KORoroit Precinct Structure Plan (PSP) 1080

Aboriginal Cultural Heritage Assessment

Sponsor: Metropolitan Planning Authority.

Cultural Heritage Advisor: Shannon Sutton

Authors: Shannon Sutton & Liz Foley.

May 2014 (REDACTED VERSION JUNE 2016)

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KORoroit PRECINCT STRUCTURE PLAN (PSP) 1080

ABORIGINAL CULTURAL HERITAGE ASSESSMENT

MAY 2014 (REDACTED VERSION JUNE 2016)

SPONSOR: METROPOLITAN PLANNING AUTHORITY

CULTURAL HERITAGE ADVISOR: SHANNON SUTTON

Authors: Shannon Sutton & Liz Foley.

Prepared by Archaeological & Heritage Management Solutions (AHMS) Pty Ltd on behalf of Metropolitan Planning Authority.

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PLEASE NOTE - THIS REPORT CONTAINS PICTURES OF AND INFORMATION ABOUT PEOPLE WHO MAY HAVE PASSED AWAY.

EXECUTIVE SUMMARY

The Metropolitan Planning Authority (MPA) engaged Archaeological and Heritage Management Solutions Pty Ltd (AHMS) to prepare an Aboriginal Cultural Heritage Assessment for the Kororoit Precinct Structure Plan (PSP) 1080. The activity area consists of 89 properties situated between Taylors Road and the Western Freeway in Plumpton, Victoria (Figure 1). This report comprises a Desktop and Standard Aboriginal cultural heritage assessment.

A notice of intent (NOI) to prepare the assessment was lodged with Office of Aboriginal Affairs Victoria (OAAV) on the 27th of June 2013. OAAV issued a project number 12690. There is currently no Registered Aboriginal Party relevant to the activity area and therefore OAAV are the statutory authority responsible for evaluating the heritage assessment.

We undertook a process of consultation with the Bunurong Land Council Aboriginal Corporation, the Boon Wurrung Foundation and the Wurundjeri Tribe Land and Compensation Cultural Heritage Council. All three groups participated in the fieldwork.

A search for known Aboriginal places on the Victorian Aboriginal Heritage Register (VAHR) was undertaken on the 1st of July 2013 to identify previously recorded sites within the geographic region (Werribee River Basin) relevant to the study area. At the time of the search twenty-one Aboriginal places, comprising artefact scatters and a soil deposit (eroding face with artefacts and mussel shell), were recorded within the activity area. The majority of the Aboriginal places were recorded along the Kororoit Creek corridor.

Drawing on the desktop research and our analysis of landforms and prior disturbance across the activity area, we made the following predictions:

- Stone artefact deposits are likely to be found at varying densities across most landforms within PSP 1080;

- Higher density artefact scatters and sub-surface deposits may be found on crest landforms;
- Higher density artefact scatters and sub-surface deposits may be found adjacent to original drainage channels, particularly permanent and reliable water sources;
- The density and complexity of artefact scatters and sub-surface deposits is likely to decrease with distance from water sources and wetlands;
- Higher density of artefact scatters and sub-surface deposits may be found in close proximity to stone sources (either outcrops or river pebble sources);
- Scarred trees may be present within areas containing mature remnant native trees of sufficient age and as isolated mature trees in agricultural settings;
- Isolated finds may be found anywhere across the landscape;
- Ceremonial places may be present in the landscape, but may not be archaeologically visible; and
- Stone arrangements may be found across the landscape.

Due to the large area covered by PSP 1080, we used MapInfo GIS (Geographical Information System) to develop and map the predictions made regarding archaeological potential. The purpose of the predictive model was to:

- Provide the Metropolitan Planning Authority, individual landowners within the PSP and the Aboriginal community with information about areas of Aboriginal archaeological sensitivity to feed into constraints and opportunities analysis,
- Help inform early PSP planning and design work,
- Provide part of the desktop assessment component of CHMPs, and
- To assist in developing a methodology for standard and complex assessments.

In developing the model, we drew on a number of environmental and disturbance variables that were used to identify areas of varying 'archaeological sensitivity'.

For the purposes of the model, the term 'archaeological sensitivity' is defined as a combination of likely density, integrity and research value of archaeological deposits within any given area.

The modeling and mapping is based on a probabilistic approach, where a combination of traits was used to determine the combined level of potential. The traits used to formulate the sensitivity model are listed in section 5.12.3 of this report. The sensitivity model is shown on Figure 10.

An archaeological survey was undertaken by Shannon Sutton and Liz Foley (AHMS) from the 15th to the 18th of July and the 10th of September 2013. A follow up site visit was carried out on the 29th January 2014 to examine proposed road crossing points over Kororoit Creek. A further visit to inspect potential creek crossing points was undertaken on 28th March 2014.

Representatives of the Wurundjeri, the Boonwurrung and the Bunurong Traditional Owner Groups were present during the survey (participants are listed in Table 2). The principal aim of the survey work was to identify sensitive landforms, any exposed cultural material (i.e. surface sites) and gauge the extent of prior disturbance. The survey results and observations were used to identify any potential archaeological deposits (i.e. areas that are 'likely' to contain Aboriginal sites or objects). They were also used to assess the extent to which past land-uses may have affected natural soil profiles.

Aboriginal places located during the course of this Heritage Assessment are discussed in section 6.6 of this report and are shown on the revised sensitivity map presented on Figure 39.

Drawing on the results of the desktop and standard assessments, we make the following recommendations for planning and decision making in the PSP 1080 activity area:

- **Aboriginal places [redacted] (VAHR 7822-3741) and [redacted] (VAHR 7822-3751)** - These Aboriginal places located [redacted] within areas of basalt outcrop (outlined pink

on Figure 39) have been assessed as having a high level of archaeological and cultural significance and should be retained in conservation as part of the PSP design and planning process.

- **Basalt Outcrop Areas** (outlined in bright pink on Figure 39): We recommend these areas have a higher priority for retention. Where decisions about conservation or open space allocation are made by MPA or individual landowners / development proponents in consultation with the Aboriginal communities, the higher priority areas should be considered as 'first priority' options for retention because of the important cultural and mythological values that are associated with the basalt outcrops along the creek. It may not be possible to retain all of this land, however, where it is feasible it should be actively considered.

- **Very High and High Sensitivity**: Retain as much as possible in open space, riparian, bio-link, set-backs and asset protection zones. The aim of PSP design should be to minimize future development impact on these areas (particularly the Very High sensitivity zone). This approach will protect areas with high potential for significant archaeological deposits and cultural values. The approach will also save time and money in reducing the scope of mitigation and salvage of sensitivity areas.

- **Moderate and High Sensitivity**: Where there is an opportunity, development impact should be minimized where practicable. For instance, where there are opportunities to establish open space, these could be placed on areas of moderate sensitivity to protect Aboriginal heritage and reduce the scope of expensive and time consuming archaeological mitigation measures and salvage.

- **Low Sensitivity**: No design and planning recommendations. These areas are essentially archaeologically 'neutral'.

- **Disturbed Sensitivity**: These areas could be the focus of development, particularly high impact features of a subdivision like a town centre, medium or high density residential, industrial or commercial.

The following recommendations set out the key legal requirements that will apply to PSP planning and development within the study area and study area:

a. **Subdivision or development projects** (greater than 2 lots and/or two houses) **located within or partly within areas of cultural heritage sensitivity** will require completion of mandatory cultural heritage management plans (CHMPs) before Planning Permits can legally be approved for these projects. Currently there is no Registered Aboriginal Party for the PSP, therefore the current evaluating authority would be Office of Aboriginal Affairs Victoria (OAAV). CHMPs must be prepared by a qualified Cultural Heritage Advisor and must be approved by OAAV before they are in force.

   If individual development proponents believe their land has been subject to significant ground disturbance (either mechanical excavation disturbance and/or deep ripping) they could consider engaging a cultural heritage advisor to undertake an assessment and make a determination.

b. **Areas where no development or ground disturbance is proposed** – No complex assessment will be required in areas where development and disturbance is not proposed. Inclusion of the areas of basalt outcrop and areas of high to very high sensitivity in conservation, open space, biolinks and/or riparian corridors will reduce the scope of Complex Assessment required and provide good outcomes in protecting significance Aboriginal heritage;

c. **Known Aboriginal Places** – Known Aboriginal places registered on the Victorian Aboriginal Heritage Register (VAHR) and places found during the standard assessment described in this report are protected by the Aboriginal Heritage Act 2006. It is an offence to disturb or destroy these places without first obtaining either a Permit to Harm or an approved CHMP from OAAV.

d. **Blanket Protection** – Irrespective of whether or not a CHMP is required for a particular development or activity, the Aboriginal Heritage Act 2006 provides blanket protection for Aboriginal cultural heritage. If any Aboriginal objects (artefacts), sites, places or skeletal remains are identified at any time

before or during development works, they cannot be harmed until either a Permit to Harm or a CHMP that specifically permits harm to that place has been approved by OAAV.

Where a complex CHMP will be required for individual development projects we recommend the use of a landform based approach to complex assessment (test excavation). The landform based approach aims to systematically test each landform within an activity area to establish the extent of cultural material present. This approach is recommended because it is a very efficient and effective means of assessing the nature, extent and significance of Aboriginal cultural heritage across large landscapes. It also provides for a consistent approach across the PSPs and significant sampling efficiencies by using a common approach that can be utilized by all the landowners and proponents within the activity area.

The extent of testing and sample effort should be based on the level of sensitivity shown on the predictive sensitivity mapping (Figure 39). Areas which are disturbed or have very low sensitivity should not require further test excavation because they are considered 'unlikely' to contain Aboriginal cultural heritage (the Aboriginal Heritage Regulations 2007 only require complex assessment in areas that are 'likely' to contain Aboriginal cultural heritage. However, areas ranging from low to very high sensitivity should be included in a systematic programme of landscape-based archaeological test excavation that aims to establish the extent nature and significance of the Aboriginal cultural material within areas of proposed development impact (NB: Areas set aside as open space, conservation or other uses that do not entail development disturbance will not be included in complex assessment and can therefore be excluded from complex assessment scope of work).

Proposed sampling densities for complex assessments are outlined in Table 38.

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Abbreviations

OAAV	Office of Aboriginal Affairs Victoria
AHC	Australian Heritage Council
BP	Before Present
CHMP	Cultural Heritage Management Plan
EVC	Ecological Vegetation Communities
MPA	Metropolitan Planning Authority
GSV	Ground surface visibility
LGA	Local Government Area
PSP	Precinct Structure Plan
RAP	Registered Aboriginal Party
SGD	Significant Ground Disturbance
VAHR	Victorian Aboriginal Heritage Register
VRO	Victorian Resources Online
WTL&CCHC	Wurundjeri Tribe Land and Compensation Cultural Heritage Council
PSP	Precinct Structure Plan

Definitions

ACTIVITY AREA	The area or areas to be used or developed for the activity. For the purposes of this Heritage Assessment, this was the area subject to a standard level CHMP assessment.
GEOGRAPHIC AREA	Werribee River Basin

PART 1 – ASSESSMENT.

1 INTRODUCTION

1.1 Preamble

The Metropolitan Planning Authority (MPA) engaged Archaeological and Heritage Management Solutions (AHMS) Pty Ltd to prepare an Aboriginal cultural heritage assessment for the proposed Kororoit precinct structure plan (PSP) 1080. The PSP 1080 activity area is north of the Western Freeway, east of the Outer Metropolitan Road, south of Taylors Road and west of Clarke Road and Monaghans Lane. The activity area comprises 89 properties with a total area of approximately 1,181 ha (Figure 1).

A notice of intent to prepare the CHMP was lodged with Office of Aboriginal Affairs Victoria (OAAV) on the 27/06/2013 (a copy of the notice is included in Appendix 1). OAAV issued a project number 12690. OAAV advised that as there was no Registered Aboriginal Party, OAAV are the evaluating authority.

This heritage assessment was prepared in accordance with the requirements of the *Aboriginal Heritage Act 2006* and associated regulations and guidelines issued by OAAV regarding preparation of CHMPs. The overriding purpose of the heritage assessment was to document and assess the Aboriginal heritage (archaeological and cultural) values of the study area to assist in PSP design and planning work. The heritage assessment is also designed to provide management recommendations for future subdivision and development and to provide a desktop and standard assessment that can be utilised by landowners and developers to develop complex CHMPs for specific development projects within the Kororoit PSP area.

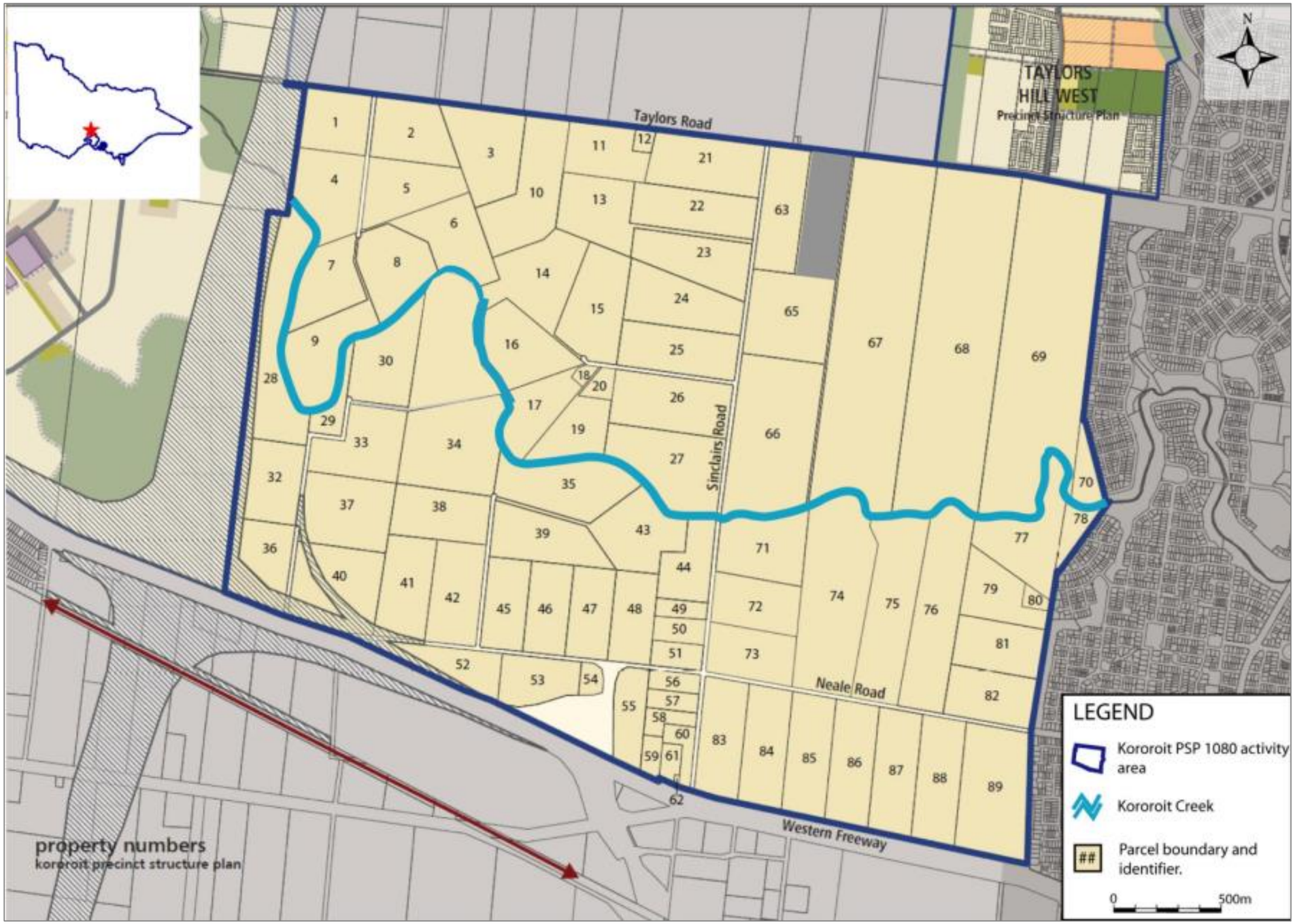

Figure 1. Location and extent of the Kororoit PSP 1080 Activity Area

1.2 Reason for the current study

The objective of the Aboriginal cultural heritage assessment was to identify and assess the nature, extent and significance of Aboriginal sites, objects and cultural heritage values within the subject land to inform PSP design and planning work. The heritage assessment also provides recommendations to manage and assess Aboriginal heritage during complex assessment CHMPs for future development projects within the Kororoit PSP activity area.

This Aboriginal cultural heritage assessment has been prepared in accordance with the Aboriginal Heritage Act 2006 and the Aboriginal Heritage Regulations 2007.

Specific aims of the assessment were as follows:

- Identify any known Aboriginal sites, relics and places of cultural significance to the Aboriginal community within the subject land;
- Assess the potential for Aboriginal sites and/or relics buried below ground surfaces;
- Assess the Aboriginal heritage significance of Aboriginal sites, relics, places and areas of archaeological potential in partnership with the local Aboriginal community;
- Assess the potential impact of the activity on Aboriginal sites, relics, places and significance values;
- Make recommendations to help inform PSP design and planning; and
- Make appropriate recommendations for protection of cultural heritage and/or mitigation of development impact, including contingency procedures, in consultation with the local Aboriginal community.

1.3 Authorship

Shannon Sutton (B.A. Hons) is the Cultural Heritage Advisor and the principal author for this CHMP. Liz Foley (B.Archaeology Hons) co-authored the report. Jim Wheeler (BA Hons MAACAI) reviewed the report.

1.4 Acknowledgements

The authors acknowledge the assistance and valuable input provided by Stephanie Harder, Anthony Battaglia, Fiona McDougall and Tim Peggie of the Metropolitan Planning Authority.

We would also like acknowledge the assistance and input provided by the Aboriginal community representatives: [redacted] (Boon Wurrung Foundation), [redacted] (Bunurong Land Council), [redacted] (Wurundjeri Tribe Land Compensation and Cultural Heritage Council).

2 ACTIVITY DESCRIPTION

The majority of the activity area (Figure 1) is currently zoned Urban Growth Zone (UGZ), with the Kororoit Creek corridor zoned Rural Conservation (RCZ) (Figure 2). The land east of Sinclairs Road, south of Kororoit Creek and north of the Melton Highway is also zoned RCZ. A minor drainage channel zoned extending from Taylors Road to Kororoit Creek is zoned Urban Floodway Zone (UFZ) and a high voltage transmission line easement is zoned Farming Zone (FZ). UGZ attempts to streamline planning controls within the Precinct Structure Plan (PSP) area -effectively removing the rezoning process.

The Sponsor, the Metropolitan Planning Authority (MPA), does not intend to develop each individual allotment, nor would they undertake subdivision works. The role of the MPA is to undertake master planning and design work to assist in facilitating streamlined and high quality development within the Kororoit growth area. Subdivision works and implementation of development projects within the Kororoit PSP 1080 activity area would be undertaken by individual landowners and/or developers.

This report comprises desktop and standard level heritage assessments designed to assist the MPA in PSP design and planning and to provide a desktop and standard CHMP assessment that can be utilised by landowners and developers to develop complex CHMPs for specific development projects within the Kororoit PSP 1080 area.

The activity area is predominantly zoned UGZ. The Melton Planning Scheme will be amended in order to introduce a new Schedule to the UGZ to apply to land in the Kororoit Precinct Structure Plan (PSP). This schedule will set out the future land use and development controls for the precinct and requires land use and development to be generally in accordance with the incorporated PSP.

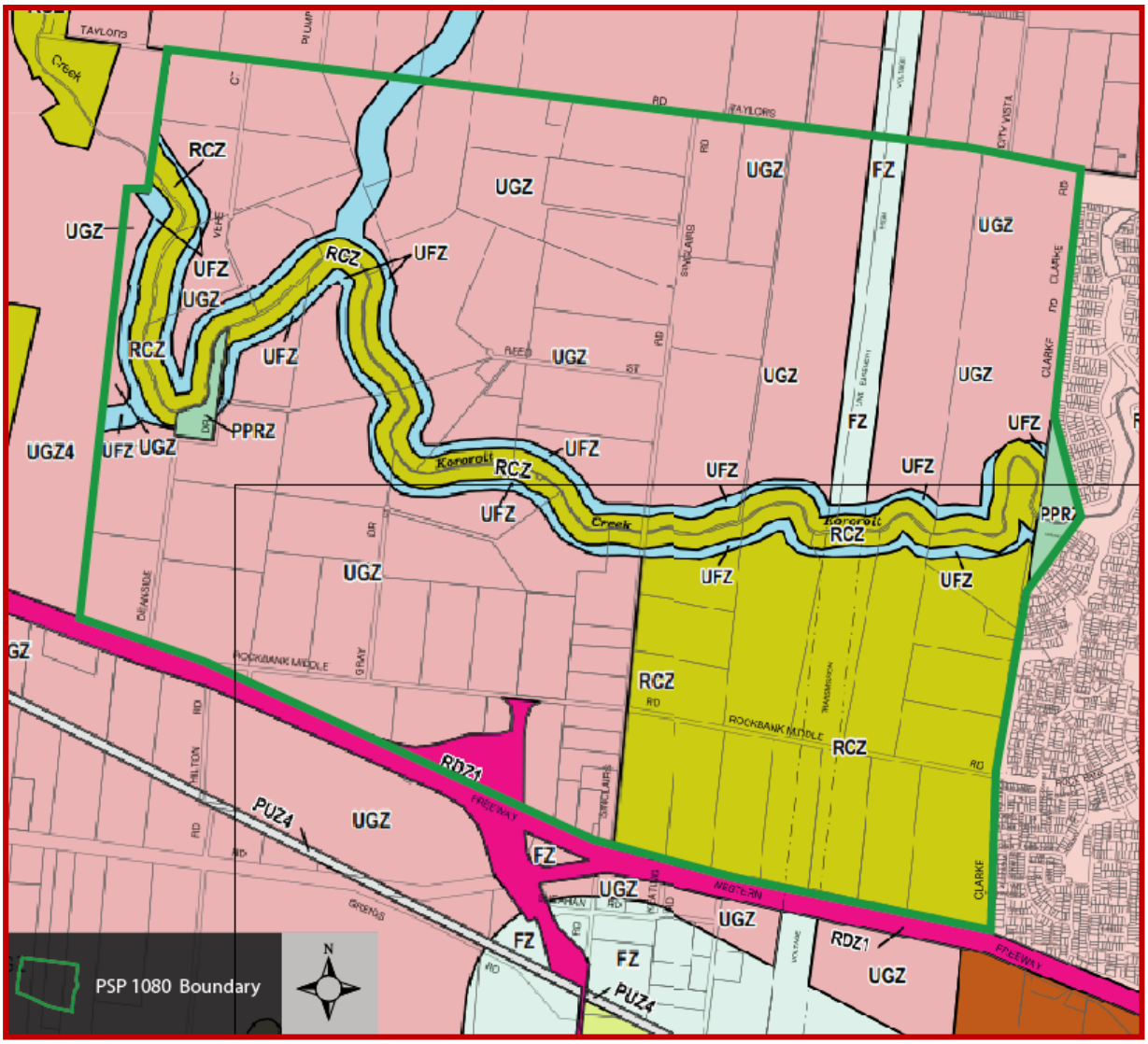

Figure 2. PSP 1080 Current Zoning.

3 EXTENT OF ACTIVITY AREA

The Activity Area consists of 89 properties (shown on Figure 1) covering a total area of approximately 1,181ha.

The activity area is located in Kororoit, situated within the City of Melton municipality. The Kororoit PSP 1080 is located north of the Western Freeway, east of the Outer Metropolitan Road, south of Taylors Road and west of Clarke Road and Monaghans Lane.

Property ID #64 was excluded from this cultural heritage assessment as it has already been subject to a CHMP (VAHR 12235) which has been approved by Office of Aboriginal Affairs Victoria.

The subject land is currently utilised for a variety of uses including residential and agricultural purposes (i.e. crop and livestock rearing).

4 DOCUMENTATION OF CONSULTATION

4.1 Development of Consultation

There was no Registered Aboriginal Party (RAP) appointed to the activity area at the time the notice of intent to prepare this CHMP was provided to OAAV. The Wurundjeri Tribe Land and Compensation Cultural Heritage Council (Wurundjeri) and the Boonwurrung Foundation currently have RAP applications before the Aboriginal Heritage Council which includes the activity area. Although the Bunurong Land Council Aboriginal Corporation (Bunurong) do not have a current RAP application before the council, Bunurong are recognised as being Traditional Owners for the local area. On the advice of OAAV we undertook a process of consultation with the Boon Wurrung, Bunurong and Wurundjeri.

Our approach to the Aboriginal community consultation was to undertake all components of the study in partnership with the Boon Wurrung, Bunurong, and Wurundjeri. In practice, we invited representatives of each group to participate in field work undertaken as part of the Standard Assessment. The representatives of the Aboriginal community stakeholders were consulted about key cultural and landscape values during the survey work.

The representatives that participated in the Standard Assessment for the Metropolitan Planning Authority, including consultation and on-site attendance is shown in Table 1. The development of consultation with the Boon Wurrung, Bunurong, and Wurundjeri is set out in Table 2.

4.2 Outcomes of Consultation

The Aboriginal representative groups were closely consulted throughout the development of the CHMP and during the archaeological survey fieldwork. The issues discussed and raised by the groups were considered during preparation of and reflected in the final CHMP.

During the survey, the Aboriginal community representatives identified places in the landscape that have important cultural values adjacent to Kororoit Creek [redacted]

[redacted]. As a result of the survey and our consultation with the Aboriginal community stakeholders these areas have been identified and where possible should be retained. Further detail relating to these areas and the rationale for their proposed conservation is outlined in Section 6.9 of this report.

Table 1. Aboriginal Community Correspondence Log.

Date	Action	Method
27/06/2013	NOI submitted to OAAV.	Electronic
08/07/2013	Invited members of the Bunurong, Boon wurrung and Wurundjeri Aboriginal community groups to participate in the survey	Email
15/07/2013 16/07/2013 17/07/2013 18/07/2013 10/09/2013	Survey of Participating Kororoit PSP 1080 Properties with Shannon Sutton & Liz Foley of AHMS and Aboriginal community participants.	Survey
29/01/2014	Survey of Kororoit creek crossings with Shannon Sutton, Jim Wheeler & Cathryn Barr of AHMS, Stephanie Harder of MPA, as well as representatives of VicRoads, Melton Council and Aboriginal community participants.	Survey
28/03/2014	Additional inspection of potential creek crossing points with Jim Wheeler and Cathryn Barr of AHMS with Wurundjeri representative.	Survey

The representatives that participated with the survey are outlined in Table 2 below:

Table 2. Traditional Owner representative survey participants.

Date	Wurundjeri	Boonwurrung	Bunurong
15/07/2013	[redacted]	[redacted]	[redacted]
16/07/2013	[redacted]	[redacted]	[redacted]
17/07/2013	[redacted]	[redacted]	[redacted]
18/07/2013	[redacted]	[redacted]	[redacted]
10/09/2013	[redacted]	[redacted]	[redacted]
29/01/2014	[redacted]	[redacted]	[redacted]
28/03/2014	[redacted]		

RESULTS OF ABORIGINAL CULTURAL HERITAGE ASSESSMENT

5 DESKTOP ASSESSMENT

5.1 Preamble

This section comprises the 'Desktop Assessment' required for Cultural Heritage Management Plans (CHMPs) by the *Aboriginal Heritage Regulations (2007)*. In accordance with the regulations this section of the report comprises the following:

- A search of the Victorian Aboriginal Heritage Register for information relating to the activity area, including the date(s) the Victorian Aboriginal Heritage Register was accessed;
- An identification and determination of the geographic region of which the activity area forms a part that is relevant to the Aboriginal cultural heritage that may be present in the activity area;
- A concise map or maps showing the geographic region and the location of the activity area in that geographic region;
- A review of the registered Aboriginal places in the geographic;
- A review of reports and published works about Aboriginal cultural heritage in the geographic region relevant to the activity area;
- A review of historical and ethno-historical accounts of Aboriginal occupation of the geographic region relevant to the activity area;
- A review of the landforms or geomorphology of the activity area;
- A review of the history of the use of the activity area, including discussion of prior disturbance to ground surfaces and soil deposits if available; and
- A conclusion surmising from the desktop assessment where it is possible Aboriginal cultural heritage may be located in the activity area.

The information obtained during desktop assessment assists in determining the archaeological potential of the activity area in a number of ways. For example, considering the types of natural resources that may have been available within the study area, or in the region, provides an indication of why people may have been present in the area, and of the potential physical traces of such a presence (e.g. the types of stone used for artefact making, whether trees having bark suitable for the manufacture of certain items existed/exist in the area, or whether there exists a known resource - plant animal or otherwise - that may have drawn people to the area).

Information about previously recorded archaeological sites in the region can provide an indication of the types and distribution of archaeological deposits and material that may be present, or may once have been present, in the study area. It also provides comparative information that is essential for the assessment of the archaeological significance of any previously unrecorded Aboriginal archaeological material or deposits.

Environmental and historical information (particularly regarding past and present land use) may indicate the potential for post-depositional processes to have altered or disturbed any archaeological deposits or materials that may have once, or may still, exist within the current study area.

In short, knowledge of the environmental, cultural and historical contexts of the study area is crucial for understanding the archaeological potential and significance of that area.

5.2 Geographic Region

The geographic region for the purpose of this heritage assessment is the Werribee River Basin (Figure 3). The Werribee River Basin is situated within the greater geological feature of the Western District Plains or Volcanic Plains. The Volcanic Plains are comprised of basaltic lava flows, tuffs and scoriae ranging in age from the Middle Pliocene to geologically recent and are known as the Newer Volcanic Group[1].

The Werribee River Basin covers an area of approximately 2,700km^2 and includes all rivers and creeks west of the Maribyrnong River up until Little River. The landscape of the Basin varies from steep sided hills and gorges to basalt plains. Agricultural land accounts for approximately 67% of the catchment, while natural vegetation covers 25% and approximately 5% is urbanized[2].

Although the geographic region comprises the Werribee River Basin, the desktop assessment will focus on land within a 10km radius of the activity area. This provides a suitable region for study because it shares common and distinct topographic, drainage, geological and soil landscape characteristics.

[1] *Hills 1964: 261-262*

[2] *Melbourne Water Website*

Figure 3. The geographic Region – the Werribee River Basin (outlined in black) showing the general location of the activity area (indicated by a red star).

5.3 Review of Aboriginal Places in the Region

A search of the Victorian Aboriginal Heritage Register (VAHR) was undertaken to identify previously recorded Aboriginal site types and distribution patterns within the Werribee River Basin & within a 10km radius of the activity area (Figure 3).

The search identified a total of 731 registered Aboriginal places have been registered within a 10km radius of the activity area (Figure 4 and Table 3). The vast majority of registered Aboriginal places consist of artefact scatters, comprising 84.3% of all site types. The majority of these were situated in close proximity to Kororoit Creek and adjacent to swamps or wetlands. The current site distribution pattern is clearly weighted towards areas of higher surface visibility within areas that have previously undergone archaeological assessment. Due to the paucity of direct archaeological assessments within the current activity area, few Aboriginal places have been recorded within PSP 1080.

There are 20 registered Aboriginal places within the activity area (Table 4) consisting of artefact scatters located during previous Aboriginal heritage assessments.

Table 3. Frequency of sites within a 10 km radius of the activity area.

Site Type.	Frequency (No).	Frequency (%).
Artefact scatter	616	84.3
Earth features	11	1.5
Low density artefact distribution	75	10.3
Object collection	25	3.4
Quarry	1	0.1
Scarred trees	3	0.4
TOTAL	**731**	**100**

Table 4. Registered Aboriginal places within the activity area.

VAHR #	Site name	Property ID#	Site contents
7822-0182	Sinclairs Rd	[redacted]	Quartz, quartzite, silcrete & glass worked flakes, worked cores and debitage material. Quantity not specified.
7822-0183	Deanside	[redacted]	Riverbank - Silcrete, quartz & quartzite ground axes, worked flakes, worked cores, microliths, blades and debitage material.
7822-0187	Stoneleigh/ Kororoit Creek	[redacted]	Creek bank – 1m x 40m soil deposit containing quartz and silcrete worked flakes (1 x retouched edge) and unspecified chipped stone artefacts. Quantity not specified.
7822-0289	Melton East 2	[redacted]	Creekbank/floodplain – Quartz, quartzite & silcrete worked flakes, worked cores, microliths and unspecified chipped stone artefacts. Quantity not specified.
7822-0307	Melton East 3	[redacted]	Flat, lowland plain – Unspecified quantity of quartz, quartzite and silcrete worked flakes, microliths and unspecified chipped stone artefacts.
7822-0778	Deanside Drive 01	[redacted]	Break of slope above creek – quartz and silcrete flakes with debitage.
7822-0779	Vere Court 01	[redacted]	Volcanic riverbank terrace - silcrete and quartz unretouched waste flakes (n = <10).

VAHR #	Site name	Property ID#	Site contents
7822-0780	[redacted]	[redacted]	Volcanic riverbank terrace – Silcrete, quartz and quartzite unretouched waste flakes (n = <10).
7822-0781	[redacted]	[redacted]	Volcanic riverbank terrace - Silcrete and quartz unretouched waste flakes (n = <10).
7822-0782	[redacted]	[redacted]	Riverbank - Silcrete and quartz unretouched waste flakes (n = <10).
7822-0790	[redacted]	[redacted]	Terrace - Silcrete, quartz and quartzite worked flakes (n = 4) and debitage material (n = 36).
7822-0791	[redacted]	[redacted]	Terrace - Quartz, silcrete & quartzite worked flakes (n=2) and unworked flakes (n=12).
7822-1138	[redacted]	[redacted]	Volcanic plain – Quartz, silcrete, flint/chert, basalt/greenstone, bottle glass grinding stones, worked flakes, cores, microliths and unspecified chipped stone artefacts. Quantity not specified, however. Aboriginal place is 750m x 100m.
7822-1139	[redacted]	[redacted]	Volcanic plain – Quartz unspecified chipped stone artefacts. Quantity not specified however site is 75m x 40m.

VAHR #	Site name	Property ID#	Site contents
7822-1140	[redacted]	[redacted]	Volcanic plain – Quartz worked flakes (scrapers) and unspecified chipped stone artefacts. Quantity not specified however site is 225m x 40m.
7822-1141	[redacted]	[redacted]	Floodplain - Quartz geometric microliths and unspecified chipped stone artefacts. Quantity unspecified however site is 50m x 50m.
7822-1142	[redacted]	[redacted]	Floodplain – Quartz, silcrete, flint/chert, basalt/greenstone and other fine grained rocks worked flakes, cores, microliths and unspecified chipped stone artefacts. Quantity not specified although stated to be a large amount of artefacts. Site is 250m x 75m.
7822-1143	[redacted]	[redacted]	Volcanic Plain – Quartz worked flake/tool (n = 1-4).
7822 –1144	[redacted]	[redacted]	Volcanic Plain – Quartz worked flake/tool (n = 1-4).
7822-2917	[redacted]	[redacted]	Alluvial creekline – Quartz worked flakes (n = 2).
7822-0307	[redacted]	[redacted]	Volcanic Plain near Kororoit Creek – Quartz and Silcrete worked flakes and tools.
7822-0489	[redacted]	[redacted]	Volcanic Plain near Kororoit Creek – Quartz, quartzite, silcrete and other raw materials, hammerstones, worked flakes and cores.

5.4 Parcels within the PSP 1080 which currently require completion of mandatory CHMPs.

This section of the report identifies which properties within the PSP are currently located within an area of cultural heritage sensitivity and will require completion of a mandatory CHMP for future high impact development activities and subdivision planning permit applications. It is very important to note that this information may be subject to change because the cultural heritage sensitivity overlay changes as new Aboriginal places are identified and new named waterways are added. **Therefore it is critically important that landowners and development proponents seek advice from a Cultural Heritage Advisor and/or Office of Aboriginal Affairs Victoria to ensure the information outlined in Table 5 below is still applicable prior to development.** Table 5 shows which properties currently require a mandatory CHMP for future subdivision development. CHMPs for relevant properties will need to be completed and approved before Council are legally permitted to approve a planning permit for the development.

Table 5. Parcels Currently Requiring Mandatory CHMPs.

ID #	Address
1	1331-1361 Taylors Road, Plumpton VIC 3335
4	111-159 Vere Court, Plumpton VIC 3335
6	91-95 Vere Court, Plumpton VIC 3335
7	104-110 Vere Court, Plumpton VIC 3335
8	96-102 Vere Court, Plumpton VIC 3335
9	103 Vere Court, Plumpton VIC 3335
10	1205-1231 Taylors Road, Plumpton VIC 3335
14	96-103 Reed Court, Plumpton VIC 3335

ID #	Address
16	96-103 Reed Court, Plumpton VIC 3335
17	90-95 Reed Court, Plumpton VIC 3335
19	84-86 Reed Court, Plumpton VIC 3335
26	112-144 Sinclairs Road, Plumpton VIC 3335
27	146-194 Sinclairs Road, Rockbank VIC 3335
28	101-105 Deanside Drive, Rockbank VIC 3335
29	Deanside Drive, Rockbank VIC 3335
30	131-171 Deanside Drive, Rockbank VIC 3335
31	173-177 Deanside Drive, Rockbank VIC 3335
32	61-99 Deanside Drive, Rockbank VIC 3335
33	104-192 Deanside Drive, Rockbank VIC 3335
34	121-129 Gray Court, Rockbank VIC 3335
35	130-138 Gray Court, Rockbank VIC 3335
37	460102 Deanside Drive, Rockbank VIC 3335
38	80-120 Gray Court, Rockbank VIC 3335
40	2-44 Deanside Drive, Rockbank VIC 3335
41	768-800 Neale Road, Rockbank VIC 3335
43	139 Gray Court, Rockbank VIC 3335
44	196-246 Sinclairs Road, Rockbank VIC 3335

ID #	Address
52	717-803 Neale Road, Rockbank VIC 3335
64	1027-1051 Taylors Road, Rockbank VIC 3335
65	81-135 Sinclairs Road, Rockbank VIC 3335
66	137-235 Sinclairs Road, Rockbank VIC 3335
67	961-1025 Taylors Road, Rockbank VIC 3335
68	905-959 Taylors Road, Rockbank VIC 3335
69	855-903 Taylors Road, Rockbank VIC 3335
70	260 Clarke Road, Rockbank VIC 3335
71	237-269 Sinclairs Road, Rockbank VIC 3335
72	271-301 Sinclairs Road, Rockbank VIC 3335
74	502-536 Neale Road, Rockbank VIC 3335
75	470-500 Neale Road, Rockbank VIC 3335
76	462-468 Neale Road, Rockbank VIC 3335
77	194-258 Clarke Road, Rockbank VIC 3335
78	260 Clarke Road, Rockbank VIC 3335
79	266-274 Clarke Road, Rockbank VIC 3335

REDACTED FIGURE

Figure 4. Registered Aboriginal places within 10km of the study area. Source: Aboriginal Cultural Heritage Register and Information System.

5.5 Review of Regional Archaeological Context (including reports and published works)

For the purposes of determining settlement and site distribution patterns, archaeologists examine regional and local trends in the distribution of known sites in relation to environment and topography. This provides evidence about economic and social systems in the past and also assists archaeologists in predicting likely site types, site locations and the nature of the archaeological resource in any given area. Key regional studies are reviewed and discussed below.

5.5.1 Gaughwin 1983

In 1983, Denise Gaughwin undertook a regional study of Aboriginal coastal economies within the Western Port Catchment as part of a Master's thesis submitted to Latrobe University[3]. Gaughwin's study involved the identification of three broad landform units (coastal margins, coastal plains and uplands), and an investigation of their past use by Aboriginal people. Through an analysis of ethno-historical sources, an assessment of the availability of resources within each landform unit, and sample archaeological survey, Gaughwin developed a descriptive model which highlighted the variations in use between the different coastal environments[4].

The 'coastal plains' landform unit described by Gaughwin is the most similar to the current study area. The coastal plains landform unit was defined as *'all that area between the uplands and the coastal margins'*[5]. Site types recorded on this landform unit (n=15) consisted of artefact scatters and isolated finds[6]. Sites within the coastal plains landform were considered to display *'a preference for camps with immediate availability to wetlands and swamps'*[7]. Gaughwin considered that the coastal plains landform likely contained evidence of a significantly larger

[3] *Gaughwin 1983.*

[4] *Gaughwin 1983: 33-34; 140-155.*

[5] *Gaughwin 1983: 37.*

[6] *Gaughwin 1983: 110*

[7] *Gaughwin 1983: 113.*

number of archaeological sites - but that low effective survey coverage of the area meant that such evidence was not recovered during the course of her investigation[8].

5.5.2 Presland 1983

In 1983 Presland undertook an archaeological survey of the Melbourne Metropolitan region focusing on the Yarra and Maribyrnong catchments. Presland's study was aimed at identifying areas of potential archaeological sensitivity through a combination of background research and field survey.[9]

Presland's study area was divided into five broad landscape units for the purposes of survey and comparative analysis. The Landscape Unit 1 is the most similar to the current study area. Landscape Unit 1 is described as 'a flat plain which includes the alluvial fans, terraces and valleys of the Yarra and Maribyrnong Rivers'[10]. A total of 10 new archaeological sites were recorded in Unit 1 as a result of Presland's field assessment. Of the sites recorded in this unit, six were scarred trees, and the remainder either artefact scatters or isolated artefacts. The results of this assessment indicated that significant levels of landscape modification were noted to have occurred across the region (particularly in Landscape Unit 1) as a result of a combination of residential and industrial development and associated infrastructure, diminishing the areas archaeological potential.

5.5.3 Rhoads 1986

A regional archaeological assessment of the Bellarine Peninsula, was undertaken in two stages in the 1980s by Stockton (1983) and Rhoads (1986)[11]. The most common site types identified during the surveys were shell middens and artefact scatters.

Rhoads argued that the dominant activities represented at most sites were those that focused on food and resource gathering[12]. Rhoads also argued that *'Aboriginal*

[8] Gaughwin 1983: 155.

[9] *Presland, G. 'An Archaeological Survey of Melbourne Metropolitan Park'. Published in Victorian Archaeological Reports Vol. 15. 1983: 2.*

[10] *ibid., p 5.*

[11] *Rhoads 1986; Stockton 1983.*

campsites anywhere on the Peninsula would have likely been situated within a short distance of most plants and animals comprising the inhabitants' subsistence base'[13]. Rhoads argued that settlement was probably focused away from the coast in winter and that there was little evidence to illustrate any precise locality as specifically significant[14].

5.5.4 du Cros 1989

du Cros conducted a study of the western region, which included the current study area. The survey sampled random and non-random areas. Dominant landforms identified by du Cros include the 'Volcanic Plains' and 'Major Rivers/Creeks'. The Volcanic Plain is the dominant landform type in the current activity area.

A total of twenty sites (scarred trees & artefact scatters) were recorded on the Volcanic Plains, with a site density of 1/30 ha. Sites were found to occur on extinct eruption points, as these are the highest points on the landscape and are associated with swamps and small springs. None of the sites identified were considered to be *in-situ*.

A total of forty-one sites were located within the Major River/Creeks landform, with a site density of 1/9 ha recorded during the survey. Sites predominantly comprised stone artefact scatters but also included grinding grooves, freshwater shell middens and scarred trees. du Cros determined that sites would typically occur within 50-200m of a waterway.

Drawing on the results of the survey, du Cros made the following predictions regarding site types and locations:

- Burials, artefact scatters, isolated artefacts and scarred trees will occur within 100m of major watercourses;
- Artefact scatters will occur on the highest points of the volcanic plains, such as eruption points;

[12] *Rhoads 1986:1, 68*

[13] *Rhoads 1986:28*

[14] *Rhoads 1986:45*

- Artefact scatters, isolated artefacts and scarred trees will occur close to permanent swamps, springs and lakes on the volcanic plain;
- Shell middens and other sub-surface deposits will occur in terraces and alluvial deposits along major rivers; and
- Post-contact sites will occur in association with old homesteads in the region.

5.5.5 du Cros 1990

du Cros conducted a survey for a proposed urban growth area between Kororoit Creek and the Maribyrnong River near Sydenham located east of the current study area. du Cros aimed to sample the major landscape units, the 'Volcanic Plains' and 'Major Rivers/Creeks' identified in previous investigations[15].

Of the nineteen sites located during the survey, only three sites were identified on the Volcanic Plains landform (an artefact scatter 7822-0404 and two isolated artefacts 7822-0492, 7822-0403). No hills or eruption points were located on the Volcanic Plains landform within the study area, which was used by du Cros to argue that her initial prediction that '*Artefact scatters will occur on the highest points of the volcanic plains, such as eruption points*'[16] was correct. The remaining 16 sites were recorded on the Major Rivers/Creek landscape unit, where the most common site type identified was stone artefact scatters.

The results of the survey are in accordance with the predictive model developed in previous studies by du Cros for the Western Region[17]. The absence of scarred trees in proximity to waterways was considered to reflect post-contact vegetation clearance practices.

Among the findings of the study du Cros made the following additional predictions:

- Sources or outcrops of silcrete and metamorphic stone are likely to have

[15] *du Cros 1989*

[16] *du Cros 1989*

[17] *du Cros 1989*

been quarried by Aboriginal people if exposed more than 150 years ago.

- Sites with extensive sub-surface archaeological deposits containing burials, hearths faunal material and artefacts will most likely be found in areas with the best preservation.

5.5.6 Ellender and Weaver 1994

In the late 1980s the Victorian Archaeology Survey (VAS) commissioned Ellender and Weaver to undertake an archaeological survey of a section of the Port Phillip Bay foreshore between Canadian Bay and Geelong[18]. The purpose of the survey was to fill gaps in earlier investigations of the Bay undertaken by Sullivan (1981), Presland (1983), Rhoads (1986) and du Cros (1989).

Shell middens were the most common site type found on the eastern foreshore and artefact scatters were found in the western hinterland zone in close proximity to water sources. Scarred trees were found in association with water bodies, estuaries and creeks[19]. Ellender and Weaver argued that the results of their survey indicated that seasonal exploitation of shellfish appeared to be the primary foraging strategy (and archaeological signature) identified on the eastern foreshores, with base camps located further inland near multiple resource zones such as hinterland swamp systems.

5.5.7 Andrew Long & Associates 2010

GHD and Andrew Long & Associates (ALA) were commissioned by Metropolitan Planning Authority to conduct a large-scale regional desktop assessment of four study areas consisting of the North (Craigieburn-Beveridge), North-West (Sunbury), West (Melton-Werribee) and South-East (Pakenham-Cranbourne)[20]. The project aimed to identify high level areas of archaeological sensitivity to assist the MPA in future planning and to inform and guide the desktop assessment components of CHMPs prepared for individual precincts within the growth areas.

[18] *Ellender & Weaver 1994.*

[19] *Ellender & Weaver 1994: 66*

[20] *Andrew Long & Associates 2010*

The West Study Area (Melton-Werribee) is the most relevant to the current activity area.

A primary object of the GHD / ALA assessment was to define zones of Aboriginal cultural heritage sensitivity based on a regional predictive model. The predictive model was developed through a review of the following sources of information:

- a review of registered cultural heritage places on the Victorian Aboriginal Heritage Register,
- terrain patterning based predominantly on distance to water, geology and elevation,
- high level land use history and disturbance mapping,
- a review of ethnohistorical sources to identify Aboriginal sites and places, and to assist in understanding Aboriginal settlement patterns,
- a review of previous archaeological reports to assist in identifying prevailing archaeological patterning in the area, and
- some initial consultation with key traditional owner representatives to identify cultural values and places within growth areas.

A review of these sources of data identified terrain profile units (comprising a combination of landform and environmental traits) with varying levels of potential to contain Aboriginal cultural places.

These were defined as:

Zone 1 – High likelihood of Cultural Places.

Zone 1 comprised major waterways, such as the Werribee River and Skeleton Creek, major wetlands, eruption points and elevated areas (such as crests, ridges).

This zone contained the highest density of registered Aboriginal cultural sites, including sites of high scientific and cultural significance. Current site types within

this zone include dense stone artefact scatters and scarred tree. There is some potential for sites types such as quarries, burials and ceremonial places to occur.

The following management recommendations were made for Zone 1:

- Complex assessment, including controlled excavation, should be undertaken for all activities within this zone.
- Use of controlled methods for subsurface testing with only limited use of "coarser" evaluation techniques i.e. shovels probes and mechanical excavation.
- Protection of cultural heritage places – by establishing management reserves in areas of known or predicted cultural heritage sensitivity.
- Minimisation of impacts from development by placing constraints, controls and limitations on works in this zone.
- Salvage of cultural heritage places, wherever development may occur within this zone that will impact on cultural heritage places.

Zone 2 – Moderate likelihood of Cultural Places.

Zone 2 landforms consisted of minor creeks, wetland margins, stony rises and minor elevations.

Zone 2 contained secondary densities of registered Aboriginal cultural places which were generally not characterised by places of high scientific significance. Registered cultural heritage places within Zone 2 are dominated by stone artefact scatters and scarred trees, although there is some potential for other site types (i.e. quarries burials and ceremonial places).

The following management recommendations were made for this zone:

- Complex assessment, including controlled excavation, should be undertaken for all activities within this zone.

- Use of coarse evaluation techniques and mechanical excavation may be undertaken except in localised places of higher sensitivity.
- There are unlikely to be requirements to protect specific cultural heritage places, though exceptions may exist (i.e. scarred trees).
- There will be minimal requirements to minimise development impacts, although minimization should be encouraged where possible.
- Salvage will be limited to localised areas with higher levels of significance.

Zone 3 – Low likelihood of Cultural Places.

Landforms within Zone 3 comprised uniform slopes at distance from major water sources.

Zone 3 areas generally did not contain any Aboriginal cultural places, with the exception of diffuse scatters and scarred trees. This zone is considered unlikely to contain sites of high scientific significance - however the report notes that this does not consider possible cultural significance values to the Aboriginal community, which would need to be considered in more detail at the CHMP stage.

The following recommendations were made for this zone:

- Completion of CHMPs for all activities within this zone. It is expected that completion of a CHMP to standard assessment stage will be adequate; however the outcomes of the standard assessment will determine if subsurface testing (Complex assessment) is required.
- No specific requirements for the protection of cultural heritage exist for this zone, however exceptions may exist, i.e. scarred trees and unregistered sites.
- There will be minimal requirements to mitigate and/or minimise development impacts.
- Salvage will be limited to localised areas of unusually high levels of

significance.

5.6 Review of Local Studies (Pre Aboriginal Heritage Act 2006)

Prior to the commencement of the *Aboriginal Heritage Act 2006*, archaeological studies were often carried out to satisfy Aboriginal cultural heritage assessment in advance of proposed development. The assessment work varied significantly in methodology and content in comparison to CHMPs, therefore a general indication of the types of studies which have been conducted is provided overleaf (Table 6).

The majority of studies conducted prior to the introduction of the Aboriginal Heritage Act (2006) consisted of desktop archaeological assessment or archaeological surveys, with a particular focus on the Werribee River and its surrounding landscape. Only limited archaeological subsurface investigations were carried out prior to the commencement of the Act in 2006[21].

[21] E.g. Debney, T. 'Archaeological Sub-surface investigation within the proposed river sanctuary, farm road, Werribee' . Unpublished report. 1998. Test excavation which aimed at identifying the subsurface extent of a known surface site (7822-090)

Table 6. Local Studies (within a 5km radius of the activity area (the study area).

Report	Assessment Type	Distance from Activity Area	Aboriginal Heritage Identified
Vines (1990) # 701	Survey	Includes part of southeast quadrant of activity area.	A total of seven Aboriginal places (artefact scatters) were identified during the survey. All but one was registered within 100m of Kororoit Creek. The artefact scatters were low and high density and were manufactured from silcrete, quartzite, quartz.
Rhodes (1990) # 356	Survey	Regional study within 3km of activity area.	Two major landforms are the undulating volcanic plains and the incised valleys. Aboriginal places were predominantly located on the incised valley landform (n = 91). All of the Aboriginal places located on the volcanic plain (n = 7) were located within 100m of an incised valley.
du Cros (1990) #270	Survey	Regional study immediately east of activity area.	A total of 19 Aboriginal places were identified during the survey. du Cros concluded that artefact scatters within the Volcanic plain will be located on the highest parts such as eruption points. Additionally, du Cros predicted that sources of silcrete that have been exposed for greater than 150 years will like have been quarried by Aboriginal people.
du Cros (1990) #1148	Survey	Immediately east of activity area.	Landforms include the volcanic plains of the western region of Melbourne and Kororoit Creek. Three Aboriginal places were located during the survey, comprising two largely low density scatters and an isolated artefact. Sensitive areas include the creek and associated escarpment.

Report	Assessment Type	Distance from Activity Area	Aboriginal Heritage Identified
du Cros & Goulding (1989) # 337	Survey	Regional study that includes activity area.	Landform is a section of flat volcanic plains within a road reserve. 6 artefact scatters and 4 isolated artefacts were located during the survey. All artefact scatters were low in density.
Webb (1991) # 416	Survey	Regional study that includes part of activity area.	A total of two Aboriginal places (artefact scatters) were identified during the survey, albeit some distance from the current study area.
du Cros & Watt (1993) # 637	Survey	Regional study that includes land within 2km of activity area.	An isolated artefact (quartz) was identified during the survey and was identified adjacent to a permanent watercourse. The authors concluded that the artefact is likely to have been deposited within the past 3,000 years.
du Cros & Murphy (1995) # 777	Survey	Immediately east of activity area.	A total of six Aboriginal places were identified during the survey, all of which consisted of stone artefact scatters. The artefact scatters are all of low-moderate density and were identified on level-gently sloping land adjacent to water courses. The artefacts were manufactured from silcrete, quartzite and quartz.
Murphy & du Cros (1994) # 756	Survey	Regional study that includes activity area.	Expansion of existing commercial quarry at Deer Park. Poor visibility (<5%, reduced the chances of locating Aboriginal cultural heritage). One Aboriginal place (VAHR 7822-707) was located during the survey comprising one sandstone pebble identified as a sandstone. This was assessed as having low archaeological significance.

Report	Assessment Type	Distance from Activity Area	Aboriginal Heritage Identified
Lane (1996) # 920	Survey	Regional study that includes activity area.	Three Aboriginal places located during the survey all low density artefact scatters comprised of silcrete, quartzite and quartz located determined to be of low to moderate (VAHR 7822-841), moderate (VAHR 7822-840) and high significance (VAHR 7822-760). VAHR 7822-760 was determined to represent camp adjacent to a swamp with potential for undisturbed, in situ deposits of Aboriginal archaeological evidence.
Lane (1996) #1066	Survey & Excavation	300m southeast of activity area.	Nine Aboriginal places, comprising 5 isolated artefacts (VAHR 7822-0872, 869, 871, 873, 867) and four stone artefact scatters (VAHR 7822-870, 874, 875 & 876) recorded as a result of the survey and subsurface testing. The scatters were very low density (none contained more than 8 artefacts). Areas identified as sensitive for Aboriginal archaeological evidence include creek lines and the margins of former swamp beds.
Brown & Lane (1997) # 1059	Survey	Regional study that includes activity area.	Twenty seven previously unrecorded Aboriginal places were located and recorded during the survey comprising six stone artefact scatters and twenty one isolated artefact sites. The distribution of Aboriginal places is concentrated beside Jacksons and Kororoit creek. Sites estimated to have >100 artefacts are likely to occur along major and minor drainage channels.

Report	Assessment Type	Distance from Activity Area	Aboriginal Heritage Identified
du Cros (1997) # 1148	Survey	Immediately east of activity area.	Study area situated east of current activity area includes a portion of Kororoit Creek which was considered highly sensitive. Three Aboriginal place comprising two large low density surface scatters (VAHR 7822-489, 491) and an isolated artefact (VAHR 7822-490) were located during the survey.
du Cros & Debney (1997) # 1130	Survey	Immediately south east of activity area.	Study area situated between Rockbank Middle Road and the Western Highway. No Aboriginal places located during the survey. It was considered unlikely that Aboriginal heritage would be present within the activity area given its distance from Kororoit Creek (>600m) and does not contain any major swamps.
Muir & Newby (1998) # 1356	Survey	Immediately south of activity area.	A total of two isolated stone artefacts were identified during the survey. The artefacts consisted of a silcrete and a quartz flake.
Murphy (1998) 1299	Survey	Immediately west of the activity area.	A stone artefact scatter was identified during the survey and consisted of nine flakes manufactured from silcrete and quartz. Murphy concluded that the most archaeologically sensitive landforms within the region consist of Kororoit Creek and the associated floodplain (within 200m of the Creek), and all past and present swamp margins.

Report	Assessment Type	Distance from Activity Area	Aboriginal Heritage Identified
Rhodes and Nicholson (1998) #1342	Survey	850m east of activity area.	An isolated stone artefact was identified during the survey, which was a quartz flake located on the west bank of a stream channel.
Cekalovic (2000) #1845	Survey	Within activity area.	A total of seven Aboriginal places and a potential scarred tree were identified during the survey. The Aboriginal places consist of two large artefact scatters and five low-density artefact scatters. The artefacts were manufactured from silcrete, quartzite, quartz, chert, basalt, and bottle glass. The author concluded that stone artefact scatters are distributed throughout the region, although more highly concentrated in close proximity to Kororoit Creek.
Pavlides & Atkinson (2000) #1881	Test Excavation	Within activity area.	A total of 935 stone artefacts were identified during survey and test excavation, corresponding to 11 Aboriginal places. The artefacts were manufactured from chert, quartz, silcrete, quartzite, quartz, and a 'black volcanic material' [most probably trachyte]. Geometric microliths and backed blades were identified within the assemblage, indicating that at least a percentage of the stone artefacts were manufactured during the Australian Small Tool Tradition (ASTT). The authors argued that a large proportion of the artefacts were manufactured from materials exotic to the Kororoit Creek region. The authors identified chert as the most common raw material within the assemblage and argued that raw material sources of silcrete are unavailable along Kororoit Creek.
Bell (2002) #1271	Survey	Immediately east of activity area	A total of 317 stone artefacts were identified during the survey, all of which were located within the north bank of Kororoit Creek. The artefacts were primarily manufactured from silcrete, followed by quartz, quartzite, chert, sandstone, and crystal quartz. The authors concluded that the south bank of Kororoit Creek was more heavily utilised by Aboriginal people in the past (see Pavlides and Atkinson 2000).

Report	Assessment Type	Distance from Activity Area	Aboriginal Heritage Identified
Bell (2003) #2617	Salvage	Immediately north east of activity area.	A stone artefact scatter was subject to archaeological mechanical salvage. A total of 275 stone artefacts were recovered from 'above the alluvial flat'. Salvage was also conducted within the alluvial terrace (to a depth of 500mm) however no stone artefacts were identified.
Bell (2003) #2063	Excavation	Immediately east of activity area.	A total of 18 stone artefacts were recovered from a sub-surface context during the test excavation. The artefacts were manufactured from silcrete, quartz and quartzite.
Hyett (2006) #3673	Survey	800m west of activity area.	No Aboriginal places were identified during the survey. The author concluded that due to the lack of watersources, the study area was not highly sensitive for Aboriginal archaeological material.
Tucker (2006) #3476	Excavation	Regional study that includes activity area.	A single silcrete flake was identified during the test excavation. The author concluded the study area was not highly sensitive for archaeological material due to the landform (flat/plain) and absence of watersources.
Edmonds (2007) #4025	Survey	2km west of activity area.	No Aboriginal places were identified during the survey, which the author attributed to the landform (flat and featureless volcanic plain) and disturbance history.
Edmonds and Brooke (2007) #4027	Survey	1.2km north east of activity area.	No Aboriginal places were identified during the survey, which was largely attributed to the poor ground surface visibility. The authors concluded that the elevated land adjacent to Stony Hill Creek was of greater Aboriginal archaeological sensitivity than the surrounding low lying volcanic plain.
Weaver (2000) #1637	Survey	Regional study that includes activity area.	Landforms include the flat volcanic plain, Kororoit Creek and escarpment. Five Aboriginal archaeological places were located during the survey, including two stone artefact scatters and three isolated artefacts. The artefacts were recorded within 250m of Kororoit Creek – with a gradual decrease in artefact density with increasing distance from the creek.

Report	Assessment Type	Distance from Activity Area	Aboriginal Heritage Identified
Tulloch (2001) #1716	Survey/Excavation	2km east of activity area	Landforms include volcanic plain and Kororoit Creek which forms the southern boundary of the activity area. Twenty two previously unrecorded Aboriginal places were located during the survey. Two additional Aboriginal places were located during the subsurface testing. The excavation revealed that Aboriginal places were extant throughout the southern section of the study area adjacent to Kororoit Creek.
Muir (2002) #2247	Survey	Immediately south of activity area	Landform is the volcanic plain. No Aboriginal places located during the survey.
Murphy & George (2002) #2289	Survey	2.5km east of activity area.	Landform is the volcanic plain. No Aboriginal places located during the survey.
Nicolson (2002) #2290	Survey	Regional study that includes activity area.	Landforms include Kororoit Creek and a flat volcanic plain. One Aboriginal place was located during the survey (VAHR 7822-1374). This Aboriginal place was assessed as having moderate scientific significance du
Nicolson (2002) #2382	Survey	Regional study that includes activity area.	Landform consists of a flat volcanic plain. No Aboriginal places were recorded within the activity area. No areas of potential archaeological sensitivity were identified within the activity area.
Murphy & Amorosi (2003) #2432	Survey	2km east of the activity area	A number of sensitive areas were identified during the standard assessment. The slope and unploughed escarpment within 200m of Kororoit Creek = high sensitivity, the ploughed escarpment within 250m of Kororoit Creek = moderate to high sensitivity. All other areas were considered to have a low level of archaeological sensitivity. One Aboriginal place was located during the survey, an isolated artefact.

Report	Assessment Type	Distance from Activity Area	Aboriginal Heritage Identified
Thomson (2003) #2760	Survey	Immediately southeast of the activity area.	Landforms include heavily grassed rises scarred with small to medium sized basalt boulders, a minor drainage channel the lower slopes of Mt. Atkinson and swamps. Eighteen Aboriginal places were located, including twelve isolated artefacts and six artefact scatters. All of these sites were assessed as having moderate to high scientific significance. The drainage and associated undulating stony rises were considered to have low-moderate sensitivity.
Long & Light (2005) #3270	Survey	Immediately southeast of the activity area.	There are four Aboriginal places within the activity area – all comprise low density stone artefacts. There was no apparent pattern to the artefact distributions, which seemed to occur randomly across the landscape. No areas of archaeological sensitivity were identified.
Marshall & Raybould (2006) #3424	Survey	1.6km east of the activity area.	Landforms include creek bank, Kororoit Creek and associated volcanic plains landform. Four previously unrecorded Aboriginal archaeological places were located during the survey.
Raybould (2006) #3552	Excavation	2km east of the activity area.	No Aboriginal heritage identified during subsurface testing
Howell-Meurs (2007) #3942	Survey	1.8km east of the activity area	Landforms consists of a narrow corridor situated to the east of an eruption point, Mount Atkinson and crossing Kororoit Creek. Archaeologically sensitive areas identified include land within 200m of Kororoit Creek and other smaller water courses. Twelve Aboriginal places were located within the activity area. Six sites identified <200m of Kororoit Creek consist of extensive surface & subsurface artefact scatters. The 6 Aboriginal places located >200m from Kororoit creek consist of isolated artefacts or low density artefact scatters.

5.7 Review of Cultural Heritage Management Plans in the Local Area

5.7.1 Tucker & Athanasiadis (CHMP 10752)

Terraculture Pty Ltd was commissioned by City West Water to prepare a Cultural Heritage Management Plan for a sewerage reticulation pipeline in Stoney Hill Creek in Caroline Springs, located 450m east of the current activity area[22]. One previously unrecorded Aboriginal place was located during the standard assessment (VAHR 7822-2289) comprising silcrete artefacts including two cores, one medial flake, one complete flake and an angular fragment. Two 1m x 1m and thirteen 50cm x 50cm test trenches were excavated during the complex assessment. Excavation revealed relatively shallow volcanic soil profiles typically 20cm in depth. Two artefacts, a quartzite scraper and a quartzite broken backed blade, were recovered within topsoil deposits in one of the 50cm x 50cm trench (0-4cm)[23]. The artefacts were assessed as having no integrity and low scientific significance[24].

5.7.2 Murphy & Morris (CHMP11609)

Archaeology at Tardis was engaged by APA Gasnet to prepare a CHMP for the installation of a gas pipeline extending from Middle Road, Truganina to Taylors Road, Plumpton[25]. The pipeline crosses through the centre of the activity area parallel with Sinclairs Rd ([redacted]). This is described by Archaeology at Tardis as Landscape Unit 1, heavily vegetated paddocks with <1% ground surface visibility[26]. One previously unrecorded Aboriginal place was located during the standard assessment; VAHR 7822-2917 contained two quartzite artefacts located on a basalt outcrop on the south bank of Kororoit Creek [redacted][27]. The Standard Assessment found that Aboriginal cultural heritage is likely to be

[22] Tucker, C. & Athanasiadis, H., 'Sewerage Reticulation Pipeline, Stoney Hill Creek, Caroline Springs: A Cultural Heritage Management Plan', unpublished report prepared for City West Water 2009: I.

[Work by Iggy Azalea][23] *ibis., p. 25*

[24] ibid., p. 16

[25] Murphy, A. & Morris, A, 'APA Gasnet Sunbury gas pipeline looping project Middle Road Truganina to Taylors Road, Plumpton.' unpublished report prepared for APA Gasnet Australia Pty Ltd, 2011:iii.

[26] *ibid., p. 38.*

[27] *ibid., p. 50.*

present near current and former waterways and on elevated landforms within the activity area; however no additional Aboriginal cultural heritage was located during the Complex Assessment[28].

5.7.3 Green (CHMP 12235)

Andrew Long & Associates were commissioned by Plumpton Gardens Pty Ltd to complete a CHMP for a residential subdivision at 1027 Taylors Road Plumpton[29], in the northern section of the activity area ([redacted]). The Desktop Assessment considered there to be a low likelihood that Aboriginal cultural heritage is present within the activity area due to the presence of an unnamed swamp. The standard assessment also found that large portions of the property had been modified by construction[30]. No Aboriginal archaeological evidence was located during the standard assessment or subsurface testing. Subsurface testing undertaken during the complex assessment found shallow deposits, with basalt clays typically encountered at a depth of 12cm[31].

5.7.4 Murphy & Morris (CHMP 12312)

Melrose Land Sales Pty Ltd commissioned Archaeology at Tardis Pty Ltd to prepare a CHMP for an industrial subdivision for a 135ha block of land along the Western Highway at Ravenhall[32], directly south-east of the current activity area. The desktop assessment found that there are four previously registered Aboriginal places within the activity area comprising stone artefact scatters (VAHR 7822-1827 to VAHR 7822-1830). During the standard assessment, ground surface visibility ranged from none to extremely poor (<1%). Two additional surface stone artefacts were located during the survey; these were subsequently registered as Low Density Artefact Distributions (VAHR 7822-3549). All of the Aboriginal places within the

[28] ibid., p. 51.

[29] Green, M. '1027 Taylors Road, Plumpton Residential Subdivision Cultural Heritage Management Plan.' unpublished report prepared for Plumpton Gardens Pty Ltd, 2012:i-ii.

[30] *ibid., p.47.*

[31] *ibid., p. 62.*

[32] *Murphy, A. & Morris. 'Industrial Subdivision: Western Highway Ravenhall.' unpublished report prepared for Melrose Land Sales Pty Ltd, 2013:iii.*

activity area were determined to have an extremely low level of scientific significance.[33] Areas of archaeological potential identified during the standard assessment comprise the flat plains adjacent to the low lying swamps and minor drainage lines[34]. No additional Aboriginal cultural heritage was located during the subsurface testing conducted as part of the complex assessment. It was considered unlikely that further Aboriginal cultural heritage would be present within the activity area[35].

5.7.5 Burch et al (CHMP 11173)

Ecology Partners Pty Ltd was commissioned by KBR – ARUP Joint Venture on behalf of the Regional Rail Link Australia to prepare a complex assessment CHMP for section 1 of the proposed Regional Rail Link extending from North Melbourne to Deer Park[36], 1.4km south east of the activity area. The desktop assessment found that there is one Aboriginal archaeological place recorded within the activity area, an isolated artefact (VAHR 7822-2148). The desktop assessment found that the most likely site type to occur within the activity area comprises stone artefact scatters. No Aboriginal cultural heritage was located during the standard assessment; however one area of cultural heritage sensitivity was located outside of the current activity area in Sunshine[37]. The subsurface testing conducted as part of the complex assessment comprised the excavation of a 1m x 1m test pit and 39 shovel test holes. No Aboriginal cultural heritage was located during the course of the complex assessment[38].

5.7.6 Lawler et al (CHMP 10246)

VicRoads commissioned Biosis Research Pty Ltd to complete a CHMP for access restoration works on the Western Highway, between Rockbank and Melton, located

[33] *ibid., p. 67.*

[34] *ibid., p. 38.*

[35] *ibid., p. 48.*

[36] *Burch, J., MacManus, T. & Szydzik S., 'Regional Rail Link Section 1: North Melbourne to Deer Park, Victoria: Aboriginal Cultural Heritage Management Plan.' unpublished report prepared for the Regional Rail Link Authority, 2011: 1.*

[37] *ibid., p. 63.*

[38] *ibid., p. 93.*

approximately 700m west of the current activity area, along the Western Freeway[39]. During the standard assessment, one previously unrecorded Aboriginal place was located within the activity area (7822-2251). 7822-2251 comprised two grey silcrete flakes and one white quartz flake located on the surface of a vehicular access track[40]. The site was assessed as having low scientific significance on the basis of prior disturbance and the limited range of the assemblage. No further Aboriginal archaeological evidence was located during the complex assessment[41].

5.7.7 Day (CHMP 11028)

Golder Associates Pty Ltd completed a CHMP on behalf of Brimbank City Council for a shared trail along a 3.6km section of Kororoit Creek at Deer Park, Victoria. The desktop assessment indicated that there are five previously recorded Aboriginal places within the activity area (VAHR 7822-0118, 7822-0342, 7822-0912, 7822-0913, 7822-0914). A survey was conducted on the 6th of October 2009. Despite limited ground surface visibility, 73 stone artefacts were located during the standard assessment with concentrations of artefacts observed along the full length of the activity area on the eastern side of Kororoit Creek. On the western side of Kororoit Creek artefacts were concentrated on artificial terraces.

During the complex assessment, three 1m x 1m test trenches and 68 shovel test pits were excavated. The results of the assessment identified four large lithic concentrations (VAHR 7822-0118, Y822-342, 7822-2458). Of the 178 artefacts located during the course of the CHMP, only 12% of the total assemblage was recovered from a subsurface context, 88% of the assemblage was located in a disturbed surface context.

5.7.8 Barker & Barker (CHMP 11022)

Brimbank City Council commissioned a mandatory Complex CHMP for the Opie Road Gross Pollutant Trap, covering an area of 300m^2. The desktop assessment

[39] *Lawler, M., Vines, G. & McKinnis, D. 'Western Highway – Rockbank to Melton access restoration project.' unpublished report prepared for VicRoads. 2008: v.*

[40] *ibid., p. 33.*

[41] *ibid.*

determined that due to the proximity of Kororoit Creek there is some potential for remains of Aboriginal places within the activity area[42]. No Aboriginal places were located during the standard assessment; however the survey confirmed that the escarpment slope and the plain above the break of slope are considered to have high potential for Aboriginal places[43]. During the complex assessment, one 1m x 1m test trench and 26 30cm x 30cm shovel pits were excavated. No Aboriginal archaeological evidence was located as a result of the complex assessment, however the excavation did reveal that the thin volcanic soil profiles of the activity area had been heavily modified[44].

5.7.9 Murphy & Amorosi (CHMP 11058)

Tardis Enterprises Pty Ltd were commissioned by Alto Property Group Pty Ltd to complete a mandatory CHMP for an 8.19ha parcel of land at 55a Oakwood Road, Albanvale, located 3.2km south east of PSP 1080. The desktop assessment found that there were two previously recorded Aboriginal places within the area (VAHR 7822-0899, 7822-0916). These Aboriginal places could not be relocated during the complex assessment, however one previously unrecorded Aboriginal place, an isolated artefact (VAHR 7822-2461) was located on a vehicular access track[45].

Ten shovel test pits were excavated during the complex assessment, including 5 50cm x 50cm pits and 5 25cm x 25cm shovel test pits. The complex assessment identified subsurface artefacts associated with an existing surface site (VAHR 7822-0916). VAHR 7822-0916 was determined to have an extremely low level of scientific significance as it represents a low density surface and subsurface scatter (0.08 artefacts per m^2)[46]. VAHR 7822-2461 was rated as having a very low level of scientific significance as it represents an isolated find out of its original context[47]

[42] Barker, M. & Barker, M. 'Opie Road Gross Pollutant Trap, Albanvale, Cultural Heritage Management Plan.' Unpublished report prepared for City of Brimbank. 2010:4.

[43] *ibid., p.42.*

[44] *ibid., p.44.*

[45] Murphy, A. & Amorosi, L. 'Residential subdivision 55A Oakwood Road, Albanvale Cultural Heritage Management Plan'. Unpublished report prepared for Alto Property Group Pty Ltd. 2010:61.

[46] *ibid., p. 79.*

[47] *ibid., p.82.*

5.7.10 Howell-Meurs et al (CHMP 10287)

Andrew Long & Associated were commissioned by City West Water to prepare a voluntary CHMP for a water main, the proposed construction of which may disturb Aboriginal heritage sites. The desktop assessment determined that there were three previously registered Aboriginal places, artefact scatters (VAHR 7822-0247, 7822-0310, 7822-1130) within the activity area[48]. One previously unrecorded Aboriginal places (VAHR 7822-2168) was recorded during the standard assessment[49]. Sensitive landforms identified during the standard assessment include areas within 200m of Kororoit Creek and other small tributaries. The remainder of the activity area was considered to have low-moderate archaeological sensitivity. Complex assessment confirmed Aboriginal places VAHR 7822-0247, 7822-0310 and 7822-1130 all had a subsurface component. Subsurface testing revealed that VAHR 7822-2168 did not have a subsurface component[50].

5.7.11 Murphy & Morris (CHMP 12468)

Archaeology at Tardis were commissioned by DFM (Project Management) Pty Ltd to prepare a mandatory CHMP for a residential development at Burnside, approximately 2.1km east of the current activity area. The property had previously been subject to a heritage assessment prior to the enactment of the Aboriginal Heritage Act 2006. Four Aboriginal places had been previously registered within the activity area during the initial Aboriginal Heritage assessment (VAHR 7822-0247, 7822-0568, 7822-1439 & 7822-2168)[51]. VAHR 7822-0247 is a large stone artefact scatter which contained 4255 basalt, chert, quartz, glass, hornfels, quartzite and silcrete artefacts. The nature and extent of VAHR 7822-0247 assessment had been previously identified during the initial Heritage Assessments conducted for the activity area. The remaining Aboriginal places within the activity area all comprised isolated silcrete artefacts. No additional Aboriginal heritage places were

[48] Howell-Meurs, J., 'Westwood Drive Water Main, Burnswide Aboriginal Cultural Heritage Management Plan'. Unpublished report prepared for City West Water 2008:21.

[49] *ibid., p.33*

[50] *ibid., p.63*

[51] Murphy, A. & Morris, A. 'Burnside Residential Subdivision Stage 1 Cultural Heritage Management Plan.' Unpublished report prepared for DFC (Project Management) Pty Ltd 2013:8.

located during a complex assessment of the activity area. The complex assessment methodology comprised the excavation of five 4m x 4m test trenches in areas which had not been subject to mechanical disturbance and six 0.5m x 0.5m test pits within the boundary of VAHR 7822-0247 to confirm its disturbed nature. Only one trench, trench 2, contained artefacts (n = 4).recovered between 2-8cm. Trench 2, a 4m x 4m trench, was excavated within the boundary of a previously registered Aboriginal place (VAHR 7822-0568)[52].

5.7.12 Matthews et al (CHMP 11273)

Andrew Long & Associates were commissioned by the Regional Rail Link Authority to complete a CHMP to complex assessment level for the construction of a regional rail link from Werribee to Deer Park. The activity is located 2km south east of PSP 1080 and is a linear corridor stretching 17.5km[53]. A desktop assessment revealed that eight previously registered Aboriginal places, all artefact scatters, were partially or entirely within the activity area, however some of these Aboriginal places have been destroyed by road construction[54]. The standard assessment failed to relocate these Aboriginal places, which were believed to have been destroyed. The standard assessment did however confirm that large sections of the activity area had undergone various disturbances, predominantly associated with agricultural and horticultural activities. The complex assessment involved the excavation of 355 40cm x 40cm shovel test pits, one 50cm x 50cm test pit, one 10m linear trench and 22 1m x 1m test pits. A total of 1387 artefacts were identified during the complex assessment consisting of flakes (77.4%), angular fragments (11.4%), tools (8.3%), cores (2.5%), manuports (0.4%) and a core fragment (0.1%). Of the ten Aboriginal places located, formal tools were only located at two Aboriginal places (VAHR 7822-2975 & 7822-2977)[55].

[52] ibid., p.46.

[53] *Matthews, D., de Lange, J., Feldman, R., Albrecht, M. Whincop, M., & Thomas, S. 'Regional Rail Link RRL2 Werribee River to Deer Park Cultural Heritage Management Plan'. Unpublished report prepared for the Regional Rail Link Authority. 2012:v.*

[54] *ibid., p.37.*

[55] *ibid., p.100.*

5.7.13 Adams et al (CHMP 10817)

Urban colours prepared a mandatory CHMP on behalf of Brimbank City Council for a recreation park at Deer Park. The study area comprised an 8ha open spaced area bounded by Neale Road to the South, Kororoit Creek to the west and north, and residential subdivision to the east. The activity area included portions of the current activity area along Kororoit Creek.

Areas considered sensitive for archaeological evidence were:

- The basalt plain within a 250m wide strip running parallel to the edge of the creek.
- The creek embankment amongst basalt outcrops.
- The alluvial plains and boulder fields in the floor of the creek[56].

A pedestrian survey of the activity area was undertaken to test the predictive model. The survey identified Aboriginal archaeological evidence in higher densities on the steep, erosional basalt escarpment, typically within 15 - 20m of Kororoit Creek. Artefact scatters were typically lower in density on the volcanic plains landform.

The CHMP proceeded to subsurface investigation. A total of 191 stone artefacts were recovered from two 1m x 1m test pits and 88 shovel probes (40cm x 40cm). Artefacts were recovered up to 40cm below current ground surfaces. Soils within the activity area comprised red-brown silty clays, which increased in clay contact and compaction with depth. No Aboriginal archaeological evidence was recorded in the B horizon subsoil (grey clay unit), which was considered to be culturally sterile[57].

[56] *Adams, C., Brennan, G., Deftereos, G. & McAlister, R. 'Isabella Williams Memorial Reserve, Deer Park: Park Development Cultural Heritage Management Plan. Unpublished report prepared for Brimbank City Council 2010:5*

[57] *ibid., pp.77-78*

5.7.14 Bullers et al (CHMP 11768)

Ecology & Heritage Partners was commissioned by the Regional Rail Link Authority to complete a CHMP to complex assessment level for a section of the regional rail link extending from North Melbourne to Deer Park, approximately 1km southeast of the current activity area[58]. No Aboriginal places were identified during a survey conducted as part of a standard assessment for the activity area; however one area of Aboriginal archaeological sensitivity was identified[59]. The area of sensitivity identified comprised a lower slope of a large hill adjacent to Stony Creek[60]. The complex assessment consisted of the excavation of one 1m x 1m test trench and forty 50cm x 50cm shovel test holes were excavated within the activity area. No Aboriginal cultural heritage was located during the assessment[61].

5.7.15 Berelov et al (CHMP 11416)

Australian Cultural Heritage Management was engaged by Arup Melbourne to complete a CHMP to standard assessment level for a Growth Area Stations Program to provide access to rail transport in Melbourne's growth areas. The activity area comprised a road reserve approximately 1km east of PSP 1080[62]. The desktop assessment identified one Aboriginal place, an artefact scatter, within the activity area – this was not relocated during the survey conducted as part of the standard assessment. The standard assessment found that the activity area had been substantially disturbed by construction of the road and that there was no potential for Aboriginal archaeological places within the activity area[63].

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[58] *Bullers, R., Burch, J., MacManus, T., Harbour, M. & Syzdzik, S. 'Regional Rail Link, Section 1: North Melbourne to Deer Park Victoria: Aboriginal Cultural Heritage Management Plan'. Unpublished report prepared for the Regional Rail Link Authority. 2012:i*

[59] *ibid., p.ii.*

[60] *ibid., p.78.*

[61] *ibid., p.109.*

[62] *Berelov, I., Ricardi, P. McMillan, R. & Thiele F. 'Cultural Heritage Management Plan for the Growth Area Stations Project – Caroline Springs Station Access Road Englargement, Christies Road, Ravenhall". Unpublished report prepared for Arup Melbourne. 2010:v.*

[63] *ibid., p.28.*

5.7.16 Ricardi et al (CHMP 11129)

Australian Cultural Heritage Management was commissioned by Arup Melbourne to undertake a CHMP to complex assessment at 1183-1199 Western Highway, Ravenhall[64], approximately 1km east of the current activity area. A survey of the activity area revealed that the entire activity area had been subject to significant ground disturbance in the past, therefore a complex assessment was not considered necessary[65].

[64] *Ricardi, P., McMillan, R. & Thiele, F. 'Cultural Heritage Management Plan for the Growth Area Stations Project - 1183-1199 Western Highway, Ravenhall. Unpublished report prepared for Arup Melbourne. 2010:v.*

[65] *ibid., p.18.*

5.8 Ethnohistorical Background

This section presents a history of Aboriginal occupation and possible uses of the activity area based on documentary evidence and early ethnographic records. This information is important in providing a context to the archaeological investigations, to assist in interpreting the results of the archaeological test excavations and to aid in assessing the cultural heritage values of the area.

5.8.1 The *Woi wurrung* Language Group

According to Clark, at the time of contact the activity area lay within the boundaries of the *Woi wurrung* language group. The boundaries of the *Woi wurrung* clans are believed to have included the Yarra and Maribyrnong River basins, extending west as far as the Werribee River and north to the Dividing Range, from Mt Baw Baw to Mt William.[66] Howitt, an early European observer, described the boundaries as:

"From the junction of the Saltwater [Maribyrnong] and Yarra Rivers, along the course of the former to Mount Macedon, thence to Mount Baw-Baw, along the Dividing Range, round the sources of the Plenty and Yarra to the Dandenong Mountains, thence to Gardiner's Creek and the Yarra to the starting point".[67]

The *Woi wurrung* language group was made up of four primary clans, the *Gunung-willam balug*, *Kurung-jangbalug*, *Marin balug* and *Wurundjeri balug*. The *Gunung-willam balug* contained a sub-group (most likely a patriline) known as *Talling willam*, and the *Wurundjeri balug* held two such sup-groups, the *Wurundjeri willam*, and *Bulug Willam*. *Wurundjeri willam* was further divided into three smaller groups or 'tracts', each of which were identified as occupying specific areas of land.[68] According to Clarke, the activity area was most likely occupied by the *Talling willam* or more likely the *Marin balug* at the time of European contact.

[66] *Clark, I. 1990. Aboriginal Languages and Clans: An Historical Atlas of Western Central Victoria. Monash Publications in Geography No. 7.*

[67] *Goulding, M. & Menis, M. 'Moreland Post-Contact Aboriginal Heritage Study', Unpublished report prepared for Moreland City Council by Goulding Heritage Consulting Pty Ltd, 2006, pp. 27*

[68] *Clark loc. cit.*

The *Woi wurrung* clans formed part of "the larger East Kulin speakers" whose identity was premised on a shared language and connection to country.[69] These groups also shared practices relating to initiation, burial, kinship, marriage and religion[70], but they also maintained significant social differences.[71]The languages of the *Bunwurrung* and *Daung wurrung* speaking people were the most linguistically similar to the *Woi wurrung*, with whom they held a significant (approximately 75 percent) shared vocabulary.

5.8.2 Lifestyle of the Traditional Owners

A review of ethnohistorical records relating to Aboriginal use and occupation of the region aims to identify ways in which Aboriginal people interacted with, and potentially left archaeological traces on, their environment. Although these early observations have the potential to provide useful information about Aboriginal society at contact, the information they do provide is of necessity incomplete, and subject to varying degrees of bias.

Ethnohistorical references to the *Woi wurrung* are fragmentary at best, and no source comparable to the notes made by Assistant Protector William Thomas about the adjacent *Bun wurrung* exists for *Woi wurrung* clans.[72] The following ethnohistory is thus largely based on accounts of wider clan gatherings, or more generalized information about the Aboriginal people of Port Phillip.

5.8.3 Food Resources

Although traditional food gathering practices and access to resources were necessarily restricted by European occupation of the region at the time, ethnohistorical sources record Aboriginal exploitation of a range of plant and animal foods during the contact period. Food resources in the region would have been comparatively plentiful across the region in the pre-contact period. Plant

[69] *Howitt, A.W. 'The Native Tribes of South-east Australia, Aboriginal Studies Press', Canberra, 1996, pp. 336-338*

[70] *Howitt loc. cit.*

[71] *Broome , R. Aboriginal People of Victoria, ATSIC, Canberra, 2002, pp. 3*

[72] *Presland, G. 'An archaeological survey of the Melbourne Metropolitan area', unpublished report to the Victorian Archaeological Survey, 1983, pp.20*

foods comprised an important part of the diet of the local *Woi wurrung* peoples, having the advantage over animal resources in that they provided a resource that was 'more regular and reliable than that derived from hunting or fishing'.[73]

Of the wide variety of plant foods commonly exploited by local Indigenous peoples, the tuber of the Yam Daisy, or Murnong, was commented upon by European observers as providing a staple food resource. Thomas records the Murnong being eaten both raw (from younger plants), and after being cooked in the ashes of a fire when more mature and fibrous.[74] Tubers such as that of the Yam Daisy provided a valuable source of carbohydrate for Indigenous populations of the region in spring and early summer, supported by other common plant foods such as the ferntree (bracken) pulp and 'some parts of a thistle'.[75]

The Indigenous peoples of Port Phillip also readily exploited the fresh and salt-water animal resources of the region. Thomas[76] noted the plentiful supply of eels in the district during the summer, describing 'sufficient numbers to support the Yarra Tribe for one month each year', which were easily caught with the aid of a spear. Fish were obtained through the use of nets and weirs, and an early (1803) account, prior to European settlement of the area, records the presence of a weir along the Maribrynong River in the vicinity of Keilor.[77] Middens present both along the coastline and lining inland rivers and streams attest to the exploitation of shellfish as an additional food resource.

Local birdlife, reptiles and mammals also provided potential food resources for the *Woi wurrung*, with kangaroo and possum a popular staple.[78] Gaughwin details an instance where at gathering of *Bun wurrung*, *Woi wurrung* and *Daung wurrung*

[73] *Presland op. cit. pp. 35*

[74] *Goulding, M. 'Aboriginal Occupation of the Melbourne Area, District 2', unpublished report to the Land Conservation Council, Land Conservation Council, Melbourne 1988, pp.21*

[75] *Presland op. cit. pp. 35*

[76] *Presland op. cit. pp. 32*

[77] *Presland op. cit. pp. 33*

[78] *Presland op. cit. pp. 34*

tribes, part of the group travelled to the Dandenongs in order to hunt, procuring 'kangaroo, porcupine, 'native bear or sloth', wombats, oppossum and fish.[79]

5.8.4 Movements and Camps

The Woi wurrung would have moved around the region in a variety of ways and likely on a seasonal basis. Scant ethnohistorical information exists about such movements, however, with the exception of 'comings and goings from Melbourne'.[80] Most information about the movements of *Woi wurrung* comes from reports of gatherings between themselves and other clans such as the *Bun wurrung*. The following account provides a generalized picture of movements and camps across the wider Port Phillip district.

Woi wurrung clans moved around the landscape and interacted with the larger language group and more broadly within the groups that are commonly referred to as the Kulin. Intermarriage was an important part of the social structure and the rules governing marriage led to a highly complex and overarching network of kin relationships between groups. The groups of the Kulin identified with one of two moieties, waa (crow) or bunjil (eaglehawk). Moiety affiliation was inherited, and marriage partners were obtained from the opposite moiety, as Thomas noted:

"…marriages are not contracted in their own tribe, for instance, a Yarra black must get a wife not out of his own tribe, but either of the other tribes".[81]

According to Thomas, part of the affiliation with other groups was through corroborees held at new and full moon, and intertribal meetings, which were held every few months.[82] Clans would have gathered during specific times of the year for resource gathering to enact social rituals, such as coming-of-age. These meetings were important congregations that fulfilled a myriad of social functions, including

[79] *Goulding op. cit.pp.19. See also Presland op. cit. pp. 34*

[80] *Presland op. cit. pp. 31*

[81] *Thomas, W. Brief account of the Aborigines of Australia Felix (1854), in Bride, T. F. ed. (1969) Letters from Victorian Pioneers, Melbourne, 1969, pp.54*

[82] *Thomas op. cit. pp. 97*

arranging marriages, discussing politics and resolving disputes. These meetings also served as a forum for the exchanging of goods between the different groups.[83]

The following comments by Thomas illustrate facets of the traditional life of the Port Phillip Aboriginal people, and provide insight into some of the purposes of the regular inter-tribal gatherings:

"…what I can learn, long ere the settlement was formed the spot where Melbourne now stands…was the regular rendezvous for the tribes known as the Waworongs, Boonurongs, Barrabools, Niluguons, Goulbourns twice a year of as often as circumstances and emergencies required to settle their grievances, revenge, deaths etc."[84].

"…all are employed; the children in getting gum, knocking down birds etc; the women in digging roots, killing bandicoots, getting grubs etc; the men in hunting kangaroos, etc, scaling trees for opossums etc. They mostly are at the encampment about an hour before sundown – the women first, who get fire and water, etc. by the time their spouses arrive… in warm weather, while on tramp, they seldom make a miam – they use merely a few boughs to keep off the wind, in wet weather a few sheets of bark make a comfortable house. In one half hour I have seen a neat village begun and finished".[85]

Camps were generally established for a few days at a time. Hovell noted that campsites were by-and-large located on areas of higher ground, and often in close proximity to water:

"Passed a number of native huts, they are always to be found on the banks of rivers and creeks".[86]

Huts, or miams, were described by Thomas as variously 'substantially built'[87] in the area of Arthurs Seat and 'frail but answers well their purpose'.[88] Thomas also

[83] *Broome op. cit. pp. 4*

[84] *Thomas loc. cit.*

[85] *Thomas loc. cit.*

[86] *Hovell 1827: 46*

commented that a 'village of good waterproof huts could be constructed in less than an hour.[89] The composition of native huts and encampments were described by Thomas as follows:

"…a few slats of bark cut in a few minutes…these slats of bark are about 6' long oblique raised to the angle of about 20 degrees windward, every alternate sheet is reversed so no rain can enter the sides are filled up with short pieces of bark and brush and a sheet of bark at the top…A good Miam will hold 2 adults and 3 children- they are not permanent [the y] *are knocked down or burnt on breaking up the encampment".*[90]

"…[they are] *in a large encampment…divided into hamlets- some influential black taking charge of six or eight Miams, and so on say five hamlets. These hamlets are 50 yards or more from each other, while miams in a single hamlet are not more than 3 or 4 yards apart"*[91].

5.8.5 Material Culture

The Aboriginal people of the region manufactured and employed a wide range of material culture, sourced from animal, plant and earth resources available locally, in addition to resources and implements acquired through trade with neighbouring clans.

Plant resources were used in a wide variety of ways, with wood employed in the manufacture of tools such as boomerangs, spears and digging sticks, bark and reeds in the manufacture of string for bags and nets, and species of rushes in the manufacture of baskets.[92] The bark of larger trees such as the Red Gum was used to make canoes and shields.

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[87] *Thomas op. cit. pp. 1*

[88] *Thomas op. cit. pp. 88*

[89] *Thomas op. cit. pp. 93*

[90] *Thomas op. cit. pp. 88*

[91] *ibid*

[92] *Presland 1983: 35-7*

Stone resources, were employed in the manufacture of stone tools, and are the most likely form of Aboriginal material culture to survive in the archaeological record today. Presland notes that the *Woi wurrung* used a range of what he calls '"maintenance tools", usually of stone, which included hatchets, knives and scrapers'.[93] These tools were often employed in the production of other elements of material culture, including clothing and ornaments made from animal skin and bone.[94]

5.8.6 Early Settlement & Frontier Relations

In 1835, permanent European settlement began in the Port Phillip region. On the 6th June 1835, John Batman arranged the signing of a 'treaty' with spokespersons from *Woi wurrung* and adjacent clans, in order to purchase the land now occupied by Melbourne. The 'treaty', such as it was, was not considered a legal transaction by the British authorities at the time, and doubts exist over the extent to which the Aboriginal people who signed the document understood the nature of the contract.[95] From this point forward, the rapidly advancing European settlement brought about devastating changes to the already disrupted Aboriginal clans of the Melbourne region.

Dispossession of traditional land occurred as the settlers and their livestock arrived and the pastoral expansion began in earnest. Severe depletion of food resources led to malnutrition within the local Aboriginal communities by the late 1830s.[96] European expansion caused structural changes within Aboriginal societies, affecting traditional lifestyles, living arrangements and social practices as Aboriginal people were forced from their traditional lands and deprived of access to resources.

Throughout the nineteenth century and later, the lives of Aboriginal people in the activity area region and all across Victoria were greatly influenced by various government policies of Aboriginal “protection” and “management”. The first of

[93] *Presland 1983: 37*

[94] *Presland 1983: 37*

[95] *Goulding 1988: 27*

[96] *Presland 1983: 13*

these was put in place in an attempt to lessen the impact of European settlement on the Aboriginal people of the then Port Phillip District of New South Wales (now Victoria). As a result of recommendations made by the Select Committee Inquiry into the condition of Aboriginal Peoples, the Port Phillip Aboriginal Protectorate was created. The Protectorate consisted of Chief Protector George Robinson and four Assistant Protectors whose task it was to not only physically protect the Aboriginal people of the district, but also to "civilize them, to teach them agriculture, house-building and other white employments, to educate them to a settled European life style and to convert them to Christianity".[97] The protectorate lasted for only 10 years (1839-1849) and was generally deemed to be a failure.

By the early 1850s the Aboriginal population of the region had severely declined and following the abolition of the protectorate came a decade of what Christie has described as "almost complete government neglect" of the Aboriginal people of Victoria.[98]

In 1863 the Coranderrk Aboriginal Station was established in the area of present-day Healesville on the land of the *Wurundjeri-willam*. The original occupants of the station were *Woi wurrung* and *Daung wurrung* speaking people although in later years people from other areas settled at the station.[99]

The commencement of the reserve and mission system saw the beginnings of greater government control and regulation of the lives of Aboriginal people. The passing of the 1869 Act for the Protection and Management of the Aboriginal Natives of Victoria provided the Central Board, then changed to the Board for the Protection of the Aborigines (BPA), with greater power over the lives of individuals, making the reserves or mission "prescribed places for Aboriginal people to live [and] set out the form of work contracts and certificates for which they were eligible".[100] The BPA could stipulate where people could live and decide whether

[97] *Christie 1979: 85, 89*

[98] *Christie 1979: 136*

[99] *Barwick 1998*

[100] *Broome 2005: 131*

and where they could work. Aboriginal people living within the Port Phillip district were gradually relocated to Coranderrk, which operated until the 1920s.[101]

5.9 Environmental Context (Landforms & Geomorphology)

Archaeological assessment reports include information about the environmental context of study areas because of the important role environmental characteristics played in influencing the types of archaeological sites in any given area. Physical environments influence both the type and availability of natural resources and the types of cultural activities that were carried out in the past. Correspondingly, this also influences the types of archaeological sites that may be found.

A determination of the former environmental context is essential to develop accurate models of cultural activity, site distribution patterns and the archaeological potential of any given area. The environmental setting of the activity area is discussed below.

5.9.1 Landscape and Published Geological Mapping

The Kororoit PSP is characterised by low slope gradients and a broad flat, gently undulating volcanic plain formed from sheetflow basalt parent material associated with the Newer Volcanics.

Geological and soil landscape mapping provides a useful insight into the expected conditions within the activity area, but due to the scale of the mapping (1:100,000) it is not a reliable predictor of conditions on the ground at any place. Ground truthing is usually required to confirm geological and soil types.

Published data produced by DSE interactive map shows the geology of the activity area is comprised entirely of an Unnamed sheetflow basalt (Qno1) (Figure 5).

The Qno1 Newer Volcanic plains that dominate the west of Melbourne are usually associated with thin clay loam soil profiles overlaying heavy clay B horizon subsoils

[101] *Goulding & Menis 2006: 75-9*

formed from decomposing basalt parent material. The landscape is also typically littered with basalt boulders and cobbles.

Although not shown on the published geological mapping, there are also likely to be narrow quaternary alluvial flats (QA1) adjacent to Kororoit Creek.

5.9.2 Drainage and Water Resources

Kororoit Creek, flows west-east through the centre of the PSP 1080, demarcating the boundary between the suburbs of Plumpton (North of Kororoit Creek) and Rockbank (South of Kororoit Creek). Kororoit Creek is a higher order drainage line that rises in the outer north-western suburb of Sunbury and meanders through more densely urbanised suburbs of Caroline Springs, Sunshine, Deer Park, Brooklyn and Altona before flowing into Port Phillip.

Substantial drainage works associated with urban development have been undertaken along Kororoit Creek. These modifications have affected original hydrology patterns. There has also been works within and adjacent to the creek for road and bridge construction, landscaping, recreational purposes (parks), erosion control and flood management. These have resulted in straightening of the drainage line within the creek valley and flood scouring along the base and lower slopes of the valley.

There are several very minor unnamed drainage channels within PSP 1080 (see Figure 7), these are first order tributaries of Kororoit Creek. Kororoit Creek has been substantially modified by agricultural activities and urbanisation of the Plumpton and Rockbank localities.

5.9.3 Vegetation

Published information on vegetation and biodiversity is included on the Victorian Resources Online website (VRO). It provides a good indication of the prevailing vegetation patterns prior to European settlement and clearance of the land. For the purposes of showing the general patterns of vegetation across the study area,

the VRO 1750 Vegetation Communities (EVC) Map relevant to the study area is shown on Figure 6.

The predicted 1750 EVCs within the activity area are Plains Grassland and Plains Grassy Wetland, Lignum Swamp and Plans Grassy Wetland. Creekline Grassy Woodland is restricted to the Kororoit Creek corridor.

Analysis of current aerial photographs of the activity area confirms that, with the exception of dispersed trees and isolated pockets of vegetation, the original vegetation has been largely cleared off the land.

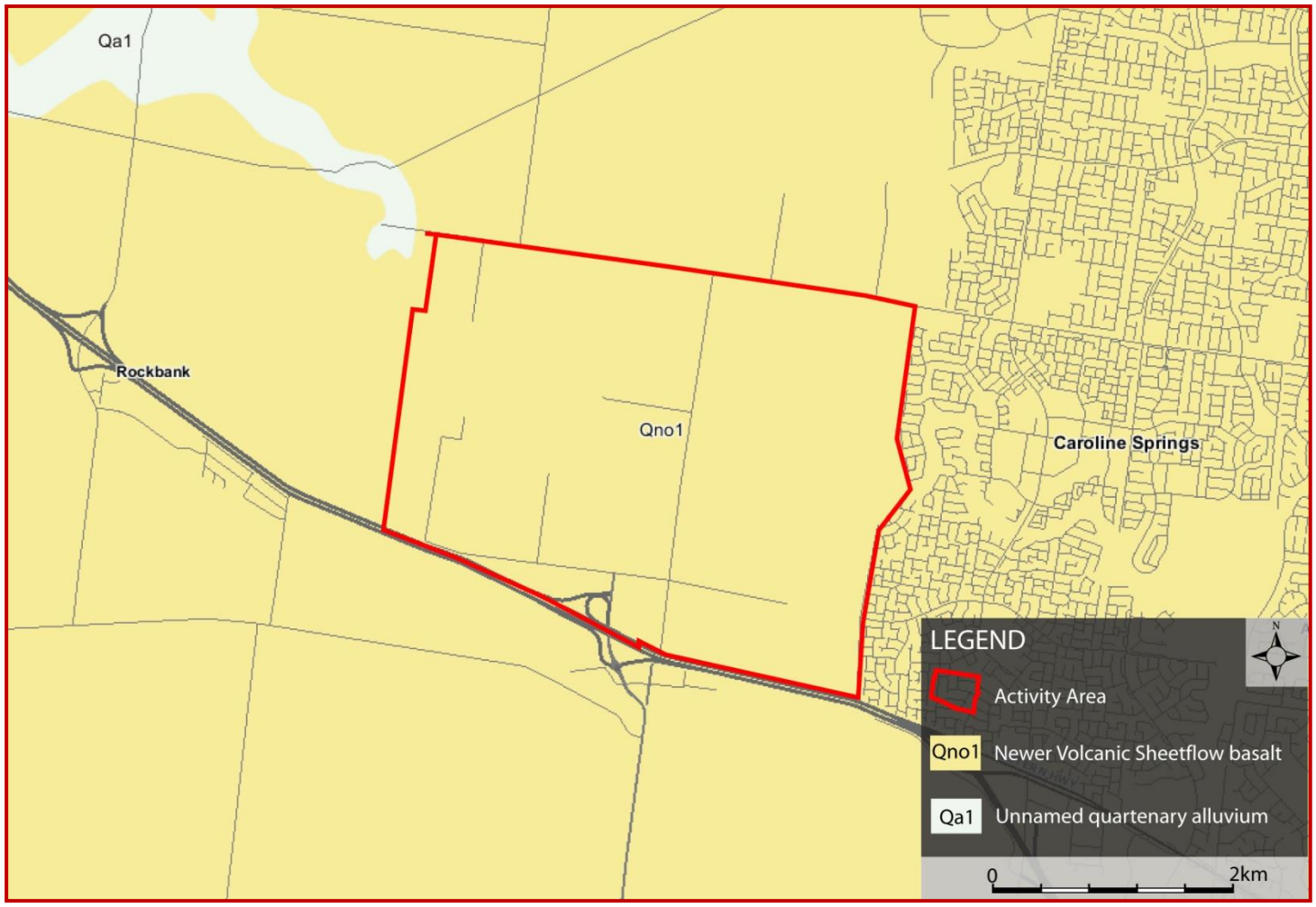

Figure 5. Geovic Geological Mapping. Dept of Primary Industries.

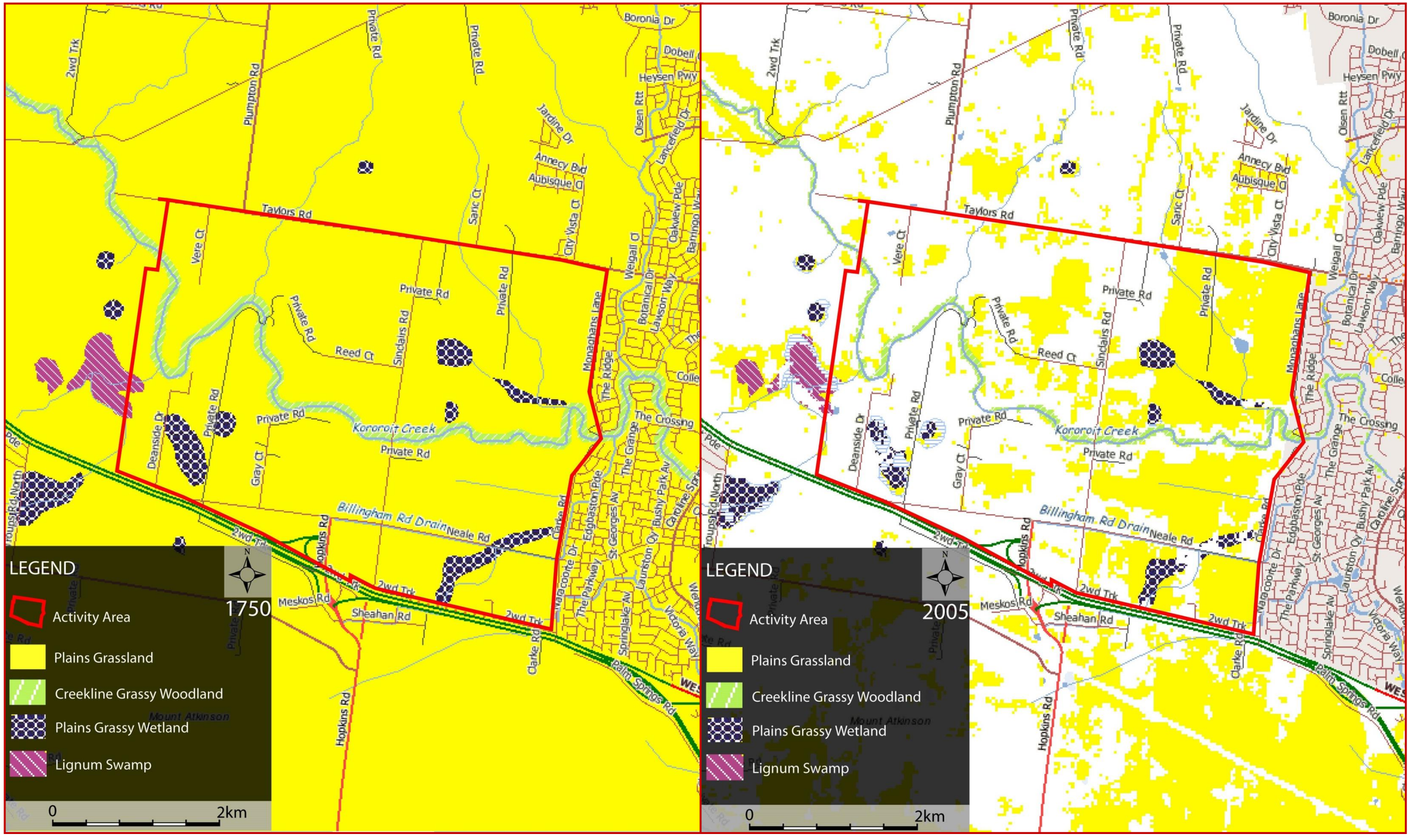

Figure 6. Ecological Vegetation Classes (EVCs) within the activity area. Source: Department of Environment and Primary Industries Biodiversity Interactive Map.

5.9.4 Landforms within the activity area

Detailed LIDAR Contour mapping indicates the study area is situated on a low relief and generally featureless Volcanic Plain landscape bisected horizontally by Kororoit Creek and some minor drainage channels which drain towards Kororoit Creek from the north. Several swamps and two potential low rises adjacent to Kororoit Creek were also identified from a review of the LIDAR contour mapping (Figure 7).

Kororoit Creek is a higher order drainage line that crosses the activity area. The Creek watershed commences in the outer north-western suburb of Sunbury and meanders through more densely urbanised suburbs of Sunshine, Deer Park, Brooklyn and Altona before flowing into Port Phillip. There are also three minor low order drainage lines that form tributaries of Kororoit Creek.

Slope gradients within the low relief landscape are generally low and creek valleys typically comprise gentle to moderate simple slopes to Kororoit Creek.

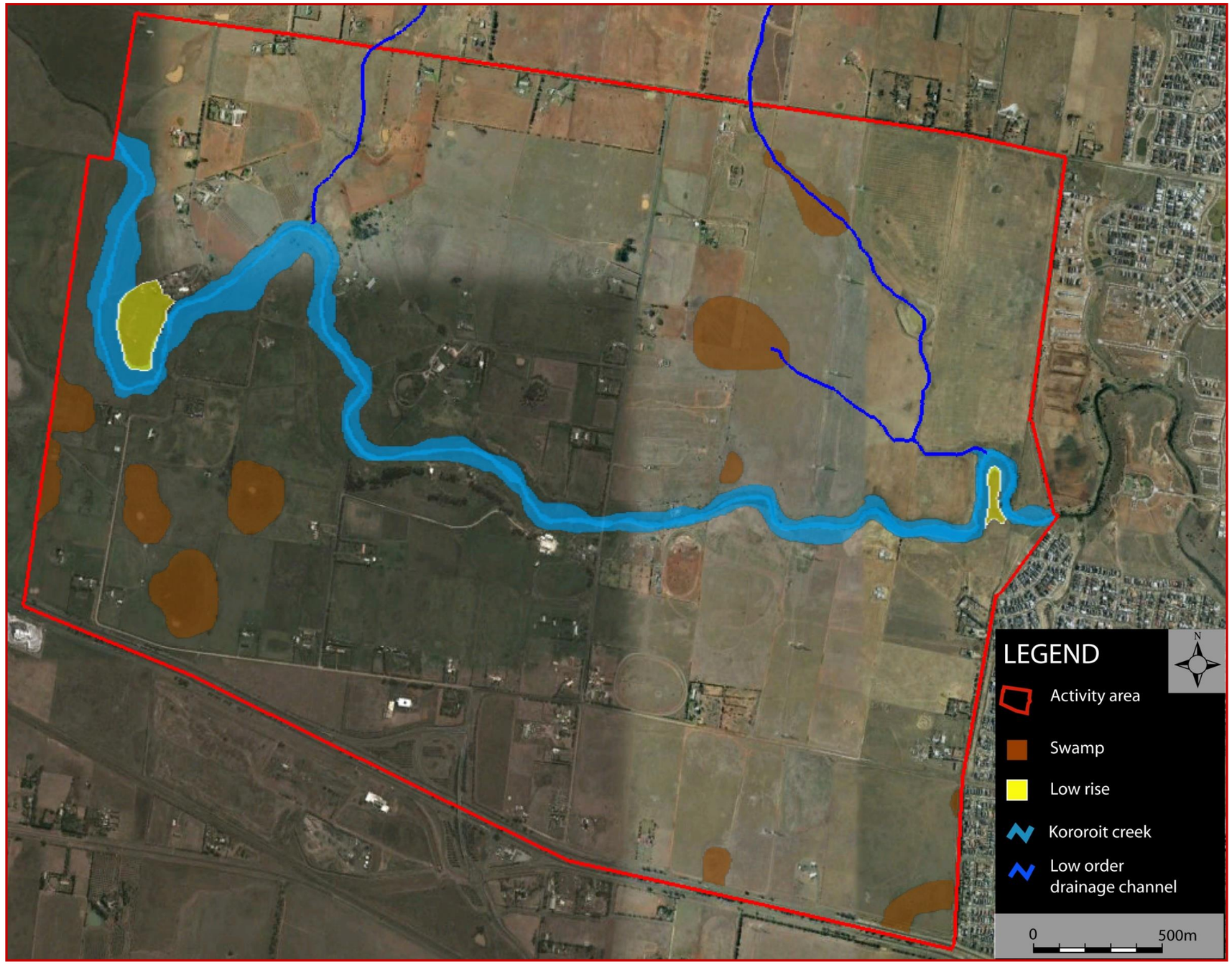

Figure 7. Landforms identified within the Kororoit PSP 1080 activity area

5.10 Land use History

5.10.1 Land Use History in the West Region

Andrew Long and Associates[102] completed a generalised land use history for the West Growth Areas. The following is a brief summary of the findings for the region:

Early settlement in the West Region between 1850 to 1890 was largely by pastoralists, namely the Chirnside family who held a large sheep run in the area. By 1900 agriculturalism was beginning to spread throughout the Western region and by the 1940's dairy farming, market gardening, fruit growing and poultry farming had also been introduced across the region. Due to the dry climate of the western region crops were limited initially to cereals, however, once efficient irrigation systems were introduced other more luxury crops were introduced across the area[103].

5.10.2 Land use disturbance history in the activity area

In order to identify the extent and nature of past land use disturbance within the activity area we reviewed recent NearMap high resolution aerial photography and a series of historical aerial photographs obtained from the Land Victoria Laverton Aerial Photography Archives. Our analysis of the aerial photography indicates the primary land uses within the activity area were pastoral and agricultural with some cultivation.

Prior land-use disturbances identified during our analysis of current and historical aerial photographs are listed below and are shown on Figure 8 and Figure 9.

- Repeated ploughing;
- Clearing of native vegetation across the majority of the activity area;
- Construction of fences;

[102] *Andrew Long and Associates 2010 Volume 2 Section 10 (Draft PP49-58)*

[103] *Andrew Long and Associates 2010 Volume 2 Section 10 (Draft PP 72-85)*

- Construction of houses and out buildings;
- Construction of driveways and tracks throughout the activity area;
- Excavation of Dams within the activity area; and
- Some limited orcharding, not visible on historic aerial images, but evident on recent Nearmap 2013 images.

Figure 8. 1969 & 1973 Composite of Historic Aerial of the PSP 1080 Activity Area. Source: Department of Environment & Primary Industries Historic Aerial Library

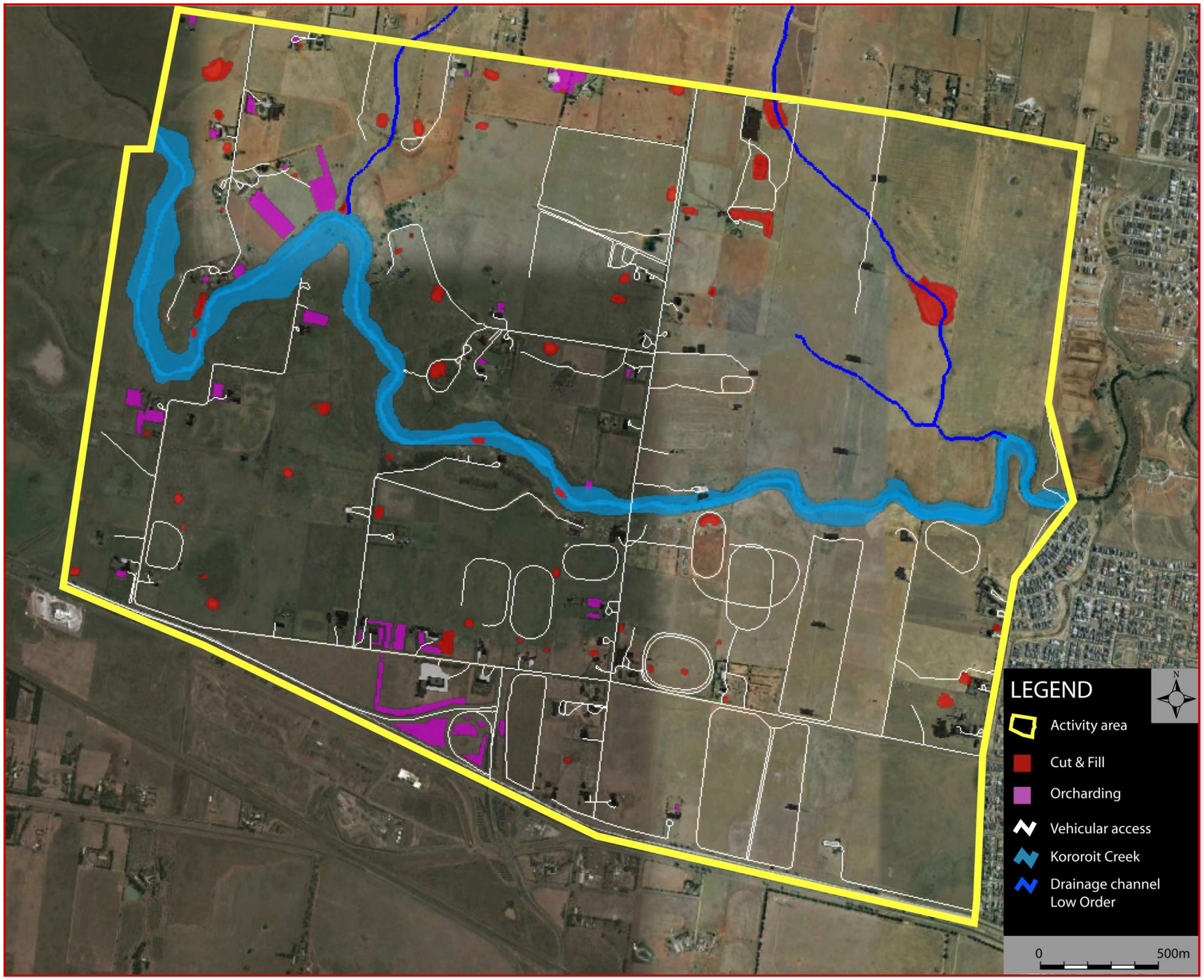

Figure 9. Disturbance identified within the Kororoit 1080 activity area. Source: Google Earth 2013 Image.

5.11 Desktop Assessment Conclusions

The Desktop Assessment described in the preceding chapters of this heritage assessment has been used to identify prevailing Aboriginal site settlement patterns within the region and in the local area surrounding the activity area.

Analysis of historical aerial photographs, maps and plans and early accounts of Aboriginal settlement allowed us to identify original environmental characteristics of the area. This was useful in identifying areas of past ground disturbance that may have affected the integrity and significance of archaeological deposits. It also assisted in identifying portions of the activity area that would have been more attractive places for Aboriginal occupation and use.

The VAHR site distribution patterns and regional studies summarised above indicate the dominant site types within the Kororoit PSP activity area are likely to comprise artefact scatters, sub-surface stone artefact deposits, scarred trees and isolated artefact occurrences.

Currently at least 42 properties within PSP 1080 are located within areas of cultural heritage sensitivity and will require completion of mandatory Cultural Heritage Management Plans (**Table 5**) in advance of Planning Permit approvals for future subdivision and development. All landowners should seek advice from a Cultural Heritage Advisor or OAAV early in their development planning process to ensure no new areas of cultural heritage sensitivity have been added that may trigger a requirement to prepare a CHMP.

The distribution, density and size of known Aboriginal archaeological sites is largely dependent on environmental context, post-contact land use and erosion / site formation processes. There is likely to be a correlation between fresh water sources and Aboriginal archaeological deposits. Numerous studies have indicated a higher density and frequency of deposits exist in close proximity to water sources. There is likely to be a higher density and frequency of archaeological deposits in close proximity to drainage channels within the activity area.

Stone sources are also likely to be associated with a higher density and frequency of archaeological deposits reflecting on-source primary reduction. Resource intersection zones, stream confluences and transitional vegetation may also be associated with a higher density and frequency of archaeological deposits. Crest landforms may also be associated with a higher density and frequency of surface artefacts and sub-surface archaeological deposits.

Other factors (as yet untested in the region) in archaeological potential may include slope gradient, aspect, landform and soil landscape type.

Past disturbance is also likely to have affected the potential for and integrity of archaeological deposits in any given area. Areas that have been permanently or regularly inundated (such as large swamps) may have a lower level of potential because they were unsuitable for occupation and use.

5.12 Predictive Model

Drawing on the results of desktop research and our analysis of landforms and prior disturbance within the PSP, we make the following predictions:

- Stone artefact deposits are likely to be found at varying densities across most landforms within PSP 1080;
- Higher density artefact scatters and sub-surface deposits may be found on crest landforms;
- Higher density artefact scatters and sub-surface deposits may be found adjacent to original drainage channels, particularly permanent and reliable water sources such as Kororoit Creek;
- The density and complexity of artefact scatters and sub-surface deposits is likely to decrease with distance from water sources and wetlands;
- Higher density of artefact scatters and sub-surface deposits will be found in close proximity to stone sources (either outcrops or river pebble sources);

- Scarred trees may be present within areas containing mature remnant native trees of sufficient age and as isolated mature trees in agricultural settings;
- Isolated finds may be found anywhere across the landscape;
- Ceremonial places may be present in the landscape, but may not be archaeologically visible; and
- Stone arrangements may be found across the landscape.

Due to the large area covered by the Kororoit PSP, we used MapInfo GIS (Geographical Information System) to develop and map the predictions made regarding archaeological potential. The purpose of the predictive model was to:

- Provide the Metropolitan Planning Authority, individual landowners within the PSP and the Aboriginal community with information about areas of Aboriginal archaeological sensitivity to feed into constraints and opportunities analysis,
- Help inform early PSP planning and design work, and
- Provide part of the desktop assessment component of CHMPs, and
- To assist in developing a methodology for complex assessments.

In developing the model, we drew on a number of environmental and disturbance variables that were used to identify areas of varying 'archaeological sensitivity'. For the purposes of the model, the term 'archaeological sensitivity' is defined as a combination of likely density, integrity and research value of archaeological deposits within any given area.

5.12.1 Factors Included in the Predictive Model

The following is a list of variables that contribute to archaeological potential within the Kororoit PSP 1080 activity area. The variables are ranked in order of importance.

Proximity to water sources (including drainage channels & swamps).

Proximity to water is one of the key determinants of archaeological potential. In general, sites are larger, more complex and more frequently found in close proximity to water sources. Levels of sensitivity are predicted to increase with higher order drainage lines and more permanent wetlands. Drainage and hydrology patterns have been significantly altered since European settlement in order to retain water in storage dams for agricultural purposes and drain waterlogged areas to open them up for grazing and cultivation. GIS-modelling combined with analysis of topographic maps and historic aerial photos has been used to determine the likely extent of former drainage channels and water sources.

Kororoit Creek, a high order drainage channel, bisects the Kororoit PSP activity area, demarcating the boundary between the suburbs of Rockbank and Plumpton. Three other minor drainage lines also cross the activity area are low order and were unlikely to have provided permanent or reliable water sources, therefore the level of likely sensitivity associated with these water sources is lower than would be the case for higher order permanent drainage lines.

Archaeologically sensitive alluvial landforms are also likely to be present adjacent to larger order drainage lines such as Kororoit Creek.

Crest Landforms.

Previous investigations in the area have shown that crest landforms are often associated with a higher density and frequency of archaeological deposits – particularly when they are also located in close proximity to water sources. Crest landforms were delineated using aerial photography and LiDAR topographic

mapping. The extent of the crest landforms was mapped using Map Info GIS software.

Areas of cut and fill disturbance.

These areas are considered unlikely to contain Aboriginal archaeological deposits because topsoil units (i.e. artefact bearing soil units) have been removed. These areas include roads, dams and the construction of building platforms for houses and sheds. They are considered to have negligible archaeological sensitivity.

Areas of Orcharding

These areas are considered to have a very low level of archaeological sensitivity because topsoil units have been heavily disturbed by deep ploughing, establishment of garden beds, re-grading and establishment of sub-ground watering systems. These areas may contain Aboriginal cultural deposits but they are likely to have a very low level of integrity and a very low level of scientific significance.

5.12.2 Factors Not Included in the Predictive Model.

The following variables were not included in the model, because the desktop assessment research and analysis of the local landscape indicated they are unlikely to be factors that affect local archaeological patterning within the subject land.

Previously recorded Aboriginal archaeological sites.

These places/sites have been shown on the sensitivity maps but have not been included as an influence on archaeological sensitivity in the model. This is because most of the sites are surface artefact scatters identified on erosional landforms, in areas of ground exposed by soil disturbance and within areas specifically investigated during previous archaeological studies. Therefore, the current local distribution of known sites is unlikely to accurately reflect the real distribution and nature of sub-surface archaeological deposits.

It is important to note that under the Aboriginal Heritage Act 2006 it is offence to disturb or destroy Aboriginal sites or objects except where a Permit to Harm has been approved by OAAV and/or an approved CHMP allows for the disturbance. It is also important to note that areas within a 50m radius of known Aboriginal places are considered to be areas of cultural heritage sensitivity under the Aboriginal Heritage Regulations 2007 and may have implications for whether or not a CHMP is required for a proposed development activity.

Areas of ploughing.

Are considered to have a lower level of archaeological sensitivity because the top 20 – 30cm of topsoil has been disturbed by ploughing. These areas may contain Aboriginal cultural deposits but they are likely to have a lower level of integrity and a lower level of scientific significance. It is noted, however, that in deeper soils there is potential for more intact archaeological deposits to survive beneath the plough zone.

Areas of ploughing have not been included in the model because the PSP study area has been cleared of original vegetation and virtually the entirety of the subject lands have been subject to some level of ploughing in the past. Therefore, because the ploughing has occurred right across the study areas, it does not have an influence on the model.

Areas of remnant vegetation.

Areas of remnant vegetation are considered archaeologically sensitive because cultural deposits within these areas often have a high level of integrity as they have not been disturbed by past land-uses. These areas also have some potential to contain scarred trees. Areas of potential remnant vegetation were identified by analysing a series of historic aerial photographs of the activity area. No such areas were identified during our analysis.

Proximity to stone sources.

Aboriginal stone sources and geological mapping may provide an indication about where raw materials were gathered for making stone tools. Stone sources may occur across the local landscape in the form of boulders and weathered pieces outcropping on valley slopes and on volcanic plains, and gravels and pebbles washed downstream and deposited in alluvial terraces and on gravel bars. Dominant raw material types in the region include silcrete, quartz, quartzite and chert, with other materials such as basalt, also present. No specific stone sources or potential stone sources were identified during the Desktop research.

Slope Gradient.

The local landscape within the study areas is flat to very gently undulating. There is no steep terrain within PSP 1080. Therefore, slope gradient is unlikely to be a factor influencing archaeological potential.

5.12.3 Predictive Sensitivity Mapping

MapInfo GIS software was used to model and map the predictions surrounding archaeological potential. This allowed us to produce maps that show areas of varying archaeological sensitivity graded from high to very low. The modeling and mapping is based on a probabilistic approach, where a combination of traits was used to determine the level of potential.

The model traits for PSP 1080 are:

- Areas within 200m of Kororoit Creek (also incorporating alluvial landforms) = Very High Sensitivity;
- Crest landforms = Moderate Sensitivity;
- Areas within 200m of low order drainage channel = High Sensitivity;
- Areas within 200m of a swamp / open depression = High Sensitivity;

- Areas within open depression = Low Sensitivity;
- Market Gardening / Orcharding Disturbance = Low Sensitivity;
- Cut and Fill Disturbance = Disturbed / Negligible Sensitivity; and
- All other areas = Moderate Sensitivity.

Figure 10 shows the results of the GIS predictive model. The figure shows areas of very high potential (darker red) grading to low potential (lighter pink) to disturbed (grey).

It is important to note that the predictive sensitivity mapping is based on the results of desktop research. The accuracy of the modeling and mapping presented in this report should be quite robust, given the amount of archaeological investigation carried out over the last few years in the western growth areas that underpin the predictions made. Therefore, the sensitivity mapping could be used to inform high level PSP design work, particularly in regards to proposed configuration of open space networks, activity centers and key infrastructure such as main roads that need to be established early in the PSP planning and design process.

Please note: the predictive modeling and predictive sensitivity mapping has been refined after the standard assessment survey work, particularly to tighten-up identification of sensitive landforms and areas of prior disturbance. Additional surface sites found during the standard assessment survey would are also included in the mapping of known sites (see Figure 39 for revised sensitivity map).

The predictive modelling and predictive sensitivity mapping should be tested during future complex assessments, preferably using systematic landform based test excavation specifically designed to test conclusions made in the predictive modelling and shown on the sensitivity mapping. The model and sensitivity mapping should then be refined (if necessary) and used as the basis for making design decisions at an individual CHMP / development project level in consultation with Office of Aboriginal Affairs Victoria.

It also important to note that the predictive model and sensitivity mapping included in the desktop assessment does not include predictions about cultural values to the Aboriginal community. Identification of cultural values and places cannot be predicted by a scientific model, they can only be identified during consultation with traditional owner knowledge holders – in this case, the Wurundjeri, Bunurong and Boon Wurrung. These values are considered later in the standard assessment component of the report.

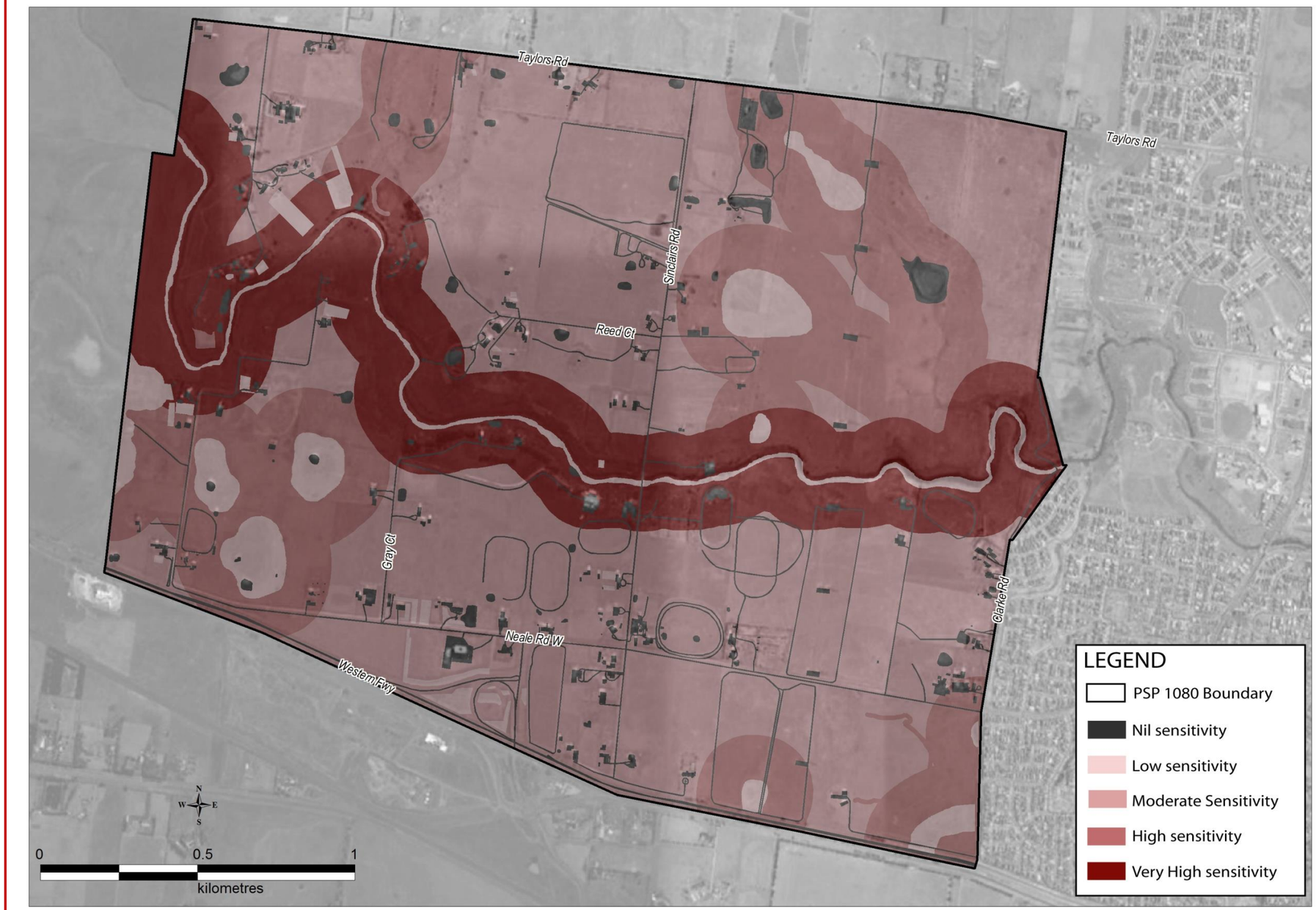

Figure 10. Predictive archaeological sensitivity model developed using the results of the Desktop Assessment.

6 STANDARD ASSESSMENT

6.1 Archaeological Survey Details

The following sections describe the results of a survey carried out by AHMS between the 15th – 18th of July, and on the 10th of September 2013, as well as an additional site visit on 29th January 2014, to discuss specific bridge crossings locations over Kororoit creek.

The principal aim of the survey was to identify exposed cultural material (i.e. surface sites) and to assess disturbance levels. The survey aimed to identify areas of archaeological potential, landforms, vegetation patterns, geomorphic units, and areas of disturbance.

The investigation was also used to assess the extent to which past land-uses may have affected natural soil profiles. This information was used to assess the depth and potential integrity (intactness) of natural soil profiles across the activity area and the likely impact of future construction.

The results of the survey were used to help inform PSP planning and design, assist in development of a complex excavation methodology and to inform development of management recommendations for the activity area.

6.2 Survey Methodology

The archaeological survey was designed to balance a comprehensive and representative sample of landforms across the activity area and landowner requirements. The survey team included Shannon Sutton & Liz Foley of AHMS. Representatives of each Registered Aboriginal Party Applicant or Traditional Owner Group (Bunurong Land Council Aboriginal Corporation, Boon Wurrung Foundation, and the Wurundjeri Tribe Land Compensation & Cultural Heritage Council) were present during the survey (the participants are listed in the Table 6 below):

Table 6: Survey Participants

Date	Wurundjeri	Boonwurrung	Bunurong
15/07/2013	[redacted]	[redacted]	[redacted]
16/07/2013	[redacted]	[redacted]	[redacted]
17/07/2013	[redacted]	[redacted]	[redacted]
18/07/2013	[redacted]	[redacted]	[redacted]
10/09/2013	[redacted]	[redacted]	[redacted]
29/01/2014	[redacted]	[redacted]	[redacted]
28/03/2014	[redacted]		

The Standard Assessment involved a five stage approach:

Stage 1 – AHMS sought contact with all landowners who had agreed to be a part of the study to arrange a date for the archaeological survey to be conducted. AHMS also sought advice from each landowner on access issues and discussed requirements which some landowners had stipulated. All of the landowners who had agreed to be part of the study were contactable. This stage of work was used to define the scope of the standard assessment, including which parcels of land would be included in the investigation and therefore form a revised 'activity area'. A map showing the participating landholdings is shown on Figure 11 and the property details are shown on Table 7.

Stage 2 - An analysis of topographic maps and aerial photographs of applicable properties was undertaken prior to the survey to identify landforms across the activity area and to identify areas of ground surface exposure in the form of tracks, unsealed roads, dams, cuttings and areas of ground exposure. These areas were targeted during the survey because they provided an opportunity to identify surface artefact scatters and to investigate exposed soil profiles.

Stage 3 - The first step we took when entering each property was to drive around the property (where the landowner had given permission) to familiarise ourselves with the landscape and identify any mature/old growth native trees and areas of ground surface visibility. This assisted in scoping out our approach to survey in each property.

Stage 4 - Following the initial scoping work surveying was conducted on foot in areas of ground surface exposure. The team typically walked in transects with a spacing of 5m between each team member.

The survey used the information obtained from analysis of aerial photographs and topographic maps (Stage 2), as well as the initial scoping work (Stage 3), to survey areas of ground surface visibility (to identify surface artefact scatters) and mature/old growth trees (to identify scarred trees). Areas of erosion and ground exposure were examined for archaeological evidence such as stone artefacts, charcoal and shell. Ground surfaces and cuttings were also examined to determine the degree of soil disturbance, erosion and potential for archaeological deposits below current ground. Mature trees were examined for evidence of scarring, axe marks and/or old footholds.

Stage 5 – Surface artefact scatters found during the surveys were recorded in detail using a pro-forma developed for field recording. The location and extent of each surface site was recorded with a Leica CS15 Differential GPS which provides sub 1 meter accuracy. Field notes were made and photographs taken to document landscape configuration, soil profiles, soil disturbance, ground visibility and vegetation types. During the survey we also sought to relocate previously registered Aboriginal places using a DGPS and the co-ordinates supplied for each place.

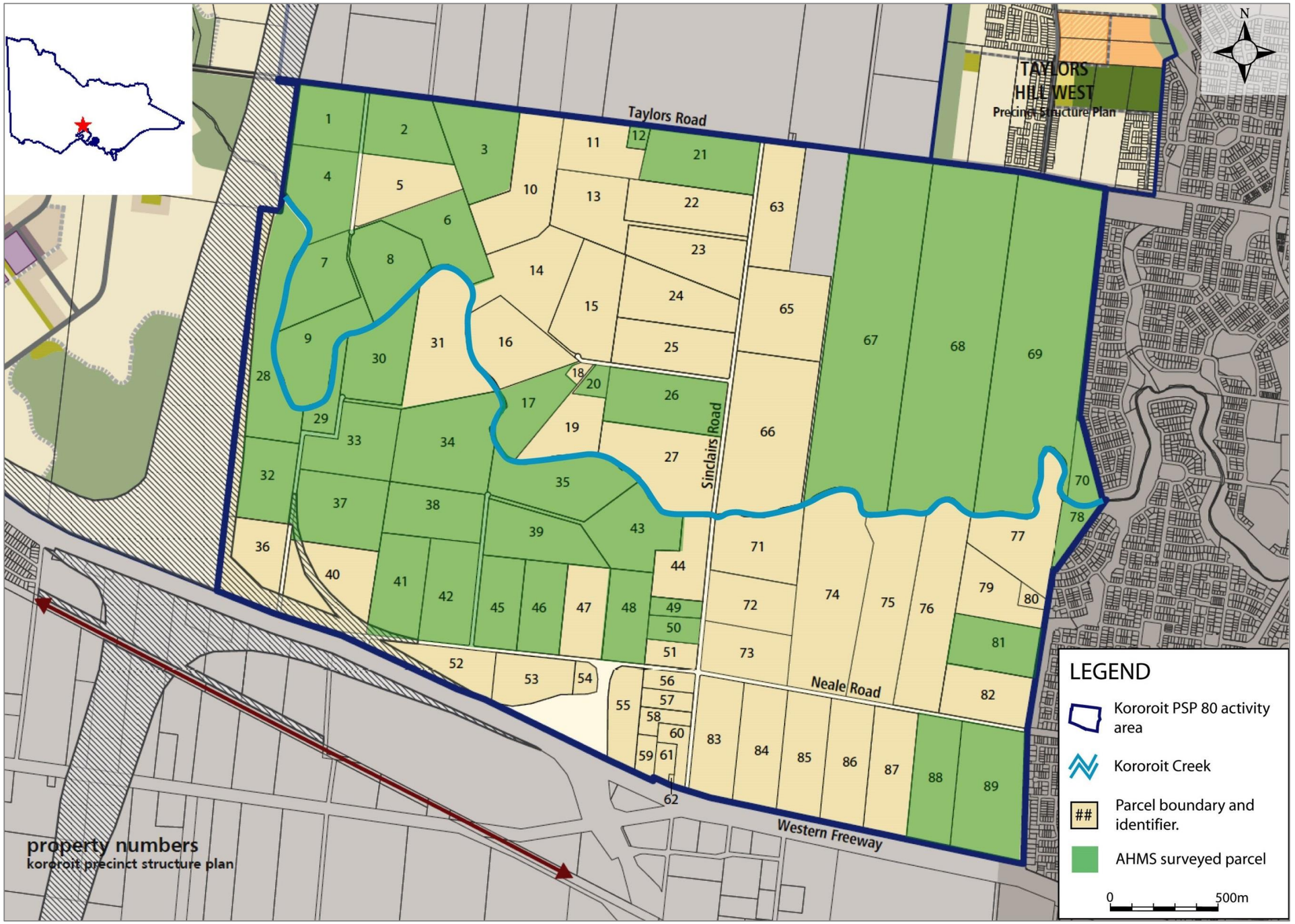

Figure 11. Landholdings within PSP 1080 subject to AHMS survey. Parcels shown as green were surveyed

6.3 Survey Coverage

A total of 43 landholdings were surveyed within the activity area (Figure 11)[104]. Details of the accessible properties and influences on survey coverage for each property are outlined in Table 7.

Survey coverage aimed to balance sampling of areas of ground surface exposure on these properties with detailed coverage of areas of moderate – high sensitivity as indicated in the predictive model developed during the Desktop Assessment. The survey also aimed to sample each of the landform types, providing coverage of crest, slope and floodplain landforms. While the entire PSP area was subject to pedestrian survey, the survey was particularly comprehensive in areas demonstrating good ground surface visibility and those areas highlighted as having the highest predicted sensitivity along the margins of the unnamed, low order drainage channels which bisect parts of the PSP.

Effective survey coverage during the survey was generally good. At the time of survey visibility was typically high, as most of the fields had been ploughed during the time of survey; however areas under crop or which had been seeded were avoided to prevent disturbance.

[104] *Note that several landowners own more than one property*

Table 7. Survey Coverage Data – PSP 1080 (refer to Figure 2 for property IDs).

PSP ID	Disturbance / Landuse	Key Landforms	[redacted]
1	Single storey dwelling. Gardens, landscaping, dam, orcharding, Pastoral disturbance (treadage & scuffage).	Gentle slope to south towards Kororoit Creek.	[redacted]
2	Single storey brick dwelling, sheds and associated yards in NE corner of property. Basalt floater removal and stockpiling across property.	Flat paddock devoid of landform features.	[redacted]
3	Large dry stone wall complex in south east quadrant of property. Vehicular access track running through centre of property. Large dam constructed in south east quadrant. Horses grazing.	Gentle simple slope to south east. Swamp in south east quadrant of property.	[redacted]
4	Single storey dwelling. Gardens, landscaping, dam. Northern paddock ploughed at time of survey. Pastoral disturbance (treadage & scuffage). Artificial embankments constructed overlooking Kororoit Creek.	Open depression (Kororoit creek), floodplain adjacent to creek, embankment (artificial in sections).	[redacted]
6	Substantial orcharding across most of the property (olive groves). Ploughing (in past). Single storey brick dwelling, associated gardens and landscaping.	Gentle slope south west towards open depression (Kororoit creek). Basalt outcrops on rise over creek. Open depression (Kororoit Creek and minor tributary). Low rise in south east quadrant of property.	[redacted]
7	Single storey brick dwelling, dam construction, vehicular disturbance.	Slopes towards Kororoit creek in southwest of the property. Floodplain along creek corridor, embankment above floodplain to east.	[redacted]

PSP ID	Disturbance / Landuse	Key Landforms	[redacted]
8	Single storey brick dwelling, substantial orcharding, south western paddock ploughed at time of survey, vehicular access tracks, sheep grazing in property.	Gentle simple slope towards creek. Outcropping basalt on embankment overlooking creek. Open depression (creek channel).	[redacted]
9	Brick dwelling, ploughing on floodplain, significant excavation for dam. Fill has been dumped on rise over creek. Vehicular access tracks. Substantial works have been undertaken on the low rise to stabilise sections of it, including excavation.	Open depression (creek) forming western and southern boundary of property. Floodplain immediately bordering open depression. Steep rise overlooking creek with basalt outcropping.	[redacted]
12	Heavily landscape block with single storey brick dwelling.	Flat devoid of landforms. Land has an extremely slight southerly aspect.	[redacted]
17	Substantial landscaping in north eastern section of property. Brick dwelling and steel sheds, roads, vehicular access tracks and a dam. Spoil heaps located south of dam are most likely a by-product of dam excavation.	Gentle south-westerly aspect to creek. Open depression (creek), low, steep rise over creek	[redacted]
19	Single store brick dwelling, minor basalt floater removal.	Flat descending to gentle simple slope towards Kororoit Creek.	[redacted]
20	Brick dwelling and landscaped yards	Predominantly flat volcanic plain. Very slight south westerly aspect towards Kororoit Creek.	[redacted]

PSP ID	Disturbance / Landuse	Key Landforms	[redacted]
21	Ploughed at time of survey. Substantial removal of basalt floaters by machine, and stockpiling of floaters around property.	Flat, devoid of landscape features.	[redacted]
26	Substantial removal of basalt floaters by machine, and stockpiling of floaters around property. House and landscaped yards.	Relatively flat paddock that slopes slight to the south towards Kororoit Creek	[redacted]
28	Double storey brick dwelling and landscaped yards, basalt floater removal, horse/ stock trampling, gate construction, vehicular access tracks.	Open depression (Kororoit Creek), steep simple slope to creek, rise over creek with lots of outcropping basalt.	[redacted]
29	Minimal landscaping. Melton City Council revegetation works being carried out at time of survey.	Open depression (Kororoit Creek), gentle simple slope to creek, rise over creek with lots of outcropping basalt.	[redacted]
30	Basalt floaters have been removed from the paddock and stockpiled. Sections of paddock have been extensively ploughed.	Continuation of landforms encountered on property ID #29. Open depression (Kororoit Creek), gentle simple slope to creek, rise over creek with lots of outcropping basalt.	[redacted]

PSP ID	Disturbance / Landuse	Key Landforms	[redacted]
31	Vehicular access tracks running adjacent to creek. Dumping of modern rubbish near vicinity of single storey brick dwelling	Flat descending to gently simple slope to creek	[redacted]
32	Heavily modified flat paddock, currently used to graze horses.	Minimal visibility due to low grasses.	[redacted]
33	Small single storey house and landscaped yard in NW section of the house. Evidence of ploughing in eastern section of paddocks. Small greenhouse in middle of western paddock.	Flat to gently undulating volcanic plain with lots of basalt floaters.	[redacted]
34	Vehicular access tracks. Removal of larger basalt floaters from the landscape and stockpiling. No infrastructure.	Open depression (Kororoit Creek) in SE quadrant of property. Predominantly flat – gently undulating volcanic plain. Gentle simple slope to Kororoit creek. Outcropping basalt floaters on break of slope above creek.	[redacted]

PSP ID	Disturbance / Landuse	Key Landforms	[redacted]
35	Substantial disturbance resulting from construction of large double storey brick dwelling. Removal of basalt floaters and stockpiling. Vehicular access tracks. Significant bank works along Kororoit creek – including cutting for a vehicular access track along steep slope, cut and fill for establishment of an artificial pondage along Kororoit creek.	Range of landforms – Broad flat elevated volcanic plain, with gentle simple slope grading to steep slope to Open depression (Kororoit Creek) North of house complex	[redacted]
37	Horse and cattle trampling. Evidence of ploughing across volcanic plain landform. Small shed in NE corner of property.	Large open depression (swamp) covering most of the western half of the property, with a small section of edge of swamp in SE corner of property extending into [redacted]. Otherwise flat, volcanic plain.	[redacted]
38	Small brick single storey house in SE corner of property. 1 small dam. