The Melbourne Geelong Interconnection Project

Cultural Heritage Management Plan

Desktop and Standard Assessments

AAV CHMP No.: 10888

Sponsor: Barwon Region Water Corporation
ABN

Cultural Heritage Advisor: Ricky Feldman

Authors: Ricky Feldman
Jennifer Chandler
Melinda Albrecht

Contributors: Dr Josara de Lange

Date of Completion: 12 November 2009 DRAFT

ANDREW LONG + ASSOCIATES

PO Box 2471 Fitzroy BC
Victoria 3065 Australia

Andrew Long + Associates Pty Ltd
ACN 131 713 409
ABN 86 131 713 409

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The Melbourne Geelong Interconnection Project

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EXECUTIVE SUMMARY

Background

When is a cultural heritage management plan (CHMP) required?
A mandatory CHMP is required for an activity if (Regulation 6)-

(a) all or part of the activity area for the activity is an area of cultural heritage sensitivity; and
(b) all or part of the activity is a high impact activity.

Is this activity area an area of cultural heritage sensitivity?
Yes. The activity area does overlap with areas of cultural heritage sensitivity identified as registered cultural heritage places according to Regulation 22 and waterways according to Regulation 23 (see Figure 1)

Is this activity a high impact activity?
The proposed activity is a high impact activity, as defined in Division 5 of the Regulations as it includes:

Buildings and works for specified uses (Regulation 43)

(1) The construction of a building or the construction or carrying out of works on land is a high impact activity if the construction of the buildings or the construction or carrying out of the works -
(a) would result in significant ground disturbance; and
(b) is for or associated with the use of the land for any one or more of the following purposes -
(xxiii) a utility installation, other than a telecommunications facility

This CHMP has been mandatorily prepared to allow activities associated with the proposed construction works that may disturb Aboriginal heritage sites within the activity area, and provide contingency arrangements for managing the discovery of any further Aboriginal heritage sites identified during construction works associated with the development.

Sponsor

The sponsor of this CHMP is Barwon Region Water Corporation (ABN ***)

Cultural Heritage Advisor

This CHMP has been authored by qualified archaeologists and heritage consultants, experienced in professional Aboriginal heritage assessment and evaluation since 1991, in accordance with section 189 of the Act. Qualification details can be found in Appendix ***.

The authors of this CHMP:

Ricky Feldman	Associate
Melinda Albrecht	Project Manager
Jennifer Chandler	Project Manager

Specialist consultant to the CHMP are:

Dr Josara de Lange	Artefact Analysis and GIS

Activity Description

Barwon Region Water Corporation intends to develop the proposed activity as part of the next stage of the *Our Water Our Future* plan announced by the Victorian State Government in 2007 to ensure future water supply for the

growth and development of the Geelong region for the next 20 years. A potable water pipeline is to be constructed connecting Geelong to Melbourne's water supplies. The connection is from Melbourne Waters Cowies Hill Reservoir in Tarneit to Lovely Banks Basins in Lovely Banks. The anticipated completion date of this project is 2011.

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When is a cultural heritage management plan (CHMP) required?
A mandatory CHMP is required for an activity if (Regulation 6)-

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(d) all or part of the activity is a high impact activity.

Is this activity area an area of cultural heritage sensitivity?
Yes. The activity area does overlap with areas of cultural heritage sensitivity identified as registered cultural heritage places according to Regulation 22 and waterways according to Regulation 23 (see Figure 1)

Is this activity a high impact activity?
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Buildings and works for specified uses (Regulation 43)

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This CHMP has been mandatorily prepared to allow activities associated with the proposed construction works that may disturb Aboriginal cultural heritage places within the activity area, and provide contingency arrangements for managing the discovery of any further Aboriginal cultural heritage places identified during construction works associated with the development.

1.2 The Name of the Sponsor

- The sponsor of this CHMP is Barwon Region Water Corporation (ABN ***)

1.3 The Name of the Cultural Heritage Advisor

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The authors of this CHMP:

Ricky Feldman	Associate
Melinda Albrecht	Project Manager
Jennifer Chandler	Project Manager

Specialist consultant to the CHMP are:

Dr Josara de Lange	Artefact Analysis and GIS

1.4 The Location of the Activity Area

The activity area comprises a 60 m wide alignment between Lovely Banks, Corio (c. 10 km north west of Geelong CBD) and Cowies Hill, Tarneit (c. 28 km south west of Melbourne CBD) (see Map 1). The 60 m corridor includes the construction area and buffer zone allowing for some centerline variation.

The activity area is located within the municipalities of Wyndham and Greater Geelong.

1.5 The Owners and Occupiers of the Land

Table 1: Owners and occupiers of the activity area.

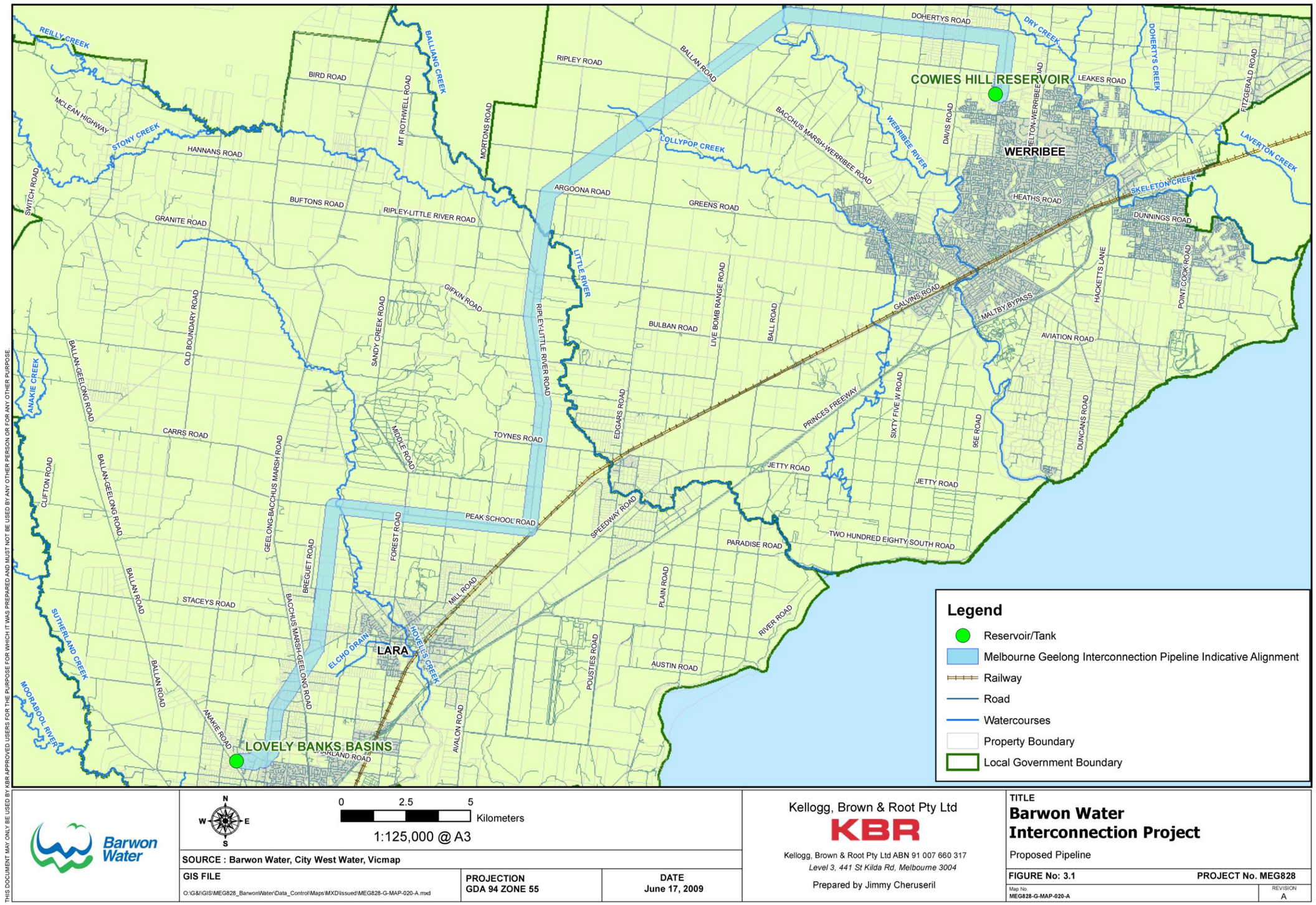
Lot Number	Owner	Occupier
***to be inserted	***to be inserted	***to be inserted

1.6 Notice of Intention to Prepare a Cultural Heritage Management Plan

Notification of intent to prepare a CHMP, as required by Section 54 of the *Aboriginal Heritage Act* 2006 was submitted to the Secretary of the Department of Planning and Community Development (DPCD) on 26 June 2009 and to the Wathaurung Aboriginal Corporation (WAC), who are the Registered Aboriginal Party (RAP), on the 30 June 2009 (Appendix 2).

1.7 Registered Aboriginal Parties

At the time the notice of intent to prepare a CHMP was submitted, one Registered Aboriginal Party (RAP), the Wathaurung Aboriginal Corporation was present for part of the activity area, south west of the Werribee River. Pursuant with Section 63 and Section 65 of the *Aboriginal Heritage Act* 2006 the RAP and the Secretary, DPCD will review the CHMP (Appendix 2).



Map 1: Location of the Activity Area.

2

ACTIVITY AREA

2.1 Description of the Activity Area

Barwon Region Water Corporation intends to develop the proposed activity as part of the next stage of the *Our Water Our Future* plan announced by the Victorian State Government in 2007 to ensure future water supply for the growth and development of the Geelong region for the next 20 years. A potable water pipeline is to be constructed connecting Geelong to Melbourne's water supplies. The connection is from Melbourne Waters Cowies Hill Reservoir in Tarneit to Lovely Banks Basins in Lovely Banks. The anticipated completion date of this project is 2011.

The following activities will be undertaken during the construction process:

- Clear and strip maximum 30m wide construction corridor
- Installation of temporary fences, storage areas and vehicle access
- Trench excavation
- Laying of bedding material, pipeline and back fill
- Boring for pipeline installation at selected locations
- Installation of pipeline valving
- Reinstatement of existing surface including topsoil, grassing and fencing
- Construction of pump station building within existing Melbourne Water site and surge protection facilities

2.2 Extent of the Activity Area

The activity area is located west of Melbourne. The pipeline will commence at Cowies Hill Reservoir, and follow Dohertys Road west, crossing the Werribee River and heading south within an existing power easement and along Little River-Ripley Road and turning west onto Peak School Road and then south through another existing power easement before terminating at Lovely Banks Basins in Lovely Banks. The general location of the activity area is depicted in Map 1.

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DOCUMENTATION OF CONSULTATION

3.1 The Notice of Intention to Prepare a Cultural Heritage Management Plan

Notification of intent to prepare a CHMP, as required by Section 54 of the *Aboriginal Heritage Act* 2006 was submitted to the Secretary of the Department of Planning and Community Development (DPCD) on 26 June 2009 and to the Wathaurung Aboriginal Corporation (WAC), who are the Registered Aboriginal Party (RAP), on the 30 June 2009.

Pursuant with Section 63 and Section 65 of the *Aboriginal Heritage Act* 2006 the RAP and the Secretary, DPCD will review the CHMP (Appendix 2).

All landowners relevant to the activity area were notified of the intention to conduct a CHMP and an additional process of consultation was undertaken prior to access at each property.

3.2 Registered Aboriginal Parties and Applicants

At the time the Notice of Intent to prepare a CHMP was submitted, one RAP was present for the western section of the activity area (defined by the activity area in between Lovely Banks and the Werribee River crossing). In addition, four groups have made applications for registration as RAPs for the eastern section of the activity area (defined by the activity area in between the Werribee River crossing and Cowies Hill). These groups are listed below. Representatives of these groups participated in the standard and complex assessments of this CHMP.

Table 2: RAP(s) and RAP Applicant(s).

Name	Abbreviation	RAP Status
Wurundjeri Tribe Land Compensation and Cultural Heritage Council	WTLCCHC	Applicant
Wandoon Estate Aboriginal Corporation	WEAC	Applicant
Boon Wurrung Foundation Ltd	BWF	Applicant
Bunurong Land Council Aboriginal Corporation	BLCAC	Applicant
Wathaurung Aboriginal Corporation	WAC	Approved RAP

3.3 Participants in the Assessment

Table 3: Participants in the Assessment.

Participant	Organization	Position	Component	Date(s)
Jamie Thomas	BWF	Representative	Standard	30/07/09
				31/07/09
Willy Xiberras	WTLCCHC	Representative	Standard	30/07/09
Ringo Terrick	WTLCCHC	Representative	Standard	31/07/09
Iris Pepper	BLCAC	Representative	Standard	30/07/09
				31/07/09
Jason Tweedie	WEAC	Representative	Standard	30/07/09
Tony Garvey	WEAC	Representative	Standard	31/07/09
Bonnie Fagan	WAC	Representative	Standard	05/08/09
Sean Fagan	WAC	Representative	Standard	06/08/09
Owen Fagan	WAC	Representative	Standard	07/08/09
Bert Fagan	WAC	Representative	Standard	11/08/09
				12/08/09

4

DESKTOP ASSESSMENT

4.1 Method of Assessment

This section outlines the aims, methods and results of the desktop assessment. The aims of the desktop assessment were threefold:

- to determine the level of previous investigation of the activity area and the surrounding region;
- to determine the presence of registered Aboriginal places within the activity area;
- to determine the environmental context of the activity area with regard to landform and geomorphology.

To these ends a search of the Victorian Aboriginal Heritage Register (VAHR) was undertaken and relevant previous cultural heritage assessments and relevant environmental information were consulted.

4.2 Obstacles

There were no obstacles to undertaking the desktop assessment.

4.3 Persons Involved in the Desktop Assessment

The desktop assessment was conducted prior to the commencement of the standard and complex assessment. The following individuals were involved:

- **Jennifer Chandler**, Project Manager
- **Melinda Albrecht,** Project Manager
- **Ricky Feldman,** Associate

4.4 RAP Information

Please note that no oral information was collected during the desktop assessment.

4.5 Geographic Region

The activity area is located within the Newer Volcanic Plains landform between Melbourne and Geelong. The broader region is also known as the 'Werribee Plains' (LCC 1973, Maps 3 & 4), which formed during a

period of volcanic activity and extensive basaltic lava flows during the Late Pliocene/Pleistocene (LCC 1973, 19). Pleistocene sea level changes resulted in increased erosion of the volcanic plains and along the edges of lava flows, resulting in the forming of streams and creek beds, including the Werribee River, Little River, their tributaries and other small watercourses (LCC 1973, 252)

4.6 A Review of the Landforms or Geomorphology of the Activity Area

4.6.1 Landforms / Geomorphology

The majority of the activity area is situated within the Newer Volcanic Plains of the Central Lowlands comprising quaternary deposits of tholeiitic to alkaline basalts, minor scoria and ash[1]. Quaternary sedimentary deposits of non-marine origin comprising fluvial and Aeolian deposits surround the southern portion of the lower Werribee River, Little River and Hovells Creek that extend into the central and western sections of the activity area. This broader region is also known as the 'Werribee Plains' (LCC 1973, Maps 3 & 4). The western part of the study area around Lara consists of quaternary sedimentary deposits comprising fluvial gravel, sand and silt with pockets of lacustrine deposits of limestone and minor sand (Figure 1). [2]

The Werribee Plains formed during a period of volcanic activity and extensive basaltic lava flows during the Late Pliocene/Pleistocene (LCC 1973, 19). During this period (less than 2 million years ago) the ground surface of the activity area would have been barren, flat and rocky with significantly lower sea levels than at present. Pleistocene sea level changes resulted in increased erosion of the volcanic plains and along the edges of lava flows, resulting in the forming of streams and creek beds (LCC 1973, 252). Into this region the Werribee River and Little River, their tributaries and many other small watercourses were channeled. Between these watercourses alluvial material has washed over the area raising the ground surface and forming the current geomorphic face of the Werribee plains. The plains are characterised by gently sloping to flat open plains which, due to depressions in the impenetrable lava flows, resulted in the creation of low lying wetlands and swamps (LCC 1973; Rosengren 1986). The You Yangs and a number of extinct volcanic cones form the higher relief in the area (LCC 1973, 25).

4.6.2 Environment

The soils of the volcanic plains are generally fertile and have accumulated over time with contributions of rich alluvial material (LCC 1985, 32-33). These soils are characterized by yellow duplex soils. The climate in the area is very dry with an average annual rainfall of 546.9 mm and average temperatures ranging between c. 13.5 – 25.6 ºC in spring-summer and 4.5 – 13.4 ºC in Autumn-Winter.[3] The climate of the

1 DPI: http://nremap-sc.nre.vic.gov.au/MapShare.v2/imf.jsp?site=em – accessed 24/07/09.

2 DPI: http://nremap-sc.nre.vic.gov.au/MapShare.v2/imf.jsp?site=em – accessed 24/07/09.

3 BOM: http://www.bom.gov.au/climate/averages/tables/cw_087065.shtml - accessed 24/07/09.

study region is generally described as temperate with warm dry summers, predominantly winter rainfall and mild temperatures throughout the year. The mean annual rainfall for the activity area is greater than 700 mm (LCC 1991, 60, Map 9).[4]

The activity area has been modified by European land use activities, with much of the area cleared of indigenous species. The original vegetation of the region was likely to have comprised Plains Grassland and Chenopod Shrublands with Plains Grassy Woodland species near the creeks and rivers, and pockets of Plains Grassy Wetland and Cane Grass Wetland species (Figure 2). [5] Early surveyor's maps provide some information about the original vegetation of the plains, and it is likely that dry tussock grassland (*Themeda australis*) covered much of the area (McDougall 1987).

4.7 Victorian Aboriginal Heritage Register Search

A total of five Aboriginal cultural heritage places (7721-0583, 7721-0587, 7822-0466, 7822-0467 & 7822-1915) were located within the activity area at the initiation of this CHMP (see Figures 1-3). However, as the places were associated with the Western Bypass and a housing estate, it is likely that the places have been destroyed. All of these places consisted of isolated artefacts or diffuse artefact scatters, with silcrete and quartz the predominant raw material type identified.

