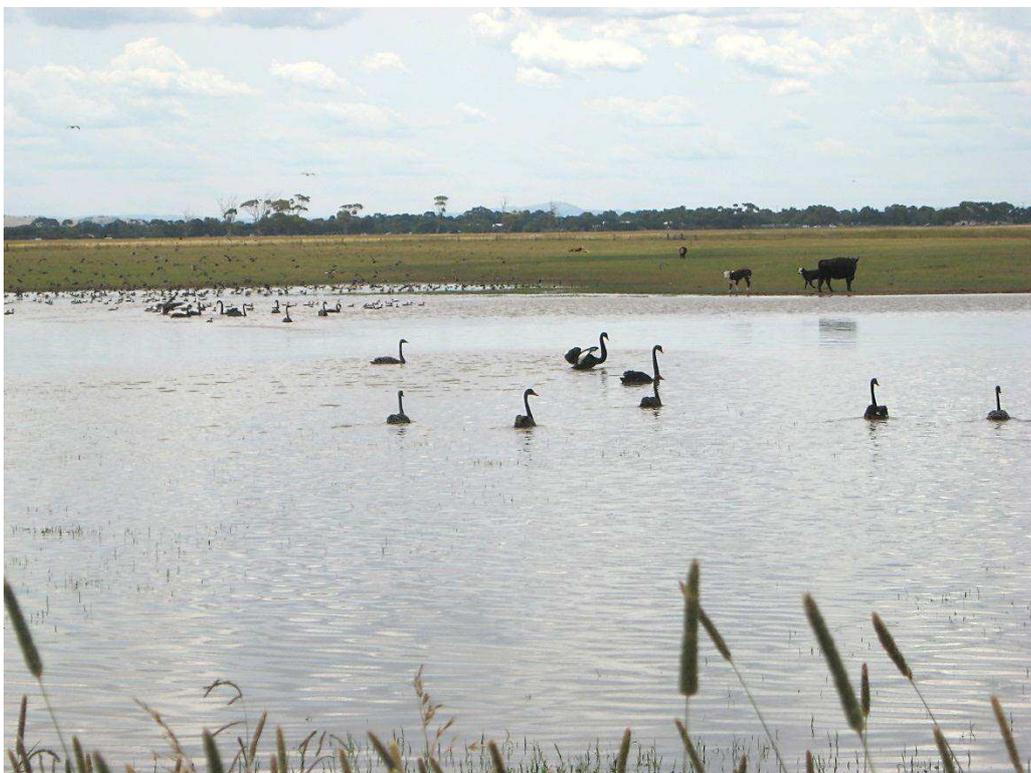


Plate 10: Temporary waterbody following 80mm rain in December 2011, near Avalon Airfield

Rather than use a standard buffer around water bodies (both current and historic), variables such as elevation, slope angle, shelter and ground condition were taken into account. Where there were several suitable sites within close proximity – for example a number of rises within 50-100m with relatively level tops and at least some stone free areas, then a choice was made on the balance of these criteria as to which would have been preferred.

Numerical weighting of the various criteria was considered to determine these preference decisions, but it was decided the method needs further testing and confirmation before this would be viable.



Plate 11: Flooded depression Dec. 2011 – normally drained and cropped.

5.3.3 Predictive modelling criteria

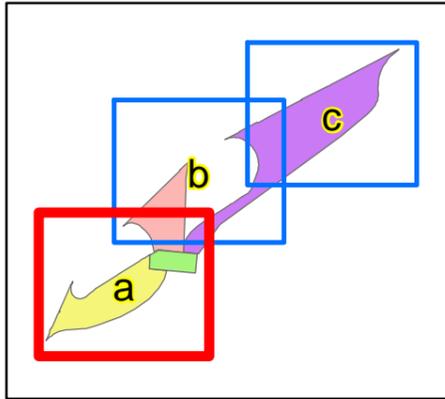
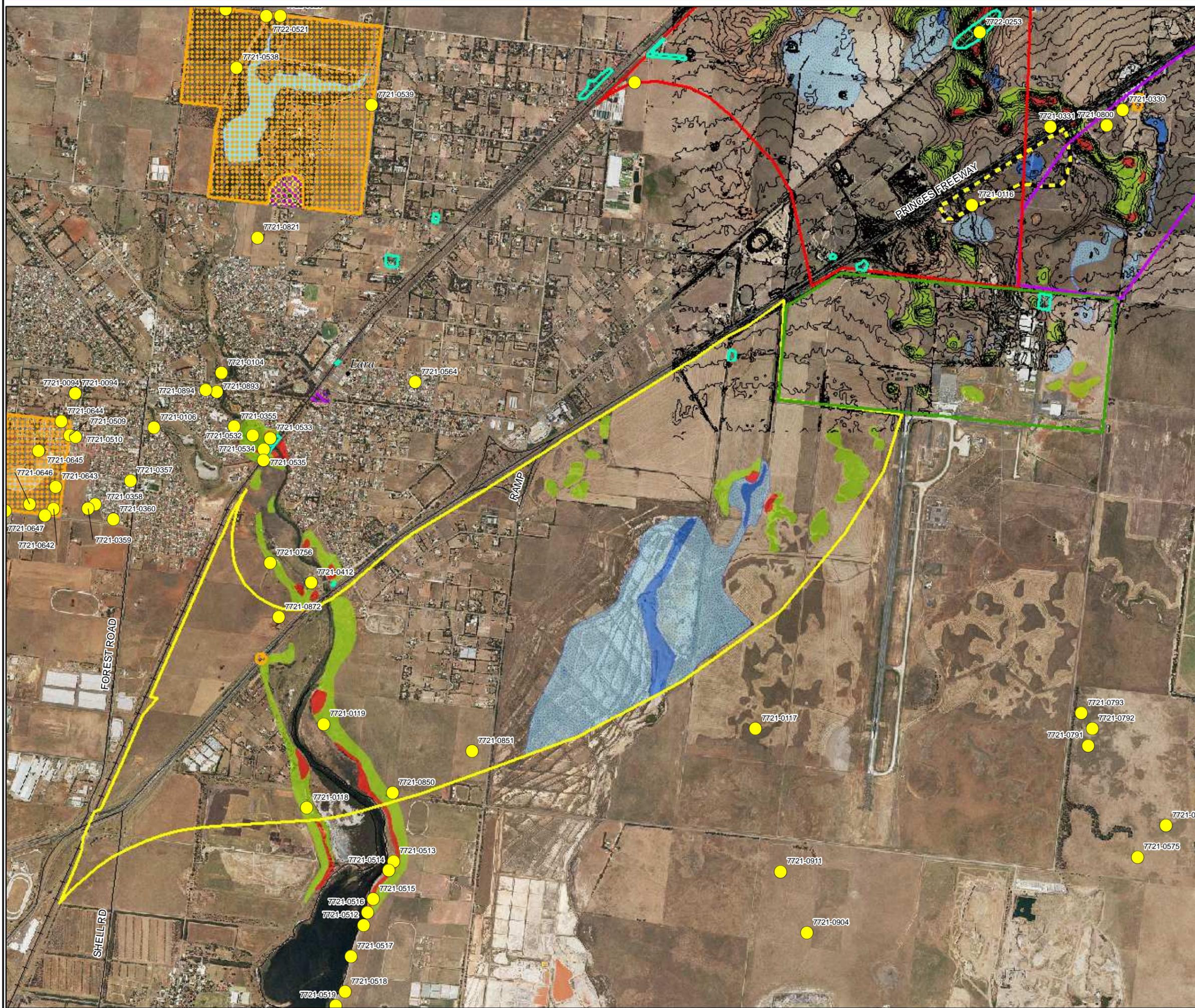
The criteria for determining areas predicted to have moderate and low levels of archaeological potential were as follows:

- Within 30m of fresh water (moderate)
- Within 100m of fresh water (low)
- Adjusted for reliability of water supply
 - perennial or regularly inundated (moderate)
 - occasionally inundated (low)
- Less than 15 degree slope (moderate)
- 20-15 degrees slope (low)
- Elevated vantage more than 5m above water body (moderate)
- Highest local elevation within 50m of water body (moderate)

- Highest elevation in area for long vantage (low)
- Elevated more than 2m above high water of waterway or water body (low)
- Within 50m of localised resource including artefact stone source, creek ford, etc. (this criteria has yet to be mapped or tested as it is dependent of detailed field survey)
- Corresponds to remnant indigenous vegetation (from flora and fauna study)

The results of application of this predictive modelling to the study area is that two levels of potential have been identified – moderate potential is considered to have a likelihood of extensive low density stone artefact scatters to occur with extents of 100 square metres or more, and occasional high density stone artefact scatters; low potential is considered to have a likelihood of occasional small low density artefact scatters and isolated artefacts.

Mapping of the sensitive areas is shown in Figure 6.



