ARMSTRONG CREEK WEST PRECINCT

DESKTOP CULTURAL HERITAGE ASSESSMENT

OCTOBER 09

A Report to Villawood Properties P/L

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EXECUTIVE SUMMARY

Background

This report presents the results of a cultural heritage desktop assessment undertaken to determine the Aboriginal and historical cultural heritage values associated with the proposed Armstrong Creek West Precinct Structure Plan. The Precinct is earmarked for residential development, providing for a population of approximately 17,500 persons or 6,500 dwellings. The aim of the desktop assessment is to establish if any registered Aboriginal and historical cultural heritage and/or areas of archaeological sensitivity occur in the study area, and determine the implications for the project. The desktop cultural heritage assessment will inform a Cultural Heritage Assessment (CHA) and subsequent Cultural Heritage Management Plans (CHMP) for the initial stage/s of the subdivision (as required).

Study Area

The study area is a 430 ha area located between Torquay and Geelong. Some of the land is currently in private ownership. The area is bounded on the north by the Geelong Railway; to the east by Surf Coast Hwy (Torquay Road); to the south by Armstrong Creek, Whites and Feehans Road; and to the west by Gahzeepore Road. The study area is characterised by gently undulating cleared grazing land with few residential dwellings. Armstrong Creek (and minor tributaries) are the only water courses in the study area.

Activity Description

The Armstrong Creek growth area occupies a strategically significant location between Geelong and Torquay on either side of the Surf Coast Highway. The Armstrong Creek Framework Plan provides for an ultimate population of 55,000 persons or approximately 22,000 homes. In order to facilitate preparation of Precinct Structure Plans the growth area has been divided into four residential precincts and two employment precincts. The Armstrong Creek West Precinct is earmarked for residential development, providing for a population of approximately 17,500 persons or 6,500 dwellings. These dwellings will predominately be conventional dwellings with some medium-high density surrounding a major activity centre and new railway station. Open space will be provided along the Armstrong Creek and its tributaries. A number of local activity centres and educational facilities are also planned for the precinct.

Method

The primary aims of the study were formulated as per a written brief provided by Villawood Properties. The aims were designed to comply with existing cultural heritage legislation and to allow a better understanding of archaeological site values to be established prior to potential future residential development. The desktop assessment was undertaken to:

- To determine the distribution of any previously registered Aboriginal and historical places in the study area.
- Define and map zones of archaeological sensitivity.
- To establish the implications which Aboriginal and historical archaeological place may have for potential future development, and provide preliminary recommendations on appropriate management strategies.

The desktop assessment involved a review of heritage registers and other relevant databases to determine the distribution of registered Aboriginal and historical places in relation to the study area. Archaeological studies undertaken in the region were reviewed. The desktop assessment included an examination of environmental, geographic, geomorphic, land use and ethnographic interactions and, in combination with archaeological data, was analysed to formulate predicative statements regarding the archaeological sensitivity of the study area and expected place types.

The following Commonwealth, State and local registers were reviewed for any known heritage places in the study area:

- Victorian Aboriginal Heritage Register;
- Victorian Heritage Register and Victorian Heritage Inventory;
- National Heritage List and Commonwealth Heritage List;
- Local Council Heritage Overlays;
- Register of the National Estate and;
- The National Trust Register.

Background research was also undertaken into the cultural heritage context and environmental history of the study area. This involved reviewing existing information relevant to the study area including:

- Previous archaeological assessments within the vicinity of the study area;

- Published works about cultural heritage in the region;
- Historical and ethno-historical accounts of Aboriginal occupation in the region;
- Published works relevant to climate and geomorphology of the region and ;
- Aerial photographs.

Aboriginal Heritage Values

The study area contains nine registered Aboriginal places comprising six stone artefact scatters and three scarred trees.

Historical Values

The study area contains three unregistered historical places comprising two domestic standing structures and a small bluestone quarry.

Cultural Heritage Management

Aboriginal Places

The study area contains nine registered Aboriginal places comprising six stone artefact scatters and three scarred trees. The inclusion of these places within green space is a practical option for protecting these places. Based on the Armstrong Creek Urban Growth Plan - Framework Plan six of the nine registered Aboriginal places fall within proposed green spaces. Field assessments will need to be undertaken to determine the nature and extent of known Aboriginal places and to determine if additional unregistered Aboriginal places occur in the study area.

Historical Places

The study area contains three unregistered historical places comprising two domestic standing structures (50 and 140 Whites Road) and a bluestone quarry (25 Williams Road). Based on the Armstrong Creek Urban Growth Plan - Framework Plan all these places fall within 'conventional density housing. The client is advised to discuss their intentions for 50 and 140 Whites Road with Geelong Council Planning Department (Meaghan Ferrier - Armstrong Creek Project Officer Ph: *5272 4249*) early in the planning process as these places are recommended for Heritage Overlay protection (Rowe & Huddle 1998-2000; Huddle 2006; City of Greater Geelong 2008). It is likely that 50 and 140 Whites Road will be included on the Heritage Overlay, although the exact boundaries of these places have not been determined by Geelong Planning Department. A c. 1900 domestic structure at 335 Torquay Road was initially recommended for Heritage Overlay protection (Rowe & Huddle 1998-2000) however subsequent

assessments have reassessed this place (Huddle 2006) and it is no longer considered to have heritage values.

A field assessment of 50 & 140 Whites Road will need to be undertaken to determine if potential significant subsurface archaeological deposits occur in association with these places. If significant archaeological deposits are located that do not fall within subsequent Heritage Overlay curtilage they will be registered with Heritage Victoria (separate to the Heritage Overlay) and an application to disturb them would be required. A permit may be issued with conditions such as a requirement for controlled excavation of subsurface features.

A field inspection is required to register the quarry at 25 Williams Road place on the Heritage Inventory and to determine if any significant archaeological deposits occur in association with this place. It is highly unlikely that this place will warrant registration on the Heritage Overlay (pers. com. J. Turnbull to J. Smith - Senior Archaeologist Heritage Victoria) however a consent to disturb the place may be required from Heritage Victoria.

While it is unlikely that further significant historical places occur in the study area, a pedestrian field inspection of the study area should be undertaken to confirm this. This can be done concurrently with the field survey for Aboriginal cultural heritage.

The Armstrong Creek PSP should consider:

- Avoiding harm to known Aboriginal and historical places were possible.
- Aboriginal scarred trees in particular are likely to have increased significance to Aboriginal people and should be avoided.
- Impacts in zones of predicted moderate to high archaeological sensitivity should be minimised however, the actual sensitivity and extent of these zones needs to be verified by further archaeological work.

Future development can reduce the harm of Aboriginal and historical places by:

- Verifying zones of archaeological sensitivity through archaeological field work and providing management recommendations to reduce the impacts in these refined zones.
- Undertaking Cultural Heritage Management Plans and heritage assessments early in the planning process for individual residential developments. While CHMPS may not be triggered for much of the study area, these provided the best opportunity for identifying and providing a\an appropriate framework for managing Aboriginal Cultural heritage.

- Incorporating significant cultural heritage identified during further archaeological investigations into open space.

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ACKNOWLEDGEMENTS

The author would like to thank the following people for their involvement and assistance in completing the project:

- Chris De Silva, Leah Whittingslow and Cassandra Morris (Villawood Properties).
- Meaghan Ferrier (Armstrong Creek Project Officer Geelong City Council).
- Jeremy Smith (Senior Archaeologist - Heritage Victoria).

1 INTRODUCTION

1.1 BACKGROUND

This report presents the results of a cultural heritage desktop assessment undertaken to determine the Aboriginal and historical cultural heritage values associated with the proposed Armstrong Creek West Precinct Structure Plan. The Precinct is earmarked for residential development, providing for a population of approximately 17,500 persons or 6,500 dwellings. The aim of the desktop assessment is to establish if any registered Aboriginal and historical cultural heritage and/or areas of archaeological sensitivity occur in the study area, and determine the implications for the project. The cultural heritage desktop assessment will inform a Cultural Heritage Assessment (CHA) and subsequent Cultural Heritage Management Plans (CHMP) for the initial stage/s of the subdivision (as required).

1.2 STUDY AIMS

The primary aims of the study were outlined in a written brief provided by Villawood Properties (see Appendix 1). The aims were designed to comply with existing cultural heritage legislation and to allow a better understanding of archaeological place values to be established prior to potential future residential development. The aims of the study are summarised:

- To determine the distribution of any previously registered Aboriginal and historical places in the study area.
- Define and map zones of archaeological sensitivity.
- To establish the implications which Aboriginal and historical archaeological place may have for potential future development, and provide preliminary recommendations on appropriate management strategies.

1.3 LOCATION OF THE STUDY AREA

The study area is a 430 ha area located between Torquay and Geelong (Figure 1). Some of the land is currently in private ownership. The area is bounded on the north by the Geelong Railway; to the east by Surf Coast Hwy (Torquay Road); to the south by Armstrong Creek, Whites and Feehans Road; and to the west by Gahzeepore Road. The study area is characterised by gently undulating cleared grazing land with few residential dwellings. Armstrong Creek (and minor tributaries) are the only water courses in the study area.

Figure 1: Location of the study area.

1.4 DESCRIPTION OF THE PROJECT

The Armstrong Creek growth area occupies a strategically significant location between Geelong and Torquay on either side of the Surf Coast Highway. The Armstrong Creek Framework Plan provides for an ultimate population of 55,000 persons or approximately 22,000 homes. In order to facilitate preparation of Precinct Structure Plans the growth area has been divided into four residential precincts and two employment precincts. The Armstrong Creek West Precinct is earmarked for residential development, providing for a population of approximately 17,500 persons or 6,500 dwellings. These dwellings will predominately be conventional dwellings with some medium-high density surrounding a major activity centre and new railway station. Open space will be provided along the Armstrong Creek and its tributaries. A number of local activity centres and educational facilities are also earmarked for the precinct. Further information regarding the precinct plan is provided in Appendix 2.

1.5 ABORIGINAL CONSULTATION

No consultation with Aboriginal communities has been undertaken for the desktop assessment.

1.6 GOVERNMENT CONSULTATION

The following people were contacted regarding aspects of this desktop assessment:

- Jeremy Smith (Senior Archaeologist Heritage Victoria)
- D. Rowe, T. Halston and Meaghan Ferrier (Geelong City Council - Planning Department)

1.7 OTHER CONSULTATION

Other organisations and individuals contacted regarding this assessment were:

- Geelong Heritage Centre
- Land Vic Aerial Photography Register, Laverton.

2 ENVIRONMENT AND EXISTING CONDITIONS

2.1 LANDFORMS AND UNDERLYING GEOLOGY

The study area falls within the Southern Uplands Geomorphic Unit; a broadly defined area that incorporates the western side of Western Port Bay, Bellarine Peninsula, and much of Gippsland. Within this broad unit, the study area falls within the upper drainage catchment of Armstrong Creek (Figure 2) between 30-70 m asl and is generally of low relief, undulating plains and flanked by low rises. Armstrong Creek and its tributaries are relatively small and intermittent; nevertheless the creek is a significant landform feature in the study area. The creek begins west of the study area in two small gullies (Upper and Lower Armstrong Creek branches), which converge east of Ghazeepore Road. A small waterfall with a 6 foot drop was noted in 1888 on the Lower Armstrong Creek branch (Map detail: Parish of Duneed 1888). The creek does not flow continually however perennial waterholes are reported to have occurred along its course (Lane Collection, GHC 1104/1/37).

The largest water course in the region is the Barwon River (approximately 5 km east of the study area) which becomes brackish below Buckley Falls approximately 20 km from the river outlet. The river drains into low lying swamps, Reedy Lake and Lake Connewarre before entering Bass Strait. A significant number of swamps and shallow bays occur on the Bellarine Peninsula to the east of the study area. Freshwater springs have been noted near Drysdale, Clifton Springs, Point Lonsdale and Queenscliff (Rhoads 1986: 11-12). Small, seasonal creeks such as Armstrong Creek drain into the Barwon River and low lying swamp land.

Four geological units occur in the study area (Figure 3). These are described in Table 1.

MAP SYMBOL	UNIT NAME	AGE	DEPOSIT TYPE	LITHIC DESCRIPTION
Nbm	Moorabool Viaduct Sand	Pliocene - 13 million – 2 million years ago.	Sedimentary (Marine)	Gravel, sand, silt
Qn	Newer Volcanic Group	Pre-quaternary (2 million years ago.	Igneous (Extrusive)	Extrusive: tholeiitic to alkaline basalts, minor scoria and ash
Qa1	Unnamed alluvium	Holocene – c. <10 ka years ago.	Sedimentary (Non-Marine (Alluvial))	Fluvial: alluvium, gravel, sand, silt
-Pxj	Jan Juc Formation	Oligocene- 40 – 25 million years ago.	Sedimentary (Marine)	Marine: marl, clay, silt, glauconitic

Table 1: Geological units within the study area (source DPI - GeoVic Web Resource).

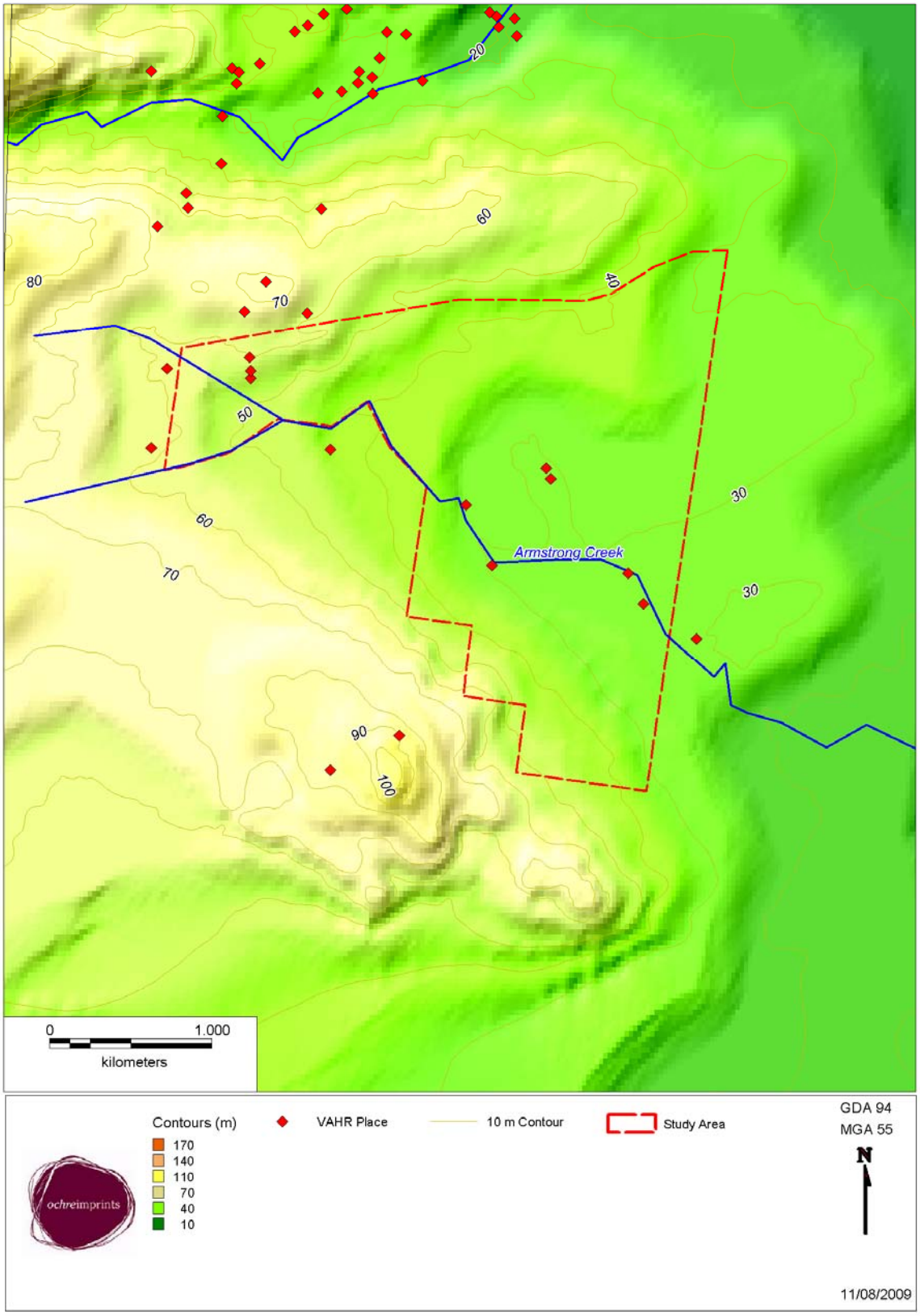


Figure 2: Topography of the study area.