An additional 61 registered cultural heritage places are located within 1 km of the activity area (see Table 4). The majority of these places consist of isolated artefacts or diffuse artefact scatters, with silcrete, quartz, chert, basalt, honfels, siltstone, crystal quartz and quartzite pieces identified. Two scarred trees and an earth feature are also present.

[4] DPI - http://nremap-sc.nre.vic.gov.au/MapShare.v2/imf.jsp?site=cim - accessed 08/10/08.

[5] NRE Biodiversity map: http://nremap-sc.nre.vic.gov.au/MapShare.v2/imf.jsp?site=bim_external – accessed 24/07/09.

Table 4: Aboriginal Cultural Heritage Places located in and within 1 km of the activity area

AAV Site No	Field Name	Site type	Easting	Northing
7721-0423	LARA-COLAC 16	Artefact Scatter	269692	5788684
7721-0582	WESTERN BYPASS 4	Artefact Scatter	266742	5783994
7721-0583	WESTERN BYPASS 5	Artefact Scatter	266812	5784084
7721-0584	WESTERN BYPASS 6	Artefact Scatter	266912	5784154
7721-0585	WESTERN BYPASS 7	Artefact Scatter	267072	5784234
7721-0586	WESTERN BYPASS 8	Artefact Scatter	267274	5784212
7721-0587	WESTERN BYPASS 9	Artefact Scatter	266632	5783954
7721-0588	WESTERN BYPASS 10	Artefact Scatter	266312	5782674
7822-0073	EYNESBURY 1	Artefact Scatter	286512	5811784
7822-0076	TODDS RIDGE	Artefact Scatter	287953	5811460
7822-0079	GARD 1	Artefact Scatter	286803	5812869
7822-0080	GARD 2	Artefact Scatter	286774	5812680
7822-0081	WATERPUMP SCATTER	Artefact Scatter	286924	5811961
7822-0095	COBBLEDICK TREE 2	Scarred Tree	287912	5811584
7822-0096	TODD TREE 1	Scarred Tree	286595	5811692
7822-0178	WERRIBEE FLOODPLAIN 1	Artefact Scatter	286731	5812579
7822-0179	WERRIBEE FLOODPLAIN 2	Artefact Scatter	286753	5812769
7822-0180	WERRIBEE FLOODPLAIN 3	Artefact Scatter	286812	5812684
7822-0207	GREEK HILL	Artefact Scatter	292539	5812669
7822-0385	MOOROOKYLE 3	Artefact Scatter	295758	5809319
7822-0415	MOOROOKYLE 4	Artefact Scatter	295181	5809404
7822-0416	MOOROOKYLE 5	Artefact Scatter	295842	5809321
7822-0417	MOOROOKYLE 6	Artefact Scatter	295823	5809304
7822-0418	MOOROOKYLE 7	Artefact Scatter	295963	5809223
7822-0419	MOOROOKYLE 8	Artefact Scatter	294981	5809076
7822-0420	MOOROOKYLE 9	Artefact Scatter	294717	5809093
7822-0461	SERRANO 1	Artefact Scatter/Earth Feature	286807	5811436
7822-0466	MOOROOKYLE 10	Artefact Scatter	295165	5809878
7822-0467	MOOROOKYLE 11	Artefact Scatter	295197	5810043
7822-0468	MOOROOKYLE 12	Artefact Scatter	295262	5810234
7822-0469	MOOROOKYLE 13	Artefact Scatter	295528	5810192
7822-0470	MOOROOKYLE 14	Artefact Scatter	295612	5810184
7822-0526	MOOROOKYLE 15	Artefact Scatter	295890	5810149
7822-0527	MOOROOKYLE 16	Artefact Scatter	295971	5810133
7822-0528	MOOROOKYLE 17	Artefact Scatter	295612	5809784
7822-0529	MOOROOKYLE 18	Artefact Scatter	295775	5809450
7822-0530	MOOROOKYLE 19	Artefact Scatter	295884	5809679
7822-0531	MOOROOKYLE 20	Artefact Scatter	295887	5809638
7822-0532	MOOROOKYLE 21	Artefact Scatter	294812	5810134
7822-0533	MOOROOKYLE 22	Artefact Scatter	294820	5809800
7822-0538	MOOROOKYLE 27	Artefact Scatter	294861	5809996

AAV Site No	Field Name	Site type	Easting	Northing
7822-0539	MOOROOKYLE 28	Artefact Scatter	294930	5810082
7822-0543	MOOROOKYLE 32	Artefact Scatter	295097	5809403
7822-0544	MOOROOKYLE 33	Artefact Scatter	295040	5809054
7822-0545	MOOROOKYLE 34	Artefact Scatter	295014	5808949
7822-0546	MOOROOKYLE 35	Artefact Scatter	295058	5808970
7822-0547	MOOROOKYLE 36	Artefact Scatter	295159	5809425
7822-0548	MOOROOKYLE 37	Artefact Scatter	295287	5809284
7822-0549	MOOROOKYLE 38	Artefact Scatter	295267	5809240
7822-0550	MOOROOKYLE 39	Artefact Scatter	295217	5808743
7822-0551	MOOROOKYLE 40	Artefact Scatter	295387	5809284
7822-0552	MOOROOKYLE 41	Artefact Scatter	295410	5808746
7822-0553	MOOROOKYLE 42	Artefact Scatter	295455	5809201
7822-0559	MOOROOKYLE 48	Artefact Scatter	296016	5810088
7822-0561	MOOROOKYLE 50	Artefact Scatter	295862	5808959
7822-0562	MOOROOKYLE 51	Artefact Scatter	295892	5808909
7822-0563	MOOROOKYLE 52	Artefact Scatter	295872	5808911
7822-0564	MOOROOKYLE 53	Artefact Scatter	295169	5809475
7822-1826	TARNEIT GARDENS 1	Artefact Scatter	295253	5808875
7822-1865	COBBLEDICKS RESERVE ARTEFA(	Artefact Scatter	287486	5811787
7822-1914	TARNEIT RISE 1	Artefact Scatter	294800	5809650
7822-1915	TARNEIT RISE 2	Artefact Scatter	295100	5810105
7822-1916	TARNEIT RISE 3	Artefact Scatter	294610	5810235
7822-1917	TARNEIT RISE 4	Artefact Scatter	294310	5809800
7822-1918	TARNEIT RISE 5	Artefact Scatter	294604	5809928
7822-2045	SHANAHANS RD 1	Artefact Scatter	290478	5811618

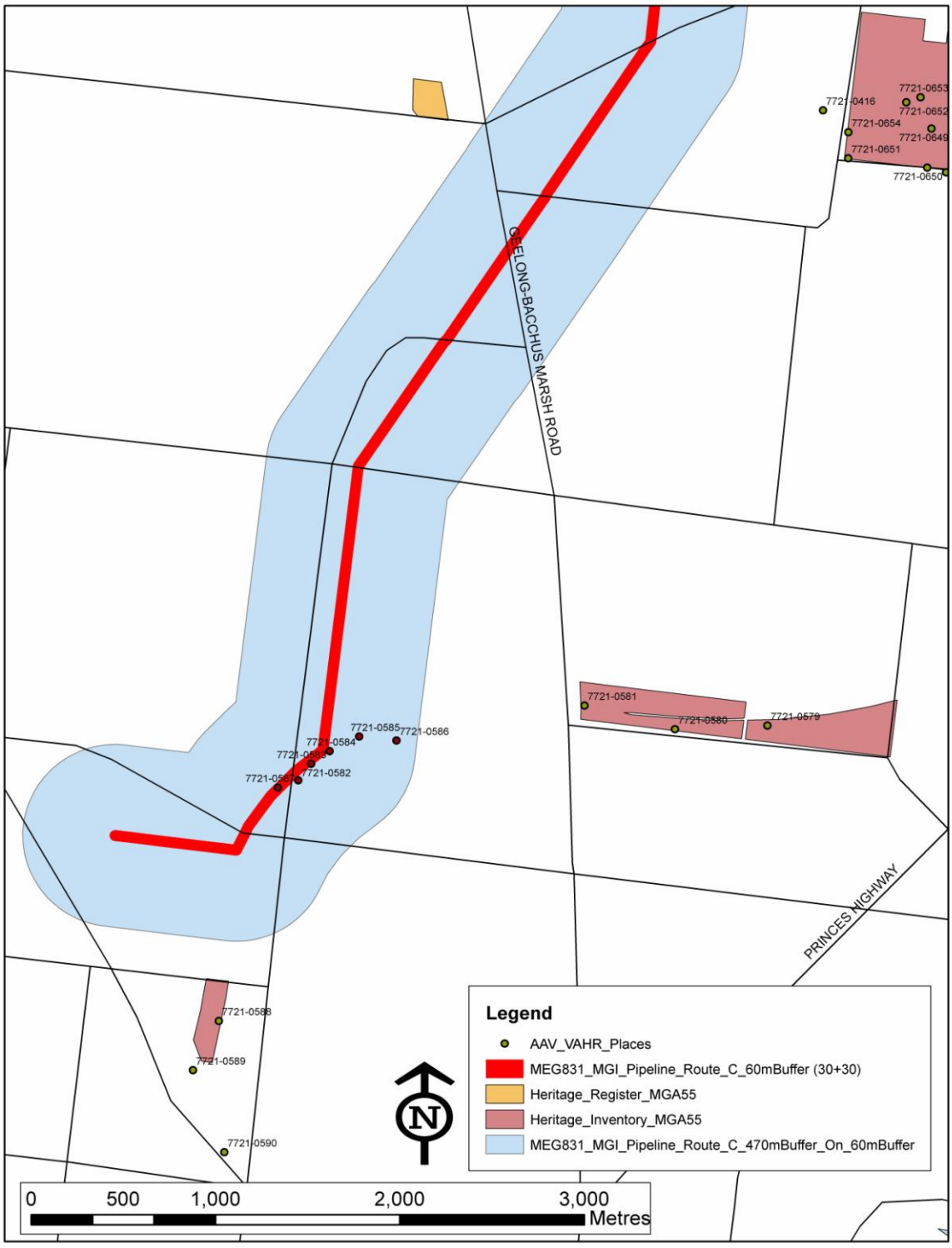

Figure 1: Heritage places located within 500m of the activity area in the vicinity of Lovely Banks.

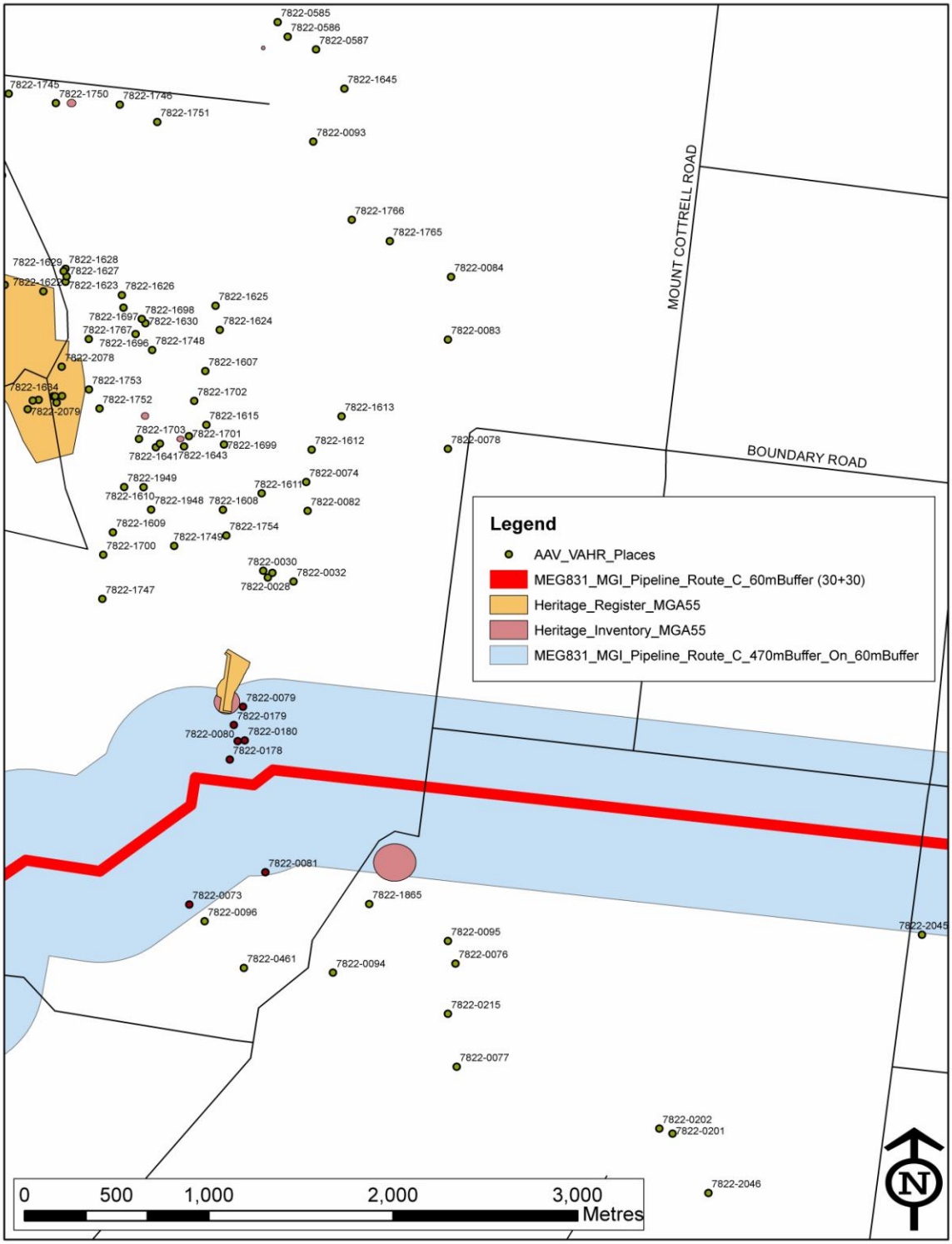

Figure 2: Heritage places located within 500m of the activity area in the vicinity of the Werribee River.

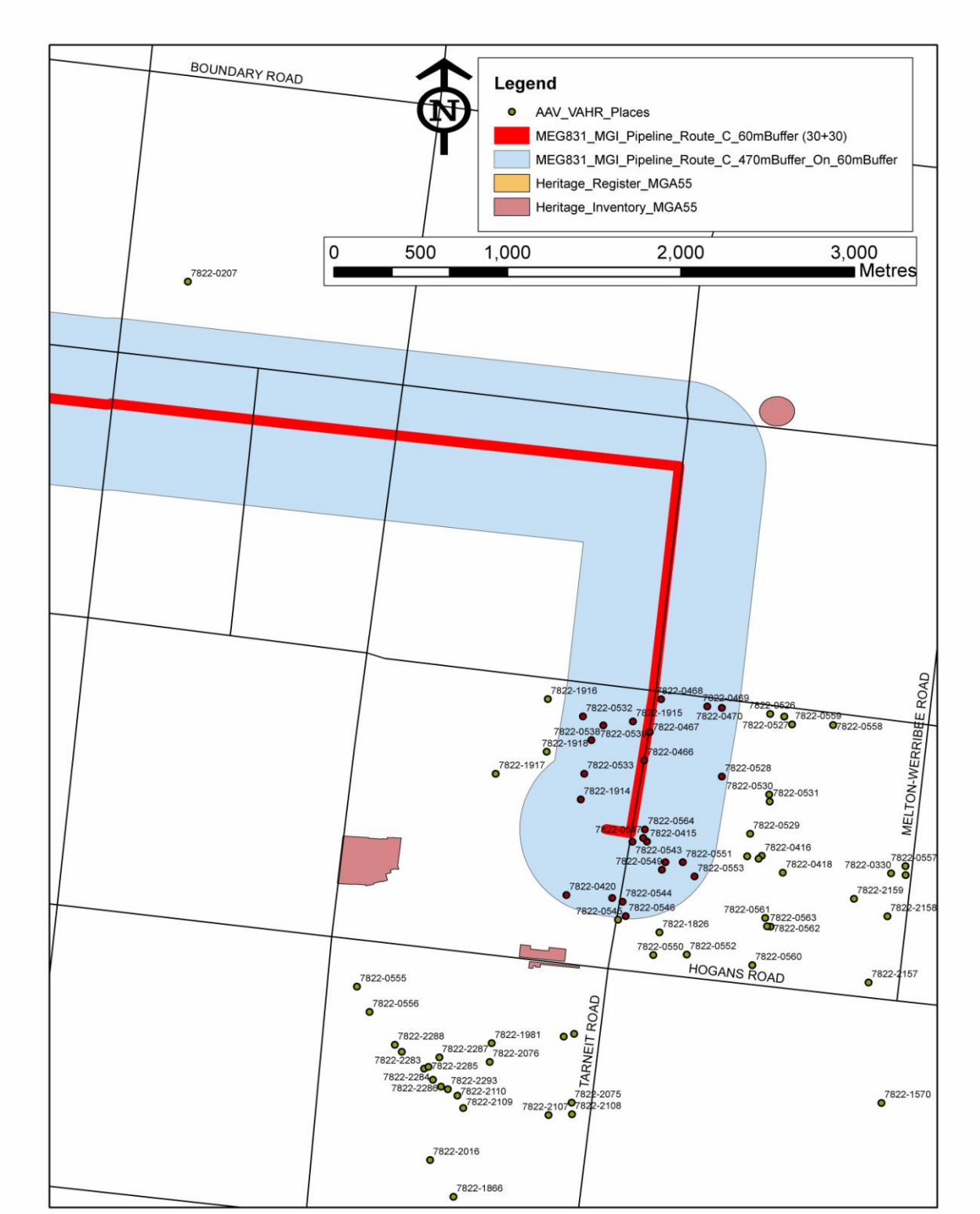

Figure 3: Heritage places located within 500m of the activity area in the vicinity of Cowies Hill.

4.8 Review of Historical and Ethno-Historical Accounts of Aboriginal Occupation in the Geographic Region

In this section the available ethnohistorical and historical information relating to Aboriginal people in the Werribee Plains region is briefly reviewed. This information can assist in formulating a model of Aboriginal subsistence and occupation patterns in the activity area. In conjunction with an analysis of the documented archaeological record of this area, the ethnohistorical information assists in the interpretation of archaeological sites in the wider area, and in predicting the potential location of archaeological site types within the immediate study region.

At the time of European contact the activity area was located in what was the border between three 'tribes' (or 'language groups', as defined by Clark 1990); the *Wada wurrung* to the west of the Werribee River, the *Woi wurrung* (inland) and the *Bun wurrung* (coastal areas) to the east of the Werribee River. A language group consisted of independent groups of closely related kin, or 'clans', who were spiritually linked to designated areas of land through their association with topographic features connected to mythic beings or deities. Clan lands were inalienable and clan members had religious responsibilities (e.g. conducting rituals) to ensure 'the perpetuation of species associated with the particular mythic beings associated with that territory' (Berndt 1982, 4).

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

At the time of European contact, 25 *Wada wurrung* clans, seven *Woi wurrung* and six *Bun wurrung* clans were known to have existed (Clark 1990, 311, 364). Of these, six clans are likely to have included parts of the study region in their range;

- the *Wada wurrung balug* – a *Wada wurrung* clan identifying with the area between the Barwon and Werribee Rivers.
- the *Neerer balug* – a *Wada wurrung* clan identifying with the area between Geelong and the You Yangs.
- the *Worinyaloke balug* – a *Wada wurrung* clan identifying with the area on the west side of Little River.
- The *Yaawangi* – a *Wada wurrung* clan identifying with the You Yang Hills
- the *Kurung jang balug* – a *Woi wurrung* clan identifying with the area between the Werribee River and Mt. Cottrell.
- the *Yalukit willam* - a *Bun wurrung* clan identifying with the coastal strip between the mouth of the Werribee River and St Kilda.

These groups followed a semi-sedentary hunter gatherer lifestyle. Resource rich watercourses and swamps, containing a diversity of fish, shellfish, birds and other plant or animal foods formed a particular focus for regular Aboriginal occupation. George Armytage, an early landholder in the Werribee area, noted that the *Wada wurrung balug* depended upon fishing in the summer and autumn periods and hunting and the plant food *murnong* in the winter and spring period (Bride 1969). This clan was known to have fished for eel at Lake Modeware, 20km south west of the study area (Morgan 1852).

The uneven distribution of particular resources (e.g. greenstone for ground edge axes) resulted in a trade and exchange network between different clan groups across the study region. For example, the *Wada*

wurrung balug attended meetings at Mt Noorat (over 100 km west of the study area) and at Mirrewuae Swamp (120 km west of the study area). Further, an account from Dawson (1881, 78), again at Mt Noorat states;

> …the Aborigines from the Geelong district brought the best stones for making axes and a kind of wattle gum celebrated for its adhesiveness. The Geelong gum is so useful in fixing handles of stone axes and splinters of flint in gum and for cementing the joins of bark buckets, that it is carried in large lumps all over the Western District.

This summary of Aboriginal behaviour patterns within the study region during the mid-19th century indicates that occupation in the region was undertaken on a seasonal basis, characterised by temporary encampments shifting between resources rich zones at different times of the year. Large camp areas were often set up close to rivers and creeks. Such camps were generally occupied by smaller groups within the major clans and lasted a few days, possibly weeks at a time. This allowed Aboriginal groups to move seasonally between resource rich zones, exploiting a range of regionally available subsistence entities. For example, when in the western regions the natural occurrence of silcrete outcrops would have been exploited for tool making material. The tool making process would have been performed back at a seasonal campsite leaving physical evidence, thus indicating past human activities (Presland 1997).

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

The only known reference to *Worinyaloke balug* is also by George Augustus Robinson. Robinson notes that the clan is 'all dead except Meenmulger, a boy taken to England by Tom Walton'. The clan are described as occupying land along the west side of Little River (Clark 1990, 334).

The *Kurung jang balug* (literally meaning 'red ground people'), are described as a clan identifying with the area between the Werribee River and Mt. Cottrell and are likely to have included parts of the project region within their range (Clark 1990, 382-3).

Very little is known about the pre-European contact occupation of the study area by the *Yalukit willam*. Most references to Aboriginal people in the vicinity of Melbourne during the early contact period describe *Woi wurrung* clans, or refer to the broader *Bun wurrung* language group (Clark & Heydon 1998).

During the winter months *Bun wurrung* clans moved between Port Phillip and Western Port Bays whilst during the summer they moved to hinterland areas (Gunson 1968, 10). Thomas, who was appointed as the Assistant Protector of Aborigines in the Port Phillip area, provides this account of the lifestyle of Aboriginal people in the area:

> In their movements they seldom encamp more than three nights in one place, and oftener but one. Thus they move from one place to another, regardless of sickness, deaths, births, …They seldom travel more than six miles a day. In their migratory moves all are employed: children in getting gum, knocking down birds; women in digging up roots, killing bandicoots, getting grubs; the men in hunting kangaroos, scaling trees for opossums…(Thomas in Bride 1969, 398-9).

In 1803 the explorers Charles Grimes and James Fleming examined land near Skeleton Creek, just east of Werribee, describing the recently burnt ground (Flemming 1984, 22) as evidence of the use of fire by Aboriginal people, possibly to promote open woodland in the area.

Following the pastoral settlement of the district, the affects of introduced disease, dispossession, alcohol abuse and European aggression combined to decimate the Aboriginal population and cause the breakdown of traditional social systems. Through the influence of the Government, Missionary Societies and the new 'landowners', the number of Aboriginal people in the area dwindled as a result of high mortality rates. In 1839 a census of Aboriginal people living in and around Melbourne found that the probable Aboriginal population at this time consisted of 140 *Woi wurrung*, 50 *Wada wurrung* and 12 *Bun wurrung* people (Lakic & Wrench 1994, 110, 113). However it is likely that the numbers of Aboriginal people in Melbourne varied greatly throughout this period, and was subject to the influx of various groups and individuals.

The Werribee region was undoubtedly a popular camping ground with resource rich watercourses and wetlands attracting groups on a seasonal basis from the wider area.

4.9 Review of Reports and Published Work about Aboriginal Cultural Heritage in the Region

Previous archaeological research consists of *regional studies*, which assist in characterising the general pattern of archaeological site distribution across a broad region, and *localised studies*, which assist in developing an understanding of archaeological sensitivity and the extent and scope of prior investigation in a relatively limited area or environment.

4.9.1 Regional Studies

Two regional studies (du Cros 1989, 1991a) are of most specific relevance, as they broadly deal with issues relating to the entire activity area, and are discussed here in detail:

The Western Region Study

du Cros (1989) examined a large regional area, which partially includes the current project region. Random and non-random sample areas were selected for the survey. The majority of sample units were non-random, to minimise the effects of poor ground surface visibility. All landscape units were sampled. The sample areas were surveyed by transects with two or more people walking in parallel lines (du Cros 1989, 32-33). The results for 'Volcanic Plains' and 'Major Rivers/Creeks' are discussed in more detail here as they encompass the project region.

Twenty sites, including scarred trees and stone artefact scatters were recorded within the volcanic plains. A site density of 1 per 30 ha. was recorded and a density of 1 per 15 ha was predicted for the remainder of the landform. It was determined that sites occur on extinct volcano eruption points, which are also the highest points in the landscape. No *in situ* sites were identified.

Forty-one sites were recorded along major rivers/creeks, mainly stone artefact scatters but also grinding grooves, freshwater shell middens and scarred trees. It was determined that sites occur within 50-200 m of watercourses. Site density of 1 per 3 ha. was predicted.

du Cros made the following site predictive statements:

- Burials, artefact scatters, isolated artefacts and scarred trees will occur within 100 m of major watercourses;
- Artefact scatters on highest points of the volcanic plain, such as eruption points;
- Artefact scatters, isolated artefacts, and scarred trees close to permanent swamps and lakes on the volcanic plain;
- Shell middens and other sub-surface deposits in terraces and alluvial deposits along major rivers;
- Stone arrangements in areas with less impacts;

Little River east, an area covering volcanic plains with swamps in between Little River and Werribee River was identified as an area with potential for stone arrangements and other Aboriginal archaeological sites with the margins of swampy areas having potential for campsites (due to lower levels of disturbance caused by European contact).

The Werribee Corridor Study

In this second study du Cros (1991a) focused on a smaller area within the Western Region, which coincides fairly closely to the current project region. Sample areas where little or no previous archaeological survey work has been conducted and areas with good ground surface visibility were selected in order to further test the regional site prediction model. Each sample area was intensively surveyed by a team walking a number of parallel transects.

Five sites, all sub-surface deposits or artefact scatters associated with creeks running into the Little River were recorded within the volcanic plains. These results are attributed to very low surface visibility and a site density of 1 per 6 ha. was predicted.

Twenty-five sites, mainly stone artefact scatters but also stone arrangements and other site types were recorded within the major rivers/creeks. The majority of these were located on the Werribee and Little Rivers and many of the remaining sites were recorded within smaller creeks and tributaries.

du Cros (1991a) made the following site predictive statements, similar to her previous statements (1989):

- Burials, artefact scatters, isolated artefacts, stone arrangements and scarred trees will occur within 100 m of major watercourses;
- Shell middens are likely along the terraces of the Little River;
- Artefact scatters, isolated artefacts, and scarred trees close to permanent swamps and lakes on the plains;

- Shell middens and other sub-surface deposits in terraces and alluvial deposits within 100 m along major rivers;
- Stone arrangements and stone artefact scatters in areas with less disturbance/impacts, areas west of Werribee have been highlighted;

du Cros (1991a) identified Werribee and Little Rivers and their tributaries as the main areas of archaeological sensitivity. The majority of sites identified were stone artefact scatters, many containing *in situ* deposits near rivers and creeks. A number of sites near Little River also contained shell. Isolated artefacts were common, however scarred trees (n = 7) and stone arrangements (n = 2) were not. Artefact scatters across the volcanic plains west of Werribee may have resulted from east-west traffic linking Werribee River to Little River (du Cros 1991a, 31).

4.9.1 Localised Studies based on landform

Approximately 120 localised archaeological studies have been undertaken in the vicinity of the project area (i.e. the Western Plains of Melbourne) since 1989. The majority of these studies were commissioned by developers to comply with rezoning applications for discrete parcels of land. Additionally, road alignments, reservation management, specific heritage assessments, EES and water management constituted the remainder of the studies.

For the purposes of this discussion, the project area is divided into four landscape classifications:

- Area 1: Urban Areas – the existing urbanised areas of Tarneit, Hoppers Crossing, Little River, Lara, Corio and outlying estates.
- Areas 2(a & b): Basalt Plains – intervening basalt plains between watercourses, including localised topographic features, such as minor creeks, swamps, eruption points and other elevated landforms;
- Area 3: Wetland and Drainage Corridors - a curtilage (c. 200 m wide) along the margins of all rivers, creeks, swamps and other wetlands, containing all associated landforms;
- Area 4: Low Isolated Hills and Gentle Footslopes – outwash slopes located around the margins of the You Yangs and other granite plutons.

The archaeological studies consisted of surveys, commonly involving a series of pedestrian transects; sub-surface testing programs, including mechanical and manual excavation; and the monitoring of ground disturbing construction works. Site types identified include isolated artefacts, artefact scatters, stone arrangements and scarred trees.

<u>Area 1: Urban Areas</u>

A total of two archaeological surveys undertaken within the *Urban Areas* indicate a very low potential for archaeological sites to be present. During one study, Muir (2003a) identified two isolated artefacts and one artefact scatter, however these sites were associated with a creek corridor. Both of the archaeological assessments incorporating the *Urban Areas* were in response to proposed road alignments. High level of surface disturbance within the *Urban Areas*, has reduced the potential for Aboriginal sites to have survived in this area.

Areas 2(a & b): Basalt Plains

Several archaeological surveys and sub-surface testing programs undertaken within the *Plains* area indicate a low potential for Aboriginal archaeological sites to be present. Isolated artefacts, artefact scatters and scarred trees have been identified during archaeological investigations within this area (Tulloch 2000, 2002; Tulloch & George 2001; Debney & Nicolson 1998; Debney 1998; Bowen 2001; Bell 2000, 2002a, 2002b, 2004; Rymer 1997; Rymer & Sciusco 1996; Sciusco 1996; Thomson 2003; Tulloch 2001; Murphy 2000; Chamberlain 2002; du Cros 1991b; Cekalovic 2000; Muir 2002, 2003b; Weaver 1995; Brown 1996; Chamberlain & Nicholls 2003; Debney 2000; Weaver 1992, 1994, 1999, 2000, 2002b, 2002a, 2003; Murphy 2002).

The majority of the archaeological studies undertaken were in response to rezoning applications (cf. Weaver 1991; du Cros 1991b; Cekalovic *et al*. 2000; Murphy 2001; Bell 2002a; Cekalovic 2002; Murphy and Amorosi 2003; Tulloch 2003; Terra Culture 2003; Marshall 2002).

Although a number of surveys did not identify any Aboriginal archaeological sites, stony rises were consistently nominated as areas most likely to contain archaeological material as they are higher and drier than the surrounding plain and more appropriate locations for camping and working.

Area 3: Wetlands and Drainage Corridors

Archaeological surveys, sub-surface testing programs and monitoring undertaken within *Wetlands and Drainage Corridors*, indicate a high potential for Aboriginal archaeological sites to be present (du Cros & Watt 1993; Bowen 2001; Rhodes *et al*. 1999; Bell 2000; Chamberlain 2003; Murphy & Maitri 2003; Nichols & Chamberlain 2003; Chamberlain & Nicholls 2004; Vines 2003; Muir 2003b; Feldman 2005). Isolated artefacts, artefact scatters and scarred trees have been identified within this area. The majority of archaeological assessments conducted in this area were in response to rezoning applications; others included road alignments, heritage assessments, reserve management and water management.

Aboriginal archaeological sites recorded on the lower terraces of the Werribee River were considered likely to contain *in situ* archaeological deposits. Silcrete and quartz artefacts were identified at densities of up to 1 per square metre (cf. Debney and Nicolson 1998; Debney 1998, 2002; Rhodes et al. 1999; Tulloch 2000, 2003; Tulloch and George 2001; Chamberlain & Marshall 2002; Marshall 2001).

Areas of sensitivity were also identified along undisturbed areas of creeks, such as Dry, Lollypop, Skeleton and Doherty's Creeks (du Cros 1990; Clark 1999; Weaver 1999, 2000; Debney and Nicolson 2000; Murphy 2000; Tulloch 2001, 2002; Thomson and George 2002; Muir 2003a).

A 200 m corridor either side of Wetlands and Drainage Corridors was identified in the majority of studies as being a sensitive area for Aboriginal cultural heritage sites, as it represents a resource rich area. However, repeated ploughing, historic land use and later stock grazing are likely to have disturbed the original location of artefacts in the soil matrix. Ground surface visibility was generally poor to moderate (c. 25% visibility), except for terraces and areas of exposure around the base of trees and on tracks where visibility was improved.

Area 4: Low Isolated Hills and Gentle Footslopes

This area is located in an arc surrounding the lower slopes of the You Yangs Range. The pipeline alignment passes through this zone where previous archaeological surveys within the You Yangs Regional Park have identified numerous Aboriginal sites such as stone artefact scatters, rock wells and stone arrangements (van Waarden 1986, 16-17).

4.9.2 Local Studies

Several archaeological assessments have been conducted in the general Werribee Plains area (Weaver 1991; Light 2004; Terraculture 2004; Terraculture 2006; Webb & Kaskadanis 2008).

An Archaeological survey of Cowie's property 'Moorookyle' Tarneit Road Hoppers Crossing (Weaver 1991)

Weaver (1991) undertook a pedestrian field survey at 'Moorookyle' property, in close proximity to the north eastern portion of the current activity area. A tributary of Werribee River runs along the western boundary of the property and there is also a swamp near the intersection of Tarneit Road and Leakes Road. The property consisted of an extensive (c. 570 ha) area of plains and undulating slopes surrounding an elevated eruption point (Cowies Hill).

At the time of Weaver's survey more than half of her entire study area had been recently ploughed, allowing 100% ground surface visibility in those areas. The remainder of the property contained lightly cropped paddocks of 50-80% ground surface visibility and heavily grassed areas where exposures only occurred along animal and vehicle tracks and firebreaks (Weaver 1991, Section 6).

Significantly, Weaver recorded 53 Aboriginal archaeological sites (AAV 7822-329-330, 385, 415-420, 466-470, 526-564). All of the sites Weaver recorded were isolated stone artefacts, the majority made of quartz, with some quartzite and silcrete artefacts present (one chert piece was recorded). Weaver observed that all of the silcrete artefacts were located on the plain and the other materials were found both on the plain and the undulating slopes (Weaver 1991, Section 7). Weaver suggested that her results reflect the expected presence of Aboriginal artefacts close to old watercourses and swamps and observed the presence of numerous water-worn pebbles, which would have provided a source of raw materials (Weaver 1991, Section 7).

Weaver predicted that the same concentration of artefacts as her survey recorded was likely to be found in the remaining unsurveyed parts of the property (Weaver 1991, Section 7).

Cowie's Hill – Aboriginal Cultural Heritage Assessment (Light 2004)

In 2004 Light undertook an archaeological survey for a proposed residential development in Tarneit, to re-identify 27 Aboriginal cultural heritage places originally recorded by Weaver in 1991. This is a section of the property surveyed by Weaver in 1991. A tributary of Skeleton Creek extends through the central east section of the activity area. Low ground surface visibility hampered the results of Light's field survey, with less than 1% ground surface visibility due to thick grass cover (Light 2004, 15). A worked quartz artefact associated with the previously registered site 7822-468 was re-recorded as an artefact scatter during the current survey (Light 2004, 16).