Legend

VAHR Sites

- Yellow dot
- Orange grid: Heritage Register Site
- Cyan outline: Historically Significant Site
- ▨ Purple hatched: Heritage Overlay
- Yellow grid: Heritage Inventory Site

Study Area

Investigation Areas

- Green outline: Airport Station
- Purple outline: Area A
- Red outline: Area B
- Yellow outline: Area C

Aboriginal Cultural Heritage

- Red: Moderate Potential
- Green: Low Potential

Water bodies

- Blue: Regularly inundated
- Light Blue: Occasionally inundated

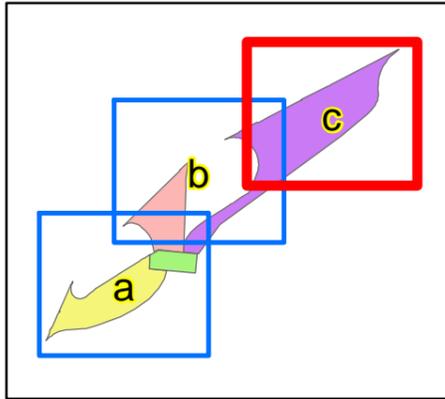
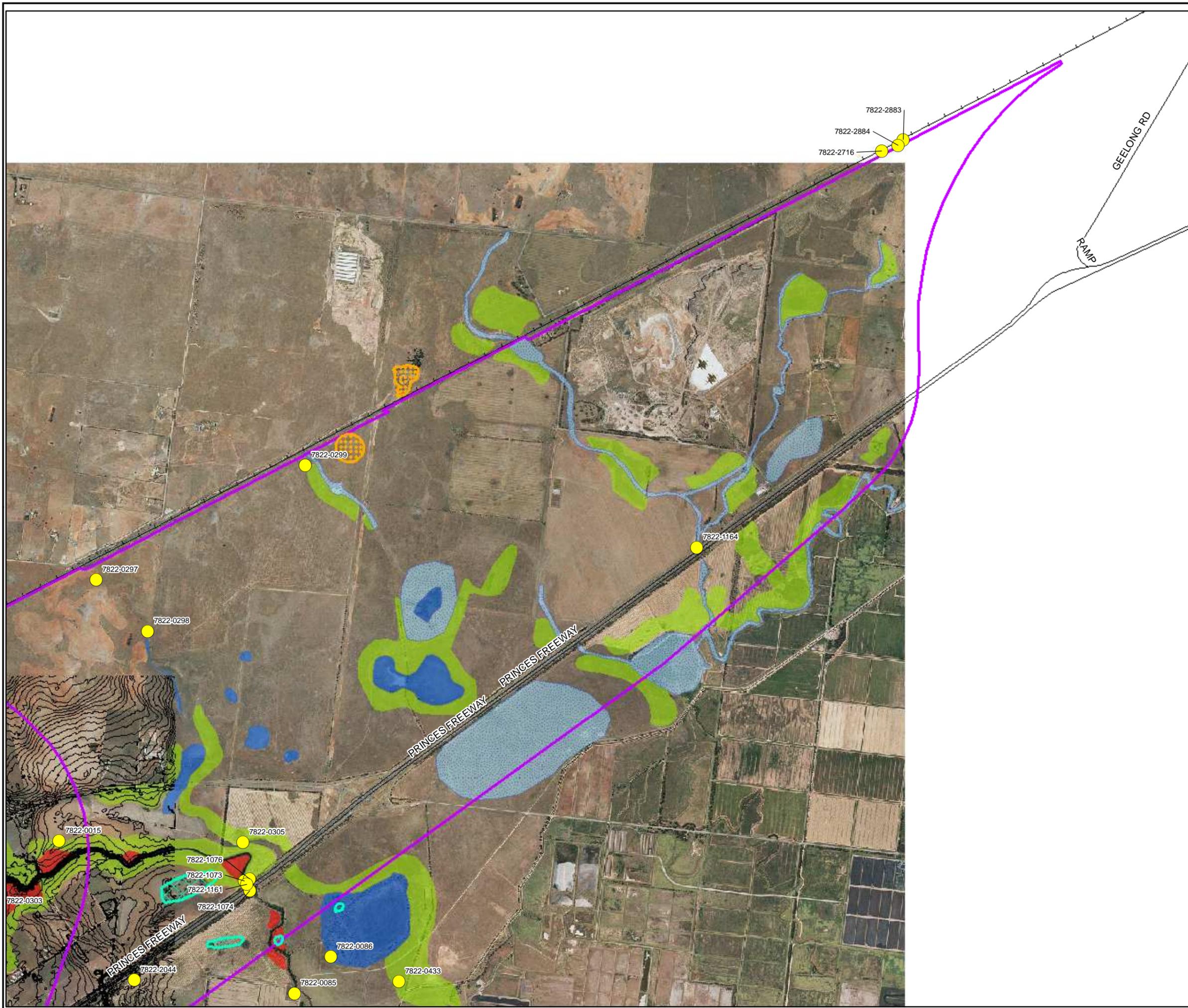
Figure 6a : Cultural Heritage places and areas of Aboriginal archaeological sensitivity in the Investigation Areas

0 200 400 600 800 1,000
Metres
Scale: 1:30,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

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Legend

VAHR Sites

- Yellow circle: VAHR Site
- Yellow dashed box: Heritage Register Site
- Blue dashed box: Historically Significant Site
- Purple dashed box: Heritage Overlay
- Orange dashed box: Heritage Inventory Site

Study Area

Investigation Areas

- Green box: Airport Station
- Purple box: Area A
- Red box: Area B
- Yellow box: Area C

Aboriginal Cultural Heritage

- Red: Moderate Potential
- Green: Low Potential

Water bodies

- Dark blue: Regularly inundated
- Light blue: Occasionally inundated

Figure 6c : Cultural Heritage places and areas of Aboriginal archaeological sensitivity in the Investigation Areas

0 200 400 600 800 1,000
Metres
Scale: 1:30,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

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6.0 CONCLUDING ANALYSIS ASSESSMENT OF INVESTIGATION AREAS

6.1 Objectives based analysis

The project evaluation framework incorporates an objectives based approach. The four adopted Phase One evaluation objectives are set out below. Under each objective are numbered criteria that were developed in consultation with project team and specialist consultants to ensure that a clear and common basis is available for assessment of project options. For this report and assessment the relevant objectives and criteria are shown shaded in the table.

Table 5: Phase One evaluation objectives

Objective 1. Provide a high standard, timely and cost effective public transport link for people travelling between Avalon Airport and both Melbourne and Geelong		
1.1	Travel time to Avalon from Melbourne and Geelong	
1.2	Indicative construction cost	
1.3	Impact on existing rail services	
1.4	Ability to stage development of the service	
Objective 2. Support the development of Avalon Airport and help to secure its future as Melbourne's second international airport		
2.1	Integration with current and future airport plans	
2.2	Flexibility to provide interim options	
Objective 3. Support the integration of the rail link with existing and future requirements to facilitate access to social and economic opportunities.		
3.1	Consistency with current and emerging land use plans and policies for the area and the region	
3.2	Potential for future social opportunities	
3.3	Potential for local and regional economic development	
Objective 4. Support the liveability of the region, having due regard to social, environmental and economic sustainability		
4.1	Interaction with urban development and other uses	
4.2	Indicative length	
4.3	Avoid and minimise biodiversity impacts	
4.4	Avoid and minimise cultural heritage impacts	
4.5	Minimise impacts on surface waters	
4.6	Minimise social impacts	
4.7	Minimise noise and vibration impacts	
4.8	Minimise landscape and visual amenity impacts	

The shaded criteria were used to assess each investigation area from the point of view of cultural heritage considerations and the ability of the area to support project objectives.

Investigation areas have been evaluated according to three main factors:

1. potential impact to known historical places
2. potential impact to known Aboriginal places
3. potential impact to areas of Aboriginal archaeological sensitivity

It is not considered that historical archaeological potential needs to be plotted as historical research; examination of aerial photos and site inspection suggests that any unidentified historical places would not be predicated on environmental, geographic or other land form variables. Also the history of settlement in the activity area has shown that it was very sparsely settled, and had very few residences or agricultural improvements. Where these did exist, and have not been located from historical sources, they can be readily identified from land modifications, exotic planting and surviving fabric.

While the current state of knowledge of Aboriginal archaeological places is limited, there have been sufficient assessments of key locations such as the potential crossing sites of Hovells Creek and Little River, that these impacts can be readily identified. Assessment of potential impact to areas of Aboriginal archaeological sensitivity is based on the predictive modelling and mapping outlined in the previous section.

Note that areas of impact to areas of archaeological sensitivity have been determined on the assumption that the construction corridor will be an average of 80 metres wide (allowing for two tracks communications and utility lines and access tracks) and that all the area within this corridor will be available for works.

6.1.1 Landscape impacts

Impacts to the significant views and cultural landscape values of the study area will depend on the ultimate design of the transport link, but assuming a relatively elevated link, something of the character of the existing Geelong-Melbourne railway; it has the potential to impact on significant views in some locations.

As discussed above the predominant views are from the elevated central portions of Old Melbourne Road and Princes Freeway to the northwest and from the Geelong railway line to the north and south.

6.2 Analysis of investigation areas A, B, C for a Direct Rail Link layout

Based on the investigation and analysis set out in this report the following conclusions about the suitability of the investigation areas to support the Rail Link are discussed.

6.2.1 Area A

4.4: Avoid and minimise cultural heritage impacts

Area A involves a crossing of Little River in an area not previously impacted by past development. It also involves crossings of between one and three other minor drainage lines. As any specific rail alignment would still require a crossing of Little River, there would be limited options for mitigating impacts to Aboriginal cultural heritage.

Although detailed modelling of Areas A and C have not been undertaken, it can be assumed that at least the areas of low sensitivity are likely to be comparable with Area B, where this mapping has been completed.

However, as laser levelling for the Western Treatment Plant, would have impacted on Aboriginal cultural heritage in the past and so diminished its potential significance; some mitigation for this area might be considered at least in the WTP area.

The Area A routes would have only a minor impact on views from the Freeway and only be visible at the crossings of the Little River Road at the eastern end.

Cultural landscape values may be impacted, particularly in the easterly part where the ridge line is part of the principle views as a foreground barrier. More westerly parts of Area B would be of lesser impact as they would be recessive in the landscape. As any alignment in Area B would most probably be perpendicular to the existing railway they would not impact on the southern views from the line, and have no impact on the northern views.

Given the general distribution of low density Aboriginal cultural heritage throughout the investigation areas, there is also potential to impact Aboriginal sites beyond the Little River and waterways. Area A also requires the longest distance for the three assessment areas. And therefore has a substantial potential to impact cultural heritage.

6.2.2 Area B

4.4: Avoid and minimise cultural heritage impacts

Overall, Area B would have a lesser impact on Aboriginal cultural heritage as this does not require a crossing of Little River or Hovells Creek, where the greatest number of Aboriginal sites and largest and most significant sites has been shown to be located.

Area B is the shortest – being half the length of Area C and a third to quarter the length of Area C.

Area B does not have a major reliable fresh water source, and therefore the potential for significant Aboriginal cultural heritage sites is low. However the ridge line in the east of Area B is likely to have some cultural heritage significance, but there are opportunities to avoid this ridge line.

Within Area B, further mitigation may be possible due to the variations of archaeological potential with the area. For example, the drainage line from Cherry Swamp, and adjacent basalt ridge and stony rises form the primary landscape features influencing likely Aboriginal occupation patterns in the area between Little River and Hovells Creek. Therefore, an easterly route through investigation Area B might traverse this ridge line and so have a greater impact due to the preponderance of areas of likely Aboriginal potential and two registered Aboriginal sites along the route.

The middle part of Area B, however, comprises lower land between occasionally inundated water bodies, with only small areas of elevated ground at the north and south extremes, while the westerly part crosses undifferentiated flat ground without likely water bodies or discernable elevated areas.

6.2.3 Area C

4.4: Avoid and minimise cultural heritage impacts

Area C requires a crossing of Hovells Creek, which has been established as an area of high Aboriginal archaeological potential. Area C is in part mitigated where it passes through areas already significantly disturbed (such as the freeway, saltworks and landfill/industrial land), and therefore has potential to avoid cultural heritage impacts. There would still be substantial impacts at the Hovells Creek crossing.

The views in the vicinity of Area C have not been considered significant, although there might be some impact at the Hovells Creek crossing, where this section of valley has a local significance. As substantial parts of Area C are in areas of high disturbance (Cheetham Saltworks saltpans, and Corio Landfill site) the visual impacts of this route would be diminished.

Area C is about twice as long as Area B and so would have a correspondingly greater impact on potential Aboriginal cultural heritage.

6.3 Summary of analysis

The relative likely impacts for the various investigation areas are shown in the following table:

Table 6: Potential cultural heritage impacts for various investigation areas

investigation area	Historical places	Aboriginal places	Average extent of Aboriginal archaeological sensitivity		
			Creek crossings	Low sensitivity	Moderate sensitivity
Area A	1-3	3-5	Little River 1-3 minor creeks	12 Ha.	1 Ha.
Area B	1	1	1 minor creek	6 Ha.	0.1 Ha.
Area C	1	1-3	Hovells Creek	6 Ha.	0.5 Ha.

Overall Area A is considered to have at least three times the impact on cultural heritage than Area B, and Area C would have about twice the impact of Area B.

Table 7: Summary Assessment of Areas

Criterion	A	B	C
<i>4.4: Avoid and minimise cultural heritage impacts</i>	--	+	--
Summary	--	+	--

Key

- ++ Supports objective well
- + Supports objective
- Supports with qualifications
- Does not support the objective
- INS Insufficient information to assess at this phase

7.0 CONCLUSIONS

Background research, site assessment and analysis of existing cultural heritage data relevant to the three investigation areas for the Avalon Airport Rail Link project have been undertaken. This has demonstrated discrete patterns of potential cultural heritage within the investigation areas. Aboriginal cultural heritage is concentrated on major waterways, and on elevated ground near permanent and intermittent water sources. Historical Cultural Heritage is confined to specific settlement locations, which are constrained in the area and have been identified by historical and field investigations.

Evaluation of the investigation areas shows that overall the investigation area B would have a lesser impact on Aboriginal cultural heritage than Areas A and C, primarily due to the greater length and requirement for a crossing of a major waterway for the latter two investigation areas. Cultural heritage sensitivity mapping has shown that there is a very high potential for significant Aboriginal cultural heritage close to major waterways and reliable water sources (such as Hovells Creek and Little River), while there is a general potential for Aboriginal cultural heritage throughout the investigation areas. Therefore, along with the requirement for crossings of these waterways, the greater the length of any linear project such as a rail line, the greater its potential impact on cultural heritage.

As Area B does not require a crossing of Little River or Hovells Creek, where the greatest number of Aboriginal sites and largest and most significant sites has been shown to be located it is considered to better satisfy the project objective of avoiding and minimising cultural heritage impacts.

Under the Aboriginal Heritage Act 2006 and Aboriginal Heritage Regulations 2007, a Cultural Heritage Management Plan may be mandatory for the project, depending on the final alignment chosen.

Overall Area A is considered to have at least three times the impact on cultural heritage than Area B, and Area C would have about twice the impact of Area B.

APPENDICES

Appendix 1: Assessment of Heritage Significance

A1.1 Introduction

Assessing the significance of a cultural heritage place is undertaken to make decisions about the best way to protect and manage that particular heritage place. The category and significance of a heritage place will also determine if it is to be given statutory protection. The statutory issues that affect heritage places are discussed in detail in Appendix 2.

Places that are assessed as having National heritage significance can be added to the Commonwealth Register of the National Estate, those of State significance to the Victorian Heritage Register. Aboriginal Affairs Victoria maintains a register of known Aboriginal sites, and Heritage Victoria lists all known historical archaeological sites on the Victorian Heritage Inventory. A heritage place can also be protected under a planning scheme administered by local government. The National Trust maintains a list of significant heritage places, and local historical societies and Aboriginal communities will often have substantial knowledge about local heritage places.

Assessment of the significance of a heritage place can be complex and include a range of heritage values. The cultural heritage values of a site or place are broadly defined in the Burra Charter – the set of guidelines on cultural heritage management and practice prepared by Australia ICOMOS (International Council on Monuments and Sites) – as the ‘aesthetic, historic, scientific or social values for past, present or future generations’ (Marquis-Kyle and Walker 1992: 21). Various government agencies, including the Australian Heritage Commission and Heritage Victoria, have developed formal criteria for assessing heritage significance. These have been included at the end of this appendix and used in this report as applicable. Many Aboriginal sites also have significance to a specific Aboriginal community – this is discussed in a separate section below.

The primary criterion used to assess archaeological sites is *scientific* significance. This is based on the capacity of archaeological relics and sites to provide us with historical, cultural or social information. The following evaluation will assess the scientific significance of the archaeological sites recorded during this project. The **scientific significance assessment** methodology outlined below is based on scores for research potential (divided into site contents and site condition) and for representativeness. This system is refined and derived from Bowdler (1981) and Sullivan and Bowdler (1984).

A1.2 Criteria for significance assessment – archaeological sites

- i) Scientific significance assessment: historical archaeological sites and Aboriginal artefact scatters and isolated artefacts

Scientific significance is assessed by examining the research potential and representativeness of archaeological sites.

Research potential is assessed by examining site contents and site condition. Site contents refers to all cultural materials and organic remains associated with human activity at a site. Site contents also refers to the site structure – the size of the site, the patterning of cultural materials within the site, the presence of any stratified deposits and the rarity of particular artefact types. As the site contents criterion is not applicable to scarred trees, the assessment of scarred trees is outlined separately below. Site condition refers to the degree of disturbance to the contents of a site at the time it was recorded.

The site contents ratings used for archaeological sites are:

- 0 No cultural material remaining.
- 1 Site contains a small number (e.g. 0–10 artefacts) or limited range of cultural materials with no evident stratification.
- 2 Site contains:
 - (a) a larger number, but limited range of cultural materials; and/or
 - (b) some intact stratified deposit remains; and/or
 - (c) rare or unusual example(s) of a particular artefact type.
- 3 Site contains:
 - (a) a large number and diverse range of cultural materials; and/or
 - (b) largely intact stratified deposit; and/or
 - (c) surface spatial patterning of cultural materials that still reflect the way in which the cultural materials were deposited.

The *site condition* ratings used for archaeological sites are:

- 0 Site destroyed.
- 1 Site in a deteriorated condition with a high degree of disturbance; some cultural materials remaining.
- 2 Site in a fair to good condition, but with some disturbance.
- 3 Site in an excellent condition with little or no disturbance. -or surface artefact scatters this may mean that the spatial patterning of cultural materials still reflects the way in which the cultural materials were laid down.

Representativeness refers to the regional distribution of a particular site type. Representativeness is assessed by whether the site is *common*, *occasional*, or *rare* in a given region. Assessments of representativeness are subjectively biased by current knowledge of the distribution and number of archaeological sites in a region. This varies from place to place depending on the extent of archaeological research. Consequently, a site that is assigned low significance values for contents and condition, but a high significance value for representativeness, can only be regarded as significant in terms of knowledge of the regional archaeology. Any such site should be subject to re-assessment as more archaeological research is undertaken.

Assessment of representativeness also takes into account the contents and condition of a site. For example, in any region there may only be a limited number of sites of any type that have suffered minimal disturbance. Such sites would therefore be given a high significance rating for representativeness, although they may occur commonly within the region.

The *representativeness* ratings used for archaeological sites are:

- 1 common occurrence
- 2 occasional occurrence
- 3 rare occurrence

Overall scientific significance ratings for sites, based on a cumulative score for site contents, site integrity and representativeness are:

- 1-3 low scientific significance
- 4-6 moderate scientific significance
- 7-9 high scientific significance

ii) Scientific significance assessment: scarred trees

The scientific significance assessment for scarred trees varies from the significance assessment outlined above because a scarred tree has no site contents rating (a tree either is, or is not, a scarred tree). Although scarred trees are a site type usually associated with traditional Aboriginal cultural activity, there are examples of scarred trees associated with non-Aboriginal activity (survey blazes for example).

The *site condition* ratings used for scarred trees are:

- 1 poorly preserved tree scar
- 2 partly preserved tree scar
- 3 well preserved example of a scarred tree

Representativeness refers to the regional distribution of scarred trees. Representativeness is assessed on whether the site is common, occasional or rare in a given region. Representativeness should take into account the type and condition of the scar(s)/tree (the tree will be in: good health, poor health, dying, dead-standing, dead-on ground or destroyed) and the tree species involved.

The *representativeness* ratings used for scarred trees are:

- 1 common occurrence
- 2 occasional occurrence
- 3 rare occurrence

Overall scientific significance ratings for scarred tree sites based on a cumulative score for site condition and representativeness are:

- 1-2 low scientific significance
- 3-4 moderate scientific significance
- 5-6 high scientific significance

A1.4 Aboriginal Cultural Significance

Aboriginal sites and areas of land for which a local Aboriginal community has custodianship usually have a special significance for Australian Aboriginal people.

Australian Aborigines have a very ancient and distinct traditional culture, which is very much alive. At the same time, in Australian society today they constitute a visibly oppressed and disadvantaged minority. These two elements give their heritage and history a special significance, ...Aboriginal places may be important to Aboriginal people in a number of ways. In southern Australia the vast majority of sites are prehistoric [rather than 'sacred' or historic]. They relate to evidence of Aboriginal occupation of the continent over 60,000 years, but they have no specific traditional significance to any particular group. They are usually as unknown to Aborigines as to others until located and identified by archaeological survey of other research.

(Pearson and Sullivan 1995: 159, 162)

All pre-contact (pre-European settlement) sites that are located in the study area are considered to be of cultural significance to the Wurundjeri. The sites are evidence of past Aboriginal occupation and use of the area, and are the main source of information about the Aboriginal past. The consultants cannot comment directly on such cultural significance – comment can only be made by the Aboriginal community. In addition, any recorded (and unrecorded) pre-contact sites are of cultural significance because they are rare or, at least, uncommon site-types. In particular, many sites in the greater Melbourne region have been destroyed as a result of land clearance and land-use practices in the historic period.

A1.5 Non-Aboriginal sites – Cultural Heritage Significance

Heritage Victoria is the State Government body responsible for protecting non-Aboriginal heritage places in Victoria, including gardens, buildings, shipwrecks and historical archaeological sites. Heritage Victoria administers the *Heritage Act 1995*, and has provided formal criteria for the assessment of cultural heritage significance. The application of these criteria will determine if a heritage place meets the threshold to be considered for addition to the Victorian Heritage Register.

Although most historical archaeological sites will have application to Criterion C, which addresses scientific value (discussed in detail above), several of the other criteria may still be applicable. On the basis of these criteria, heritage places are generally accorded a significance ranking of State, Local or none. Historical archaeological sites, as with other heritage places, can be considered for addition to the Victorian Heritage Register if they are considered to have State significance. It should be noted, however, that *all* historical archaeological sites are included on the Victorian Heritage Inventory and are accorded statutory protection, irrespective of their level of significance.

(Criteria adopted by the Heritage Council on 6 March 1997 pursuant to Sections 8(c) and 8(2) of the Heritage Act 1995):

CRITERION A. The historical importance, association with or relationship to Victoria's history of the place or object.

CRITERION B. The importance of a place or object in demonstrating rarity or uniqueness.

CRITERION C. The place or object's potential to educate, illustrate or provide further scientific investigation in relation to Victoria's cultural heritage.

CRITERION D. The importance of a place or object in exhibiting the principal characteristics or the representative nature of a place or object as part of a class or type of places or objects.

CRITERION E. The importance of the place or object in exhibiting good design or aesthetic characteristics and/or in exhibiting a richness, diversity or unusual integration of features.

CRITERION F. The importance of the place or object in demonstrating or being associated with scientific or technical innovations or achievements.

CRITERION G. The importance of the place or object in demonstrating social or cultural associations.

Appendix 2: Statutory Regulations

A2.1 Aboriginal Sites

- i) Victorian Aboriginal cultural heritage legislation

The New Victorian Aboriginal Heritage Act 2006

In 2006 the Victorian Aboriginal Heritage Act 2006 was introduced, and was enacted on the 28th May 2007. This new Act replaced Part IIA of the Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984 and the State Archaeological and Aboriginal Relics Preservation Act 1972. From this date Aboriginal cultural heritage in Victoria is protected through the Aboriginal Heritage Act 2006 and the Aboriginal Heritage Regulations 2007.

The key features of the Act are as follows:

- Establishment of an Aboriginal Heritage Council (AHC) which advises the Minister for Aboriginal Affairs on cultural heritage;
- Establishment of Registered Aboriginal Parties (RAPs) that are involved in heritage management at a local level;
- Requirements for Cultural Heritage Management Plans (CHMPs), for all projects that may have a significant cultural heritage impact to be completed by Cultural Heritage Advisors (archaeologists and other heritage specialists);
- The issue of Cultural Heritage Permits (CHPs) for activities that are likely to impact or harm an Aboriginal heritage site, in those cases where a CHMP is not required. Permits are issued by the Secretary for the Department for Planning and Community Development (DPCD);
- Declarations may be made under the Act by the Minister, to protect and preserve important Aboriginal cultural heritage places;
- Penalties for failing to comply with the Act are substantially increased;
- Stop Orders can be issued by Inspectors or the Minister, in order to stop any activity that endangers or harms an Aboriginal site; and

The Act establishes the Victorian Aboriginal Heritage Register which holds details on all recorded Aboriginal heritage sites in the State.

Those sections of the Act relevant to clients seeking approvals are discussed below.

Cultural Heritage Management Plans

Under s.46 of the new Act, a Cultural Heritage Management Plan is required for an activity if:

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

A CHMP may also be directed by the Minister, and is required if an activity is to be the subject of an Environmental Effects Statement (EES).

The terms 'high impact activity', 'significant ground disturbance' and 'cultural heritage sensitivity' are all defined in the Aboriginal Heritage Regulations 2007 (see www.legislation.vic.gov.au). The regulations also define what activities are exempt from needing a CHMP.

A Cultural Heritage Management Plan is a written report containing the results of the archaeological assessment and recommendations for measures to be taken before, during and after an activity to manage and protect Aboriginal cultural heritage in the area.

Preparation of a Cultural Heritage Management Plan involves a Cultural Heritage Advisor (an archaeologist or other heritage specialist) working with Aboriginal community representatives and RAPs to identify and assess cultural heritage values in relation to a proposed development or activity.

There are a prescribed series of stages involved in the development of a CHMP, where there is likely to be an impact on a previously identified cultural heritage site, or the study area is located in an area of cultural heritage sensitivity. Typically these involve a desktop assessment, standard assessment and complex assessment. A desktop assessment involves accessing and reviewing available information to determine if any recorded cultural heritage sites exist or if unrecorded sites are likely to occur. If it is possible that sites might be present in the study area, a standard assessment then follows with the completion of a field survey. Then finally, if it is necessary to identify the nature, extent and significance of any cultural material present in the study area, a complex assessment is conducted. This will involve controlled excavation of the study area.

A CHMP must be complete and consistently written in accordance with AAV Guidelines, and will be formally assessed by either the relevant RAPs or the Secretary for the DPCD.

Process

When preparing a CHMP it is necessary for the project sponsor (the proponent i.e. the developer) to first submit a 'notice of intent to prepare a management plan' as prescribed in s.54 of the Act. This formally starts the CHMP process and is a document that must be appended to a management plan submitted for evaluation. A suggested format of this notice can be found on the AAV website at http://www1.dvc.vic.gov.au/aav/heritage/forms_fees_penalties and under 'Useful Administrative Forms'.

The necessary notification must be submitted to:

The Deputy Director, AAV
Mr Ian Hamm
Deputy Director
Aboriginal Affairs Victoria
GPO 2392
MELBOURNE VIC 3001

All relevant RAPs;

All owners and occupiers of any land covered by the CHMP.

RAPs have 14 days from receipt of the notice to respond as to whether they will assess the CHMP and specify if and how they wish to consult with the proponent and be involved in the heritage assessment. When notified by a RAP of their intended involvement in assessing a CHMP, the proponent is required to make all attempts to involve the RAP in consultation regarding the evolution of the CHMP and in the field assessment.

RAPs may elect not to assess a CHMP, or if they fail to respond within 14 days of receipt of notice, in such cases the proponent must notify the Secretary, who is then required to assess it.

Following completion of a CHMP the proponent seeks approval from:

Any RAPs who gave notice of intention to assess it; or

The Secretary where there is no relevant RAP, the RAP elects not to assess the CHMP or does not respond within 14 days of the notice of intention sent by the proponent.

Where applicable, the RAPs/Secretary has 30 days after receiving the application to evaluate the CHMP and respond to the proponent in writing of their decision to approve or refuse the CHMP.

When a CHMP has been approved, it must be lodged with the Secretary, and copies of each notice of decision must accompany the document.

Importantly, under s.52 of the Act, the decision-making authorities such as government agencies and local government will not be able to issue statutory approval for a work authority, licence or planning permit for certain activities unless an approved CHMP has first been received.

Registered Aboriginal Parties (RAPs)

Under the Act there is a system of Registered Aboriginal Parties (RAPs). Local Aboriginal organisations can apply to become RAPS, including Native Title parties and traditional owner groups. The RAPS are involved in assessing all relevant CHMPs, Cultural Heritage Permits and are generally involved in heritage management at a local level.

In cases where there are no RAP registered for a given area, consultation about the CHMP should be made with the local Aboriginal community as represented by the Victorian component of the Commonwealth Act. If there is more than one RAP involved in the area for which a CHMP is being developed then all have equal rights.

If a CHMP is produced, the relevant RAP must consider a notice of intention to prepare a Plan, and advise in writing within 14 days of the notification as to whether the RAP intends to evaluate the Plan. If the RAP chooses to assess the Plan, it must consult with the sponsor on the cultural heritage assessment, recommendations, and may participate in the conduct of the assessment. A decision must be made by the RAP on the approval or refusal of the Plan within 30 days of receiving the Plan. If the Plan is refused the proponent has the right to appeal at VCAT, though the first avenue of appeal will typically be the AHC.

RAPs can charge fees for the evaluation of management plans, which are prescribed under the Act. The RAPs may also charge fees to consult with proponents and to participate in field assessments.

Cultural Heritage Permits

In those cases where a CHMP is not required but an activity is still likely to impact or harm an Aboriginal heritage site, a Cultural Heritage Permit may be required. A Permit cannot be granted for an activity that requires a CHMP.

Permits are required for the purposes of uncovering or discovering Aboriginal cultural heritage, or where there is likely to be an impact on a cultural heritage site.

Permits are lodged with the Secretary for the Department for Planning and Community Development (DPCD), who forwards them to the relevant RAP. RAPs have 30 days to advise in writing if they agree or refuse to grant the Permit. Permits are granted by the Secretary for the DPCD. RAPs may object to the issue of a permit on the basis of registered criteria under the Act, in which case the Secretary of the DVC must refuse to grant a permit if the objection was raised during the 30 day consideration period. There is an avenue for review of refusals through VCAT. RAPs can attach any reasonable conditions to the issue of a Permit, as can the Secretary.

Any CHP applications must be forwarded to:

Secretary for Department of Planning and Community Development
Department of Planning and Community Development
Aboriginal Affairs Victoria
GPO 2392
MELBOURNE VIC 3001

Dispute Resolution

The Act includes processes for dispute resolution including review of certain decisions through the Victorian Civil and Administrative Claims Tribunal (VCAT). If, for example, a decision is made by an RAP to refuse a CHMP then the decision may be appealed by the proponent.

Where more than one RAP is involved in the assessment of a CHMP and disagrees about the evaluation, the Act establishes a process for resolution through the AHC.

ii) Native Title Act 1993

The Commonwealth Native Title Act establishes the principles and mechanisms for the preservation of Native Title for Aboriginal people.

Under Subdivision P of the Act, *Right to negotiate*, native title claimants can negotiate about some proposed developments over land and waters (known as 'Future Acts') if they have the right to negotiate. Claimants gain the right to negotiate if their native title claimant application satisfies the registration test conditions.

The right to negotiate applies over some proposed developments or activities that may affect native title. These are known as future acts under the Native Title Act 1993. Native title claimants only have the right to negotiate over certain types of future acts, such as mining. Activities such as exploration and prospecting on the land do not usually attract the right to negotiate.

The right to negotiate is not a right to stop projects going ahead — it is a right to have a say about how the development takes place. In some situations, the right to negotiate does not apply. In these circumstances, claimants may have the right to be notified, to be consulted, to object and to be heard by an independent umpire.

The right to negotiate is triggered when a government issues a notice to say that it intends to allow certain things to happen on land, such as granting a mining lease. This notice is called a 'section 29 notice'.

People who claim to hold native title in the area, but have not yet made a native title claimant application, have three months from the date given in the section 29 notice to file a claim if they want to have a say about the proposed development. To get the right to negotiate, the claim must be registered within a month after that.

If the right to negotiate applies, the government, the developer and the registered native title parties must negotiate 'in good faith' about the effect of the proposed development on the registered native title rights and interests of the claimants.

The parties can ask the National Native Title Tribunal to mediate during the negotiations.

If the negotiations do not result in an agreement the parties can ask the Tribunal (no sooner than six months after the notification date) to decide whether or not the future act should go ahead, or on what conditions it should go ahead.

The National Native Title Tribunal administers the future act processes under the Commonwealth legislation. The Tribunal's role includes mediating between parties, conducting inquiries and making decisions (called 'future act determinations') where parties can't reach agreements.

When the Tribunal receives a future act determination application, it must conduct an inquiry (an arbitration) in order to determine whether the future act can be done and if so whether any conditions should be imposed.

A member of the Tribunal (or a panel of three members) will be appointed to conduct the inquiry, and will initially hold a preliminary conference and set directions for the parties to provide submissions and evidence. Members who have mediated a particular matter are not usually appointed as inquiry members. Inquiry members conduct hearings, receive submissions and evidence from the parties and take into account matters set out in section 39 of the Native Title Act such as:

- the effect of the future act on the enjoyment by the native title party of their registered native title rights and interests; their way of life, culture and traditions; the development of their social, cultural and economic structures; their freedom of access to the land and freedom to conduct ceremonies and other cultural activities; and the effect of the future act on any area or site of particular (special) significance to the native title party;
- the interests, proposals, opinions or wishes of the native title party;
- the economic or other significance of the future act;
- the public interest; and
- the presence of any existing non-native title rights and interests and use of the land by other persons (for instance, pastoralists).

A2.2 Non-Aboriginal Sites

i) Victorian cultural heritage legislation

The Heritage Act 1995 details statutory responsibilities for historic buildings and gardens, historic places and objects, historical archaeological sites, and historic shipwrecks. These responsibilities are set out in Part 1 of the Act, which states that one of the main purposes of the Act is to: 'provide for the protection and conservation of places and objects of cultural heritage significance and the registration of such places and objects'. The Act is administered by Heritage Victoria, part of the Department of Sustainability and Environment. The Act establishes the Heritage Council, a ten-member, independent statutory authority.

The Heritage Council determines which heritage places are included on the Victorian Heritage Register and acts as an appeal body.

- The Victorian Heritage Register

The Victorian Heritage Register was established pursuant to Section 18 of the Heritage Act 1995. Heritage places included on the Heritage Register are places assessed as having cultural heritage significance at a State level. For a place to be added to the Victorian Heritage Register a nomination must be made to the Executive Director. The Executive Director will review nominations and make recommendations to the Heritage Council for inclusion on the Victorian Heritage Register. All recommendations are advertised in a relevant newspaper and the owners or any party with a substantial interest in the heritage place or object can make a submission to the Heritage Council.

A permit may be required for particular works or activities in relation to a registered place or object. Permit applications must be submitted to the Executive Director who will consider the application and determine the matter. Should the applicant or owner object to the decision of the Executive Director, an appeal can be made to the Heritage Council.

- The Heritage Inventory

The Heritage Inventory was established pursuant to Section 120 of the Heritage Act 1995. The Heritage Inventory includes historical archaeological sites, places and relics in Victoria, providing they are older than 50 years, and regardless of their level of cultural heritage significance.

A Consent will be required for particular works or activities, including excavation, in relation to an archaeological site. Under the Heritage Act it is an offence to damage or disturb relics and archaeological sites, whether or not they have been included on the Heritage Inventory, without obtaining the appropriate permission from the Executive Director.

Consents and Permits

Depending on whether a place/site is listed on the Heritage Register or the Heritage Inventory, any proposed works will require the submission of an application for either a *Permit* (Heritage Register) or a *Consent* (Heritage Inventory). If an archaeological site has been added to the Heritage Register, this will take precedence: a Permit will be required, but not a Consent. In summary:

- A Permit is required if the site is on the Heritage Register. The assessment of the Permit application will be guided by its heritage status as a site of State significance.
- A Consent is required if the site is on the Heritage Inventory (and not on the Heritage Register). The assessment of the Consent application will be guided by the significance and integrity of the site.

Applications for Consents or Permits should be accompanied by a cheque for the prescribed fee. The cheque should be payable to the **Heritage Council**. The fees payable for particular classes of work are advised in Schedule 3 (Permits) or Schedule 5 (Consents) of *Heritage (General) Regulations 1996* (*Statutory Rule No. 85/1996*). The application should be made on the appropriate form and sent to:

Mr Ray Tonkin
Executive Director
Heritage Victoria
Level 7
8 Nicholson Street
EAST MELBOURNE VIC 3002

General queries relating to either Consent or Permit applications can be directed to:

Permits Co-ordinator
Heritage Victoria
Level 7
8 Nicholson Street
EAST MELBOURNE VIC 3002
Ph: (03) 9637 9475
Fax: (03) 9637 9503

Consultation relating to the Heritage Inventory and to historical archaeological sites should be conducted with Heritage Victoria archaeology officers, contact details as above.

Consultation and discussion with Heritage Victoria should be initiated well before lodging an application for a Consent or Permit to disturb or destroy a historical archaeological site.

- *Planning and Environment Act 1987*

The Victorian Planning and Environment Act provides local governments with the power to implement heritage controls over significant buildings or places. Heritage and conservation areas and heritage places – both Aboriginal and non-Aboriginal – can be identified and listed on a particular local planning scheme (usually through inclusion in the Heritage Overlay), and protected as places of heritage significance. A planning permit may be required from the local council if a place is subject to a heritage overlay control or is individually listed in the planning scheme. It is advisable to check with the relevant local council to determine if any additional permits are required.

- *Environment Effects Act 1978 and Amendment Act 1994*

The Victorian Environment Effects Act may have relevance with certain projects as it requires some development proposals to be assessed for their possible impact on the environment. The definition of environment includes the cultural heritage of the project area.

ii.) Commonwealth legislation

- *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)*

The Commonwealth Australian Heritage Commission Act was recently repealed and in its place amendments to the EPBC Act and the provision of an Australian Heritage Council have also been made in new legislation.

Under the EPBC Act Amendments (No 88, 2003) two mechanisms have been created for protection of heritage places of Commonwealth or National significance. Initially places in Commonwealth ownership may be placed on the Commonwealth list with similar protection measures as under the previous AHC act. In addition the National list provides protection to places of cultural significance to Australia. By law, no one can take any action that has, will have, or is likely to have, a significant impact on any places of national heritage value, without approval. Such actions must be referred to the Australian Government Minister for the Environment and Heritage.

Appendix 3: Advice about the Discovery of Human Remains

If suspected human remains are discovered during any excavation or development work, the steps outlined below should be followed.

Legal requirements

The *Coroner's Act 1985* requires anyone who discovers the remains of a 'person whose identity is unknown' to report the discovery directly to the State Coroner's Office or to the Victoria Police. A person who fails to report the discovery of such remains is liable to a \$10,000 fine. The Coroner's Act does not differentiate between treatment of Aboriginal and non-Aboriginal remains. The majority of burials found during development work are, therefore, likely to be subject to this reporting requirement.

In addition, Section 17 of the *Aboriginal Heritage Act 2006* requires anyone who discovers suspected Aboriginal remains in Victoria to report the discovery to the Secretary to the Department. The Director, Aboriginal Affairs Victoria, holds delegated authority to receive and investigate such reports.

It should be noted that the *Aboriginal Heritage Act 2006* is subordinate to the *Coroner's Act 1985* regarding the discovery of human remains. Therefore, the location at which the remains are found should be first treated as a possible crime scene, and the developer and/or contractor should not make any assumptions about the age or ethnicity of the burial.

Victoria Police Standing Orders require that an archaeologist from the Heritage Services Branch, Aboriginal Affairs Victoria, should be in attendance when suspected Aboriginal remains have been reported (Police Headquarters and the State Coroner's Office hold after-hours contact numbers for Heritage Services Branch staff). Where it is believed the remains are Aboriginal, the Police will usually invite representatives of the local Aboriginal community to be present when the remains are assessed. This is because Aboriginal people usually have particular concerns about the treatment of Aboriginal burials and associated materials.

Aboriginal Affairs Victoria - suggested procedure to be followed if suspected human remains are discovered

- If suspected human remains are discovered during development, work in the area must cease and the Police or State Coroner's Office must be informed of the discovery without delay. The State Coroner's Office can be contacted at any time on ph: (03) 9684 4444.
- If there are reasonable grounds to suspect the remains are Aboriginal, the discovery should also be reported to Aboriginal Affairs Victoria on ph: (03) 9637 8000. Aboriginal Affairs Victoria will ensure that the local Aboriginal community is informed about the circumstances of the discovery.
- Do not touch or otherwise interfere with the remains, other than to safeguard them from further disturbance.
- Do not contact the media.

GLOSSARY

Introduction and terminology

The glossary provides definitions of various terms used in this report. Where terms have been referenced the source has been included in the reference list at the end of this report.

There is often a degree of confusion about the use of terms such as *heritage place*, *historical site*, *archaeological site*. The definitions of these terms, as used in this report, have been included in the glossary and their relationship outlined in **Figure G1** below. The term used most consistently is *heritage place*. For the purpose of discussion in this plan ‘heritage place’ can be sub-divided into **Aboriginal place** and **historic place** (i.e. a historic place refers more particularly to non-Aboriginal sites).

Heritage place: A place that has aesthetic, historic, scientific or social values for past, present or future generations – ‘... this definition encompasses all cultural places with any potential present or future value as defined above’ (Pearson and Sullivan 1995:7).

Aboriginal place: Aboriginal place is defined under the Aboriginal Heritage Act 2006 s.5 as follows:

5 What is an Aboriginal place?

(1) For the purposes of this Act, an Aboriginal place is an area in Victoria or the coastal waters of Victoria that is of cultural heritage significance to the Aboriginal people of Victoria.

(2) For the purposes of subsection (1), *area* includes

any one or more of the following—

- (a) an area of land;
- (b) an expanse of water;
- (c) a natural feature, formation or landscape;
- (d) an archaeological site, feature or deposit;
- (e) the area immediately surrounding anything referred to in paragraphs (c) and (d), to the extent that it cannot be separated from the thing without diminishing or destroying the cultural heritage significance attached to the thing by Aboriginal people;
- (f) land set aside for the purpose of enabling Aboriginal human remains to be re-interred or otherwise deposited on a permanent basis;
- (g) a building or structure.

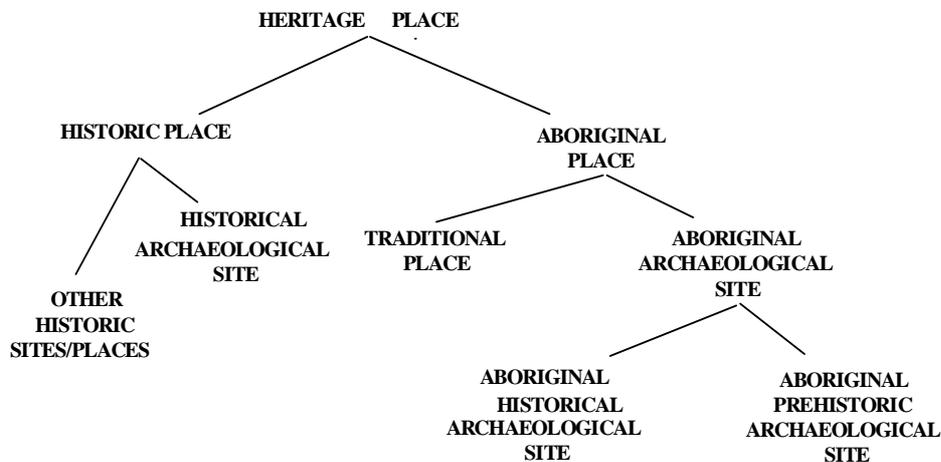


Figure G1: Terminology used for categories of heritage places.

Archaeological site types

The archaeological site types encountered in Australia can be divided into three main groups:

Historical archaeological site: an archaeological site formed since non-Aboriginal settlement that contains physical evidence of past human activity (for example a structure, landscape or artefact scatter).

Aboriginal historical archaeological site (or contact site): a site with a historical context such as an Aboriginal mission station or provisioning point; or a site that shows evidence of Aboriginal use of non-Aboriginal materials and ideas (for example: artefact scatter sites that have artefacts made from glass, metal or ceramics).

Aboriginal prehistoric archaeological site: a site that contains physical evidence of past Aboriginal activity, formed or used by Aboriginal people either before, or not long after, European settlement. These sites are commonly grouped as follows (further definition of each is contained in the glossary list):

artefact scatter	scarred tree
burial	shell midden
hearth	structures
isolated artefact	rock art
mound	rock shelter
quarry	rock well

One of the most common artefact types that provides evidence of Aboriginal people are those made from stone. Types and categories are outlined below in **Figure G2**, with further definition of each in the glossary list.

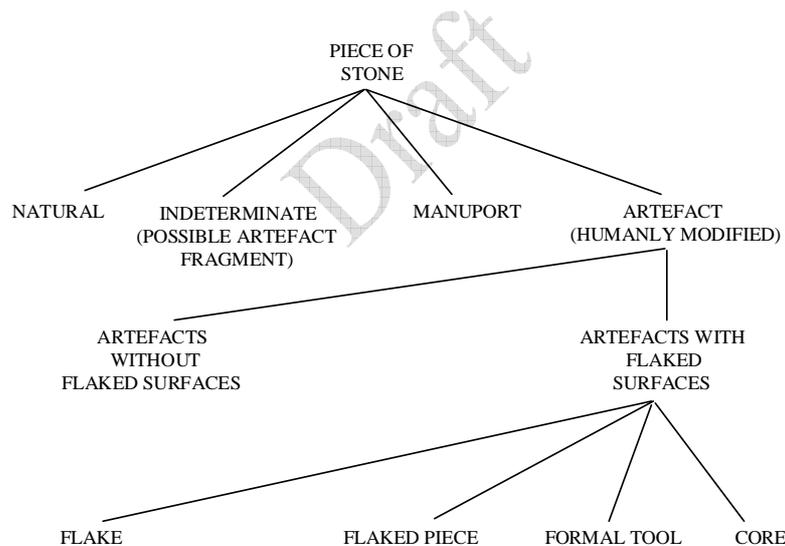


Figure G2: Stone artefact types/categories.

List of definitions

Aboriginal historical archaeological site (or contact site): either a site with an historic context such as an Aboriginal mission station or provisioning point; or a site that shows evidence of Aboriginal use of European/non-Aboriginal materials and ideas (e.g. artefact scatter sites that contain artefacts made from glass, metal or ceramics).

Aboriginal prehistoric archaeological site: a site that contains physical evidence of past Aboriginal

use, formed or used by Aboriginal people either before, or not long after, European settlement.

Alluvial terrace: a platform created from deposits of alluvial material along river banks.

Angular fragment: a piece of stone that is blocky or angular, not flake-like.

Archaeology: the study of the remains of past human activity.

Artefact scatter: a surface scatter of cultural material. Aboriginal artefact scatters are defined as being the occurrence of five (5) or more items of

cultural material within an area of about 100 sq. metres (AAV 1993:1j). Artefact scatters are often the only physical remains of places where people have lived camped, prepared and eaten meals and worked.

Backed piece: a flake or blade that has been abruptly retouched along one or more margins opposite an acute (sharp) edge. Backed pieces include backed blades and geometric microliths. They are thought to have been hafted onto wooden handles to produce composite cutting tools. Backed pieces are a feature of the 'Australian small tool tradition', dating from between 5000 and 1000 years ago in southern Australia (Mulvaney 1975; Holdaway and Stern, 2004).

Blade: a flake at least twice as long as it is wide.

Burial site: usually a sub-surface pit containing human remains and sometimes associated artefacts.

Contact site: see 'Aboriginal historical archaeological site'.

Core: an artefact from which flakes have been detached using a hammerstone. Core types include single platform, multi-platform and bipolar forms.

Cortex: original or natural (unflaked) surface of a stone.

Cortical: refers to the cortex.

Flake: a stone piece removed from a core by percussion (striking it) or pressure. It is identified by the presence of a striking platform and bulb of percussion, not usually found on a naturally shattered stone.

Flaked piece: a piece of stone with definite flake surfaces, which cannot be classified as a flake or core.

Formal tool: an artefact that has been shaped by flaking, including retouch, or grinding to a predetermined form for use as a tool. Formal tools include scrapers, backed pieces and axes.

GDA94 or Geocentric Datum of Australia 1994: a system of latitudes and longitudes, or east and north coordinates, centred at the centre of the earth's mass. GDA94 is compatible with modern positioning techniques such as the Global Positioning System (GPS). It supersedes older coordinate systems (AGD66, AGD84). GDA94 is based on a global framework, the IERS Terrestrial Reference Frame (ITRF), but is fixed to a number of reference points in Australia. GDA94 is the Victorian Government Standard and spatial coordinates for excavations, transects and sites in CHMP documents.

Geometric microlith: a small tool that has been fashioned from breaking apart a microblade. The piece is then retouched or backed and a small tool formed.

Grindstones: upper (handstone) and lower (basal) stones used to grind plants for food and medicine and/or ochre for painting. A handstone sometimes doubles as a hammerstone and/or anvil.

Ground Surface Visibility: the degree to which the surface of the ground can be seen. This may be influenced by natural processes such as wind erosion or the character of the native vegetation, and by land-use practices, such as ploughing or grading. Visibility is generally expressed in terms of the percentage of the ground surface visible for an observer on foot (Bird 1992).

Hearth: usually a sub-surface feature found eroding from a river or creek bank or a sand dune - it indicates a place where Aboriginal people cooked food. The remains of a hearth are usually identifiable by the presence of charcoal and sometimes clay balls (like brick fragments) and hearth stones. Remains of burnt bone or shell are sometimes preserved within a hearth.

Heritage Place: A place with aesthetic, historic, scientific or social values for past, present or future generations – '...this definition encompasses all cultural places with any *potential* present or future value as defined above' (Pearson and Sullivan 1995:7).

Historic place: a place that has some significance or noted association in history.

Historical archaeological site: an archaeological site formed since non-Aboriginal settlement that contains physical evidence of past human activity (for example a structure, landscape or artefact scatter).

Isolated artefact: the occurrence of less than five items of cultural material within an area of about 100m². It/they can be evidence of a short-lived (or one-off) activity location, the result of an artefact being lost or discarded during travel, or evidence of an artefact scatter that is otherwise obscured by poor ground visibility.

Manuport: foreign fragment, chunk or lump of stone that shows no clear signs of flaking but is out of geological context and must have been transported to the site by people.

Map Grid of Australia (MGA): The official coordinate projection for use with the Geocentric Datum of Australia 1994 (GDA94).

Mound: these sites, often appearing as raised areas of darker soil, are found most commonly in the volcanic plains of western Victoria or on higher ground near bodies of water. The majority were probably formed by a slow build-up of debris resulting from earth-oven cooking; although some may have been formed by the collapse of sod or turf structures. It has also been suggested some were

deliberately constructed as hut foundations (Bird and Frankel 1991: 7–8).

Percussion: the act of hitting a core with a hammerstone to strike off flakes.

Platform preparation: removal of small flake scars on the dorsal edge of a flake, opposite the bulb of percussion. These overhang removal scars are produced to prevent a platform from shattering (Hiscock 1986: 49).

Pre-contact: before contact with non-Aboriginal people.

Post-contact: after contact with non-Aboriginal people.

Quarry (stone/ochre source): a place where stone or ochre is exposed and has been extracted by Aboriginal people. The rock types most commonly quarried for artefact manufacture in Victoria include silcrete, quartz, quartzite, chert and fine-grained volcanics such as greenstone.

Rejuvenation flake: a flake that has been knapped from a core solely for the purpose of preparing a new platform and making it easier to get flakes off a core, as it reduces the angle between platform and core surface.

Retouch: a flake, flaked piece or core with intentional secondary flaking along one or more edges.

Rock art: ‘paintings, engravings and shallow relief work on natural rock surfaces’ (Rosenfeld 1988: 1). Paintings were often produced by mineral pigments, such as ochre, combined with clay and usually mixed with water to form a paste or liquid that was applied to an unprepared rock surface. Rock engravings were made by incising, pounding, pecking or chiselling a design into a rock surface. Rare examples of carved trees occasionally survive.

Rock shelter: may contain the physical remains of camping places where people prepared meals, flaked stone, etc. They are often classed as a different type of site due to their fixed boundaries and greater likelihood of containing sub-surface deposits. Rockshelters may also contain rock art.

Scarred tree: scars on trees may be the result of removal of strips of bark by Aborigines e.g. for the manufacture of utensils, canoes or for shelter; or resulting from small notches chopped into the bark to provide hand and toe holds for hunting possums and koalas. Some scars may be the result of non-Aboriginal activity, such as surveyors’ marks.

Scraper: a flake, flaked piece or core with systematic retouch on one or more margins. Scraper types follow Holdaway and Stern (2004).

Shell midden: a surface scatter and/or deposit comprised mainly of shell, sometimes containing stone artefacts, charcoal, bone and manuports.

These site types are normally found in association with coastlines, rivers, creeks and swamps – wherever coastal, riverine or estuarine shellfish resources were accessed and exploited.

Significance: the importance of a heritage place or site for aesthetic, historic, scientific or social values for past, present or future generations.

Striking platform: the surface of a core, which is struck by a hammerstone to remove flakes.

Structures (Aboriginal): can refer to a number of different site types, grouped here only because of their relative rarity and their status as built structures. Most structures tend to be made of locally available rock, such as rock arrangements (ceremonial and domestic), fishtraps, dams and cairns, or of earth, such as mounds or some fishtraps.

Stratified deposit: material that has been laid down, over time, in distinguishable layers.

Transect: A fixed path along which one records archaeological remains.

Utilised artefact: a flake, flaked piece or core that has irregular small flake scarring along one or more margins that does not represent platform preparation.

Station

REFERENCES

- Aboriginal Affairs Victoria 2002, Guidelines for Conducting and Reporting upon Archaeological Surveys in Victoria, AAV, Melbourne.
- Andrews, AEJ (ed), 1981, *Hume and Hovell 1924*, (Blubber Head Press, Hobart), pp 201, 203.
- Australia ICOMOS 1999, The Illustrated Burra Charter, The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter), revised edition.
- Barwick, D.E. 1984, 'Mapping the Past: An Atlas of Victorian Clans 1835-1904', *Aboriginal History*, vol. 8, no. 1-2, pp. 100-131.
- Bird, C.F.M. 1992, 'Archaeology of the Goulburn River Basin. A Background Study', unpublished report prepared by Victoria Archaeological Survey, Melbourne.
- Bird, C.F.M. and Frankel, D. 1991, 'Chronology and Explanation in western Victoria and south-east Australia', *Archaeology in Oceania*, vol. 26, pp. 1-16.
- Bowdler, S. 1981, 'Unconsidered trifles? Cultural resource management, environmental impact statements and archaeological research in New south Wales', *Australian Archaeology* 12, pp. 123-133.
- Brown, S. 1995. East Coast Armament Complex Point Wilson. Sub-surface testing for Aboriginal archaeological materials. Report for Kinhill Pty. Ltd.
- Brown, S. and S. Lane. 1996. South Western natural Gas pipeline project Lara to Colac Section: an archaeological survey. Report to Gas Transmission Corporation.
- Brownhill, W.R. 1955, *The History of Corio*, Melbourne.
- Bureau of Meteorology 2002 – http://www.bom.gov.au/cgi-bin/climate/cgi_bin_scripts/annual_rnfall.cgi
- Cannon, M (ed) 1981, *Historical Records of Victoria, Vol.1: Beginnings of Permanent Government* (VGPO, Melbourne),
- Cannon, M. (ed.) 1983. *Historical Records of Victoria, vol. 2B. Aborigines and Protectors 1838-1839*. Victorian Government Printing Office, Melbourne.
- Cannon, M. 1982, 'Aboriginals of Port Phillip', in *Historical Records of Victoria, Foundation Series 2A*.
- Catrice, D. 1995. Point Wilson Historical Research. Report to du Cros and Associates
- Clark, I. 1990, *Aboriginal Languages and Clans: An Historical Atlas of Western and Central Victoria*, Monash Publications in Geography No. 7.
- Cochrane, G.W., G.W. Quick and D. Spenser-Jones. 1995. *Introducing Victoria Geology*. Geological Society of Australia (Victorian Division), Melbourne.
- Debney, T. 1998, *Archaeological Survey of a Proposed Fertilizer Plant, Lara*, Report to BHP Petroleum.
- Douglas, J. and J. Ferguson (eds.) 1988. *Geology of Victoria*. Geological Society of Australia, Inc. Melbourne.
- Downes, M.C. nd, *A Report on the Serendip Wildlife Research Station 1959 – 1967*. Unpublished report.

- du Cros & Assoc., 1993, An archaeological Survey of the Proposed OFC Line between Werribee and Lara, Victoria. Unpublished report
- du Cros and Associates and Arrowsmith, Muir and Associates. 1995. Point Lillias Port and Bulk Liquid Chemical Storage Facility Environmental Effects Statement. Appendix Document 9 Cultural Heritage. Report for Point Lillias Project Unit.
- du Cros and Associates, 1995. East Coast Armament Complex Point Wilson, Victoria. Heritage. Report for Department of Defence.
- du Cros, H. 1998, 'Update of legislative requirements for cultural heritage', report to VicRoads.
- du Cros, H., 1989a, The Western Region – Melbourne and Metropolitan Area. An Archaeological Survey. Ministry of Planning and Environment and the Victoria Archaeological Survey.
- Ellender, I. And F. Weaver, 1994. An archaeological survey of Port Phillip Bay (3rd edition). Report for V.A.S.
- Flenniken, J.J. and White, J.P. 1983, 'Heat treatment of siliceous rocks and its implications for Australian prehistory', Australian Aboriginal Studies, vol. 1, 1983, pp. 43-48.
- Rex Harcourt, 2000, Southern Invasion, Northern Conquest: Story of the Founding of Melbourne, Golden Point Press, Blackburn South, p.154.
- Hiscock, P. 1986, 'Technological change in the Hunter River Valley and its implications for the interpretation of late Holocene change in Australia', Archaeology in Oceania, vol. 21, no. 1, pp. 40–50.
- Howitt, A.W. 1904, The Native Tribes of South Eastern Australia, MacMillan, London (Aboriginal Studies Press Reprint 1996)
- Hughes, P. and J. Wesson, 1978. An archaeological survey of the ICI property at Point Wilson, Victoria. Report for ICI Australia Ltd.
- James, K. nd, Aborigines in the Werribee District, Werribee Historical Society.
- Jenkin, J. 1988. Port Phillip Sunkland. In J. Douglas and J. Ferguson (eds.) Geology of Victoria. Geological Society of Australia, Inc. Melbourne.
- Jones, R. 1971, 'Rocky Cape and the Problem of the Tasmanians', PhD Thesis, University of Sydney, Sydney.
- Land Conservation Council 1973, Report on the Melbourne Study Area, Land Conservation Council, Melbourne.
- Land Conservation Council 1985, Melbourne Area, District 1 Review. Land Conservation Council.
- Lane, S. 1997. Archaeological survey of a proposed service centre on the Princes Highway, near Little River, Victoria. Report for Mitchell McCotter.
- Lane, S. 1999, South West Gas Pipeline, Victoria: Archaeological Monitoring and Subsurface Testing, Report to GPU GasNet.
- Lane, S. and S. Brown 1996 Southwestern natural gas pipeline project; Lara to Colac Section: An archaeological survey. Unpublished report.
- LCC, 1985 Melbourne Area District 1 Review. Land Conservation Council, Melbourne.
- Lemon, A. *Broadmeadows: A Forgotten History*, (City of Broadmeadows\ Hargreen, Melbourne, 1982), p.11.

- Manton, J.A. 1965, Windemere: History of Architecture IV, Unpublished research essay.
- Marquis-Kyle, P. and Walker, M. 1992 The Illustrated Burra Charter: Making Good Decisions about the Care of Important Places, Australia ICOMOS, Brisbane.
- Marshall, B and C. Kaskadanis 2008. Construction of Stages I and 2 of the Grand Lakes Housing Estate at Lara. Cultural Heritage Management Plan. AAV Management Plan No: 10241
- Marshall, B. & Webb, C. 2000, Earth Sanctuaries (Little River) Water Pipeline Archaeological Survey,
- Marshall, B. & Webb, C. 2000. An archaeological survey of the Lara to Little River water pipeline. Report for Barwon Water.
- Marshall, B. 1998, An Aboriginal Archaeological Survey of a Proposed Residential Subdivision at Lara, Report to Quirk Consultants.
- Marshall, B. 2001. An Aboriginal archaeological survey of a residential subdivision at Wongalea Drive, Lara. Report for TGM Pty. Ltd.
- Marshall, B. 2002 An Aboriginal Archaeological Survey. Grand Estate Buckingham Street, Lara. Unpublished report for L. Bisinella + TGM.
- Marshall, B. 2002. The Geelong Ring Road Strategic Study. Desktop Assessment of Cultural Heritage. Report for VicRoads.
- Marshall, N. Paynter and C. Collins 2004 An archaeological survey at Canterbury Road West, Lara. Unpublished report for Quirk Consultants
- Massola, A. 1961, 'The Surface Archaeology of Woolloomana' Victorian Naturalist 78, 16-20.
- Massola, A. 1969, Journey into Aboriginal Victoria, Melbourne, Rigby.
- McCarthy, F.D. 1976, Australian Aboriginal Stone Implements, The Australian Museum Trust, Sydney.
- McDonald, R.C., Isbell, R.F., Speight, J.G., Walker, J. and Hopkins, M.S. 1984, Australian Soil and Land Survey, Inkata Press, Melbourne.
- McNiven, I. & Russell, L. 1997. Geelong – Lara District. Telstra Optical Fibre Cable Routes (South Central Victoria). An assessment of the potential impact on cultural heritage sites. Report to Telstra.
- Mitchell, S.R. 1949 Stone-Age Craftsmen: Stone Tools and Camping Places of the Australian Aborigines, Melbourne, Tait.
- Mulvaney, D.J. 1975, The Prehistory of Australia, Harmondsworth, Penguin.
- Murphy, A. & Morris, A. 2011, Avalon Airport Rail Link, Preliminary Cultural Heritage Investigations, report to Department of Transport.
- Newby, J. and S. Muir, 1999. Princes West Project: Western ring Road to Corio overpass historical and archaeological survey. Report to VicRoads.
- Pearson, M. and Sullivan, S. 1995, Looking After Heritage Places, Melbourne University Press.
- Peel, L.J. 1974 Rural Industry in the Port Phillip Region 1835-1880. Melbourne University Press.
- Port of Geelong Authority, 1959 Abridged General History of the Port Prior to and since the incorporation of the Trust in 1905. Prepared by the Secretary.
- Rhodes, D. 1994. East Coast Armament Complex Point Wilson Archaeological Sites: summary report on existing conditions. Summary report to Kinhill Pty. Ltd. and Dept. of Defence.

- Rhodes, D., B. Marshall & C. Webb, 1999 Archaeological subsurface testing, Princes Freeway West. Unpublished MS for Vic Roads.
- Rowe D. and Huddle, T. 1998-2000, Outer Areas Heritage Study, City of Greater Geelong.
- Rosenfeld, A. 1988, Rock Art Conservation in Australia, Australian Government Publishing Service, Canberra.
- Rosengren, N. 1986. Sites of Geological and Geomorphological Significance in the Western Region of Melbourne.
- Schell, P. 2003 Grand Lakes Estate Lara, Stages 3 to 25 Cultural Heritage Management Plan No. 10413
- Schell, P. 2003a. 62-72 Bates Road, Lara. An archaeological assessment. Report to TGM Group Pty. Ltd.
- Schell, P. 2003b. Flinders Ave, Lara. An archaeological assessment. Report for TGM Group Pty. Ltd.
- Shire of Corio- A Brief History- Leaflet.
- Spencer-Jones 1973 'Geology of the Geelong District, in McAndrew, J., Marsden, M.A.H. (Eds), Regional Guide to Victorian Geology. School of Geology, University of Melbourne.
- Spreadborough, R. and Anderson, H. 1983, Victorian Squatters, Red Rooster Press, Ascot Vale.
- Sullivan, S. and Bowdler, S. (eds.) 1984, Site surveys and Significance Assessment in Australian Archaeology, Proceedings of the 1981 Springwood conference on Australian Prehistory, Research School of Pacific Studies, Australian National University, Canberra.
- TerraCulture Pty Ltd 35 July 2008 Flinders Avenue Lara. An Archaeological Assessment. Unpublished report to TGM Group Pty Ltd.
- Tindale, N.B. 1974, Aboriginal Tribes of Australia: Their Terrain, Environmental Controls, Distribution, Limits and proper Names, Canberra, Australian National University Press.
- Tulloch, J. 2004 An archaeological assessment at Point Wilson, Victoria
- Van Waarden, N. 1986, An Archaeological Survey of the You Yangs, Victoria, Occasional Report Series 23, Victoria Archaeological Survey.
- Weaver, F. 1998. Proposed sub-division south of St. Lawrence Park, Investigator Avenue, Lara. Report to Mr. Murray McAllister and Thoms Gibcus McGrath Geelong.
- Webb, C. 1997a. An archaeological survey at the Princes Freeway, Little River, RL175. Report for Geelong Gateway Pty. Ltd.
- Webb, C. 1997b. An archaeological survey at the Princes Freeway, Little River, RL112. Report for Geelong Gateway Pty. Ltd.
- Webb, C. 1997c. An archaeological survey between Pousties Road and the Avalon Overpass, Princes Freeway, Little River. Report for R. & L. Chionna; N., E. & C. Dellios; R. & A Zerafa and D. Axiaq.
- Wynd, I. 1981, So Fine a Country: A History of the Shire of Corio, North Geelong, Shire of Corio.
- Zola, N. & Gott, B. 1992, Koorie Plants Koorie People: Traditional Aboriginal Food, Fibre and Healing Plants of Victoria. Koorie Heritage Trust, Melbourne.