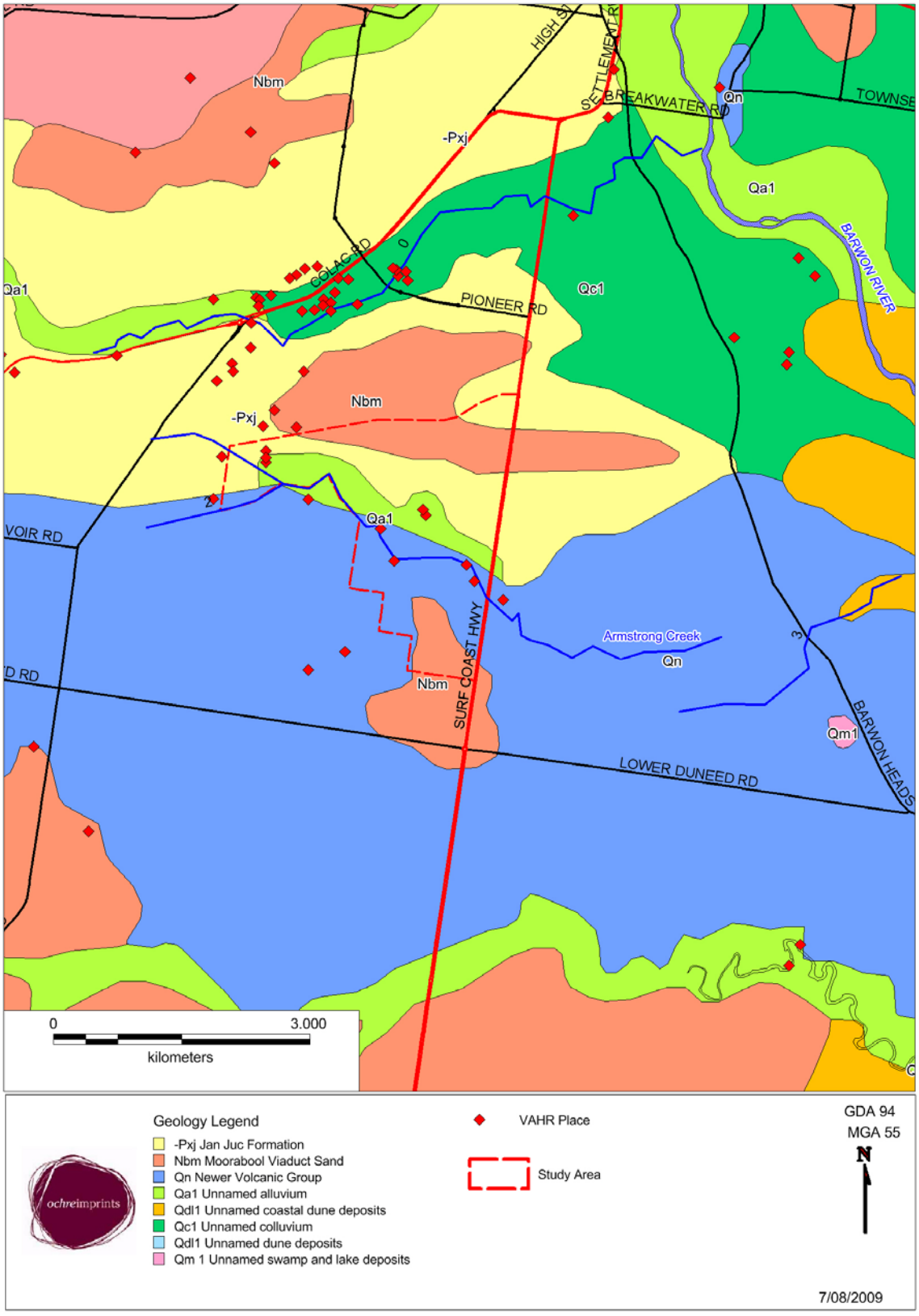


Figure 3: Geology of the study area.

An understanding of the geology and topography of a region can assist in the prediction of the distribution of Aboriginal places. Some geological units are known to be more sensitive than others, such as sand and alluvial deposits. Elevated rises overlooking waterways are also particularly sensitive. The majority of the study area comprises geological units that formed prior to the Aboriginal occupation of Australia. These consist of old sedimentary marine deposits (Moorabool Viaduct Sands and Jan Juc Formation) which are overlain by sedimentary gravel, sand and silt. These sands can be up to 21 m thick, ferruginous and cemented (Holgate & Gallagher 2003:319) and forms a relatively predominant rise in the north of the study area. A pre-quaternary undulating volcanic plain rising to the south covers most of the southern half of the study area south of Armstrong Creek. More recent Holocene deposits of alluvium occur along parts of Armstrong Creek. Aboriginal places are known to occur in all of these geological units in the wider area.

The nearest sources of stone that might have been utilised by Aboriginal people for stone tool manufacture are likely to be river cobbles of quartz from the Barwon River and local creeks. Silicified wood, also used to make stone artefacts, occurs on the banks of the Barwon River, and the Barrabool Hills. Chert occurs along the Moorabool River north of Geelong (Birch & Henry 1997: 98-99). The Barrabool Hills are also sources of greenstone (Webb 1999: 103), a hard volcanic rock known to have been exploited for the manufacture of axes. Three Aboriginal stone quarries occur in these hills (Gleeson Hill VAHR 7721-0002, Georges Hill VAHR 7721-0128 and Dog Rocks Quarries VAHR 7721-0001).

2.2 CLIMATE

Climatic conditions have a significant influence on human occupation of given regions. Geelong temperatures average maximum temperatures of 24°c in the summer months and reach the lowest temperatures of 5°c in winter months. Rainfall is heaviest in winter with mean rainfalls of 55 mm falling over c. 10 days per month. The summer months are drier averaging 30 mm falling over c. 3-4 days per month (Bureau of Meteorology Web Resource). This climatic regime is likely to have been relatively similar over the past 10 kya, however prior to this significant climatic changes occurred.

Thirty five thousand years ago the climate began to deteriorate from a generally temperate climate to very cool and dry. Periodic droughts may have been frequent and any swamplands would have expanded and contracted considerably (Rhoads 1986: 27). The vegetation became hardy, featuring tough grasses, shrubs, and sparsely distributed eucalypts. Around 11 kya the conditions began to ameliorate towards a climate similar to

todays. During this period, between 4-6 kya, sea levels rose causing low lying land along the Barwon River to become swampy (Bird 1993: 119-20; Rhoads 1986: 27). Salt water flowed up the Barwon River as far as Buckley Falls, and remained brackish as sea levels retreated again over the last few thousand years.

The large swampy areas, now occupied by Reedy Lake and Lake Connewarre may have been considerably smaller during the late Pleistocene period (65-10 kya) particularly as the swampy lower Barwon River reaches only established during the Holocene period (Rhoads 1986: 26, 27).

2.3 FLORA AND FAUNA

Rhoads (1986) provides extensive information regarding flora and fauna on the Bellarine Peninsula and the reader is referred to this report for a comprehensive regional perspective. Since European settlement most of the Peninsula has been cleared of native vegetation. Some remnant vegetation occurs along Armstrong Creek corridor and roadside reserves.

Prior to European land clearing the vegetation communities with the study area comprised:

- Grassy Woodland (EVC 175[1]) and
- Plains Grassland (EVC 132) (DPI Biodiversity Web Resource)

This is supported by historic observations of the Bellarine Peninsula which noted a grassy understorey was most common in the area (Rhoads 1986:19).

Grassy and Pains Woodland communities are widespread throughout Victoria on gentle slopes, undulating hills on a range of geologies. They comprise open eucalypt woodland with trees 15 m tall over a diverse ground layer of grasses and herbs. The shrub component is usually sparse. A number of floral species would have been utilised by Aboriginal people in the study area. However, due to the ubiquity of these vegetation communities the area would not necessarily have been targeted for any particular floral resources.

Plant species known to have been utilised by Aboriginal people in Victoria that are likely to have occurred in the study area are listed in Table 2.

[1] EVC (Environmental Vegetation Community). The number code is used by DPI and the DPI webpage provides details of vegetation within each community.

Common Name	*Species Name*	Aboriginal Use	Reference	EVC
Black Wattle	*Acacia mearnsii*	An important source of gum, which was carried about and eaten or dissolved in water. When mixed with burnt mussel shell or wood ashes it formed cement for water buckets made from the bark of the tree. The bark also provided fibre to make a coarse string, and was infused in hot water and drunk as a remedy for indigestion.	Gott, B. & J. Conran. 1991..	Grassy Woodland (175)
Golden Wattle	*Acacia pycantha*	The gum was eaten or mixed with water and nectar to make a sweet drink. The bark is high in tannin and may have been used for medicine and fibre.	Gott, B. & J. Conran. 1991.	Grassy Woodland (175)
Black -anther Flax -lily	*Dianella revoluta*	Leaves were split and twisted into string to make a strong tie: such ties have been found in a 300 year old burial in Central Victoria.	Gott, B. & J. Conran. 1991.	Grassy Woodland (175)
Small leaved Clematis	*Clematis microphylla*	Tough starch roots were cooked in baskets and kneaded on a small sheet of bark into dough.	Gott, B. & J. Conran. 1991.	Grassy Woodland (175)
Red Gum	*Eucalyptus camaldulensis*	When found in proximity to water canoes were cut from a large sheet of bark. Large burls were cut off and hollowed out to make water containers. The sap was used as a medicine for burns.	Gott, B. & J. Conran. 1991.	Species noted in study area during a brief inspection.
Drooping She Oak	*Allocasurina sp.*	Young shoots and cones were sometimes eaten, but the main use was for wood for boomerangs and other implements.	Gott, B. & J. Conran. 1991.	Species noted in study area during a brief inspection.

Table 2: Useful plants in the study area.

The faunal resources within the study area would have included mammals such as emu, *Macropus* sp. (kangaroo) and *Phalanger* sp. (possums). The intermittent creeks may have provided some minimal food resources such as crustaceans or small fish however the Bellarine Peninsula area and lower Barwon River would have been a rich faunal resource and more likely a focus for food foraging trips from the study area. In particular eels, fish, birdlife and shell fish would have been abundant in the swamps and waterways on the Bellarine Peninsula (Rhodes 1986:23-26). Four types of riverine fish

occur in the Barwon River and two species of eels (*Anguilla australis, A. reinhardtii*) are common in fresh and brackish water conditions. Both are most active in spring and summer when feeding in shoreline shallows. In autumn they travel to the sea to breed. Large numbers of A. reinhardtii migrate once every three years (Rhoads 1986:23). Wildfowl such as ibis, waders, swans, ducks and cormorants would have been concentrated around the inland water bodies on the Peninsula (Rhoads 1986).

In summary the climate, geology and resources of the wider Bellarine Peninsula region would have provided a conducive environment for Aboriginal occupation during the last 10 kya. Changes in climate suggest that plant and animal resources would have undergone changes through time, however the predominant vegetation during the last 40 kya in the study area region is likely to have been grasslands and open forests which in turn attract game such as kangaroo, emu and smaller mammals. During the Pleistocene swamps may have been only periodically exploited during wetter cycles. The region contained limited resources during this time, and this coupled with the distance to the coastline (10-20 km) may have resulted in infrequent and seasonally scheduled Aboriginal occupation. With the rising sea levels in the late Holocene, the coastal resources and vast swamps would have become a more reliable rich source of food in the area attracting regular and long term visits probably spanning several seasons. It is likely that Armstrong Creek formed at least one route from the uplands in the west to the resource rich Peninsula. Thus the study area is likely to have been visited over the long term by Aboriginal people, especially in the last 5-10 kya while en route to the resource rich Bellarine Peninsula.

3 ABORIGINAL CULTURAL HERITAGE ASSESSMENT

3.1 INTRODUCTION

This section presents ethno-historical and archaeological information relating to the Aboriginal occupation of the study region. This includes a description of Aboriginal places in the region within which the desktop results can be examined. The results of the desktop assessment inform the development of an Aboriginal cultural heritage predictive model.

3.2 ETHNOHISTORY

The basic unit of Aboriginal social organisation in Victoria was the clan: a group based on kinship through the male line with a shared historical, religious and genealogical identity (Barwick 1984: 105-6). The clan was a land-owning unit whose territory was defined by ritual and economic responsibilities (Barwick 1984: 106). Groups of neighbouring clans speaking the same dialect and sharing political and economic interests identified themselves by a language name. In many cases this name used the suffix *(w)urrung*, meaning 'mouth or way of speaking' (Barwick 1984: 105).

The study area is located within the *Wada Wurrung*[2] language boundary, which was one of four primary languages spoken in south west Victoria (Clark 1990:275). This language area extended from the Geelong area north to Ballarat, south along the coast to Aireys Inlet and north-west for 180 km as far as Beaufort. In turn the *Wada Wurrung* was made up of at least 25 smaller clans (Clark 1990: 311).

The closest documented clan to the study area was the *Wada wurrung balug* (often referred to as the Barrabool Tribe). William Buckley, an escaped convict, was adopted into this clan and became fully conversant in the clans dialect. From him we learn that the clan used to catch eels at Lake Modewarre, and join a neighbouring clan from Indented Head spending several months with them on their hunting grounds. Addis (an early settler) reported that the Barrabool Tribe was attracted to the township of Geelong, partly from curiosity, and partly to procure offal meat from the sheep and cattle slaughtered by butchers, along with rice, flour and sugar. Aboriginal people traded birds, skins, delivered parcels from stores and chopped wood. In the winter of 1839 Addis recalled an attack of influenza which was fatal for several Aboriginal families. The

[2] Various spellings exist. The spelling used here is taken from Clark 1990.

population was estimated to be over 300 at contact however by 1853 the *Wada wurrung balug* was reduced to nine women, seven men and one child (Clark 1990: 332).

In the 1850s Aboriginal people were noted camping at "Dooliebeal" (Stewarts Reserve) to the immediate east of the study area on Armstrong's Creek where J. Armstrong held River Run station (L. Lane Collection, GHC 1104/1/37) (refer to Figure 8 in Section 5.2). John Stewart either purchased or leased Stewarts Reserve, a small irregular marshy area on Armstrong's Creek, and donated it to the Aboriginal people c. 1856 as a place where the "dispossessed could camp unmolested". His preference was that it be named Dooliebeal, which means red gums, however on official maps it appears as Stewarts Reserve (Rowe & Huddle 1998-2000 Vol 2,10). Stewart donated food to the Aboriginal people who camped at this unofficial reserve. Stewarts son, interviewed in the late 1960s when he was 80, recalled "he could clearly remember the last camp of the Aborigines…..they camped in Stewarts Lane opposite the Stewarts farm gates on a bush setting" (cited in L. Lane Collection, GHC 1104/1/37). Lane claims that Armstrong Creek was on a pathway used by Aboriginal people leading from Mount Moriac to Lake Connewarre, then onto Barwon Heads (L. Lane Collection, GHC 1104/1/37). Aboriginal people were also observed travelling west from Stewarts Reserve to Buntingdale Mission (1839-1851) at Birregurra (Pescott 1985: 147). Another area noted as a post contact Aboriginal camping place possibly occurs along Feehans Road. According to Councillor F. Rossack, the local Aborigines were "in the habit of camping in the Feehan's Lane area, in the lee of Mount Duneed before and after the land was sold" in 1858 (L. Lane Collection, GHC 1104/1/37). This reference may be referring to Stewarts Reserve area which is less than one kilometre away.

Conflict with encroaching Europeans was inevitable and in the twenty years after contact conflicts between Aboriginal people and European settlers occurred on several pastoral runs on the Barwon River (Clark 1990, 281-212). Widespread conflict led to a system of official protectorates (1835-1849), reserves and rations depots aimed at providing protection and supplies to displaced Aboriginal people. The protectorates failed in this regard (Woolmington 1973:173) and in the 1860's the Government established a Central Board 'to watch over the interests of Aborigines'. This involved two systems: local reserves and local guardians who operated Honorary Correspondent Depots distributing food and clothing to local Aboriginal people (Clark 1990: 301). The closest depot to the study area was at Lake Connewarre (Aboriginal Historic Place 5.4-98) where goods were distributed between 1865-1869. The closest official reserve to the study area was Mt

Duneed (Aboriginal Historic Place 7.1-6)[3] situated adjacent to the study area on the west side of Ghazeepore Road (Figure 5). An annotated parish map (Rowe & Huddle 1998-2000: Vol 10) shows the location of the unofficial 'Dooliebeal Aboriginal Reserve' and 'Dooliebeal Homestead' as occurring south of Feehan's Road, however this is likely to be incorrect as the location of Dooliebeal Homestead is known to have been south of Stewarts Reserve (c.f. Weaver 1994: Fig 7).

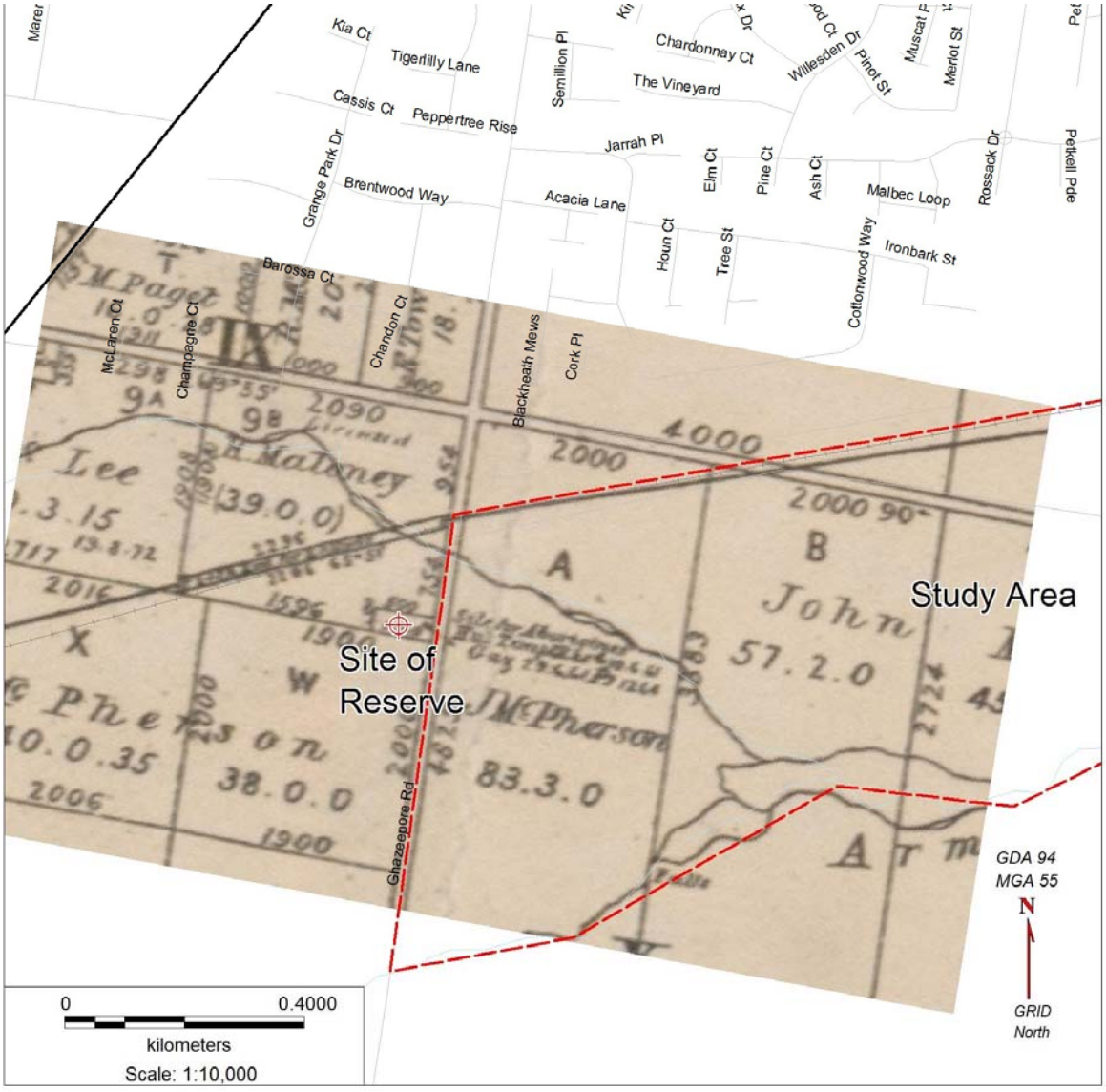
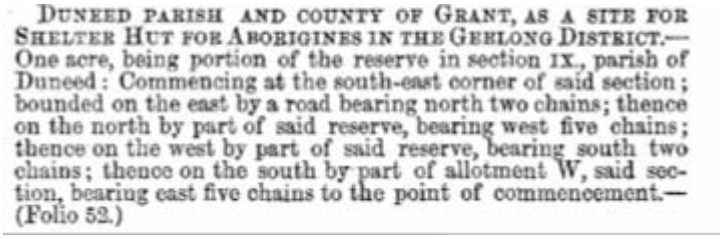


Figure 4: Site of Duneed Aboriginal Reserve as indicated on 1888 parish map. The text beside the reserve reads "Site of Aboriginal hut….."

[3] Note that the location of this Reserve is incorrectly mapped on the VAHR.

Duneed Aboriginal Reserve was selected on 10 June 1861 (Felton 1981: 199) and on 29 June 1861 the Government officially reserved one acre of land (Figure 4). A CBA Report (1862) provides an account for the erecting of a shelter at Duneed Reserve for 40 pounds.



DUNEED PARISH AND COUNTY OF GRANT, AS A SITE FOR SHELTER HUT FOR ABORIGINES IN THE GEELONG DISTRICT.—One acre, being portion of the reserve in section IX., parish of Duneed: Commencing at the south-east corner of said section; bounded on the east by a road bearing north two chains; thence on the north by part of said reserve, bearing west five chains; thence on the west by part of said reserve, bearing south two chains; thence on the south by part of allotment W, said section, bearing east five chains to the point of commencement.—(Folio 52.)

Figure 5:1861 Government Gazette Extract. Page 1264

J.M. Garratt, an Honorary Correspondent, reported in the 1860s that the Aboriginal people in the Geelong district had a good shelter hut erected for them at Duneed and believed that they had no need for entering into the Geelong township (Clark 1990:332).

Regarding the Mount Duneed reserve, James McCann recalled that “the remnant of the Geelong or Barabool 'tribe' and a few of the Colac blacks used to come into Geelong every day but by regulation had to leave the town every evening at sundown for their camps near Mount Duneed” (McCann 1918:190 cited in Clark 1990:301). Seven of the last full blood *Wada Wurrung* people were sent to the Duneed Reserve, however all died between 1862 and 1885 (Barton 1997, cited in Paynter & Rhodes 2006: 19). Hanrahan (1984: 8) gives the dates of 1861 to 1948 for the lifetime of the Duneed Reserve; however, in its 42nd Report (1906) the Central Board listed Duneed (1 acre) among its reserves being revoked because they were no longer required (Clark 1990:307).

Another reference to an Aboriginal camping place is cited by Lane (L. Lane Collection, GHC 1104/1/37). The mayor of Geelong, Robert de Bruce Johnstone had ‘at his own expense had a number of huts built on the southern slope of Mt Duneed, and sent them regular supplies of food, blankets, etc and paid a local doctor to go out and see this camp to do what he could to help the sick one’. It is unclear whether this location coincides to one of the reserves discussed above.

Additionally Aboriginal people were noted by Walter Burville as living near Armstrong Creek in the late 19th century and his may be reference to the unofficial ‘Doolibeal’ Stewarts Reserve. Walter Burville, a resident of the area, was born on Whites Road in 1871 and later purchased part of Armstrong’s station and old homestead south of Stewarts Reserve. He noted that local Aborigines often called to his homestead for food and tobacco (Pescott 1985: 148). This would suggest that despite the Duneed Reserve operating during this period, Aboriginal people were still also utilising the unofficial ‘Doolibeal’/Stewarts Reserve area.

3.3 PREVIOUS ARCHAEOLOGICAL ASSESSMENTS

3.3.1 Introduction

Four previous archaeological assessments have examined broad areas that incorporate the current study area (Rhoads 1986; Rhodes & Paynter 2006; Weaver 1994; Richards & Jordan 1995). A number of assessments have examined localised areas and linear alignments within the study area. One assessment (CHMP No.10553) which incorporates the study area[4] is in progress as is a smaller assessment (CHMP 10692) the north west of the study area. These CHMPs have not yet been finalised and are therefore not currently available to the consultant.

3.3.2 Regional Archaeological Studies

Bellarine Peninsula: Archaeological Site Assessment and Management Study. Rhoads 1986

This archaeological assessment of the Bellarine Peninsula was undertaken for the Victorian Archaeological Survey in order to provide information to assist in the management and conservation of Aboriginal places on the Bellarine Peninsula. This large area includes the Shire of Bellarine, City of South Barwon and the Borough of Queenscliff (approximately 50,000 ha) and includes the current study area. The assessment was undertaken in three two stages.

Stockton undertook Stage 1 of this project, involving a coastal field survey, over a six month period. The aim was to better understand the distribution of places on the Peninsula. Although Stockton identified 77 Aboriginal places the survey and report was not completed.

Rhoads undertook Stage 2 of this project. The aims of this stage were 1. to identify significant Aboriginal places with conservation value, 2. to establish the locations where significant Aboriginal places may occur and 3. to assess archaeological places in the Drysdale/Clifton Springs area.

Pedestrian and vehicle surveys, carried out over 19 days, resulted in the identification of 15 Aboriginal places, mostly on the Bellarine Peninsula to the east of the current study area. Rhoads targeted reserves, dirt tracks, surface exposures and road cut exposures covering approximately 75% of the Bellarine Peninsula's thoroughfares. Many dirt roads and exposures were traversed by foot. Three days were devoted to traversing seven

[4] According to current AAV registry mapping.

freshly ploughed paddocks in 10 m transects (the exact locations are not indicated) resulting in the identification of two disturbed Aboriginal places. None of the Aboriginal places identified by Rhoads occur within the study area. Inland places density was estimated to be 1 place per 6 km² (cf. Richards & Jordan 1995: 142), compared with 1 per km on the coast (Rhoads 1986: 56).

Rhoads divided the Peninsulas soils into four groups:

- Alluvium (estuarine, lacustrine and riverine)
- Basalt clays
- Podzols (inland, and bay) and
- Sands (inland, bay and sea coast).

Rhoads argued that the first three groups were resistant to erosion so ploughing was argued to be the major agent of place disturbance in them. Inland sand deposits were also considered to be relatively stable by virtue of their differing vegetation cover and post contact land use (Rhoads 1986: 30). No Aboriginal places were located on the basalt clays and subsequently this soil group was not further discussed (Rhoads 1986: 57). Rhoads analysed the depositional structure of the remaining soil groups and divided the study area into eight geographical units: Inland sands (around Drysdale), Sea Coast Sands, Bay Sands, Inland Podzols, Bay Podzols, Estuarine Alluvium, Lacustrine Alluvium and Riverine Alluvium. Two of these geographical units (Inland Podzols and Riverine Alluvium) are relevant to this assessment are discussed below.

Inland Podzols: This geological unit covers most of the Peninsula incorporating the land above 10 m asl excluding riverine deposits of the Barwon River and Armstrong Creek. Most of the current study area is within this unit. Inland Podzols are generally arable land utilized for agriculture. The soils have been considerably reworked due to agricultural practices and, consequently Rhodes considered it to be unlikely that *in-situ* Aboriginal places will remain in/on them (Roads 1986: 63)

Place types identified in this landform include mounds (7%); surface artefact scatters (57%) and scarred trees (36%). Twenty-nine percent of Aboriginal places were located on undulating ground and 71% on plains. Fourteen percent of places were associated with swamps, 7% with permanent waterways, 44% with seasonal waterways, 14% with soaks and 21% were found in locations at which no source of freshwater was apparent. Fifty percent of places were located in ploughed fields with the median size of places being 70 x 70 m (it is not clear how the size of places was determined). Most places were located on the surface or in the top 100 mm of soil with one place located at 100-

300 mm depth (see Rhoads 1986 - Table 5). Raw materials from inland places comprised quartz and quartzite and artefact types were varied (see Rhoads 1986 - Table 6). No faunal remains were identified in inland podzols. Rhoads (1986: 64) concluded that food processing, woodworking, and manufacturing of tools were common pre-contact place activities in this unit.

Riverine Alluvium: Rhoads described this unit as lying along the Barwon River above Reedy Lake to Queens Park and being characterised by floodplains with alluvial silt, sand and gravel deposits. Similar alluvium occurs along Armstrong Creek and this unit is therefore discussed here.

According to Rhoads (1986: 17 & 77) these types of deposit are amongst the most stable in the Peninsula. They have been well preserved during the course of historical flooding and the addition of new sediments. These characteristics combined with natural soil conditions favour the occurrence of intact archaeological places in areas charactised by this soil type. While the intensity of soil disturbance in this unit can be high, it is mostly localised.

Three Aboriginal places, all of which were, in essence, disturbed, were recorded by Rhoads in this unit. They comprise a surface artefact scatter and two middens/artefact scatters. Two of these places were located on a levee, the third on the floodplain in a road exposure and ploughed field. The mean recorded size of the places was 50 x 50 m. Raw materials and types comprised silcrete, flint and quartz flakes.

Rhoads drew several broad conclusions:

- Late Pleistocene drought periods would have assisted to expose buried archaeological strata and to disturb faunal or cultural remains (Rhoads 1986: 29).
- Traditional subsistence patterns followed by Aboriginal people living on the Bellarine Peninsula cannot be reconstructed with any degree of confidence from Ethnohistorical information (Rhoads 1986: 45). Aboriginal places on the Bellarine Peninsula appear to represent casual or single use visits suggestive of specialised activities focussing on nearby resources (Rhoads 1986: 68).
- Aboriginal occupation of the Peninsula dates at least to 5.3 kya (Gill & Lane 1976: 39 cited in Rhoads 1986: 46). Archaeological places from 4 kya are well represented.
- *In-situ* deposits will be rare (Rhoads 1986: 50).
- Inland places will be distributed widely, except where permanent fresh water sources are nearby (Rhoads 1986: 51).

- Flaked stone artefacts will comprise most of the cultural deposits at inland places (Rhoads 1986: 51).
- Inland areas where ploughing has been minimal, especially reserved areas such as road reserves, public land and unimproved paddocks, have potential to yield Aboriginal places in good condition (Rhoads 1986: 53).

The Mount Duneed/Armstrong Creek Urban Development Study Weaver (1994).

Weaver (1994) conducted an assessment of Aboriginal cultural heritage over a large area bordered in the west by Ghazeepore Road, in the south by Lower Duneed Road and in the east by Lake Connewarre. This study area encompassed the current study area. The major landform features in her study area are Mt Duneed, the Barwon River, the margins of Reedy Lake and Lake Connewarre and Armstrong Creek.

The field survey undertaken as part of this assessment comprised a vehicular survey which targeted all existing roads. Areas of potential were identified and surveyed on foot. No Aboriginal places were identified. The undulating plains toward Lake Connewarre, which are latticed with small streams were noted for their potential to contain Aboriginal cultural heritage (1994: Section 7.2).

Aboriginal Archaeological Investigations in the Barwon Drainage Basin Richards & Jordan (1995)

This project was part of a state-wide survey program investigation undertaken by Aboriginal Affairs Victoria (AAV). The project aimed to describe the nature and condition of the Aboriginal archaeological record in the Barwon River basin, and where appropriate, to develop predictive models of the Aboriginal place distribution and density. The project examined three areas: Middle Barwon (Inverleigh), Lower Barwon (Bellarine Peninsula – incorporating the current study area) and Upper Barwon (around the town of Forest). A field investigation was carried out in the Inverleigh area only. The investigation of the Lower Barwon (Bellarine Peninsula) comprised a literature review and brief analysis of archaeological work to date. This area encompasses the study area and is discussed in more detail below.

The authors noted that archaeological record of the Bellarine Peninsula had been severely distorted due to the activities of artefact collectors. In addition, an analysis of previous archaeological research was hampered by a lack of basic information, particularly regarding survey area boundaries, surface visibility and the number and types of places previously identified (1995: 131).

The authors summarised the types of places found on the Bellarine Peninsula. These are in order of frequency: surface scatter, isolated artefact, shell midden, exposure in bank, scarred tree, burial, literature reference, hearth feature, quarry, and Aboriginal place. Most places are probably less than 5 kya and most places were in poor condition. Four radio carbon dates available for Aboriginal places on the Peninsula range between c.200 and 5,300 years BP (1995: 141-143).

The authors question Rhoads (1986: 56) previously predicted Aboriginal place densities suggesting his figure of one Aboriginal place per 6 km² is a gross underestimation. Their revised place density for the Lower Barwon inland areas is 7.2 places per 1 km², which they also suggest is probably two or three times lower than the actual place density (1995: 142).

The authors concluded that the area was in all probability a focus of Aboriginal occupation (1995: 143) however the archaeology of the Lower Barwon, despite having been subject to many archaeological investigations, was poorly understood (1995: xi).

Armstrong Creek Urban Growth Plan: Indigenous Cultural Heritage Paynter & Rhodes (2006).

This study assessed sections of Waurn Ponds Creek, Armstrong Creek and the Barwon River for Aboriginal cultural heritage and incorporates the current study area. The eastern boundary is formed by Reedy Swamp and Hospital Swamp. Ghazeepore Road forms the western boundary while, Mt Duneed and Lower Mt Duneed form the southern proximity.

A field assessment combining a foot survey and a windscreen survey targeted places of potential development and areas predicted to be sensitive for Aboriginal places. Ground visibility was generally poor however small areas provided some variable surface visibility. A total of six Aboriginal places were identified during the pedestrian survey; none of these are within the current study area. Areas where Aboriginal cultural material was identified are as follows.

- Mount Duneed Reserve. A small stone artefact scatter (VAHR 7721-0785) and a single stone artefact (VAHR 7721-0786) were located here (2006: 33). Raw materials were silcrete, quartzite and crystal quartz.
- Tracks and exposures within Stewarts Reserve were examined. A recently made scarred tree/Aboriginal place (VAHR 7721-0787) was identified.
- Armstrong Creek within the Geelong Crematorium. Good ground visibility along the banks of the creeks resulted in the identification of two small stone artefact

scatters (VAHR 7721-0784, -0782) of silcrete, quartzite and crystal quartz. A possible scarred tree was recorded on Armstrong Creek (VAHR 7721-0783).

Other areas of varying surface visibility were surveyed by foot. Sections of Charlemont Road, Duneed Cemetery, north end of Baenschs Road, sections of Armstrong Creek at 280 Whites Road, corner of Lower Duneed and Charlemont Road and 99 Tannery Road. No Aboriginal cultural heritage was identified at these locations.

The windscreen survey covered all roads within the study area; no Aboriginal places were identified in this manner. The survey was generally limited to areas of public access and as such most, if not all, of the current study area was not surveyed effectively (2006:31).

The authors noted a number of 'intact landforms' which have higher potential to contain *in-situ* Aboriginal places (2006: 39). The author does not clarify what defines an intact landform. Those specific landforms within the current study defined by the authors as sensitive for Aboriginal cultural material include:

- Armstrong Creek crossing (southern arm) at Ghazeepore Road.
- High ground on the north side of Boundary Road.
- High ground on the south side of Boundary Road - current location of Geelong Airport.
- Moorobool Viaduct Sand (Geological Unit - Nbn) which may contain intact subsurface deposits.
- Several areas or landforms of particularly high sensitivity (such as Armstrong Creek corridors, undulating land and high points) were noted to be highly sensitive for Aboriginal cultural material (2006: 41)
- The entire current study area (2006: 44) is indicated as having high potential for archaeological places.

The study also suggested a high potential for Aboriginal burials to occur within several landforms such as coastal dune and inland sand deposits. The authors also suggest burials may occur in Moorabool Viaduct Sands and the Jan Juc formation surrounding Grovedale (2006: 42).

Consultation with Indigenous communities resulted in the defining of several "No Go Zones" (2006: 44). One area is within the current study area:

- Land along Armstrong Creek, including all land between the southern and northern branches of Armstrong Creek at Ghazeepore Road and drainage lines (2006: 46 Figure 9)

The study noted a number of post contact places (n 6) in the region (2006: 17) and highlighted the local Aboriginal people's strong and continuing affinity with the area (2006: 45).

3.3.3 Localised Archaeological Studies

An Archaeological Assessment 364 Surf Coast Highway, Grovedale Paynter (2006)

This assessment examined a 75 ha property on the Surf Coast Highway between Geelong-Warrnambool Railway and Boundary Road to the south, to the immediate east of the study area.

The topography is gently undulating, with flat areas comprising Moorabool Viaduct Sands, Jan Juc Formation and Unnamed Colluvium and is 1 km north of Armstrong Creek. The southern section of the study area is situated on a rise (20 m asl) overlooking a low-lying swampy area beyond the study area.

The survey method is not described and it is unclear how much of the area was effectively surveyed. The survey was hampered by extremely poor visibility and as a result no Aboriginal places were located during the survey. All flat land within the study area (which covered almost two thirds of the study area- refer to Figure 4 2006: 25) was noted as having potential to contain Aboriginal cultural heritage due to its proximity to a former watercourse (2006: 15).

Proposed Gas Pipeline Route Waurn Ponds to Barwon Heads: Cultural Heritage Investigation Clark (2006).

This assessment examined a linear pipeline route along existing road reserves in the area. Whites Road and Ghazeepore Road in the current study area were examined by vehicle. The survey did not identify any Aboriginal cultural heritage however the area in the vicinity of the prior Duneed Aboriginal Reserve (7721-0608) was noted as sensitive (2006: 20).

Armstrong Creek Geelong Archaeological Survey Bell and Rhodes (2003)

Bell and Rhodes (2003) a examined 123 ha property a few kilometres north of Armstrong Creek (east of the current study area) for Aboriginal cultural heritage. The topography was generally low comprising gently undulating plains similar to much of the current study area.

A one day pedestrian survey was undertaken. The study area was divided into two survey units. Survey Unit 1 provided excellent visibility due to recently ploughed fields and a sampling approach was undertaken which focussed on 10 areas. Survey Unit 2 provided no visibility and efforts were concentrated on examining mature native trees for signs of Aboriginal scarring. A total of 64% of the study area was surveyed , of this 37 ha was effectively surveyed due to the high surface visibility afforded in Survey Unit 1 (2003: 9).

The survey identified three Aboriginal places (VAHR 7721-0572, 0573, 0574). VAHR 7721-0572 is an extensive stone artefact scatter (200 x 200 m) with low artefact densities of <1 per m² (2003: 10). The place had been heavily disturbed by ploughing and quarrying activities, possibly dispersing stone artefacts over a wide area. Predicted artefact numbers were not calculated for this place and a sample of only 12 artefacts were actually recorded. A range of raw materials were present (red and grey silcrete, flint and white quartz). Angular fragments and cores were present. This place is interpreted as the remains of a past campsite, probably a short term stopover for people moving to or from the Barwon River and Lake Connewarre. The authors suggest that the stone artefact assemblage indicates that imported stone was knapped, and tools were removed from the place location when occupants moved on (2003: 10).

The remaining identified Aboriginal places comprised:

- VAHR 7721-0573 – a single red silcrete stone artefact, and
- VAHR 7721-0574 – a scarred tree, although this is described as a “possible” scarred tree (2003: 17).

The western half of Survey Unit 2 which contains mature red gums, on unimproved pasture, situated on a level part of the volcanic plains close to Armstrong Creek was highlighted as an area of sensitivity for surface and subsurface stone artefacts (2003: 17).

This assessment highlights in particular the sensitivity of undulating plains and gentle rises in the Armstrong Creek area that becomes apparent with good ground visibility.

3.4 REGISTERED DISTRIBUTION OF PLACES

The Victorian Aboriginal Heritage Register (VAHR), maintained by Aboriginal Affairs Victoria, lists all registered Aboriginal places in Victoria. The VAHR was searched on 30 July 2009 to establish the distribution of registered Aboriginal places in relation to the study area.

A search radius of 1 km from the study area boundary was considered sufficient to provide an indication of the types of Aboriginal places found in the wider area. This determined that nine Aboriginal places occur within the study area and 48 places occur within 1 km of the study area (Figure 6). Most of these are concentrated around Waurn Ponds Creek. Places within the study area are summarised in Table 3.

VAHR No.	Place Name	Type	Context and Contents
7721-0146	Mt Duneed 1	Scarred Tree	Red gum on unnamed creek bank.
7721-0147	Mt Duneed 2	Scarred Tree	Red gum on flat land beside small unnamed creek.
7721-0148	Mt Duneed 3	Scarred Tree	Red gum on flat land beside small unnamed creek.
7721-0822	AR1	Artefact Scatter	Located beside Armstrong Creek in sandy silt over a 25 x 25 m area. Place comprises two silcrete and quartz angular fragments. Density = <1/m².
7721-0823	AR 2	Artefact Scatter	Located along Armstrong Creek in eroding sandy silt over a 100 x 10 m area. Place comprises four silcrete and quartz angular fragments and a silcrete core. Density = <1/m².
7721-0824	AR 3	Artefact Scatter (Isolated)	Located along Armstrong Creek in eroding sandy silt. Place comprises one quartz flake. Density = <1/m².
7721-0825	AR 4	Artefact Scatter	Located 210 m Armstrong Creek in eroding sandy silt over a 100 x 100 m area. Place comprises four silcrete and quartz angular fragments and a silcrete core. Density = <1/m².
7721-0870	Armstrong Creek Scarred Tree 1	Scarred Tree	Tree is on the banks of Armstrong Creek.
7721-0896	Surf Coast Highway Connection Armstrong Creek	Artefact Scatter	Located on undulating plain 125 m from Armstrong Creek. The place comprises 2 quartz angular fragments over a 10 x 10 m² area. Density = <1/m².
7721-0939	Surf Coast Hwy Connection Waurn	Artefact Scatter, Collection	Located on ploughed field on a tributary of Armstrong Creek. Place comprises two angular fragments of silcrete and quartzite. No subsurface components were identified. Density = <1/m². The collection component to this place has not yet been investigated.

Table 3: VAHR Aboriginal places registered within the study area.

The VAHR data set partially reflects archaeological field survey conditions, the extent and location of previous archaeological subsurface testing programs and field methods. Limited archaeological survey and subsurface testing has been undertaken in the study area. Most of this has focussed on Armstrong Creek corridor, leaving the majority of the study area unsurveyed. Nevertheless some trends are apparent in this data and are discussed in the context of these limitations.

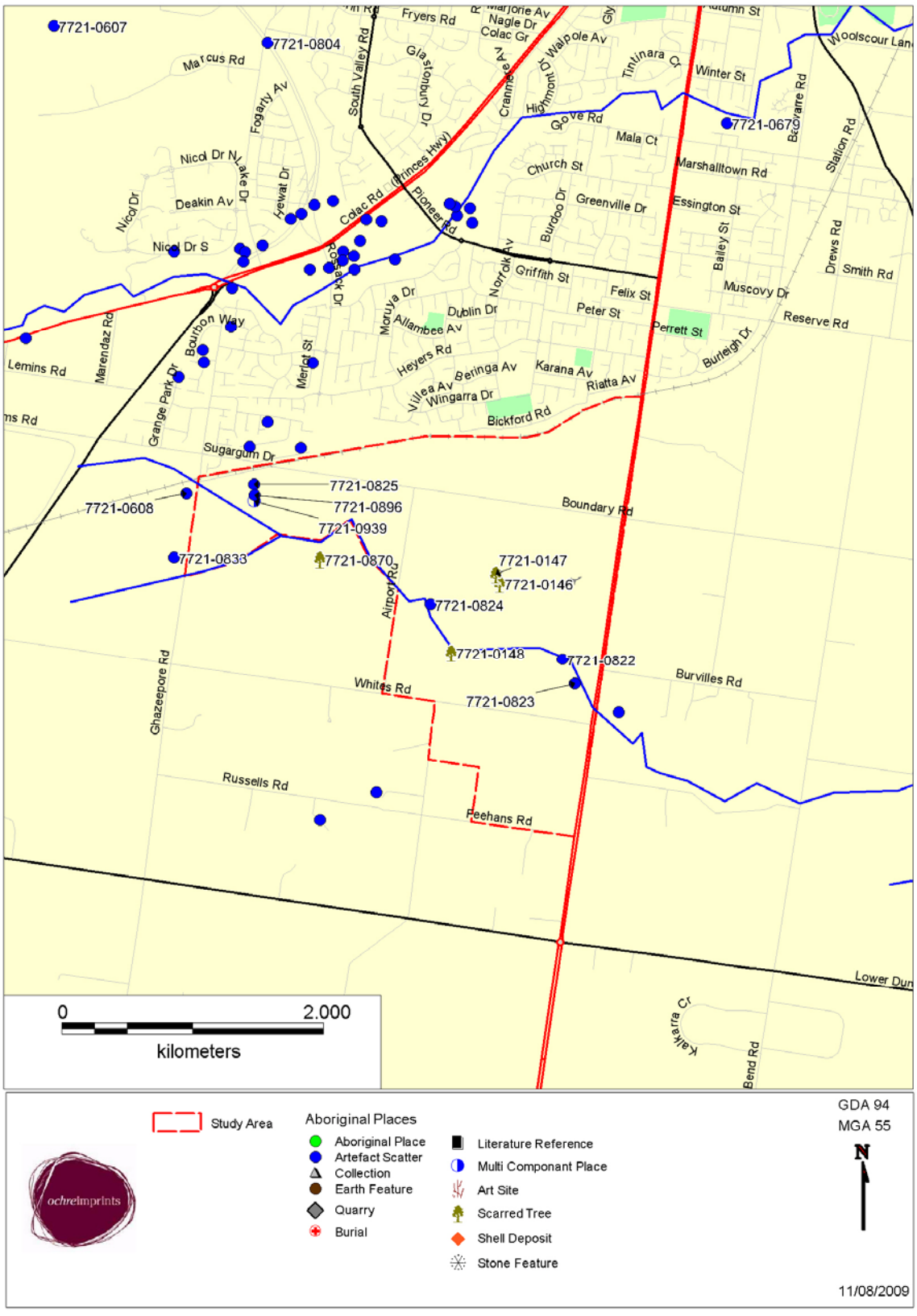


Figure 4: Distribution of Aboriginal places associated with the study area.

The types of registered Aboriginal places within the study area comprise low density stone artefact scatters, an isolated stone artefact occurrence, and scarred trees and are located within close proximity to Armstrong Creek. The distribution of these places is discussed below.

Scarred Trees: Three scarred trees occur in the study area approximately 200 m either side of Armstrong Creek.

Isolated stone artefact scatters: one isolated stone artefact has been identified in the study area eroding from the banks of Armstrong Creek

Surface stone artefact scatters: five low density stone artefact scatters are sparsely distributed along Armstrong Creek or within 210 m of the creek. The stone artefact scatters in the study area generally contain a very limited number of stone artefacts; between 2-4 stone artefacts. The surface density of stone artefact scatters is <1 per m^2 and the subsurface density of these places is unknown.

Aboriginal places have been identified on all but one (Moorabool Viaduct Sands - Nbn) of the geological landforms in the study area and at a range of elevations. Proximity to water appears to be a strong factor in Aboriginal place location, with all Aboriginal places in the study area located within 210 m of Armstrong Creek or its tributaries. However this may be a reflection of the survey coverage rather than the actual distribution of Aboriginal places. Many of the stone artefacts have been noted on eroding creek banks which may suggest the presence of subsurface artefact occurrences along the creek corridor.

Beyond the study area the distribution of Aboriginal places suggest all landforms in the study area are sensitive for Aboriginal cultural material and that proximity to water, while still a major influence on place distirbution is not the only factor affecting Aboriginal place distribution. The rise between Waurn Ponds Creek and Armstrong Creek contains a concentration of Aboriginal places and the volcanic rises to the east and south of the current study area contain Aboriginal places. Notable is the absence of scarred trees along Waurn Ponds Creek, which may suggest the area has been previously exploited for timber. Further afield a number of burials are noted in soft, Aeolian sand dunes on the Bellarine Peninsula (Richards & Jordan 1995) and radio carbon dating of four Aboriginal places provided a range of dates between 4-6 kya on the Peninsula.

No registered post contact places occur in the study area, although Duneed Aboriginal Reserve (7721-0608/ Aboriginal Historic Place 7.1-6) occurs in close proximity.

The background research to date, suggests that all landforms in the study area are sensitive for Aboriginal places excepting low lying areas.

3.5 ARCHAEOLOGICAL SENSITIVITY OF THE STUDY AREA

Archaeological places frequently consist of buried deposits of material which are not visible on the ground surface due to a range of factors (cf. sedimentation, vegetation cover etc.). It is usually not possible to identify every archaeological place within a given area due to these factors, or because the size of the study area is too large to fully survey. Most heritage impact assessments rely on predictive modelling to define areas of archaeological sensitivity.

An area of Aboriginal archaeological sensitivity potentially contains Aboriginal cultural materials. Areas of archaeological sensitivity are rated from low to high, depending on the likelihood of the presence of sites and their predicted significance. A combination of factors influence the end rating, primarily: the known registered Aboriginal place distribution and the types of places represented (including site type and content), the types of landforms present and the level of disturbance by land use and other practices. The rating used to evaluate the archaeological sensitivity of the study area was originally proposed in Schell (2006, 24). The conditions that *generally* apply for each rating level are described below, though it is stressed that other factors may come into play depending on the individual area[5].

Low: No registered Aboriginal sites are present, or registered Aboriginal sites of low scientific significance only are present. Landforms in the area are not known to be associated with Aboriginal sites in the wider region and/or they have been extensively modified (i.e. tree clearing, cut & fill etc).

Moderate: Registered Aboriginal sites of low to moderate scientific significance are present and / or landforms in the area are known to be associated with Aboriginal sites in the wider region and these may have been partially modified (i.e. tree clearing, ploughing etc).

High: Aboriginal sites of moderate to high scientific significance are present. Landforms that contain Aboriginal sites occur extensively. Landforms are intact or only partially modified with limited disturbance by tree clearing etc.

[5] For instance, an area may contain registered Aboriginal scarred tree places, but the potential for any other places to occur in the area may be non-existent due to the absence of further mature trees.

Archaeological surveys carried out in the study area have resulted in the identification of a limited number and range of Aboriginal places throughout the region. In tandem with geological, environmental and topographical information and the results of archaeological reports, the registered place distribution is used to present predictive information regarding the archaeological sensitivity of the study area. Due to the limited data set that the predictive model is based on, it will likely be refined and modified as further archaeological data comes to hand.

Table 4 indicates the study area has potential and/or already contains scarred trees[6] along the Armstrong Creek corridor, and low density surface stone artefact scatters and subsurface stone artefacts in all other landforms within the study area. The Armstrong Creek corridor is the only area which may preserve potentially intact subsurface deposits in shallow to deeper deposits. No other Aboriginal place types are predicted to occur in the study area. Although Paynter and Rhodes (2006:41) suggest burials may be present in the Moorabool Viaduct Sands, there is no current evidence to support this.

Landform Present in Study area	Geological Unit	Soils	Sensitivity	Aboriginal Places (potential or already occurring)
Intermittent waterway corridor.	Unnamed Alluvium	Sandy silt.	High	Low density surface stone artefact scatters, isolated stone artefacts, shallow to deep subsurface artefact occurrences and scarred trees. Potentially intact deposits may occur along Armstrong Creek.
Rises overlooking waterways.	Jan Juc Formation	Fertile, friable black gradational soils.	Moderate	Low density surface stone artefact scatters, isolated stone artefacts and shallow subsurface artefact occurrences.
	Newer Volcanic Group	Variable.		
	Moorabool Viaduct Sands	Gravel, sand, silt.		
Low lying plains	Newer Volcanic Group	Variable, including grey cracking clays.	Low	Low density surface stone artefact scatters, isolated stone artefacts and shallow subsurface artefact occurrences.

Table 4: Summary of geological units and associated landforms within the study area indicating potential sensitivity for Aboriginal cultural material.

[6] It is, however, unlikely that further scarred trees will be identified.

Based on the background research three zones of Aboriginal archaeological sensitivity are proposed for the study area (refer to Table 5 and Figure 7).

Zone of Aboriginal Archaeological Sensitivity	Sensitivity Rating
Zone 1: Armstrong Creek Corridor	High
Zone 2: Elevated Land (Rises)	Moderate
Zone 3: Low lying land and remainder of study area.	Low

Table 5: Predicted zones of Aboriginal archaeological sensitivity in the study area.

Zone 1: Armstrong Creek corridor: this zone has high potential for Aboriginal places due to the presence of a water source and alluvial soil deposits. Scarred trees and low density stone artefact scatters are known to occur in this zone. There is potential for further isolated and/or surface stone artefact scatters and subsurface stone artefact occurrences to occur in this zone and there may be intact subsurface deposits. However, it is unlikely that further scarred trees will be identified as this zone has been surveyed several times previously for scarred trees. It is unlikely that post contact Aboriginal places occur in this zone due to the focus of post contact activity being outside the study area.

Zone 2: **Rises**: this zone has moderate sensitivity for Aboriginal places due to the dry and elevated vantage points this landform provides. Although only one Aboriginal place occurs within this zone in the study area, several Aboriginal places such as isolated and low density surface stone artefact scatters occur within a 5 km radius in a similar landform. There is potential for isolated and/or surface stone artefact scatters and subsurface stone artefact occurrences to occur in this zone.

Zone 3: Remainder of the study area: the remainder of the study area has low potential for Aboriginal cultural material due to the generally low aspect and damp nature of the remaining area. Nevertheless, Aboriginal places have been identified in the wider area on similar landforms. These are generally sparsely distributed isolated and low density surface stone artefact scatters.

3.6 CONCLUSION

The background review determined that nine Aboriginal places occur within the study area. The places occur within 210 m of Armstrong Creek and comprise low density surface stone artefact scatters and scarred trees. No subsurface Aboriginal places have been identified to date.

Based on geological and archaeological background information two zones with increased archaeological sensitivity were identified in the study area. These comprise:

- Creek corridors comprising Armstrong Creek corridor and its tributaries; and,
- Elevated landforms.

Aboriginal places in the wider region commonly occur along water courses, however many have also been identified on elevated rises. Aboriginal places are most likely to occur in shallow surface deposits due to the age of landforms in the study area. Alluvial landforms along Armstrong Creek have the greatest potential to contain intact Aboriginal cultural heritage. The age of Aboriginal places in the study area is unknown. Scarred trees are unlikely to be > 300 years old. Stone artefact scatters are likely to be < 6,000 years old, based on the results of radio carbon dating of four Aboriginal places on the Bellarine Peninsula. However, in the absence of organic material stone scatters and subsurface cultural heritage will be difficult to date.

The background research suggests that the focus of activity for Aboriginal people, at least in the post contact period, was at Dooliebeal (Stewarts Reserve) and Duneed Aboriginal Reserve, both outside the current study area. Armstrong Creek may have served as a travel route during the pre-contact period from the west to the resource rich Bellarine Peninsula. It is likely therefore that the study area, along Armstrong Creek, has been regularly traversed and utilised for limited and brief opportunistic resource acquisition in pre and post contact periods. The creek and its associated Aboriginal places are likely to have strong significance for Aboriginal people.

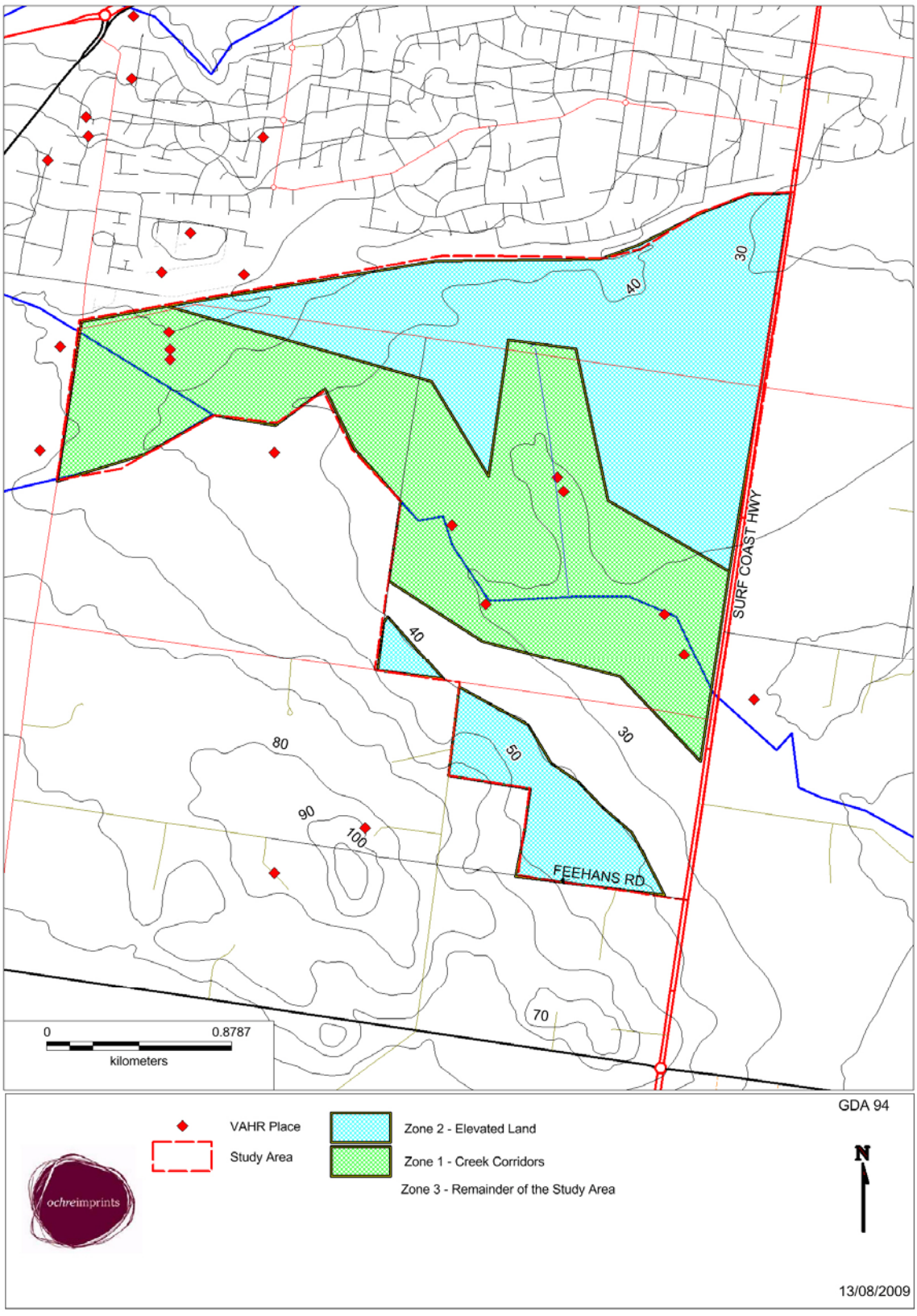


Figure 5: Zones of sensitivity.

4 HISTORICAL CULTURAL HERITAGE ASSESSMENT

4.1 INTRODUCTION

This section presents background historical archaeological information. This includes a description of the character of historical features in the region to provide contextual information within which the results can be examined. This also informs a review of the archaeological sensitivity of the study area.

4.2 HISTORICAL OVERVIEW

This historic overview presents background information gathered from documentary sources, historic maps and aerial photographs. The background historical information builds a picture of land use in the area. This information is used to develop predictions for the level of disturbance the study area may have been subject to in the past and the types of historical archaeological sites that may be present.

The first detailed European exploration of Corio Bay was conducted in February 1802 by Lieutenant John Murray in the *Lady Nelson*. In 1824, Hamilton Hume and William Hovel arrived at the shores of Corio Bay following an overland exploration of the country from Sydney to Port Phillip. Following the surveyor John Helder Wedge's 1835 favourable report of the area as fine pasturage for sheep, squatters began to establish stations in the region. By the late 1830s the squatters, North and Grass, followed by John Armstrong in 1852, leased Bush or River Station, encompassing the present study area (Wynd 1992: 7-11, Spreadborough & Anderson 1983: 270). The station covered 16 square miles and Armstrong's homestead was on the east side of Surf Coast Highway (see Figures 8 & 9).

Between 1847 and 1850 Assistant Surveyor William Pickering began work mapping the Duneed Parish and lots of c. 640 acres became available for purchase. The large size of the blocks resulted in few sales and Armstrong continued to graze livestock over the study area. In 1854, the land comprising Armstrong's River Station was again surveyed and subdivided for sale. Armstrong retained 320 acres on the east side of Surf Coast Highway and renamed his run River Station No. 3 (Figures 8 & 9).

Following the subdivision and sale of large squatting runs the regional industry remained rural in outlook but shifted from a mainly pastoral to agricultural focus. In the 1861 census 179 farmers and 167 farm labourers were recorded in Duneed Parish and by 1867 Duneed was noted as one of the most cultivated areas in the region (Wynd 1992, 30-32). However, by the late nineteenth century drought and soil exhaustion led to the decline of cultivation and sheep grazing became once again the principal industry (Wynd

1992, 38-45). A small number of buildings and homes from this period survive in the study area.

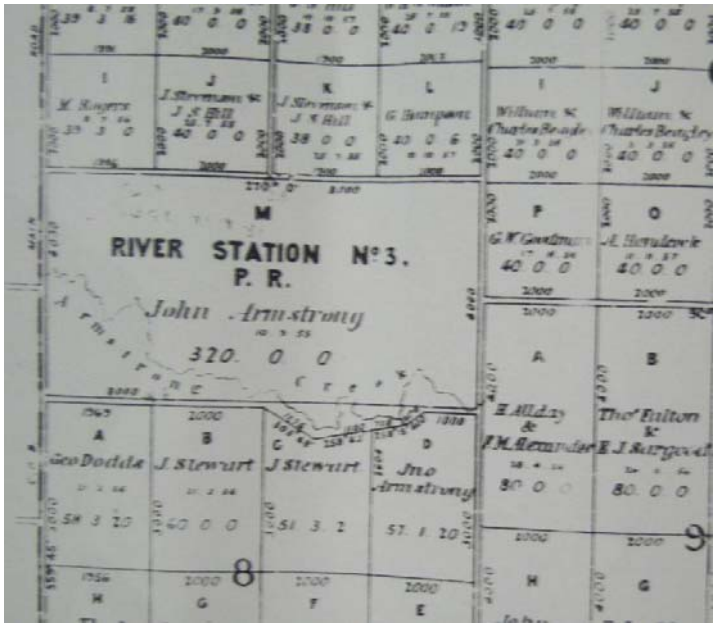


Figure 6: n.d. Parish of Connewarre County of Grant, Department of Crown Lands (bordered by Surf Coast Highway and Stewarts Road to the south).

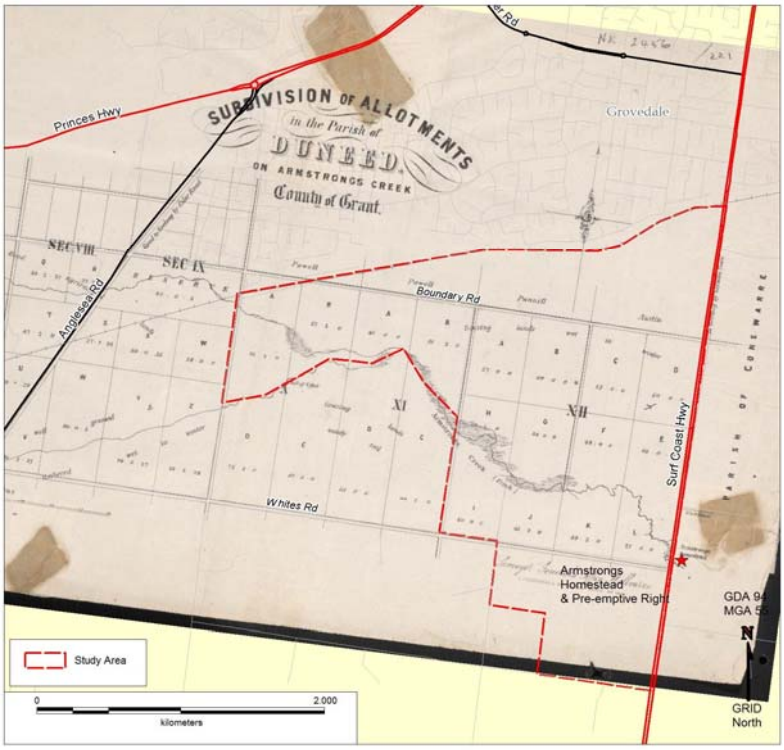


Figure 7: 1855 Subdivision of land on Armstrong Creek.

Small scale dairying began to assume increased importance in the 1890s, with several creameries operating in the wider area. Viticulture was also an important local industry

and many vignerons operated within the Mount Duneed region in the mid to late 19th century as a result of a large influx of German migrants to Grovedale (bordering the north of the study area). At least two vignerons are recorded in 1879 on Mt Duneed Road, with water supplied from Armstrong Creek (MDPSC NA, 1978, Wynd 1992: 62). Water became a serious problem at his time as no galvanized tanks were available for storage. Armstrong Creek provided 'exceptionally clean water' as no cultivation had occurred (MDPSC NA, 1978). The industry was short-lived and was wiped out in the space of a few years by the grape louse, *phylloxera vastarix* which made an appearance at Grovedale in 1877 (Rowe & Huddle 1998-2000 Vol 2: 7). Only recently have vignerons begun to return and a few occur in the study area.

Armstrong constructed a three story flour mill (Connewarre Flour Mill) and two stone cottages on nine acres of his property within the area now known as Stewarts Reserve (Rowe & Huddle, 1998-2000: Vol 10). Only the stone foundations of the mill remain today (Pescott 1985: 146). According to records in the Mount Duneed Primary School Centenary publication (MDPSC NA, 1978) the mill was operated by water from the creek and had flat stones for grinding grain. Operations ceased in 1892.

Transport within the study area was limited to a few roads bordering original land allotments with the major thoroughfare from Geelong to Torquay (Torquay Road/Surf Coast Hwy) bordering the study area to the east. A toll gate operated in 1861-1870s in the vicinity of Boundary and Torquay Road (MDPSC NA, 1978). The Yarbrough Inn was established near the corner of Stewarts Road and Torquay Road in 1858 however the lack of passing trade caused its closure in 1864 (Wynd 1992:94). A number of roads in the study area were named after prominent local pioneers. Whites Road, named after Andrew White, a prominent land holder, with livery stables in Geelong. He lived at "Hillside" on the slopes of Mt Duneed (Pescott 1985: 132). Feehan's road was named after Mr P. and Miss M. Feehan whose family were associated with Mt Duneed for 97 years. Williams Road was named after George Williams, who for many years fulfilled the role of the Barrabool Shire Secretary (MDPSC NA, 1978).

The railway from Geelong to the Western District forms the northern border of the study area, although no stations occur in this section.

The western regions of Geelong contained a variety of large and small scale industries. Bluestone and limestone were quarried on a small to large scale. Marl (limestone) was used as a fertilizer however the advent of superphosphate in the late 19th century caused the marl pits to become obsolete. Bluestone was used for buildings and roads. A large bluestone quarry operated in the late 1800's until 1932 on J. Williams Property on Mt

Duneed Road (MDPSC NA, 1978). Many smaller quarries were simply dug by the property owner for their own or localised use such as one on Williams Road within the study area.

In 1966, the aviator Leslie Mahon and his wife purchased part of Section XII (Crown Allotment H) from James Rainford, a Mount Duneed farmer (Land Titles Office Vol 8625/Fol 627) to establish the present Geelong Airport (within the study area).

Throughout the early twentieth century the area remained generally rural in character with few buildings among the paddocks (Aerial Photograph Run 11 628-121 held at Land Victoria). Further subdivisions of some blocks into 5-10 acre lots for hobby farms occurred in the mid 1960s (Wynd 1992, 175).

4.3 PREVIOUS ARCHAEOLOGICAL ASSESSMENTS

4.3.1 Introduction

This section focuses on a presentation and discussion of the results of previous historical archaeological surveys that have been undertaken in the region. Two broad scale heritage studies for the City of Geelong incorporate the study area (Rowe, D. & L. Huddle 1998-2000; Huddle 2006). Although several smaller surveys for historical cultural values have been undertaken in the immediate vicinity of the study area, aside from Weaver (1994), these have noted very few historical places.

4.3.2 Regional Surveys

City of Greater Geelong Outer Areas Heritage Study Stage 2, Vols 1-16 Rowe & Huddle (1998-2000).

Rowe and Huddle (1998-2000) conducted a regional assessment of historic places within the outer regions the City of Greater Geelong. The study incorporated 22 rural townships and defined 11 heritage precincts. A total of 1,159 individual heritage places were identified. The vast majority were suburban residential (n836) and rural residential (n203). Five heritage places were identified within the current study area. The vast majority of historical places within 1 km of the study area occur in the suburb of Grovedale to the north of Armstrong Creek West Precinct and relate to domestic occupation by German migrants.

The study looked at various locations: Volume 10 and 13 encompass the Grovedale and Mt Duneed areas respectively and incorporate the current study area. Only one heritage place was recorded in the study area from the Grovedale area (Vol 10), being an early 20th century residential home on Torquay Road in the far north east of the current study

area. This place was recommended for HO protection (Rowe & Huddle 1988-2000 Vol 10: Place No 355), but is not currently registered.

Within the Mt Duneed Region (Vol 13) the study identified a total of 16 heritage places: eight of which are of local significance, and four of regional significance. The nature of the existing heritage places in the Mt Duneed area is overwhelmingly rural/residential, the exceptions are Mt Duneed Cemetery, two small quarries and a nature reserve.

Of these four heritage places were identified within the current study area. These are:

- 50 Whites Road, comprising c. 1873 bluestone homestead of local significance
- 140 Whites Road, comprising cottage ruins and outbuildings of local significance.
- 355 Torquay Road, comprising c. 1900 weatherboard cottage of local significance.
- 25 Williams Road, comprising a small bluestone quarry of local significance.

The former three places were recommended for Heritage Overlay registration, and the bluestone quarry, Heritage Inventory registration; however none of these historical places are currently registered. A reassessment of many heritage places listed in Rowe and Huddle (1998-2000) within the Armstrong Creek Growth Area was undertaken in 2006 (Huddle) and the former three of the above places listed for inclusion on the Heritage Overlay are still currently being reviewed by the Geelong Planning Department (Pers. com. D. Rowe to J. Turnbull 24/08/09). 335 Torquay Road has been omitted from subsequent assessments and reccomendations (see Huddle 2006 & City of Greater Geelong 2008).

Armstrong Creek Urban Growth Plan Huddle (2006)

The purpose of this assessment was to identify all post-contact places of potential cultural significance in the Armstrong Creek Urban Growth plan area - large area encompassing parts of Mt Duneed, Marshal and a small part of Connewarre. The current study area is incorporated in this area. The study aimed to rigorously assess and document the identified places of post contact significance, (which largely involved the re-assessment of those places identified in Rowe and Huddle (1998-2000)) and to provide recommendations for a heritage conservation program for the study area (2006: 5).

The assessment was essentially a desktop review with a field survey being undertaken from the road (2006: 6). The study identified 46 places and identified cluster locations of Industrial, Faming, Civic and Post contact culturally significant places (2006:16). Of

these a civic area around Mt Duneed captures an area of Whites and Williams Road within the current study area. Within this location two domestic features (previously mentioned as 140 Whites Road and 50 Whites Road in Rowe and Huddle (1998-2000) fall within the current study area. These places have been rated as significant places (2006:17) and this assessments supports the earlier (1998-2000) recommendation for inclusion on the Geelong Heritage Overlay. However, these places may not have fully been assessed at this stage and as such further field work is likely to be carried out (directed by the Geelong Planning Department (2006:23)) in order to document place interiors, changes to the place over time, and to establish the boundaries (curtilage) for Heritage Overlay protection.

The authors recommend that discussions between the owners of places recommended for inclusion on the Heritage Overlay, a heritage consultant and a heritage planner take place to discuss the process of heritage protection as well as the opportunities and constraints (2006:23).

In addition one place (bluestone quarry at 25 Williams Road) within the study area has been nominated for inclusion on the Heritage Inventory (2000:19).

The omission of the domestic structure at 355 Torquay Road from this and subsequent assessments suggests that this place has been downgraded and is no longer considered to have heritage values.

Huddles' (2006) recommendations have been subsequently adopted by the City of Greater Geelong (2008). This document reiterates that the domestic structures at No 50 and 140 Whites Road have local significance and should be placed on the Heritage Overlay (2008:49-50) and that the bluestone quarry at 25 Williams Road should be subject to further fieldwork to determine the appropriate curtilage for Heritage Overlay protection (2008:51).

4.3.3 Localised Regional Surveys.

Proposed Gas Pipeline Route Waurn Ponds to Barwon Heads: Cultural Heritage Investigation Clark (2006).

This assessment examined a linear pipeline route along existing road reserves. Several roads in the south west of the study area were examined by vehicle (i.e. Ghazeepore Road). No historical places or areas of historical archaeological sensitivity were identified during the assessment (2006:6).

An Archaeological Assessment 364 Surf Coast Highway, Grovedale Paynter (2006)

This assessment examined a 75 ha property on the Surf Coast Highway between Geelong-Warrnambool Railway and Boundary Road to the south.

The topography is gently undulating, with flat areas. The southern section of the study area is situated on a rise (20 m asl) overlooking a low-lying swampy area beyond the study area.

The survey method is not described and it is unclear what area was effectively surveyed. The survey was hampered by extremely poor visibility and as a result no historical places were located during the survey (2006:16). No areas of historical archaeological sensitivity were defined by the assessment.

The Mount Duneed/Armstrong Creek Urban Development Study Weaver (1994)

Weaver (1994) conducted an assessment of historical cultural heritage over a large area that encompasses the current study area. Weaver described the topography as comprising undulating plains that had been cleared for grazing. The major features in this landscape are Mt Duneed, the Barwon River and the margins of Reedy Lake and Lake Connewarre. All roads and track were driven and areas of archaeological potential were identified and some of these were subject to a field inspection (1994: Section 6)[7].

ID (Weaver 2004	PLACE DESCRIPTION
1	Bluestone quarry
2	Drystone wall.
3	Vegetation driveway.
4	Bluestone quarry.
5	Horseshoe Bend Homestead complex.
6	Bluestone quarry.
A	Stone ruin at rear of "Wongara" property buildings, H. Dekkar 80 Russells Road.
B	Cypress pine windbreak
C	Cypress pine windbreak at "Tallandale" property.
D	Basalt ridgeline "Tallandale".
E	The Old Duneed township area.
F	Buildings of considerable age attached to 140 Whites Road.
G	Farm property
H	"Dooliebeal" property.
I	Old House, Lower Duneed Road.
J	Hall and cypress lines property, 40 Mt Duneed Road.
K	Possible dry stone walls on elevated banks.
L	Gravel pit.
M	Old bluestone building and outbuildings.
N	"Barwonside" property.
O	Timber house.

[7] Page numbers are not provided in Weaver's report.

P	Deserted timber house.
Q	"Greenbanks" property.
R	"Sunnyside" property.
S	Old abandoned timber house and outbuildings.
T	"Sparrowvale" and outbuildings.
U	"Calder Park" No 20 Mt Duneed Road.
V	Former Yardborough hotel site.

Table 6: Historical features noted by Weaver 2004 (highlighted places are within the current study area).

Weaver inspected six historical places (numbered 1-6 in Table 6). Of these one bluestone quarry (ID 4) occurs within the study area at 25 Williams Road.

Weaver (1994) noted (but did not inspect) a further 22 areas which could yield historical archaeological material. These places include abandoned farms, gravel pits, dry stone walls, and cypress rows. These areas were not inspected by Weaver during the field inspection but viewed from roadsides (1994: Section 7.3). One such place (ID F) occurs within the current study area and comprises two bluestone buildings of considerable age at 140 Whites Road. No further descriptions of these buildings are provided.

Weavers study determined that the nature of historical places in the region is generally of a rural and domestic nature associated with low density settlement in the region.

Armstrong Creek Geelong Archaeological Survey Bell and Rhodes (2003)

Bell and Rhodes (2003) examined a 123 ha property 1 km north of Stewarts Reserve (Armstrong Creek) on the east side of Surf Coast Highway for historical cultural heritage. The topography was generally one of low relief comprising gently undulating plains.

A one day pedestrian survey was undertaken. The study area was divided into two survey units. Survey Unit 1 provided excellent visibility due to recently ploughed fields and a sampling approach was undertaken focussing on 10 areas. Survey Unit 2 provided no visibility. Sixty four percent of the study area was surveyed (2003: 9).

The pedestrian survey identified and registered a historical farm complex (H7721-0102) previously noted but not registered by Weaver (1994), and a limestone/marl quarry (H7721-0103) (2003:11).

The farm complex (H7721-0102) is described in considerable detail (2003: 11-14) and comprises 14 separate features. These include brick and bluestone paving, weatherboard buildings, stables and dairy, bluestone outbuilding, well, concrete slabs and fences. The features are dated to the late 19th and 20th century.

The limestone/marl quarry (H7721-0103) is approximately 20 x 50 m. No physical remains of quarry equipment were identified (2003: 14).

A further area of potential archaeological sensitivity was identified in Survey Unit 2 which may potentially contain the remains of an earlier farm although this was not noted during the field survey (2003:14).

4.4 DISTRIBUTION OF REGISTERED PLACES

The following Commonwealth, State and local registers were reviewed for any known heritage places in the study area:

- Victorian Aboriginal Heritage Register;
- Victorian Heritage Register and Victorian Heritage Inventory;
- National Heritage List and Commonwealth Heritage List;
- Local Council Heritage Overlays;
- Register of the National Estate and;
- The National Trust Register.
- A search area of 2 km was considered sufficient to capture a range of historical places that occur in the study area region.

No registered historical places occur within the study area. Eight registered historical places occur within 2 km of the boundary of the study area. The nature of these places is varied, comprising domestic, industrial and transport related places (Figure 10 & Table 7).

Place Registration Numbers	Place Name	Type and Description
H7721-0010	Horseshoe Bend Road 1	Commercial: Partly demolished site of Racecourse Hotel. May be completely demolished.
H7721-0102	ACH-1	Rural: 1880-1930 farm complex with standing stone building.
H7721-0103	ACH-2	Rural: quarry pit used by local farm.
H7721-0119	Drews Road 1	Industrial: concrete structures from pipe making works (c. 1912) associated with Ovoid Sewer Aqueduct construction.
H7721-0070	Waurn Ponds Historical Site 1	Rural: farm at 50 Princes Highway Waurn Ponds.
H7721-0072	Waurn Ponds Historical Site 2	Rural: farm at 115 Princes Highway Waurn Ponds.
H7721-0073	Marendaz Farm Complex	Rural: farm complex.
H7721-0009	Waurn Ponds Lime Kiln	Industrial: lime kilns 75 Princes Highway.
H1131	Pre Fabricated Iron Cottage	Rural: two room prefabricated iron cottage on the Summerhill farm at Mt Duneed. The structure is believed to have been brought to Australia by Mr James Williams with his family from England

	c1855.

Key - H7721- Heritage Inventory; H-Heritage Register

Table 7: Registered historical places within 2 km of the study area.

In addition to the above register searches, the following sources of historical information were examined:

- Aerial Photography Register Land Victoria, Laverton (Standard Map Sheet Photography 1947: Run 11/628),
- Geelong Heritage Centre (Manuscript - L. Lane Collection, Reference No. 1104/1/37; Maps - Dept. of Crown Lands and Survey 1888, Parish of Duneed. Melbourne; Surveyor General's Office 1855, Subdivision of Allotments in the Parish of Duneed on Armstrongs Creek County of Grant) and
- previous cultural heritage assessments (see section 4.3).

Three unregistered historic places occur in the study area (previously discussed in Section 4.3.2). Their locations are indicated in Figure 10 and listed in Table 8.

Place Address	Type and Description	Reference
50 Whites Road, Mt Duneed	1873 bluestone homestead.	Huddle (2006)
140 Whites Road, Mt Duneed	Cottage ruins and out buildings	Huddle (2006)
25 Williams Road, Mt Duneed	Bluestone quarry	Huddle (2006)

Table 8: Unregistered historical places within the study area.

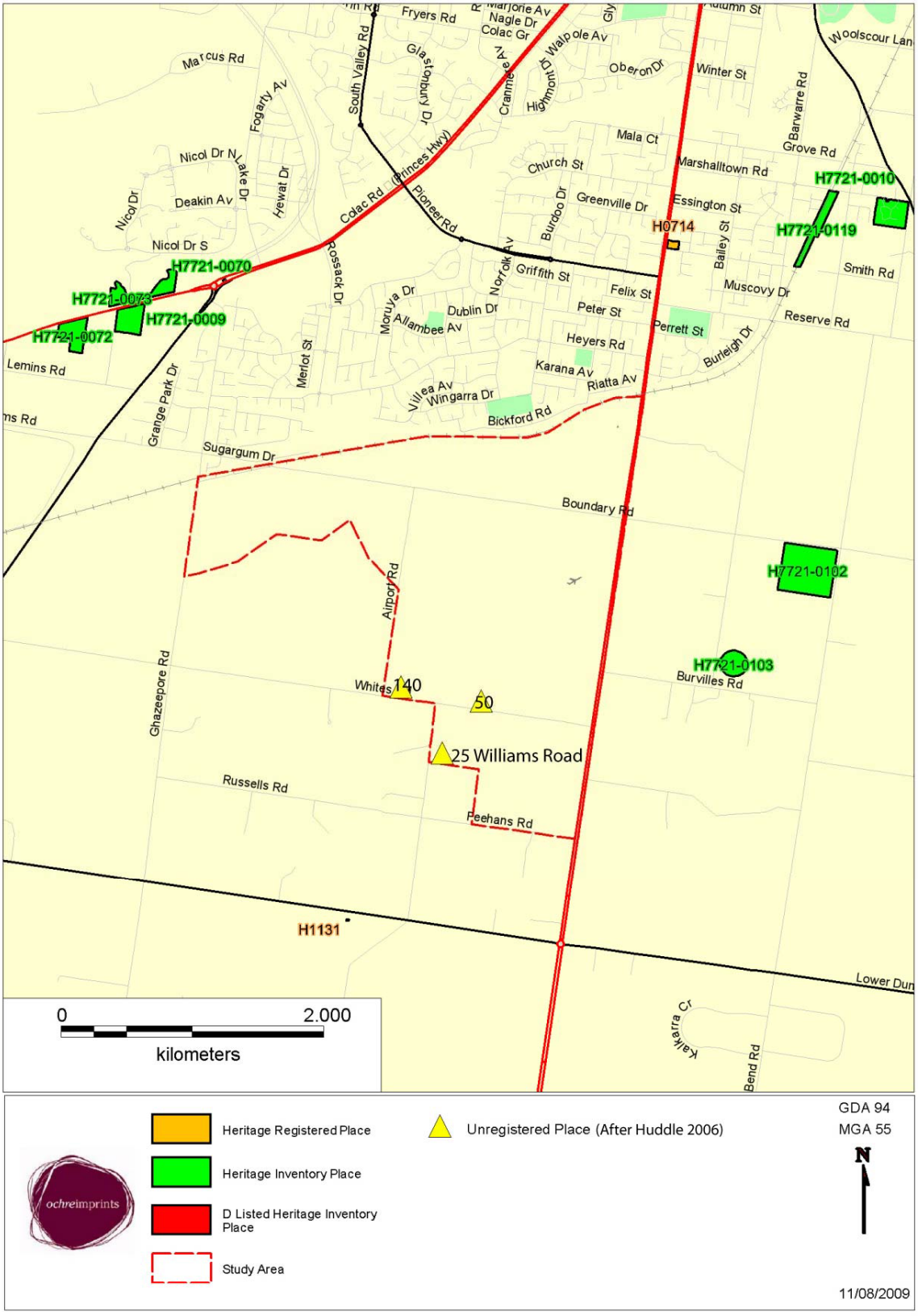


Figure 8: Registered and unregistered historical places.

4.5 ARCHAEOLOGICAL SENSITIVITY OF THE STUDY AREA

Three unregistered historical places occur in the study area, predominantly along roads, particularly concentrated around the Mt Duneed settlement. While most, if not all visible historical structures within the study area have already been noted there is potential for subsurface archaeological features to occur within the study area. These are likely to be located in association with the three known historical places or in association with Armstrong Creek which is known to have been utilised by early settlers. Subsurface archaeological deposits can be informative regarding a places history particularly when little information is available from other sources. The remainder of the study area comprises open agricultural land and has very low historical archaeological sensitivity. On the basis of the background research it is unlikely that any further significant historical places will be present. Nevertheless, archaeological historical places associated with the early land settlement may occur and these are predicted to comprise the following:

- Water use features along Armstrong Creek such as pump house foundations, or equipment associated with 19th century vineyards,
- Marl or bluestone quarry sites.
- Subsurface archaeological material associated with the domestic structures at 140 Whites Road and 50 Whites Road. These may comprise building foundations, rubbish dump sites, or garden layouts from earlier phases of occupation.

4.6 CONCLUSION

The historical archaeological assessment identified no registered historical places within the study area. Three unregistered places comprising domestic structures and a small bluestone quarry were identified in the study area. There is limited potential for further historical places to occur in the study area, although archaeological deposits associated with the three unregistered historical places may occur.

5 CULTURAL HERITAGE MANAGEMENT

5.1 INTRODUCTION

This section discusses the implications of the cultural heritage assessment for the potential development. Recommendations are put forward to mitigate the risk posed to known cultural heritage values based on the preliminary research. The risk to unknown cultural heritage cannot be established by a desktop assessment alone and further field work is recommended to refine areas of sensitivity and to determine the actual risk to Aboriginal and historical heritage in the study area.

5.2 IMPACT OF THE PROPOSED DEVELOPMENT ON CULTURAL HERITAGE VALUES

The implications of this assessment are discussed in terms of the potential impact of the proposed activities as indicated in the Armstrong Creek Urban Growth Plan - Framework Plan (Figure 11) on archaeological values within the study area.

Aboriginal Places

The study area contains nine registered Aboriginal places comprising six stone artefact scatters and three scarred trees. The inclusion of these places within green space is a practical option for protecting these places. Based on the Armstrong Creek Urban Growth Plan - Framework Plan six of the nine registered Aboriginal places fall within proposed green spaces. Field assessments will need to be undertaken to determine the nature and extent of known Aboriginal places and to determine if additional unregistered Aboriginal places occur in the study area.

Historical Places

The study area contains three unregistered historical places comprising two domestic standing structures and a quarry. Based on the Armstrong Creek Urban Growth Plan - Framework Plan all these places fall within 'conventional density housing. The client is advised to discuss their intentions for 50 and 140 Whites Road with Geelong Council Planning Department (Meaghan Ferrier - Armstrong Creek Project Officer Ph: *5272 4249*) early in the planning process as these places have previously been recommended for Heritage Overlay protection (Rowe & Huddle 1998-2000; Huddle 2006) and are currently under review. It is likely that 50 and 140 Whites Road will be included on the Heritage Overlay, although the exact boundaries of these places have not been determined by Geelong Planning Department. The c. 1900 domestic structure at 335 Torquay Road was initially recommended for Heritage Overlay protection (Rowe &

Huddle 1998-2000) however subsequent assessments have reassessed this place (Huddle 2006) and it is no longer considered to have heritage values.

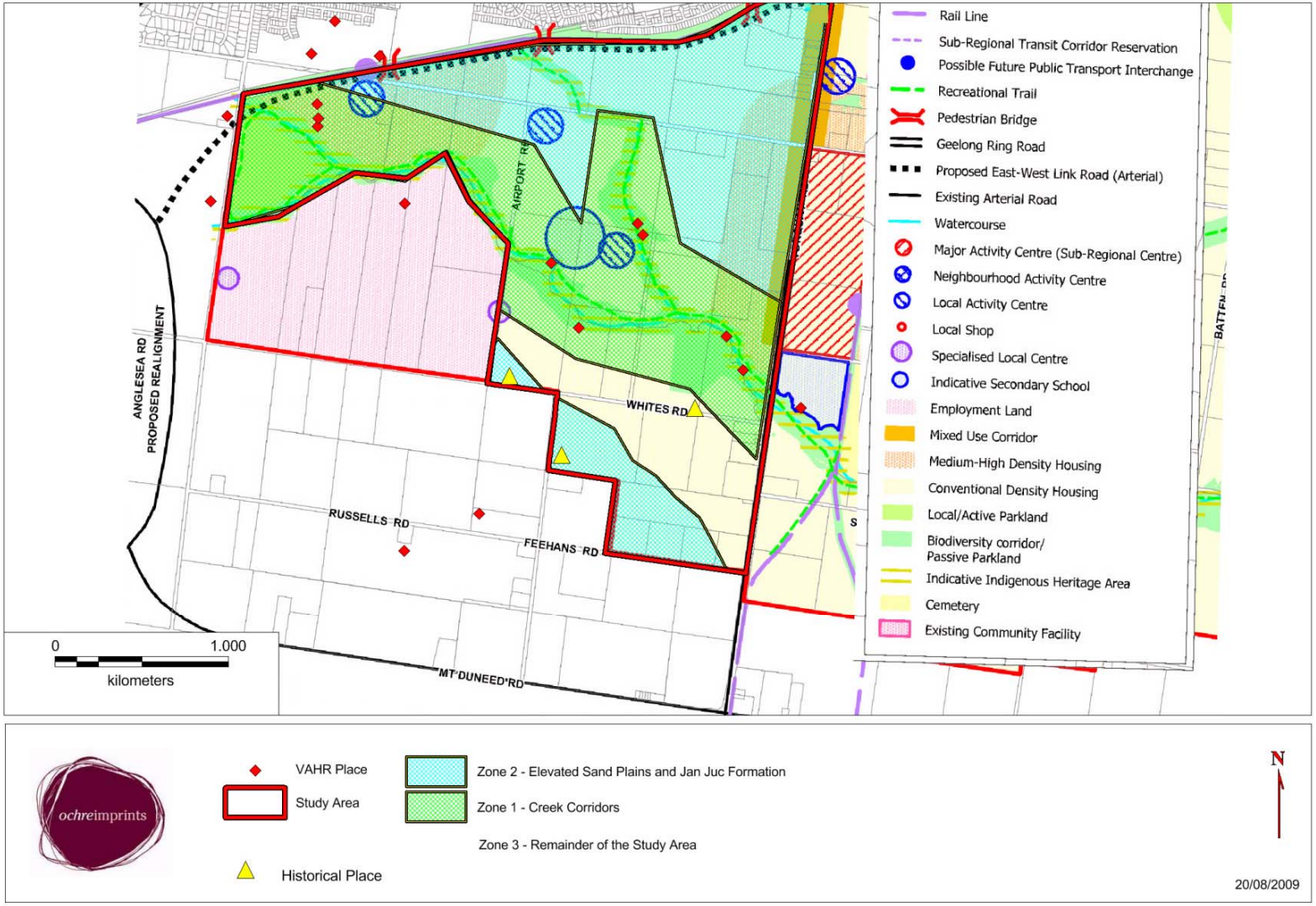


Figure 9: Proposed activities (Armstrong Creek Urban Growth Plan - Framework Plan) and zones of sensitivity.

The quarry at 25 Williams Road has previously been recommended for Heritage Inventory and Heritage Overlay registration (Huddle 2006; City of Greater Geelong 2008: 51). A field inspection is required to register the quarry at 25 Williams Road place on the Heritage Inventory and to determine if any significant archaeological deposits occur in association with this place. It is highly unlikely that this place will warrant registration on the Heritage Overlay (pers. com. J. Turnbull to J. Smith - Senior Archaeologist Heritage Victoria) however a consent to disturb the place may be required from Heritage Victoria.

A field assessment of 50 & 140 Whites Road will need to be undertaken to determine if potential significant subsurface archaeological deposits occur in association with these places. If significant archaeological deposits are located that do not fall within subsequent Heritage Overlay curtilage they will be registered with Heritage Victoria (separate to the Heritage Overlay) and an application to disturb them would be required. A permit may be issued with conditions such as a requirement for controlled excavation of subsurface features.

While it is unlikely that further significant historical places occur in the study area, a pedestrian field inspection of the study area should be undertaken to confirm this. This can be done concurrently with the field survey for Aboriginal cultural heritage.

5.3 CULTURAL HERITAGE LEGISLATION

5.3.1 General Legislative Information

Legislation protecting both Aboriginal and historical places is briefly reviewed here.

5.3.2 Legislation Protecting Aboriginal Places

The *Aboriginal Heritage Act* 2006 provides blanket protection for Aboriginal cultural heritage places. This means that Aboriginal cultural places are protected from *harm* and it is illegal to carry out an activity that can disturb places without the appropriate authorities under the Act (and it's associated Aboriginal Heritage Regulations 2007). There are two principal mechanisms under the Act that remove the risk of illegal harm to Aboriginal places, viz.:

- Cultural Heritage Management Plan (CHMP)
- Cultural Heritage Permit (CHP)

These are briefly discussed below.

A **Cultural Heritage Management Plan** (hereafter CHMP) is a report recommending measures to be taken to protect Aboriginal cultural heritage affected by the development or use of land. It must include recommendations for measures to be taken before, during

and after a relevant activity. The underlying philosophy of the CHMP is to minimise harm to Aboriginal places, however it is the document through which provisions can be made to legally harm Aboriginal places. A CHMP must be endorsed by a Registered Aboriginal Party or where no party exists for the area, the Secretary of the Department of Planning and Community Development.[8]

A CHMP usually involves a staged investigation of the posed risk by a proposed activity to Aboriginal cultural places. The Act and associated Regulations set out the requirements for different levels of investigation:

- Desktop Assessment
- Standard Assessment (Field Survey)
- Complex Assessment (Subsurface Testing; Controlled Excavation)

The CHMP provisions of the Act are designed to trigger a heritage assessment in quite specific conditions. These are specified in the Act as follows:

- If all or part of the activity is a listed high impact activity

and

- All or part of the activity area is an area of cultural heritage sensitivity - which has not been subject to significant ground disturbance.

Figure 12 depicts the area of cultural heritage sensitivity as defined by the Aboriginal Heritage Regulations in the study area. This gives an indication of locations that might trigger future CHMPs based on current information. A CHMP will be triggered for most residential planning permits whose boundaries dissect an area of cultural heritage sensitivity as depicted in Figure 12. Wathaurong Aboriginal Corporation have been appointed as the RAP for the study area and need to be consulted regarding any cultural heritage assessments.

[8] The Department of Planning and Community Development replaced the Department of Victorian Communities, as referred to in the Aboriginal Heritage Act 2006, in August 2007. It should also be noted that Aboriginal Affairs Victoria carries out the day-to-day administrative functions on behalf of the Secretary.

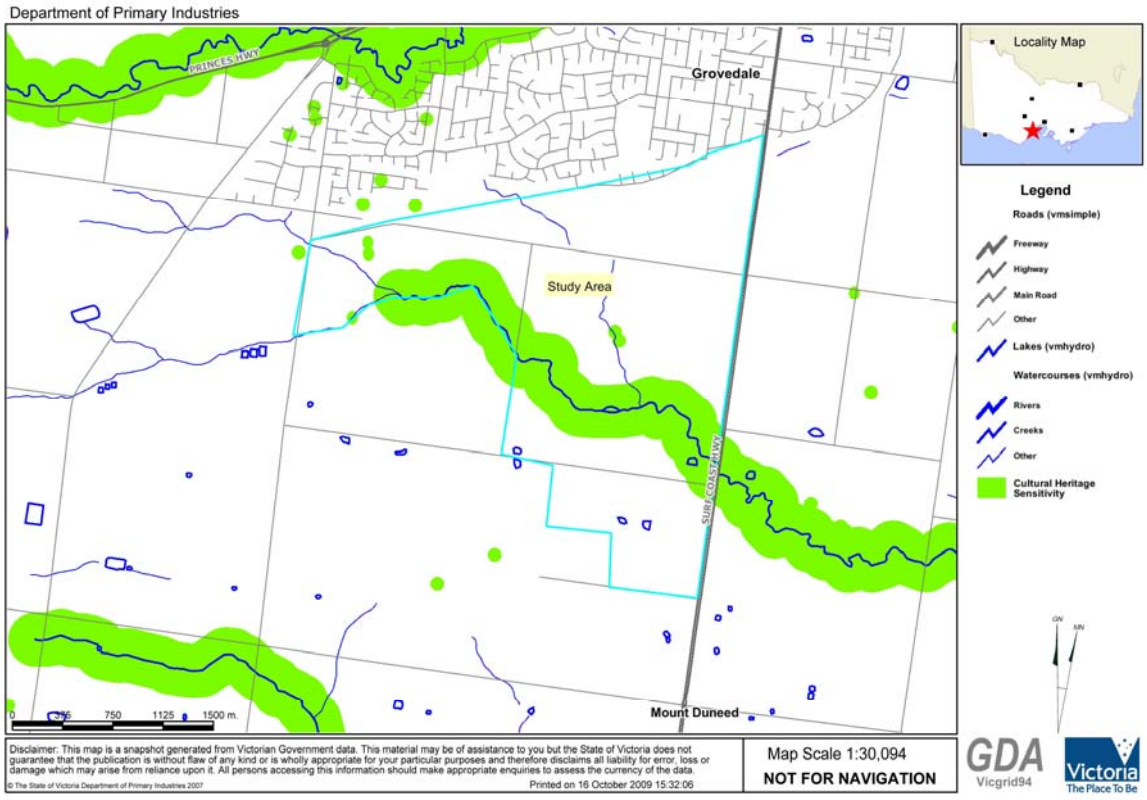


Figure 10: Areas of Cultural Heritage Sensitivity (Source http://nremap-sc.nre.vic.gov.au/MapShare.v2/imf.jsp?site=min).

A **Cultural Heritage Permit** (hereafter CHP) is issued by the Secretary of the Department of Planning and Community Development to "carry out activity likely to harm cultural heritage". A CHP application is made to the Secretary of the Department of Planning and Community Development and where a Registered Aboriginal Party exists for the area, must be supported by that organisation before it can be issued.

A CHP is sought for those instances where there is a known Aboriginal heritage place that will be impacted by an activity. The permit outlines the measures that must be taken in order to disturb that place lawfully.

Other key features of the *Aboriginal Heritage Act* 2006 are:

- The Victorian Aboriginal Heritage Council to provide a state-wide voice for Aboriginal people and to advise the Minister for Aboriginal Affairs on issues relating to the management of cultural heritage.
- A system of Registered Aboriginal Parties (RAPs) – with RAPs to be approved by the Victorian Aboriginal Heritage Council – to be involved in cultural heritage decision making processes, and in particular Aboriginal Cultural Heritage Management Plans (CHMPs).

- Aboriginal Cultural Heritage Agreements (ACHAs) to support the development of partnerships around the protection and management of Aboriginal cultural heritage.
- Provisions relating to enforcement including: cultural heritage audits, protection declarations and stop orders, inspection arrangements and penalties. Maximum penalties are likely to be more that $180,000 for an individual or more than $1 million for a company.

5.3.3 Legislation Protecting Historical Archaeological Places in Victoria

Historical sites are protected by State and Commonwealth legislation. It is an offence to impact on historical sites, whether previously registered or not, without obtaining approval from the relevant statutory authority. The legislative framework is briefly summarised below:

- **Historical archaeological places** in Victoria are primarily protected under the terms of the *Heritage Act* 1995. Any works impacting upon a site listed on the Victorian Heritage Inventory must apply to Heritage Victoria for CONSENT to do so prior to works proceeding. Any works impacting on a site registered on the Heritage Register must apply to Heritage Victoria for PERMIT to disturb. Sites registered with a 'D' listing do not require any further action prior to disturbance.
- The Australian Heritage Council maintains the **Register of the National Estate,** a list of over 14 500 heritage places around Australia. 2437 historic places are listed in Victoria. This list was frozen in February 2007, which means that no new places can be added or removed. The register will continue as a statutory register until 2012. During this period the Minister for the Environment, Heritage and the Arts is required to consider the Register when making decisions under the Environment Protection and Biodiversity Act 1999. States and Territories are in the process of assessing and transferring places from the RNE onto local heritage registers (Heritage Overlays) and amending legislation that refers to the RNE as a statutory list.
- The *Environment Protection and Biodiversity Conservation Act* 1999 *Environment and Heritage Legislation Amendment Act* (No1) 2003 provide controls regarding the actions of individuals and the Commonwealth in relation to places on the **Register of the National Estate** as well as the recently created **National Heritage List** and the **Commonwealth Heritage List**.
- Local Government Planning Schemes include a **Heritage Overlay** of places and sites within a specific local government area. Sites and places listed solely on the

Heritage Overlay are generally of local rather than State or National significance. Works undertaken that will affect sites or places listed need to progress through a planning permit process in consultation with the local government authority.

5.4 IMPLICATIONS

This desktop review has identified that three unregistered historical places with local historical values and nine Aboriginal places occur in the study area. Further Aboriginal cultural material is predicted to occur throughout the study area. It is unlikely that any further significant historical features will occur in the study area.

However, limited archaeological survey and subsurface testing has been undertaken in the study area. The data sample used to make predictive statements in this assessment regarding Aboriginal cultural heritage is very small and partially reflects previous archaeological field survey conditions, the extent and location of previous archaeological subsurface testing programs and field methods. The predictive statements made in this assessment will therefore need to be tested and refined by archaeological field work in the study area. Nevertheless, based on the results of the desktop assessment, three zones of archaeological sensitivity ranging from low to high have been defined for the study area. It is predicted that cultural heritage has an increased likelihood of occurring in the moderate to high zones.

Cultural heritage approval processes associated with legislation relevant to the future development in the study area would require:

- A CHMP will be triggered for most residential planning permits whose boundaries dissect an area of cultural heritage sensitivity as depicted in Figure 12.
- Historical places listed for inclusion Heritage Overlay will require management discussions with Geelong Planning department.
- Historical places listed on the Heritage Inventory will require a permit to disturb if they cannot be protected within a developmental context.

The Armstrong Creek PSP should consider:

- Avoiding harm to known Aboriginal and historical places were possible.
- Aboriginal scarred trees in particular are likely to have increased significance to Aboriginal people and should be avoided.
- Impacts to zones of predicted moderate to high archaeological sensitivity should be minimised however, the actual sensitivity of these zones needs to be verified by further archaeological work.

Future development can reduce the harm of Aboriginal and historical places by:

- Verifying zones of archaeological sensitivity through archaeological field work and providing management recommendations to reduce the impacts in these refined zones.
- Undertaking Cultural Heritage Management Plans and heritage assessments early in the planning process for individual residential developments. While CHMPS may not be triggered for much of the study area, these provided the best opportunity for identifying and providing a\an appropriate framework for managing Aboriginal Cultural heritage.
- Incorporating significant cultural heritage identified during further archaeological investigations into open space.

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Aerial Photographs

Aerial Photography Register Land Victoria. Standard MapSheet Photography 1947: Run 11/628

APPENDIX 1: CONSULTANTS BRIEF

Designed for Living

villawood properties

Level 1, 6 Riverside Quay

Southbank. Vic. 3006

Tel: 03 9695 3000

Fax: 03 9695 3001

29 May 2009

Petra Schell
Ochre Imprints
PO Box 280
Clifton Hill 3068

Dear Petra,

RE: Armstrong Creek West PSP – Consultant Brief

As you may be aware the Minister for Planning recently approved Amendments C138 and C170 to the Geelong Planning Scheme. Approval of combined Amendments has afforded planning scheme status to the Armstrong Creek Framework Plan and included the Armstrong Creek Growth Area within the Urban Growth Zone.

The Armstrong Creek growth area occupies a strategically significant location between Geelong and Torquay on either side of the Surf Coast Highway (*see attached Framework Plan*). The Armstrong Creek Framework Plan provides for an ultimate population of 55,000 persons or approximately 22,000 homes. In order to facilitate preparation of Precinct Structure Plans the growth area has been divided into four residential precincts and two employment precincts (*see attached Precinct Plan*).

The Armstrong Creek ***West Precinct*** is 430 ha, bounded on the west by the Surf Coast Hwy and to the north by the Warrnambool – Geelong Railway Line. The Precinct is earmarked for residential development, providing for a population of approximately 17,500 persons or 6500 dwellings. These dwellings will predominately be conventional dwellings with some medium-high density surrounding the major activity centre and new railway station. Open space will be provided along the Armstrong Creek and its tributaries. A number of local activity centres and educational facilities are also earmarked for the precinct. Please see attached *Key Elements – Armstrong Creek West Precinct* for more information.

Villawood Properties together with a joint venture partner control the majority of the land within the Armstrong Creek West precinct and have the support of Geelong City Council to commence preparation of a Precinct Structure Plan for the Precinct. Preparation of the Precinct Structure Plan will be undertaken in-house from a strategic planning perspective however Villawood Properties is seeking to assemble a highly experienced and committed sub-consultant team to contribute to preparation of the Precinct Structure Plan for what will become a land mark development.

It is anticipated that the Precinct Structure Planning process will extend to early 2010 and the plan will be adopted by mid to late 2010 with a concurrent planning permit application process for the first stage/s.

At this stage Villawood Properties will be seeking to assemble a team to address the following key expertise areas:

- Urban/Landscape Design
- Architectural Advice
- Statutory Planning
- Civil Engineering
- Floodway Mapping and Analysis
- Traffic Engineering
- Surveying
- Flora and Fauna
- Cultural Heritage
- ESD evaluation and Review
- Social Planning
- Development Contributions

Brief

Given your relevant experience we would like to invite you to submit a proposal for the Cultural Heritage component of the Precinct Structure Plan. Key tasks for this component of the project include:

- Preparation of a desktop review to define and map zones/sites of significance.
- Preparation of a Cultural Heritage Assessment report to support the Precinct Structure Plan.
- Preparation of a Cultural Heritage Management Plan (as required) for the initial stage/s of subdivision.

In terms of the means by which the Precinct Structure Plan is prepared allowance should be made for an iterative process involving other disciplines but lead by the urban designer in conjunction with the strategic planner. Preparation of the Precinct Structure Plan will require preparation of a street level Master Plan that will be used to inform finalisation of the Precinct Structure Plan. Central to this process will be pursuit of initiatives aimed at creating a sense of character and place particularly in streets as the most identifiable part of the public realm.

Regular project control meetings will be held approximately every 3 weeks (approx 1.5hrs) and your attendance may be required as appropriate. Please allow sufficient time for your attendance at some of these meetings and also make provision for a number of more intensive workshops in your proposal.

In terms of access to land holdings for site visits, it should be noted that some of the land within the precinct is in private ownership. Accordingly we anticipate that access to some properties may be delayed or not possible over the course of the process, so please keep this in mind. We will however be working with the City of Greater Geelong to organise notification to these landowners.

We are seeking your proposal by **5pm Friday 12th June**. We will be available next week (1st – 5th June) to meet and discuss the requirements in more detail if you wish. Aside from setting out your understanding of the brief and a fee your proposal should set out key personnel and areas of expertise. Please contact Cassandra Morris on 9695 3000 with any queries or to make a meeting time.

We look forward to receiving your proposal.

Regards,

Cassandra Morris
Assistant Development Manager
Villawood Properties

Chris DeSilva
Strategic Development Manager
Villawood Properties

APPENDIX 2: ACTIVITY PLANS

ARMSTRONG CREEK
GEELONG'S GROWTH AREA

Key elements – Armstrong Creek West Precinct

New railway station at the southern end of Rossack Drive.

Three local activity centres, including one centre adjacent to the new station, which may comprise:

- Up to 1000 square metres of local convenience shops and services,
- Primary School with shared facilities such as sporting grounds, meeting rooms or library,
- Community hub including children and family services associated with kindergarten, childcare, maternal and child health,
- Shop top housing.

Secondary School and associated indoor sports stadium and active sports ground shared with the community, integrated with the adjoining local centre and Armstrong Creek parkland.

Regional sports facility, focused around regional soccer.

Higher density housing, average 30 dwellings per hectare within 400 metres of the new railway station, and the railway station proposed for the Major Activity Centre Precinct. This equates to an average lot size of approximately 225 square metres.

Medium density housing, average 20 dwellings per hectare within 800 metres of the new railway station, and within 400 metres of the edge of the Major Activity Centre Precinct. This equates to an average lot size of approximately 360 square metres.

Conventional density housing, average 15 dwellings per hectare. This equates to an average lot size of approximately 550 square metres

Mixed use corridor along Torquay Road, excluding bulky goods retailers, but including shops, offices and housing.

Passive parkland with recreational trails incorporating remnant native vegetation, flood prone land, and indigenous cultural heritage.

New east-west arterial link road connecting between the Geelong Ring Road and the Barwon River with service roads on both sides to enable frontage development.

New pedestrian bridge over existing rail line and east west arterial link road, linking with Rossack Drive to the north, noting that Rossack Drive is not proposed to be extended over the existing railway line into the growth area.

Land budget, Armstrong Creek West Precinct

Land use	Land area (ha)	Dwellings	Population
Activity centre	9.99		
Secondary school	9.21		
Employment land	0		
Mixed use corridor	19.96		
Higher density housing	17.8	534	881
Medium density housing	76.73	1,535	3,530
Conventional density housing	297.00	4,455	13,142
Total	**430.69**	**6,524**	**17,553**

Note: Indicative figures. Areas are gross and include roads and open space.
Areas exclude major open space uses such as regional parkland. Figures exclude shop top housing.

STUDY AREA BOUNDARY

URBAN GROWTH BOUNDARY

PRECINCT BOUNDARIES

0 0.25 0.5 1 1.5 2 Km

N

Prepared by City of Greater Geelong - 4 June 2008

Although all due care has been taken to ensure that this document is correct, no warranty is expressed or implied by the City of Greater Geelong or Barwon Water in its use.

Marshall Precinct

North East Industrial Precinct

Horseshoe Bend Precinct

Activity Centre

Armstrong Creek West Precinct

Western Industrial Precinct

Armstrong Creek East Precinct

Reedy Lake

PRINCES HWY

ANGLESSEA RD

Railway

Geelong - Warrnambool

BOUNDARY RD

GHAZEEPORE RD

AIRPORT RD

Armstrong Creek

WHITES RD

SURF COAST HWY

BARWARRE RD

HORSESHOE BEND RD

RESERVE RD

TANNERY RD

SPARROWVALE RD

BARWON HEADS RD

BATTEN RD

Barwon River

COPPARDS RD

STEWARTS RD

WILLIAMS RD

RUSSELLS RD

FEEHANS RD

MT DUNEED RD

LOWER DUNEED RD

CHARLEMONT RD

LAKE RD

BAENSCHS LA

SHAWS LA

MARSHALLTOWN RD
TANNERY RD
EAST WEST LINK ROAD
SMITH ST
HORSESHOE BEND RD
SPARROWVALE RD
BREARLEYS LANE
RESERVE RD
AIRPORT RD
BOUNDARY RD
TORQUAY RD
HORSESHOE BEND RD
BATTEN RD
BARWON HEADS RD
ANGLESEA RD
PROPOSED REALIGNMENT
BURVILLES RD
WHITES RD
LAKE RD
STEWARTS RD
CHARLEMONT RD
RUSSELLS RD
FEEHANS RD
MT DUNEED RD
LOWER DUNEED RD

- Urban Growth Boundary
- Rail Line
- Sub-Regional Transit Corridor Reservation
- Possible Future Public Transport Interchange
- Recreational Trail
- Pedestrian Bridge
- Geelong Ring Road
- Proposed East-West Link Road (Arterial)
- Existing Arterial Road
- Watercourse
- Major Activity Centre (Sub-Regional Centre)
- Neighbourhood Activity Centre
- Local Activity Centre
- Local Shop
- Specialised Local Centre
- Indicative Secondary School
- Employment Land
- Mixed Use Corridor
- Medium-High Density Housing
- Conventional Density Housing
- Local/Active Parkland
- Biodiversity corridor/ Passive Parkland
- Indicative Indigenous Heritage Area
- Cemetery
- Existing Community Facility

CITY OF GREATER GEELONG

Armstrong Creek Urban Growth Plan - Framework Plan

0 500 1000 1500

Metres