Geelong Bypass Cultural Heritage Investigation Section 1 – Corio Interchange to the Midland Hwy (TerraCulture 2004)

TerraCulture conducted a pedestrian field survey of the Geelong Bypass Corridor, section 1, immediately south of the current activity area. There was one previously recorded Aboriginal heritage place (7721-

402) located within the corridor, a stone artefact scatter located on the western bank of Cowies Creek (TerraCulture 2004, 22). There was variable ground surface visibility with grassed paddocks and some exposed ground during the time of the field survey. There were also some issue with accessing sections of the corridor, due to livestock and landholder concerns. A total of 15 Aboriginal heritage places were identified during the survey, consisting mostly of isolated artefacts, with some stone artefact scatters (7721-557, 7721-579-592). The majority of the artefacts were silcrete flakes with some quartz flakes also present (TerraCulture 2004, 34-35). None of the Aboriginal heritage sites were considered to be *in situ*, but TerraCulture concluded that there was a possibility for subsurface and *in situ* material, particularly at Cowies Creek, thereby recommending that subsurface testing of the corridor be undertaken (TerraCulture 2004, 35, 46).

Archaeological survey at Plantation Road, Corio (TerraCulture 2006)

TerraCulture undertook an archaeological survey at Plantation Road, Corio. Five previously recorded Aboriginal heritage places (all artefact scatters) are located on the bypass reserve, adjacent to the activity area (TerraCulture 2006, 20). Ground surface visibility at the time of the survey was very good, with vehicle tracks providing excellent visibility, and the remainder of the area covered with pasture grass that provided approximately 50% visibility (TerraCulture 2006, 22). No Aboriginal cultural heritage places were identified. TerraCulture surmised that low density stone artefact sites could exist as subsurface deposits within the activity area.

Cowie's Hill Potable Water Supply Main, Tarneit (Webb & Kaskadanis 2008)

A cultural heritage management plan was undertaken by TerraCulture for a proposed water supply main connecting Cowie Hill reservoir to Derrimut Road, Tarneit. Two previously recorded Aboriginal heritage places (7822-530 and 564) recorded by Weaver in her 1991 survey of the area, are located within the proposed alignment. A total of eight 1x1 and three 50x50cm test pits were excavated across the activity area.

The results of the complex assessment indicate that subsurface deposits were generally uniform across the activity area, with dry reddish-brown loamy-clayey-silt overlying firm dark reddish-brown clay overlying stiff reddish-brown blocky clay. Occasional to frequent occurrence of small- to large-sized basalt was noted throughout all test pits at various depths (Webb and Kaskadanis 2008, 23).

A total of three Aboriginal stone artefacts were recorded during the complex assessment, all of which were considered to be part of the previously recorded sites 7822-0564 and 7822-0530 (Webb and Kaskadanis 2008, 20). The artefacts comprised quartz, trachytes and silcrete stone artefacts and the artefacts initially identified by Weaver were not relocated (Webb and Kaskadanis 2008, 26). The consultants agreed with Weaver's (1991) conclusion that the sites were of low archaeological significance due to the level of disturbance in the area (Webb and Kaskadanis 2008, 21).

4.10 A Review of the History of the Use of the Activity Area

Aboriginal peoples' occupation of the wider area extends over thousands of years (Section 4.8). This occupation would likely have taken the form of temporary camps used on a seasonal basis and that made use of diverse resources in the area. The landscape was undoubtedly well known to generations of people and it is probable that associations extended to spiritual attachments.

In February 1803, Charles Grimes, Surveyor General of New South Wales led a small party in the exploration of the shores of Port Phillip Bay, including the mouth of Werribee River and the plains several kilometres inland. The area was described as grassy, treeless and with very bad stony soils (James 1985, 4).

In 1836 a number of squatters settled on the Werribee plains helping to establish the south western portion of Victoria as a vast sheepwalk (James 1985, 6). During the 1830s and 1840s the area was used as a resting point for travellers between Melbourne and Geelong. The first official settlement in the district was in 1849 when a village reserve was mapped out on the site of the present Werribee township. In May 1850 the Village of Wyndham was proclaimed by the Colonial Secretary's Office. Local government was instituted in 1862, known as Wyndham Road District and was renamed Wyndham Shire in 1864 (James 1985, 19-23).

Pastoralists began to settle in the area from the 1850s to the 1890s. The Chirnside family acquired a number of runs and by 1875 their estate of freehold land was approximately 85,000 acres with 80,000 sheep (James 1985, 24). Described in 1841 by a European traveller, the study region was outlined as:

> …open plains, broken only by very low ridges of trap rock, which are moderately wooded with honey suckle and She Oak. The plains afford the finest possible sheep pasture, being covered with the richest herbage *(Drake 1841 in Peel 1974).*

The rich soils of the Werribee River floodplain and its associated terraces were selected for agricultural use soon after European occupation in 1841. Small mixed farming activities such as market gardens, orchards, wheat, cattle and sheep were the dominant forms of land use throughout the 19th and 20th centuries.

Between 1838 and 1854 Government land auctions were held within the region and resulted in two types of land owners e.g., rich individuals who resided in Melbourne and leased their land, or farmers who lived and worked on their own land (Vines & Ward 1988; Lane 1996).

Numerous pastoral runs were established in the vicinity with a number of prominent 19th century pastoral leases overlapping the study corridor, these included:

- Laverton or Truganina – 13,729 acres. The Laverton run was first taken up by Alfred Langhorne in 1836 and included an area extending inland from Altona Bay and bounded on the west by Skeleton Creek.
- River Ex or Greeves Station – Established by George Paul Greeves in 1840. Held by James Austin from 1852.
- Little River or Horseshoe Run, Cocoroc – occupied from 1838 by Henry Grass & Co.
- Werribee Lower – 14,000 acres, established by Thomas Chirnside in 1846.
- Black Forest or Werribee Plains – 8,000 acres was first taken up by James Austin in 1838, and supported 3000 sheep. (Spreadborough & Anderson 1983; Billis and Kenyon 1974)
- Anakie – 36,000 acres, gazetted in 1849 (Spreadborough & Anderson 1983, 83).

The settlement of Lara developed as a result of the three separate subdivision schemes in 1853. The imminent construction of the Geelong-Melbourne railway acted as an impetus to these schemes. J.E. Bates offered lots of one to three acres in the village of Lara; James Austin offered lots in Cheddar Farms and Cheddar Township and John Highett had laid out the township of Swindon. Prior to this the location had been known as Duck Ponds and this name persisted for some time in the name of the railway station after the adoption of Lara as the official name of the settlement. Lara developed slowly with hotels amongst the first structures and by 1882 with population of 200, Lara had a state school and three churches (Rowe & Huddle 2000, 11-12).

Settlement at Rothwell/Little River began in 1839 with the establishment of the Travellers' Rest hotel on the west bank of the river, and servicing road traffic between Melbourne and Geelong. The township was surveyed and laid out in 1852, partly spurred on by the hope that a stop on the proposed Geelong-Melbourne railway would be located there. While the railway was eventually located further to the north of the township, some growth was instigated by its construction resulting in the establishment of two further hotels. Land sales in 1865 led to the development of a substantial community, however the majority of facilities and institutions were established on the east side of the river. The settlement on the west side of the river slowly dwindled (Rowe & Huddle 2000, 10).

During the 1890s a large proportion of the Chirnside's Werribee Park was subdivided for farming purposes and the Board of Works Metropolitan Farm was established. These changes brought a striking transformation to the economy of the area from pastoral to farming and resulted in a dramatic population increase (James 1985, 57). The majority of pastoral land was subdivided into grain (oats and barley) and diary (butter and cheese) farms. The majority of the Metropolitan Farm was subdivided for irrigation purposes to deal with Melbourne's increasing sewerage problem (James 1985, 64).

In the years between the two World Wars, a number of market gardens and orchards were established around Werribee, successfully growing apricots, peaches, plums, apples and quinces. Poultry farming also became popular in the region by the early 1920s with favourable heavy soils, established irrigation and good location midway between Melbourne and Geelong (James 1985, 87-88).

In the post-war years the need for additional industrial and residential land on the outskirts of Melbourne has seen the steady encroachment of former agricultural and pastoral land in the eastern half of the project region, with the creation of new suburbs and industrial areas serviced by major road, rail and water management infrastructure.

Today the project region continues to have a largely pastoral character, though with intensive agriculture dominating on the rich alluvial soils of the lower Werribee River corridor in the south, and an increasingly urban character in the east.

4.11 Implications

The land encompassed by the proposed alignment has been subjected to a variety of past human processes which will have variously impacted upon the survival of Aboriginal and historical archaeological deposits. These include rock and vegetation clearance, drainage works, market gardening, agriculture, urbanization, utility and road construction.

These processes have generally not occurred uniformly, as a consequence of which there remains some potential for the survival of both Aboriginal and historical features within the study corridors. The particular techniques used in the clearance of rocks and vegetation will have had a particularly heavy impact on the survival of Aboriginal cultural heritage places within the agricultural and semi-urban parts of the region, especially on the western fringes of Melbourne. The less intensive use of the region to the west of the Werribee River, as well as sections of the basalt plains containing rivers, creeks and major wetlands, and the slopes surrounding the You Yangs are predicted to have less impact on the pre-contact

landscape, and it is likely that archaeological site preservation conditions in these areas will be correspondingly higher. In contrast, areas of existing urban development, such as the built environment of the fringes of Lara and Werribee will have had a very high impact on the pre-contact landscape, and therefore archaeological site preservation conditions in these areas will be lower.

The results of the desktop assessment show that it is possible for Aboriginal cultural heritage to be present in the activity area and therefore a standard assessment was carried out under Regulation 58 (1).

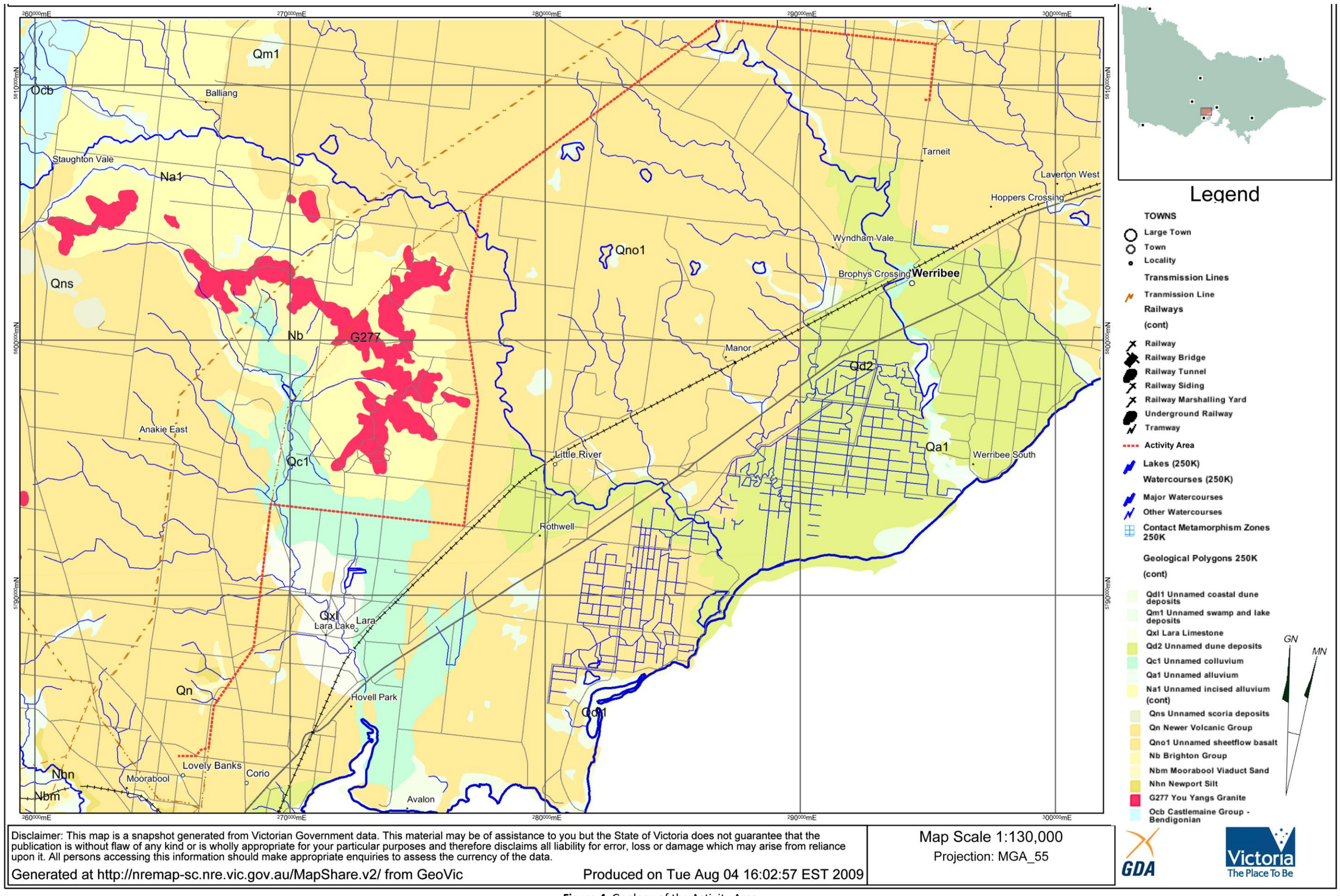

Figure 4: Geology of the Activity Area.

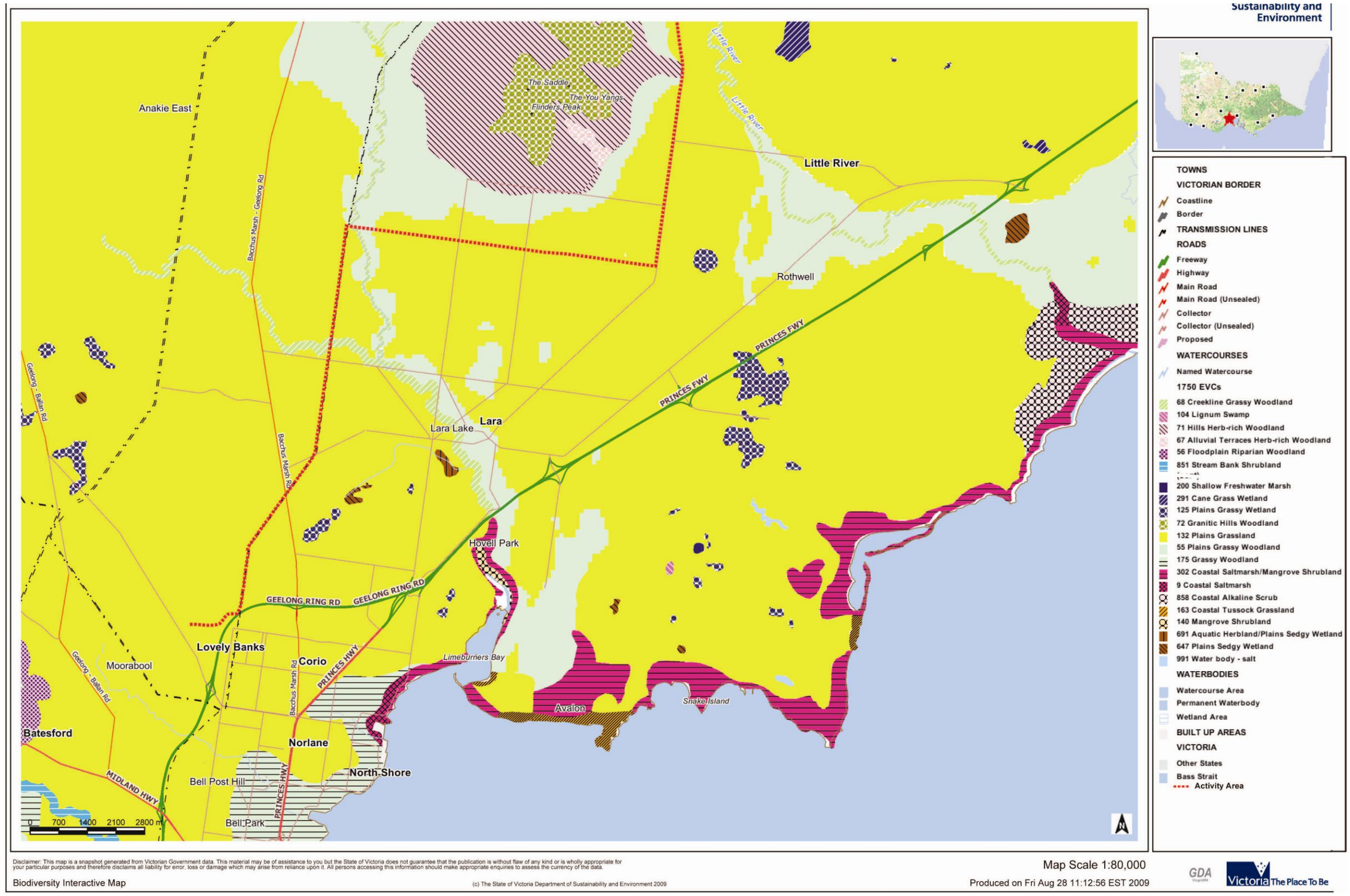

Figure 5: Vegetation within the Activity Area pre 1750 (Lovely Banks to Little River).

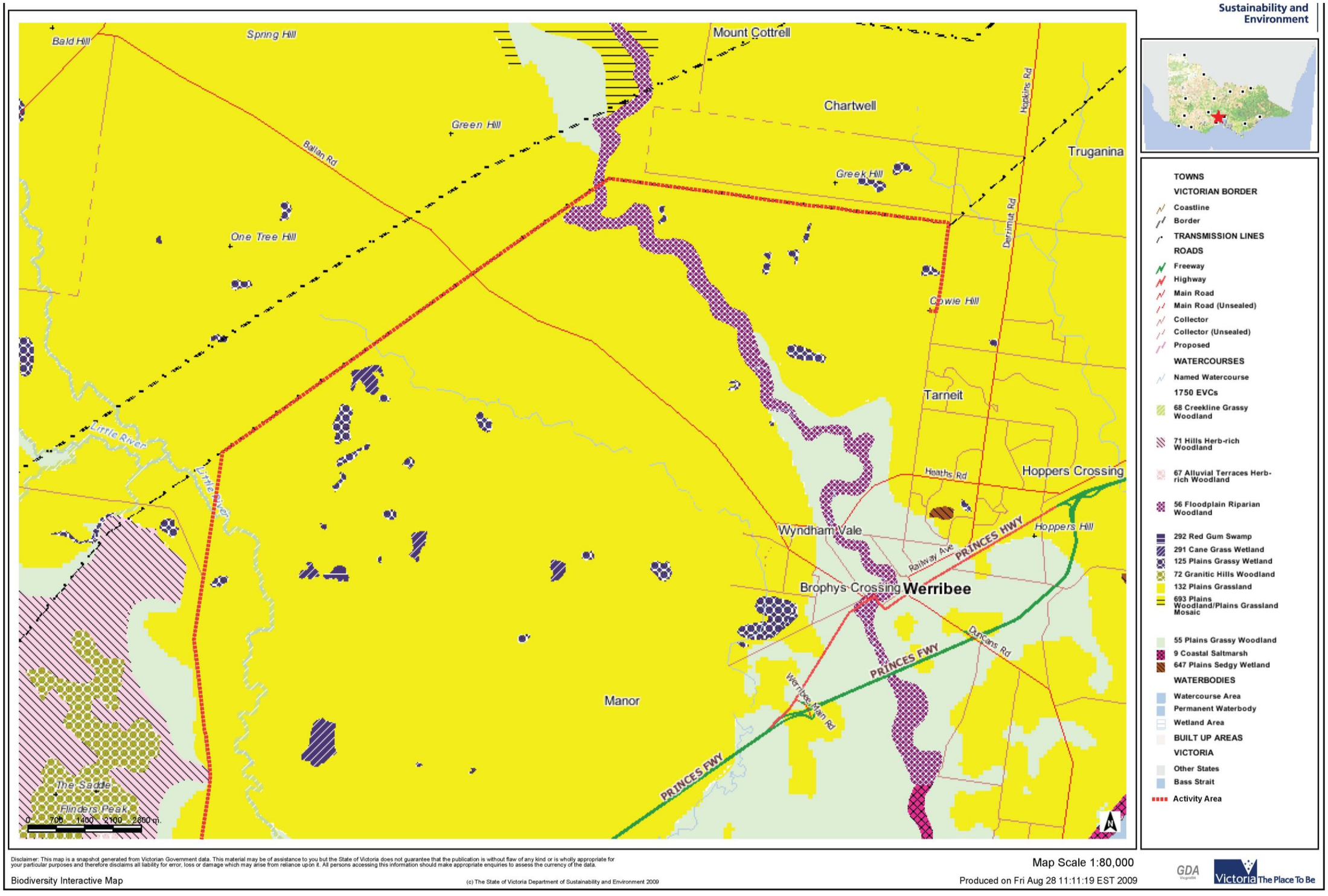

Figure 6: Vegetation within the Activity Area pre 1750 (Little River to Cowies Hill).

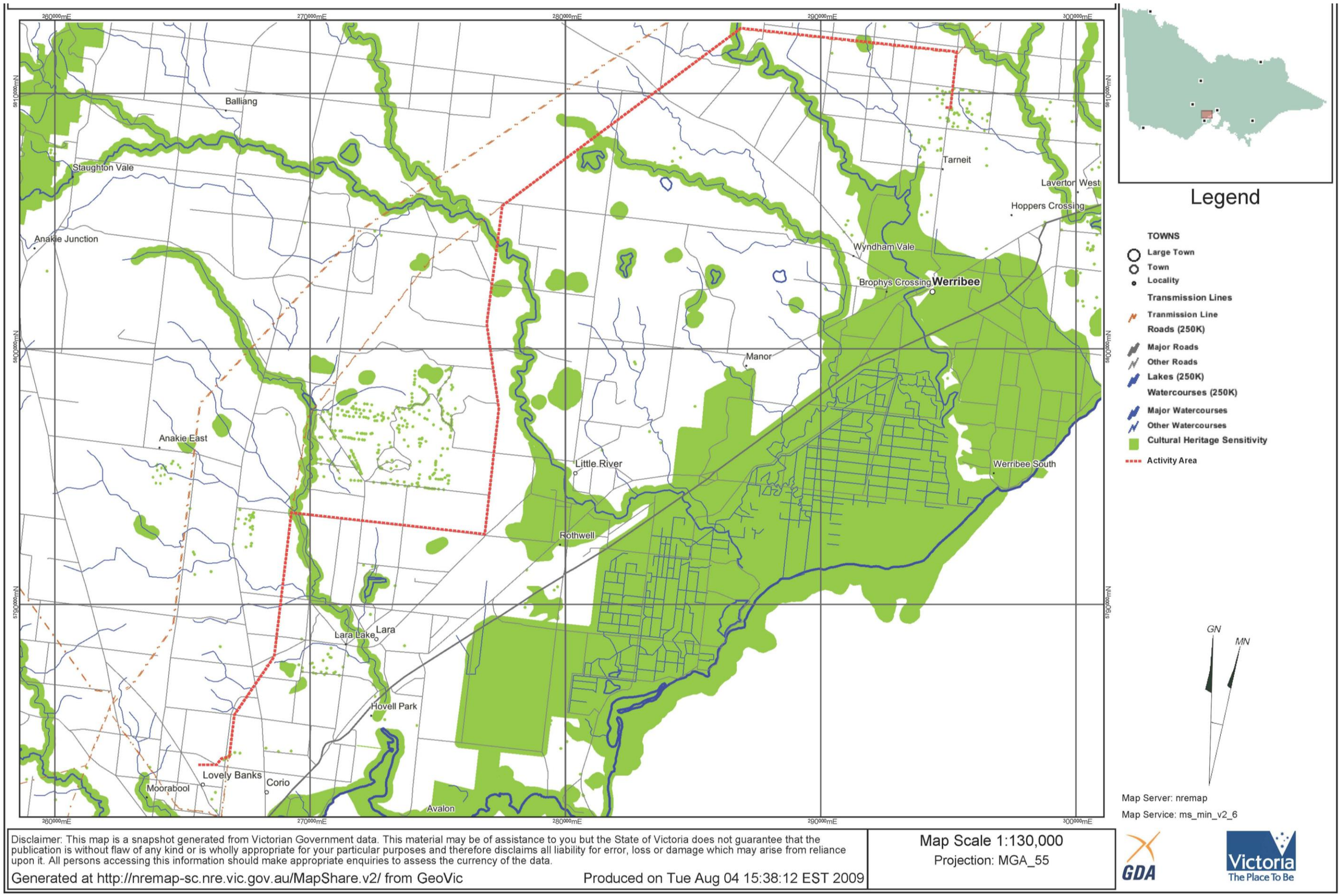

Figure 7: Areas of cultural heritage sensitivity within the activity area.

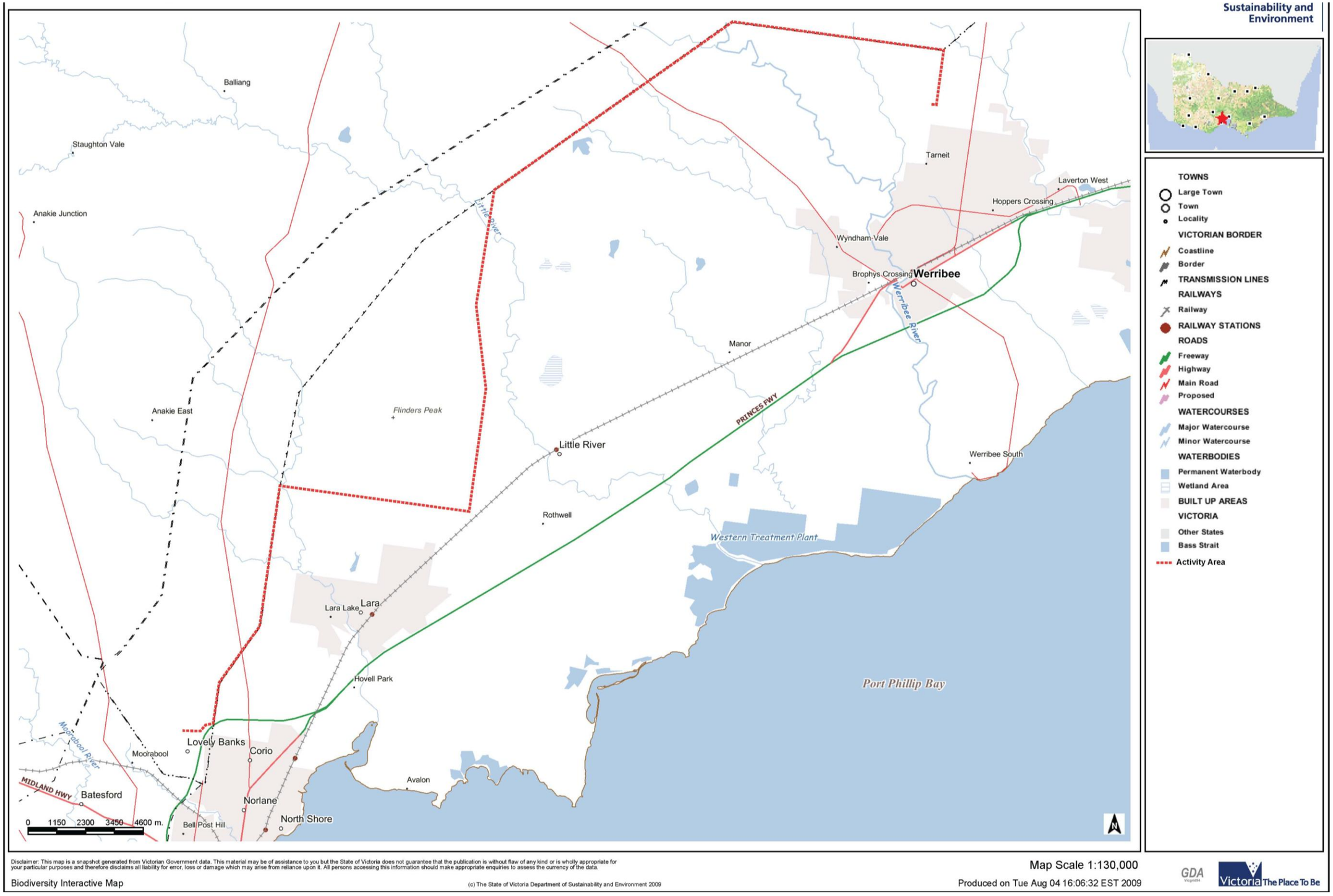

Figure 8: Waterways within the activity area.

5

STANDARD ASSESSMENT

5.1 Introduction

This section outlines the aims, methods and results of the field survey undertaken for the activity area, including descriptions of individual survey areas.

5.2 Previous Aboriginal Cultural Heritage Places

There were five previously registered Aboriginal cultural heritage places[6] within the activity area at the time of the current survey.

5.3 Method of Assessment

The aims of the current field survey were twofold:

- to inspect all areas with ground surface visibility for Aboriginal cultural heritage places within the activity area;
- to undertake a general assessment of the overall archaeological potential of the activity area.

The field survey strategy was dictated by a need to systematically examine all landforms present in the activity area. Due to the narrow width of the activity area corridor it was possible to undertake a comprehensive survey. The activity area was divided into 33 survey areas (SA) with survey area 1 located in the south of the activity area at Lovely Banks, Corio and survey area 33 located in the north of the activity area at Cowies Hill, Tarneit (Appendix 4 & 5)

A standard assessment was undertaken on 30th - 31st July and 5th – 12th August, 2009. The survey was undertaken by pedestrian transects generally on a north-south axis with each person in the field team approximately 10 m apart, and each individual examining all surface exposures within the activity area. Ground surface visibility across the much of the activity area was limited due to a dense ground cover of introduced grass species. However, there were areas of better visibility in fields that had been ploughed and on waterway escarpments. Pedestrian spacing was sufficient to identify any areas of significant ground exposure and these areas were extensively targeted. The average ground surface visibility of the

[6] Note that coordinates provided by the Victorian Aboriginal Heritage Register are based on centre points only and as such do not represent the actual site extent or boundary of particular site types, such as stone artefact scatters.

activity area ranged between 1.2% to 64.2% depending upon the landform and vegetation at the time of the survey.

According to r. 59 (3) of the *Aboriginal Heritage Regulations* 2007, which stipulates what a standard assessment must include, the field survey involved the examination of all potential mature trees, caves, rock shelter or cave entrance within the activity area.

5.4 Obstacles

Thick grass cover and over much of the activity area reduced the ground surface visibility. Additionally, sections of the activity area were obscured by market gardens, residential and other associated buildings.

5.5 Participants Involved in the Standard Assessment

Table 5: Participants involved in the Standard Assessment.

Participant	Organization	Position	Component	Date(s)
Ricky Feldman	ALA	Associate	Standard Assessment	30-07-09
				31-07-09
				05-08-09
				06-08-09
				07-08-09
				11-08-09
				12-08-09
Jennifer Chandler	ALA	Project Manager	Standard Assessment	05-08-09
				06-08-09
				07-08-09
				11-08-09
				12-08-09
David Mathews	ALA	Technical Manager	Standard Assessment	05-08-09
Nick Berry	ALA	Archaeologist	Standard Assessment	30-07-09
				31-07-09
Jamie Thomas	BWF	Representative	Standard Assessment	30-07-09
				31-07-09
Willy Xiberras	WTLCCHC	Representative	Standard Assessment	30-07-09
Ringo Terrick	WTLCCHC	Representative	Standard Assessment	31-07-09
Iris Pepper	BLCAC	Representative	Standard Assessment	30-07-09
				31-07-09
Jason Tweedie	WEAC	Representative	Standard Assessment	30-07-09
Tony Garvey	WEAC	Representative	Standard Assessment	31-07-09
Bonnie Fagan	WAC	Representative	Standard Assessment	05-08-09
Sean Fagan	WAC	Representative	Standard Assessment	06-08-09
Owen Fagan	WAC	Representative	Standard Assessment	07-08-09
Bert Fagan	WAC	Representative	Standard Assessment	11-08-09
				12-08-09

5.6 RAP Information

Please note no oral information was collected during the standard assessment.

5.7 Results

For the purposes of the field survey the activity area was divided into 33 different survey areas (see Appendix 5). A detailed description of each survey area is presented in Appendix 4.

In general, the activity area traversed flat to very gently inclined land. Steeper landforms were found adjacent to the watercourses. There were several areas where large basalt boulders had not been cleared and were found across the ground surface. Disturbance comprised urban areas with buildings and sheds, road construction, vehicle tracks, culverts, easements, cropping, market gardens and dams. Furthermore, a large section of the activity area overlaps with a transmission line alignment.

A total of 22 stone artefact scatters were identified during the standard assessment. These areas were located close to watercourses or rises within the activity area (Table 6). The area comprising the highest number of artefacts was located at Little River.

As a result of the standard assessment and incorporating the results of the desktop assessment (see Section 4) the potential for archaeological deposits to be present within the activity area were calculated (Table 7) and assigned a rating of archaeological potential. This archaeological potential rating was based on the archaeological sensitivity rating, which takes into account environmental settings, landforms, proximity to water, vegetation type, and the disturbance rating, which takes into account previous and current land use. The resultant archaeological potential rating is used to inform the complex testing methodology, highlighting areas that are likely to require more detailed subsurface investigation.

Table 6: Number of artefacts within each landform unit in each survey area

SA Unit	Landform	Content	Total Number of Artefacts
15a-1	Flats/plains/lava plains	S (S,Q,Qt,O)	26
15a-2	Flats/plains/lava plains	S (S,Qt)	8
18a-1	Flats/plains/lava plains, undulating	S (Q,S,Qt)	23
18b-1	Lowland	S (S,Q,Qt,CQ,O)	519
18b-2	Lowland	S (S,Q,Qt)	6
18c-1	Flats/plains/lava plains	S (S,Q,Qt)	12
18c-2	Flats/plains/lava plains	S (S,CQ)	7
19a-1	Lowland	S (S,Q,Qt)	64
19a-2	Lowland	S (Qt,CQ)	2
24a-1	Flats/plains/lava plains	S (S)	1
24a-2	Flats/plains/lava plains	S (S,Q,CQ)	19
25a-1	Flats/plains/lava plains	S (S,Q,Qt,O)	136
25a-3	Flats/plains/lava plains	S (Q,S,Qt)	40
25a-4	Flats/plains/lava plains	S (Q,S,Qt)	23
25a-5	Flats/plains/lava plains	S (Q,S,Qt)	10
25a-6	Flats/plains/lava plains	S (S,Qt)	10
26a-1	Flats/plains/lava plains	S (Qt)	1
26a-2	Flats/plains/lava plains	S (Q,S)	23
26c-1	Escarpment , flat plain	S (Q,S,Qt)	TBA
26d-1	Flats/plains/lava plains	S (TBA)	TBA
28a-1	Flats/plains/lava plains	S (TBA)	TBA
31a-1	Flats/plains/lava plains	S (TBA)	TBA

Table 7: Potential archaeological deposit ratings

Survey Unit	Aboriginal Place	Historical Place	Arch Sensitivity Rating	Disturbance Rating	Arch Potential Rating
1a	No	No	3	2	6
1b	No*	No	3	2	6
2a	No	No	1	2	2
3a	No	No	1	2	2
4a	No	No	1	2	2
5a	No	No	2.5	2	5
6a	No	No	2	2	4
7a	No	No	2.5	2	5
7b	No	No	3.5	2.5	9
7c	No	No	2.5	2	5
8a	No	No	2	2	4
9a	No	No	2	2	4
10a	No	No	2	2	4
11a	No	No	2	2	4
11b	No	No	3	2	6
12a	No	No	1	2	2
13a	No	Yes	2	2	4
14a	No	Yes	2	2	4
14b	No	No	3	2	6
15a	Yes	Yes	4	2	8
15b	No	No	3	2	6
16a	No	Yes	2	2	4
16b	No	No	3	2	6
17a	No	Yes	2	2	4
18a	Yes	No	4	2.5	10
18b	Yes	No	4	2.5	10
18c	Yes	No	3.5	2	7
19a	Yes	No	2	2.5	5
20a	No	No	2	2	4
20b	No	No	3	2	6
21a	No	No	3	2	6
22a	No	No	3	2	6
22b	No	No	3.5	2	7
23a	No	No	2	3	6
23b	No	No	3	2	6
24a	Yes	No	3.5	2	7
25a	Yes	No	4	3	12
25b	No	No	4	3	12
26a	Yes	No	4	3	12

26b	No	No	4	3	12
26c	Yes	No	4	3	12
26d	Yes	No	3	3	9
27a	No	No	2	2	4
28a	Yes	No	2.5	2	5
29a	No	No	2	2	4
30a	No	No	2	2	4
31a	Yes	No	2	2	4
32a	No	No	1.5	2	3
33a	No	No	3	1.5	5
*previously registered Aboriginal heritage places located within activity area (60m buffer)					

KEY					
1,2	low				
3,4	low-mod				
5,6	mod-low				
7,8	mod				
9,10	mod-high				
11,12	high				

5.8 Implications

On conclusion of the systematic field survey 22 Aboriginal cultural heritage places were identified within the activity area. At the time of the survey grass cover greatly inhibited surface visibility across the majority of the activity area.

As a result of the standard assessment and incorporating the results of the desktop assessment (see Section 4) the potential for archaeological deposits occurring within the activity area has been calculated (Table 7). A total of four survey areas (SA 2a, 3a, 4a & 12a) were rated as having *low* archaeological potential. The majority of these areas are located in the south of the activity area, near Corio. A total of 15 survey areas (SA 6a, 8a, 9a, 10a, 11a, 13a, 14a, 16a, 17a, 20a, 27a, 29a, 30a, 31a & 32a) were calculated as having *low-moderate* archaeological potential. Seventeen survey areas (SA 1a, 1b, 5a, 7a, 7c, 11b, 14b, 15b, 16b, 19a, 20b, 21a, 22a, 23a, 23b, 28a & 33a) were calculated as having *moderate-low* archaeological potential. A total of four survey areas (SA 15a, 18c, 22b & 24a) were calculated as having *moderate* archaeological potential. Another four survey areas (SA 7b, 18a, 18b & 26d) were calculated as having *moderate-high* archaeological potential. A total of five survey areas (SA 25a, 25b, 26a, 26b & 26c) were calculated as having *high* archaeological potential. This area is associated with the Werribee River and tributaries.

5.9 Discussion

Ground surface visibility across the activity varied considerably and depended upon the landform and vegetation. Areas with greatest visibility occurred within ploughed fields and near the escarpment of waterways. The assessment has determined that there is a high level of disturbance within the activity area, particularly within the road reserves, ploughed and cropped paddocks. Areas with less ground disturbance comprise paddocks in which the basalt stone has not been cleared. The standard assessment has determined that 22 areas associated with Aboriginal cultural material are located within the activity area. The majority of these areas are located in association with waterways or rises. Based on the results of the assessment potential areas of archaeological sensitivity have been predicted to occur across the activity area. The highest archaeological potential occurs close to the Werribee River and tributaries as these landforms would have provided the greatest resources to Aboriginal people in the past. Archaeological test excavation to determine the actual sensitivity of the activity area was a clear objective in subsequent stages of this project. It was determined that a testing programme of shovel test pits and hand controlled excavation would be employed across all landform types within the activity area.

12

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Appendix 1: Statutory Regulations *Aboriginal Heritage Act* 2006

The *Aboriginal Heritage Act* 2006

New Victorian legislation for Aboriginal heritage protection (the *Aboriginal Heritage Act* 2006) commenced operation on May 28th 2007.

This act provides blanket protection for all Aboriginal heritage sites, places or items in Victoria.

The main aspects of the Act in relation to the development process are as follows:

- An *Aboriginal Heritage Council* (AHC) has been appointed by the Minister, Aboriginal Affairs Victoria, made up of 11 Victorian Aboriginal people.
- Aboriginal community groups with traditional interests in cultural heritage are to apply to the AHC for registration as a *Registered Aboriginal Party* (RAP). RAPs will have the role of endorsing *Cultural Heritage Management Plans* (CHMP) within a given area of interest. There may be two or more RAPs for an area, provided it does not hinder the operation of the legislation.
- Under Section 48, a developer ('sponsor') may be required to submit a CHMP before the issue of a statutory authority by local government or other agency ('decision maker'). A CHMP must be registered with the Secretary, Planning and Community Development (AAV), and all relevant RAPs notified in writing. If an RAP does not respond, AAV will act in lieu. A CHMP will contain details of research, field evaluation, consultation and management provisions in regard to the Aboriginal heritage of an area at risk from a development. A *Cultural Heritage Advisor* must be appointed to assist in the preparation of a CHMP. It is the role of an RAP to approve a CHMP if it meets prescribed standards.
- A CHMP will not be considered approved unless it has been approved by all relevant RAPs.

The regulations accompanying the Act specify when a CHMP will be required by law, and prescribe minimum standards for the preparation of a CHMP (Section 53). The approved form for CHMPs specifies the format in which a CHMP should be prepared by a sponsor in order to comply with the Act and the Aboriginal Heritage Regulations 2007, and is an approved form under section 190 of the Act.

Other provisions of the Act include *Cultural Heritage Permits* (Section 36), as required for other works affecting Aboriginal heritage sites, *Cultural Heritage Agreements* (Section 68), in respect to land containing an Aboriginal heritage site, *Inspectors* (Part 11) appointed to enforce the Act, *Cultural Heritage Audits* (Section 80) to be ordered by the Secretary in relation to compliance with a CHMP and a VCAT appeals procedure.

Appendix 2: Notice of intent to prepare a Cultural Heritage Management Plan for the Purposes of the *Aboriginal Heritage Act* 2006

The
WATHAURUNG ABORIGINAL CORPORATION
Registered Aboriginal Party (RAP)
ABN 11 312 302 330 ICN 3330
PO Box 1 Talbot 3371
Incorporated under the Corporations (Aboriginal and Torres Strait Islander) Act 2006 as the Authorised Representative Organisation of the Direct Tribal Descendants of the Wathaurung People of Victoria

29 June 2009

Ben Carter
Barwon Region Water Corporation
PO Box 659
Geelong Vic 3220

Dear Ben,

NOTICE OF INTENT TO PREPARE A CULTURAL HERITAGE MANAGEMENT PLAN,

I am writing to acknowledge your written notice of intention to prepare a management plan, received on the 30 June 2009 for the Melbourne Geelong Interconnection Pipeline.

Wathaurung Aboriginal Corporation (WAC) is the Registered Aboriginal Party (RAP) for the proposed activity area and we will evaluate the plan when it is completed.

Please contact Bonnie Fagan on
(03) 5463 2411
0407 175 463
wathaurung-traditionalowners@live.com

or

Bryon Powell on
0421 158 944
bpowell6@optusnet.com.au

for further information regarding this advice.

Yours sincerely

Bryon Powell
Chairperson
Wathaurung Aboriginal Corporation

Appendix 3: Glossary of Terms

Terminology Used in this Report for Heritage Places

General Terms

Activity Area: The area or areas to be used or developed for an activity.

Registered Cultural Heritage Place: An Aboriginal place recorded in the Register.

Types of Aboriginal Prehistoric Archaeological Sites

Artefact Scatter: A scatter of stone artefacts which is defined as being the occurrence of one (1) or more items of cultural material within 100 linear metres, with a distance of no greater than 20m between each item. Artefact scatters are often the only physical remains of places where Aborigines have camped, prepared and eaten meals and worked stone material.

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

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

Scarred Tree: Scars on trees may be the result of removal of strips of bark by Aborigines for the manufacture of utensils, canoes or for shelter; or resulting from small notches chopped into the bark to provide hand and toe holds for climbers after possums, koalas and/or views of the surrounding area.

Shell Midden: A scatter and/or deposit comprised predominantly of shell, sometimes containing stone artefacts, charcoal, bone and manuports. These site types are normally found in association with coastlines, rivers, creeks and swamps - wherever coastal, riverine or estuarine shellfish resources were accessed and exploited.

Aboriginal Artefact Types

Backing: Steep retouch on an artefact (e.g. backed blade).

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

Block Fracturing Techniques: These consist of bipolar flaking, bending and flaw propagation. These techniques do not result in concoidal flakes and can be difficult to identify.

Blocky Piece: A piece of stone showing no diagnostic evidence for concoidal or block fracturing techniques (e.g. flake scars, crushing). Typically these items are foreign to the area and occur in association with diagnostic flaked artefacts of the same material (see also Manuport).

Concoidal flake: A flake possessing a positive bulb of percussion which can be found on the ventral surface of the flake close to where it was struck from the core. Concoidal fracturing can also be produced by natural processes.

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

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

Debitage: Small unmodified flakes, flaked pieces and blocky pieces produced as part of the flaking process, but discarded unused.

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

Flake Scar: A negative impression on a piece of stone or rock surface from which a flake has been removed. Generally a flake scar will show the characteristics of a flake in reverse (i.e. negative bulb of percussion).

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

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

Geometric Microlith: A blade that has been trimmed on one or two margins to produce a symmetrical backed piece which is roughly triangular in plan.

Hammerstone: A piece of stone, often a creek/river pebble/cobble, which has been used to detach flakes from a core by percussion. During flaking, the edges of the hammerstone become 'bruised' or crushed by impact with the core.

Implement: An artefact that has been designed, but not necessarily utilised (Hiscock & Mitchell 1990, 26).

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

Microlith: A flake or blade that has been abruptly retouched along one or more margins opposite an acute (sharp) edge. Backed pieces include backed blades and geometric microliths. They are thought to have been hafted onto wooden handles to produce composite cutting tools. Backed pieces are a feature of the 'Australian small tool tradition', dating from between 5,000 and 1,000 years ago in southern Australia (Mulvaney & Kamminga 1999: 234-236).

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

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

Tool: An artefact that shows evidence that it has actually been used (e.g. edge damage) (Hiscock & Mitchell 1990, 26).

Thumbnail Scraper: A thumbnail scraper is defined as a microlithic flake with regular unifacial retouch.

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

Stone Artefact Raw Material Type

Basalt: A coarse grained basic volcanic material formed by the cooling of mafic lava at the earth's surface. Basalt generally does not generally fracture concoidally and is therefore rarely used for the manufacture of flaked stone artefacts. Basalt is more commonly used for the manufacture of ground edge axes.

Chert: A sedimentary rock type composed of amorphous silica which is extremely dense, compact, dull to semi-vitreous and cryptocrystalline. It is formed by silica crystallising from out of solution in ground water. Used for flaked stone artefacts.

Flint: A variety of chert which forms in limestone, characterised by a micro-crystalline texture (no grains visible), dull surface lustre and translucent appearance. Highly suitable for concoidal fracturing and the manufacture of flaked artefacts.

Greenstone: A rock type formed by the high grade action regional metamorphism of many different types of rocks, commonly mafic to intermediate volcanics and cherts. Greenstone is commonly used for ground edge axes.

Hornfels: A rock formed from the contact metamorphism of fine grained sediments, which are usually rich in silica. In appearance this rock type is dark grey to black, and can resemble basalt. Used for flaked stone artefacts.

Quartz: A mineral composed of silica with an irregular fracture pattern. Quartz used in artefact manufacture is generally semi-translucent, although it varies from milky white to glassy. Glassy quartz can be used for concoidal flaking, but poorer quality material is more commonly used for block fracturing techniques. Quartz can be derived from waterworn pebble, crystalline or vein (terrestrial) sources.

Quartzite: A very hard, sometimes almost glassy metamorphic rock formed from compression of sands or sandstones which consist entirely of quartz sand grains. It has a similar appearance to sandstone but can be distinguished by its crystalline structure as opposed to the granular structure of sandstone. It is generally coarse grained in texture. Used for flaked stone artefacts.

Silcrete: Soil, clay or sand sediments that have silicified under basalt through groundwater percolation. It ranges in texture from very fine grained to coarse grained (Sullivan & Simmons 1979, 56). At one extreme it is cryptocrystalline with very few clasts. It generally has characteristic yellow streaks of titanium oxide that occur within a grey and less commonly reddish background. Used for flaked stone artefacts.

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Appendix 4: Description of survey areas (SA)

Survey Data			
Survey Area	**1**		
Survey Unit	**1a**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	4		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			**Plate 1:** On the slope of the Lovely Banks monocline at the end of Eva Place, Lovely Banks, with Corio Bay in the background, facing south east.
% ground cover on exposure(s)	<1		
% surface visibility on exposure(s)	100		
% ground cover off exposure(s)	>99		
% surface visibility off exposure(s)	0-1		
Average ground surface visibility of Survey Unit	1.99%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Very gently to moderately inclined (>0.5-18˚)		
Locality Landforms	Hill (Lovely Banks Monocline)		
Water	None		
Disturbance	Easements along property margins and general urban construction works.		
Previous + Current Land use	Utilities and associated urban construction.		
Vegetation			
Vegetation Condition	Modified native vegetation, no vegetation, urban.		
Vegetation Type	Grassland		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	3		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	6		
Comments			

Survey Data	
Survey Area	1
Survey Unit	1b
Survey Method	
Sampling Strategy	Systematic
No. of Participants	4
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	<5
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	95
% surface visibility off exposure(s)	0-1
Average ground surface visibility of Survey Unit	1.2%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level ground (>0.5˚)
Locality Landforms	Flats/Plain/Lava Plain
Water	None
Disturbance	Transmission Lines, ring road construction, landscaping.
Previous + Current Land use	Agriculture and road reserve.
Vegetation	
Vegetation Condition	Modified native vegetation , urban.
Vegetation Type	Grassland
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	3
Disturbance Rating	2
Potential Archaeological Deposits Rating	6* (refer comments)
Comments	Previously registered sites 7721-0582, 7721-0583, 7721-0584 & 7721-0587 along Geelong Bypass.

Plate 2: Low visibility due to grass cover, high level of disturbance due to construction of Geelong Bypass (right), facing north.

Survey Data			
Survey Area	**2**		 **Plate 3:** Example of disturbance due to market gardening, facing east
Survey Unit	**2a**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	4		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	<5		
% surface visibility on exposure(s)	50		
% ground cover off exposure(s)	95		
% surface visibility off exposure(s)	5		
Average ground surface visibility of Survey Unit	1.2%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Level (>0.5˚)		
Locality Landforms	Flats/Plain Lava Plain		
Water	None		
Disturbance	Transmission lines, market gardens.		
Previous + Current Land use			
Vegetation			
Vegetation Condition	Modified native vegetation, urban.		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	1		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	2		
Comments			

Survey Data	
Survey Area	**3**
Survey Unit	**3a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	4
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	<1
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	99
% surface visibility off exposure(s)	0-1
Average ground surface visibility of Survey Unit	1.49%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level (>0.5˚)
Locality Landforms	Flats/Plain/ Lava Plain
Water	None
Disturbance	Transmission lines, gravel roads, track crossings.
Previous + Current Land use	--
Vegetation	
Vegetation Condition	Modified native vegetation, urban.
Vegetation Type	Grassland.
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	1
Disturbance Rating	2
Potential Archaeological Deposits Rating	2
Comments	

Plate 4: Typical flat plain with low level of ground surface exposure from Apollo Drive, facing south.

Survey Data	
Survey Area	**4**
Survey Unit	**4a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	4
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	5
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	95
% surface visibility off exposure(s)	1
Average ground surface visibility of Survey Unit	1.2%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level (>0.5˚)
Locality Landforms	Flats/Plain/ Lava Plain
Water	None
Disturbance	Roads and urban/residential.
Previous + Current Land use	Horse and agriculture.
Vegetation	
Vegetation Condition	Agricultural/urban.
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	1
Disturbance Rating	2
Potential Archaeological Deposits Rating	2
Comments	Urban and equestrian park and dog training centre.

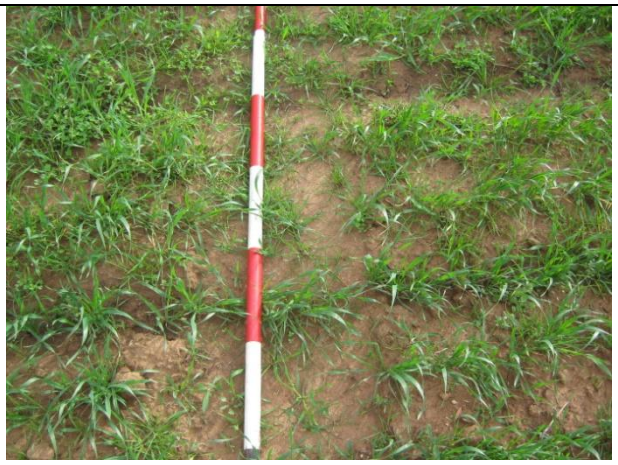


Plate 5: Surface exposures within a cropped paddock, facing north.

Survey Data	
Survey Area	**5**
Survey Unit	**5a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	50
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	50
% surface visibility off exposure(s)	1-2
Average ground surface visibility of Survey Unit	26%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level (>0.5˚)
Locality Landforms	Flats/Plain/ Lava Plain, Drainage Line
Water	None
Disturbance	Road.
Previous + Current Land use	Horse and agriculture.
Vegetation	
Vegetation Condition	Agricultural
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	2.5
Disturbance Rating	2
Potential Archaeological Deposits Rating	5
Comments	Ploughing over majority of survey area. Drainage line bisects activity area (2 x tributaries of Hovells Creek), dam beneath power lines.

Plate 6: Drainage line (tributary of Hovell's Creek), facing north.

Survey Data			
Survey Area	**6**		 **Plate 7:** Typical flat plain with a meander bend of Hovell's Creek approx. 600m away (far right), facing north.
Survey Unit	**6a**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	60		
% surface visibility on exposure(s)	50		
% ground cover off exposure(s)	40		
% surface visibility off exposure(s)	5		
Average ground surface visibility of Survey Unit	32%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics; Qxl Lara Limestone; Na1 Unnamed incised alluvium, Lowland		
Slope	Level (>0.5˚)		
Locality Landforms	Flats/Plain/ Lava Plain, Drainage Line		
Water	Temporary/ Prone to Flooding		
Disturbance	Road, cropping.		
Previous + Current Land use	Agriculture.		
Vegetation			
Vegetation Condition	Agricultural		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	2		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	4		
Comments	Good visibility in furrows but very disturbed due to ploughing.		

Survey Data	
Survey Area	**7**
Survey Unit	**7a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	60
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	40
% surface visibility off exposure(s)	5
Average ground surface visibility of Survey Unit	32%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics; Na1 Unnamed incised alluvium; Qc1 Unnamed colluvium, Lowland
Slope	Level to very gentle incline (>0.5-1.5˚)
Locality Landforms	Flats/Plain/ Lava Plain, Drainage Line, colluvium.
Water	None
Disturbance	Road, agriculture.
Previous + Current Land use	--
Vegetation	
Vegetation Condition	Agricultural
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	2.5
Disturbance Rating	2
Potential Archaeological Deposits Rating	5
Comments	Distinctly undulating landform.

Plate 8: Large clearance cairns south of Peak School Road, facing south.

Survey Data			
Survey Area	**7**		
Survey Unit	**7b**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	50		
% surface visibility on exposure(s)	90		
% ground cover off exposure(s)	50		
% surface visibility off exposure(s)	5		
Average ground surface visibility of Survey Unit	47.5%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qc1 Unnamed colluvium, Lowland		
Slope	Very gently inclined to steep (0.5-30˚) and cliff (>72˚)		
Locality Landforms	Alluvial terrace, creek/river, colluvium.		
Water	Rivers/creek.		
Disturbance	Road, culverts		
Previous + Current Land use	--		
Vegetation			
Vegetation Condition	Modified native vegetation		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	3.5		
Disturbance Rating	2.5		
Potential Archaeological Deposits Rating	9		
Comments	Hovells Creek.		

Plate 9: Hovell's Creek crossing, facing east.

Survey Data	
Survey Area	**7**
Survey Unit	**7c**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	20
% surface visibility on exposure(s)	80
% ground cover off exposure(s)	80
% surface visibility off exposure(s)	5
Average ground surface visibility of Survey Unit	20%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qc1 Unnamed colluvium, Lowland
Slope	Level (>0.5˚)
Locality Landforms	Flats/Plain/LavaPlain, Colluvium.
Water	None.
Disturbance	Underground telephone easement, road
Previous + Current Land use	--
Vegetation	
Vegetation Condition	Modified native vegetation
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	2.5
Disturbance Rating	2
Potential Archaeological Deposits Rating	5
Comments	-

Plate 10: Area of exposure, facing south east.

Survey Data	
Survey Area	**8**
Survey Unit	**8a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	10
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	90
% surface visibility off exposure(s)	2
Average ground surface visibility of Survey Unit	6.8%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qc1 Unnamed colluvium, Lowland
Slope	Level (>0.5˚)
Locality Landforms	Flats/Plain/LavaPlain, Colluvium.
Water	None.
Disturbance	Underground telephone easement.
Previous + Current Land use	--
Vegetation	
Vegetation Condition	Agricultural
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	2
Disturbance Rating	2
Potential Archaeological Deposits Rating	4
Comments	-

Plate 11: Existing telephone easement in south Peak School Road reserve, facing east.

Survey Data	
Survey Area	**9**
Survey Unit	**9a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	40
% surface visibility on exposure(s)	60
% ground cover off exposure(s)	60
% surface visibility off exposure(s)	5
Average ground surface visibility of Survey Unit	27%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qc1 Unnamed colluvium, Lowland
Slope	Level (>0.5˚)
Locality Landforms	Flats/Plain/Lava Plain, Colluvium.
Water	None.
Disturbance	Dam, broccoli farm, road construction disturbance.
Previous + Current Land use	Agriculture
Vegetation	
Vegetation Condition	Agricultural
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	2
Disturbance Rating	2
Potential Archaeological Deposits Rating	4
Comments	-

Plate 12: Surveying alignment on the north side of Peak School Road, facing east.

Survey Data			
Survey Area	**10**		 **Plate 13:** Barley crop recently planted on north side of Peak School Road, facing east.
Survey Unit	**10a**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	50		
% surface visibility on exposure(s)	60		
% ground cover off exposure(s)	50		
% surface visibility off exposure(s)	1		
Average ground surface visibility of Survey Unit	30.5%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qc1 Unnamed colluvium, Lowland		
Slope	Level (>0.5˚)		
Locality Landforms	Flats/Plain/Lava Plain, Colluvium.		
Water	None.		
Disturbance	Road and cropping, possible underground cables in reserve.		
Previous + Current Land use	--		
Vegetation			
Vegetation Condition	Agricultural		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	2		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	4		
Comments	Some non artifactual quartz pieces on surface.		

Survey Data	
Survey Area	**11**
Survey Unit	**11a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	40
% surface visibility on exposure(s)	60
% ground cover off exposure(s)	60
% surface visibility off exposure(s)	5
Average ground surface visibility of Survey Unit	27%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics; Qc1 Unnamed colluvium, Lowland
Slope	Level (>0.5˚)
Locality Landforms	Flats/Plain/Lava Plain, Colluvium.
Water	None.
Disturbance	Barley crop.
Previous + Current Land use	--
Vegetation	
Vegetation Condition	Agricultural
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	2
Disturbance Rating	2
Potential Archaeological Deposits Rating	4
Comments	Some non artifactual quartz pieces on surface.

Plate 14: Surveying cropped barley paddock, facing east.

Survey Data			
Survey Area	**11**		 **Plate 15:** Drainage line dissecting the activity area, facing north.
Survey Unit	**11b**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	10		
% surface visibility on exposure(s)	50		
% ground cover off exposure(s)	90		
% surface visibility off exposure(s)	10		
Average ground surface visibility of Survey Unit	14%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qc1 Unnamed colluvium, Lowland		
Slope	Very gently incliined (0.5-1.5˚)		
Locality Landforms	Drainage line		
Water	--		
Disturbance	Some artificial sculpt on the south side & culverts under road.		
Previous + Current Land use	--		
Vegetation			
Vegetation Condition	Agricultural		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	3		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	6		
Comments	--		

Survey Data			
Survey Area	**12**		 **Plate 16:** Corner Peak School Road and Farras Road, with the You Yangs in the background, facing north.
Survey Unit	**12a**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	50		
% surface visibility on exposure(s)	50		
% ground cover off exposure(s)	50		
% surface visibility off exposure(s)	5		
Average ground surface visibility of Survey Unit	27.5%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	--		
Locality Landforms	Flat/Plain/Lava Plain		
Water	--		
Disturbance	Dam near corner of roads.		
Previous + Current Land use	Barley crops.		
Vegetation			
Vegetation Condition	Agricultural		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	1		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	2		
Comments			

Survey Data			
Survey Area	**13**		 **Plate 17:** Disturbance due to excavation of a dam along the alignment.
Survey Unit	**13a**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	20		
% surface visibility on exposure(s)	50		
% ground cover off exposure(s)	80		
% surface visibility off exposure(s)	5		
Average ground surface visibility of Survey Unit	14%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Level (<0.5˚)		
Locality Landforms	Flats/Plain/Lava Plains		
Water	--		
Disturbance	Small raised properties, dams driveways, culverts, sheds, landscaping and underground telephone cables.		
Previous + Current Land use	--		
Vegetation			
Vegetation Condition	Agricultural		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	Yes		
Type	Drystone wall		
Archaeology Sensitivity Rating	2		
Disturbance Rating	2		
Potential Archaeological Deposits Rating			
Comments	Natural quartz visible and basalt 'floaters'.		

Survey Data	
Survey Area	**14**
Survey Unit	**14a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	80
% surface visibility on exposure(s)	30
% ground cover off exposure(s)	20
% surface visibility off exposure(s)	1
Average ground surface visibility of Survey Unit	24.2%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level (<0.5˚)
Locality Landforms	Flats/Plain/Lava Plains
Water	None
Disturbance	Telstra cables in west road reserve.
Previous + Current Land use	Barley fields/ cropping.
Vegetation	
Vegetation Condition	Agricultural
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	Yes
Type	Drystone wall.
Archaeology Sensitivity Rating	2
Disturbance Rating	2
Potential Archaeological Deposits Rating	4
Comments	Basalt floaters

Plate 18: Typical cropped paddock, facing north.

Survey Data	
Survey Area	**14**
Survey Unit	**14b**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	5
% surface visibility on exposure(s)	80
% ground cover off exposure(s)	95
% surface visibility off exposure(s)	5
Average ground surface visibility of Survey Unit	8.75%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Gently inclined (1.6-5.5˚)
Locality Landforms	Drainage Line
Water	Temporary/Prone to flooding
Disturbance	Cropping.
Previous + Current Land use	
Vegetation	
Vegetation Condition	Agricultural
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	3
Disturbance Rating	2
Potential Archaeological Deposits Rating	6
Comments	

Plate 19: Drainage line dissecting activity area, facing north.

Survey Data	
Survey Area	**15**
Survey Unit	**15a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	50
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	50
% surface visibility off exposure(s)	5
Average ground surface visibility of Survey Unit	27.52%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Very gently inclined (>0.5-1.5˚)
Locality Landforms	Flats/Plain/Lava Plains
Water	None
Disturbance	Cropping, dams.
Previous + Current Land use	--
Vegetation	
Vegetation Condition	Agricultural
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	Yes
Type	Artefact scatter
List	Scatter (15a1) located in area of good visibility on mid slope. Scatter extends further down rise to the west of road (n=26). Scatter (15a2) larger artefacts on mid-upper slope in poorer visibility area (n=8).
Historical Place Identified	Yes
Type	Drystone wall.
Archaeology Sensitivity Rating	4
Disturbance Rating	2
Potential Archaeological Deposits Rating	8 (*newly identified site)

Plate 20: Location of artefact scatter (15a), facing east.

Plate 21: Stone artefact from 15a1.

Plate 22: Stone artefact from 15a2.

Comments	Basalt floaters.		

Survey Data			
Survey Area	**15**		
Survey Unit	**15b**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	20		**Plate 23:** Cropped paddock at the top of small rise, facing north.
% surface visibility on exposure(s)	50		**Plate 24:**
% ground cover off exposure(s)	80		
% surface visibility off exposure(s)	5		
Average ground surface visibility of Survey Unit	14%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Level (<0.5˚)		
Locality Landforms	Flats/Plain/Lava Plains		
Water	None		
Disturbance	--		
Previous + Current Land use	--		**Plate 25:**
Vegetation			
Vegetation Condition	Agricultural		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	3		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	6		
Comments			

Survey Data	
Survey Area	**16**
Survey Unit	**16a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	20
% surface visibility on exposure(s)	30
% ground cover off exposure(s)	80
% surface visibility off exposure(s)	1
Average ground surface visibility of Survey Unit	6.8%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level (<0.5˚)
Locality Landforms	Flats/Plain/Lava Plains
Water	None
Disturbance	Telstra Cables in West road reserve have been cut.
Previous + Current Land use	Barley cropping on east of road.
Vegetation	
Vegetation Condition	Agricultural
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	Yes
Type	Drystone wall
Archaeology Sensitivity Rating	2
Disturbance Rating	2
Potential Archaeological Deposits Rating	4
Comments	--

Plate 26: Activity area from the corner of Drysdale Road, facing north.

Plate 27:

Plate 3:

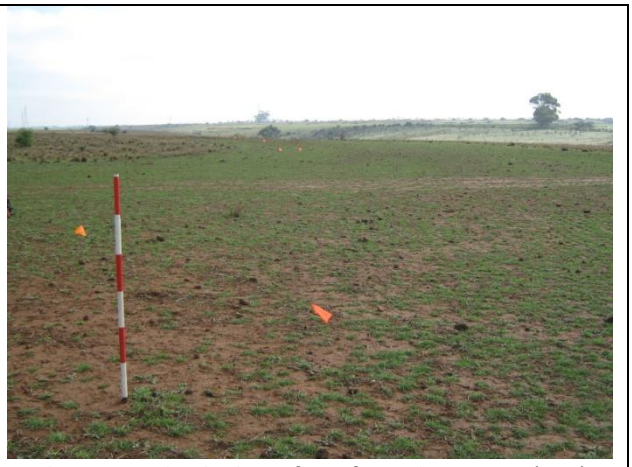
Survey Data			
Survey Area	**16**		 **Plate 28:** Drainage line dissecting the activity area with the You Yangs in the background, facing west.
Survey Unit	**16b**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	5		
% surface visibility on exposure(s)	20		
% ground cover off exposure(s)	95		
% surface visibility off exposure(s)	1		
Average ground surface visibility of Survey Unit	1.95%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Gently inclined (1.6-5.5˚)		
Locality Landforms	Drainage Line		
Water	None		
Disturbance	--		
Previous + Current Land use	--		
Vegetation			
Vegetation Condition	--		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	3		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	6		
Comments	--		

Survey Data	
Survey Area	**17**
Survey Unit	**17a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	5
% surface visibility on exposure(s)	30
% ground cover off exposure(s)	95
% surface visibility off exposure(s)	1
Average ground surface visibility of Survey Unit	2.45%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level (>0.5˚)
Locality Landforms	Flats/Plains/Lava Plains
Water	None
Disturbance	Dam construction, cleared paddocks.
Previous + Current Land use	--
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	Yes
Type	Drystone wall
Archaeology Sensitivity Rating	2
Disturbance Rating	2
Potential Archaeological Deposits Rating	4
Comments	--

Plate 29: Activity area showing the remnants of a drystone wall (right), facing north.

Plate 30:

Plate 3:

Survey Data			
Survey Area	**18**		 **Plate 31:** Individual artefacts from the scatter (18a) marked with orange flags
Survey Unit	**18a**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	30		
% surface visibility on exposure(s)	60		**Plate 32:**
% ground cover off exposure(s)	75		
% surface visibility off exposure(s)	5		
Average ground surface visibility of Survey Unit	21.5%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Very gently inclined (0.5-1.5˚)		
Locality Landforms	Flats/Plains/Lava Plains, undulating		
Water	None		
Disturbance	50% cleared, 50% uncleared. Basalt floaters.		
Previous + Current Land use	Cropping.		**Plate 3:**
Vegetation			
Vegetation Condition	--		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	Yes		
Type	Artefact scatter		
List	18a1 (n=23)		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	4		
Disturbance Rating	2.5		
Potential Archaeological Deposits Rating	10 (*newly identified site)		
Comments	--		

Survey Data	
Survey Area	**18**
Survey Unit	**18b**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	50
% surface visibility on exposure(s)	60
% ground cover off exposure(s)	50
% surface visibility off exposure(s)	5
Average ground surface visibility of Survey Unit	32.5%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Very gently to moderately inclined (0.5-18˚)
Locality Landforms	Drainage line, escarpment
Water	Rivers/creek
Disturbance	--
Previous + Current Land use	--
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	Yes
Type	Artefact scatter
List	18b1 (n=519), 18b2 (n=6).
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	4
Disturbance Rating	2.5
Potential Archaeological Deposits Rating	10
Comments	Little River crossing.

Plate 33: Little River crossing, facing north east.

Plate 34:

Plate 3:

Survey Data	
Survey Area	**18**
Survey Unit	**18c**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	20
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	80
% surface visibility off exposure(s)	2
Average ground surface visibility of Survey Unit	11.6%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level to very gently inclined (0-1.5˚)
Locality Landforms	Flats/Plains/Lava Plains.
Water	None
Disturbance	Tracks.
Previous + Current Land use	--
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	Yes
Type	Artefact scatter
List	18c1 (n=12), 18c2 (n=7).
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	3.5
Disturbance Rating	2
Potential Archaeological Deposits Rating	7
Comments	--

Plate 35: The interface between Little River bank and the volcanic plain to the north, facing north.

Survey Data	
Survey Area	**19**
Survey Unit	**19a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	20
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	80
% surface visibility off exposure(s)	2
Average ground surface visibility of Survey Unit	11.6%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level (<0.5˚)
Locality Landforms	Flats/Plains/Lava Plains.
Water	None
Disturbance	Uncleared, basalt 'floaters' present.
Previous + Current Land use	Grazing and ploughing.
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	Yes
Type	Artefact scatter
List	19a1 in disturbed area, large basalt boulders in clearance lines (n=64). 19a2 Scatter in ploughed paddock amongst good visibility (n=2).
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	2
Disturbance Rating	2.5
Potential Archaeological Deposits Rating	5
Comments	--

Plate 36: Ploughed paddock at location of the artefact scatter (19a2), facing north.

Plate 37:

Plate 3:

Survey Data			
Survey Area	**20**		 **Plate 38:** An uncleared section of the volcanic plain,
Survey Unit	**20a**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	5		
% surface visibility on exposure(s)	50		**Plate 39:**
% ground cover off exposure(s)	95		
% surface visibility off exposure(s)	5		
Average ground surface visibility of Survey Unit	7.25%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Level (<0.5˚)		
Locality Landforms	Flats/Plains/Lava Plains		
Water	None		
Disturbance	Road crossing and informal vehicle tracks.		
Previous + Current Land use	Grazing.		**Plate 3:**
Vegetation			
Vegetation Condition	--		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	2		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	4		
Comments	--		

Survey Data	
Survey Area	**20**
Survey Unit	**20b**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	20
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	80
% surface visibility off exposure(s)	5
Average ground surface visibility of Survey Unit	7.25%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Gently inclined (0.5-5.5˚)
Locality Landforms	Drainage line, gully/valley.
Water	None
Disturbance	Informal vehicle tracks.
Previous + Current Land use	Grazing.
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	3
Disturbance Rating	2
Potential Archaeological Deposits Rating	6
Comments	Cleared and uncleared paddocks with basalt floaters. Drainage line is part of a broad local gully.

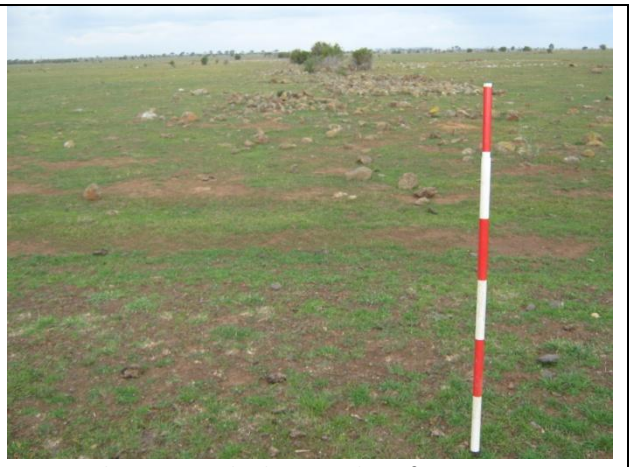


Plate 40: Wide drainage line, facing east.

Plate 41:

Plate 3:

Survey Data	
Survey Area	**21**
Survey Unit	**21a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	1
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	99
% surface visibility off exposure(s)	1
Average ground surface visibility of Survey Unit	1.49%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Very gently inclined (0.5-1.5˚)
Locality Landforms	Flats/Plain/Lava Plain, swamp margin.
Water	Temporary/Prone to flooding.
Disturbance	Drainage line cut, cleared and uncleared paddocks.
Previous + Current Land use	Grazing.
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	3
Disturbance Rating	2
Potential Archaeological Deposits Rating	6
Comments	Undulating. Despite the presence of nearby swamp the margin did not constitute a very distinctive landscape feature. However, drainage line runs parallel to the activity area for majority of the survey unit.

Plate 42: Drainage line, facing east.

Plate 43:

Plate 3:

Survey Data	
Survey Area	**22**
Survey Unit	**22a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	10
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	90
% surface visibility off exposure(s)	5
Average ground surface visibility of Survey Unit	9.5%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level to very gently inclined (0 - 1.5˚)
Locality Landforms	Flats/Plain/Lava Plain.
Water	Temporary/Prone to flooding: artificial
Disturbance	Quandong and Edgars Roads
Previous + Current Land use	Grazing and cropping.
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	3
Disturbance Rating	2
Potential Archaeological Deposits Rating	6
Comments	Slightly undulating. Mostly uncleared paddocks with basalt floaters.

Plate 44: Artificial drainage line dissecting the activity area, facing west.

Plate 45:

Plate 3:

Survey Data			
Survey Area	**22**		
Survey Unit	**22b**		**Plate 46:** Surveying Lollypop Creek, facing east.
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	20		
% surface visibility on exposure(s)	50		**Plate 47:**
% ground cover off exposure(s)	80		
% surface visibility off exposure(s)	5		
Average ground surface visibility of Survey Unit	14%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Gently inclined (0.5 - 5.5˚)		
Locality Landforms	Creek/river.		
Water	Creek/river.		
Disturbance	Artificial drainage lines.		
Previous + Current Land use	--		**Plate 3:**
Vegetation			
Vegetation Condition	--		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	3.5		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	7		
Comments	Lollypop Creek crossing.		

Survey Data	
Survey Area	**23**
Survey Unit	**23a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	5
% surface visibility on exposure(s)	20
% ground cover off exposure(s)	95
% surface visibility off exposure(s)	1
Average ground surface visibility of Survey Unit	1.95%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level to very gently inclined (0 - 1.5˚)
Locality Landforms	Flats/Plains/Lava Plains
Water	None
Disturbance	--
Previous + Current Land use	Grazing
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	2
Disturbance Rating	3
Potential Archaeological Deposits Rating	6
Comments	Mostly uncleaned, with basalt floaters present on undulating land.

Plate 48:

Plate 49:

Plate 3:

Survey Data	
Survey Area	**23**
Survey Unit	**23b**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	5

Plate 50: Broad drainage line dissecting the activity area, facing east.

% surface visibility on exposure(s)	20
% ground cover off exposure(s)	95
% surface visibility off exposure(s)	5
Average ground surface visibility of Survey Unit	5.75%
Environment	
Environmental Settings	Qn Newer Volcanics, Lowland
Landform, Land systems, Elevations	Lowland
Slope	Gently inclined (0.5 - 5.5˚)
Locality Landforms	Drainage Line
Water	Temporary/Prone to flooding
Disturbance	--

Plate 51:

Previous + Current Land use	Grazing
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	3
Disturbance Rating	2
Potential Archaeological Deposits Rating	6
Comments	Broad drainage line.

Plate 3:

Survey Data	
Survey Area	**24**
Survey Unit	**24a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	0
% surface visibility on exposure(s)	0
% ground cover off exposure(s)	100
% surface visibility off exposure(s)	25
Average ground surface visibility of Survey Unit	25%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level (> 0.5˚)
Locality Landforms	Flats/Plains/Lava Plains
Water	None
Disturbance	--
Previous + Current Land use	Grazing
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	Yes
Type	Artefact scatter
List	24a closely associated with the edge of a prominent stony outcropping, the most prominent of the outcroppings in the local area, ~3m in height (n=20).
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	3.5
Disturbance Rating	2
Potential Archaeological Deposits	7

Plate 52: Area containing artefact scatter (24a1), showing the most prominent local stony outcropping (background, left), facing south.

Plate 53: Stone artefacts from 24a1.

Rating			
Comments	Generally flat with slight undulations and slightest slope to the northeast with some basalt floaters.		
Survey Data			 **Plate 54:** Artefact scatter (25a2) on the south side of the creek crossing, facing east.
Survey Area	**25**		
Survey Unit	**25a**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	30		
% surface visibility on exposure(s)	30		 **Plate 55:** Stone artefact from 25a1.
% ground cover off exposure(s)	70		
% surface visibility off exposure(s)	2		
Average ground surface visibility of Survey Unit	11.4%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Level (> 0.5˚)		
Locality Landforms	Flats/Plains/Lava Plains, creek/river.		
Water	Temporary/prone to flooding, rivers/creeks.		
Disturbance	Ploughed cropped paddocks.		
Previous + Current Land use	--		 **Plate 3:** Stone artefact from 25a1.
Vegetation			
Vegetation Condition	--		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	Yes		
Type	Artefact scatter		
List	25a1 on edge of ploughed paddock good visibility, ~50m south top of escarpment (n=61). 25a2 separated by fence only (n=75). 25a3 on slight slope on top of escarpment on northeast side of creek (n=40). 25a4 on flat ploughed field (n=23).		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	4		
Disturbance Rating	3		
Potential Archaeological Deposits Rating	12		

Comments	Generally flat with slight undulations and slightest slope to the northeast.		

Survey Data			
Survey Area	**25**		**Plate 56:** Above the creek, facing north east
Survey Unit	**25b**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	3		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	--		
% surface visibility on exposure(s)	--		
% ground cover off exposure(s)	--		**Plate 57:** At the base of the creek, facing west
% surface visibility off exposure(s)	--		
Average ground surface visibility of Survey Unit	--		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Very steep to cliff (31->72˚)		
Locality Landforms	Creek/river.		
Water	Rivers/creek.		
Disturbance	Ploughed cropped paddocks.		
Previous + Current Land use	--		
Vegetation			
Vegetation Condition	--		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	4		
Disturbance Rating	3		
Potential Archaeological Deposits Rating	12		
Comments	Very steep banks.		

Survey Data	
Survey Area	**26**
Survey Unit	**26a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	1
% surface visibility on exposure(s)	20
% ground cover off exposure(s)	99
% surface visibility off exposure(s)	2
Average ground surface visibility of Survey Unit	2%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Level (> 0.5˚)
Locality Landforms	Flats/Plains/Lava Plains, creek/river.
Water	None.
Disturbance	--
Previous + Current Land use	--
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	Yes
Type	Artefact scatter
List	26a1 (n=1). 26a2 (n=23)
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	4
Disturbance Rating	3
Potential Archaeological Deposits Rating	12
Comments	--

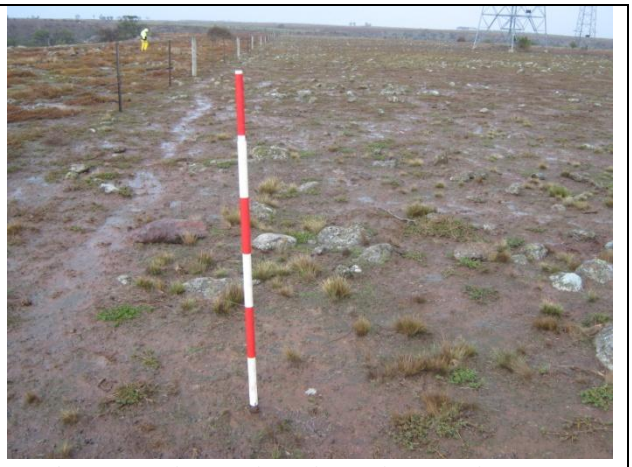


Plate 58: Volcanic plain above the Werribee River where 26a2 is located, facing south west.

Survey Data	
Survey Area	**26**
Survey Unit	**26b**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	3
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	50
% surface visibility on exposure(s)	60
% ground cover off exposure(s)	50
% surface visibility off exposure(s)	1
Average ground surface visibility of Survey Unit	30.5%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Steep (19-30˚)
Locality Landforms	Creek/river.
Water	Permanent.
Disturbance	Vehicle track below escarpment and above bank of Werribee River.
Previous + Current Land use	--
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	4
Disturbance Rating	3
Potential Archaeological Deposits Rating	12
Comments	Generally flat with slight undulations and slightest slope to the northeast with some basalt floaters.

Plate 59: Werribee River escarpment, facing north.

Survey Data	
Survey Area	**26**
Survey Unit	**26c**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	6
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	80
% surface visibility on exposure(s)	80
% ground cover off exposure(s)	20
% surface visibility off exposure(s)	2
Average ground surface visibility of Survey Unit	64.2%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Flat to gently inclined (>0.5-5.5˚) with some very steep areas (31-45˚)
Locality Landforms	Werribee River – Alluvial terrace, creek/river, escarpment, flat/plain/lave plains
Water	Permanent
Disturbance	Soil extraction.
Previous + Current Land use	--
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	Yes
Type	Artefact scatter
List	26c (n=200+)
Historical Place Identified	No
Type	
Archaeology Sensitivity Rating	4
Disturbance Rating	3
Potential Archaeological Deposits Rating	12
Comments	Artefacts decreasing in quantity with distance from the river.

Plate 60: Werribee River crossing (left), bank (centre) and escarpment (right).

Plate 61: A wide range of raw materials collected from the artefact scatter (26c) from the top of the Werribee River escarpment.

Plate 3: Werribee River crossing with alluvial terrace (left) and crossing (right), facing south.

Survey Data	
Survey Area	**26**
Survey Unit	**26d**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	6
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	40
% surface visibility on exposure(s)	80
% ground cover off exposure(s)	60
% surface visibility off exposure(s)	2
Average ground surface visibility of Survey Unit	33.2%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Flat to gently inclined (>0.5-5.5˚) with some very steep areas (31-45˚)
Locality Landforms	Flat/plain/lave plains above Werribee River
Water	Permanent
Disturbance	Cropping and horses.
Previous + Current Land use	--
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	Yes
Type	Artefact scatter
List	26d (n=70+).
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	3
Disturbance Rating	3
Potential Archaeological Deposits Rating	9
Comments	Artefacts decreasing in quantity with distance from the river.

Plate 62: Fair ground surface visibility, facing west.

Plate 63:

Plate 3:

Survey Data			
Survey Area	**27**		
Survey Unit	**27a**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	6		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	40		**Plate 64:**
% surface visibility on exposure(s)	40		
% ground cover off exposure(s)	60		
% surface visibility off exposure(s)	5		
Average ground surface visibility of Survey Unit	19%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Flat (>0.5˚)		
Locality Landforms	Flat/plain/lava plains		
Water	None		
Disturbance	Cropping		
Previous + Current Land use	Cropping		
Vegetation			
Vegetation Condition	--		
Vegetation Type	Introduced		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	2		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	4		
Comments	--		

Survey Data	
Survey Area	**28**
Survey Unit	**28a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	6
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	50
% surface visibility on exposure(s)	90
% ground cover off exposure(s)	50
% surface visibility off exposure(s)	10
Average ground surface visibility of Survey Unit	50%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Flat (>0.5˚)
Locality Landforms	Flat/plain/lava plains
Water	None
Disturbance	--
Previous + Current Land use	Cropped.
Vegetation	
Vegetation Condition	Agricultural
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	Yes
Type	Artefact scatter
List	28a (n=4)
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	2.5
Disturbance Rating	2
Potential Archaeological Deposits Rating	5
Comments	Denied access to slight rise on property.

Plate 65: Activity area, facing east.

Plate 66:

Plate 3:

Survey Data			
Survey Area	**29**		 **Plate 67:** Survey spacing, facing west.
Survey Unit	**29a**		
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	6		
Transect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	10		
% surface visibility on exposure(s)	50		**Plate 68:**
% ground cover off exposure(s)	90		
% surface visibility off exposure(s)	1		
Average ground surface visibility of Survey Unit	5.9%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Flat to very gently inclined(>0.5-1.5˚)		
Locality Landforms	Flat/plain/lava plains, escarpment, drainage line.		
Water	Temporary/Prone to flooding.		
Disturbance	Cropped.		
Previous + Current Land use	Cropped.		**Plate 3:**
Vegetation			
Vegetation Condition	--		
Vegetation Type	--		
Major Vegetation Types	--		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	2		
Disturbance Rating	2		
Potential Archaeological Deposits Rating	4		
Comments	--		

Survey Data	
Survey Area	**30**
Survey Unit	**30a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	6
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	10
% surface visibility on exposure(s)	80
% ground cover off exposure(s)	90
% surface visibility off exposure(s)	5
Average ground surface visibility of Survey Unit	12.5%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Flat to very gently inclined(>0.5-1.5˚)
Locality Landforms	Flat/plain/lava plains, escarpment, drainage line.
Water	Temporary/Prone to flooding.
Disturbance	Rubbish tips.
Previous + Current Land use	Horses and residential.
Vegetation	
Vegetation Condition	Agricultural.
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	2
Disturbance Rating	2
Potential Archaeological Deposits Rating	4
Comments	--

Plate 69: Typical surface disturbance, facing east.

Plate 70:

Plate 3:

Survey Data	
Survey Area	**31**
Survey Unit	**31a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	6
Transect Width	5m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	10
% surface visibility on exposure(s)	80
% ground cover off exposure(s)	90
% surface visibility off exposure(s)	1
Average ground surface visibility of Survey Unit	8.9%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Flat (>0.5˚)
Locality Landforms	Flat/plain/lava plains
Water	None.
Disturbance	Dams, roads, crossings, tracks.
Previous + Current Land use	--
Vegetation	
Vegetation Condition	--
Vegetation Type	--
Major Vegetation Types	--
Aboriginal Place Identified	Yes
Type	Artefact scatter
List	31a (n=1)
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	2
Disturbance Rating	2
Potential Archaeological Deposits Rating	4
Comments	--

Plate 71: Davis Road crossing, facing west.

Plate 72: Stone artefact from 31a.

Plate 3:

Survey Data	
Survey Area	**32**
Survey Unit	**32a**
Survey Method	
Sampling Strategy	Systematic
No. of Participants	4
Transect Width	10m
Transect Spacing	n/a
Visibility	
Exposure(s)	
% ground cover on exposure(s)	5
% surface visibility on exposure(s)	50
% ground cover off exposure(s)	95
% surface visibility off exposure(s)	1
Average ground surface visibility of Survey Unit	25.95%
Environment	
Environmental Settings	Inland
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland
Slope	Flat (>0.5˚)
Locality Landforms	Flat/plain/lava plains
Water	None.
Disturbance	Pylons for transmission lines and road.
Previous + Current Land use	Horses, grazing and crops, road and paved easement.
Vegetation	
Vegetation Condition	Agricultural, no vegetation/bare land.
Vegetation Type	--
Major Vegetation Types	Introduced grass.
Aboriginal Place Identified	No
Type	--
List	--
Historical Place Identified	No
Type	--
Archaeology Sensitivity Rating	1.5
Disturbance Rating	2
Potential Archaeological Deposits Rating	3
Comments	--

Plate 73: Disturbed alignment along Tarneit Road, facing south.

Plate 74:

Plate 3:

Survey Data			
Survey Area	**33**		
Survey Unit	**33a**		**Plate 75:** Disturbed alignment looking toward Cowies Hill (left background), facing south.
Survey Method			
Sampling Strategy	Systematic		
No. of Participants	4		
Transcect Width	10m		
Transect Spacing	n/a		
Visibility			
Exposure(s)			
% ground cover on exposure(s)	5		
% surface visibility on exposure(s)	50		**Plate 76:**
% ground cover off exposure(s)	95		
% surface visibility off exposure(s)	1		
Average ground surface visibility of Survey Unit	25.95%		
Environment			
Environmental Settings	Inland		
Landform, Land systems, Elevations	Qn Newer Volcanics, Lowland		
Slope	Gently inclined (0.5-5.5˚)		
Locality Landforms	Flat/plain/lava plains, scoria cone.		
Water	None.		
Disturbance	Road easement.		
Previous + Current Land use	Road, grazing, residential estate, wheat.		**Plate 3:**
Vegetation			
Vegetation Condition	Agricultural, urban.		
Vegetation Type	--		
Major Vegetation Types	Introduced grass and weeds.		
Aboriginal Place Identified	No		
Type	--		
List	--		
Historical Place Identified	No		
Type	--		
Archaeology Sensitivity Rating	3		
Disturbance Rating	1.5		
Potential Archaeological Deposits Rating	5		
Comments	Slopes of Cowies Hill in the south.		

Appendix 5: Maps of activity area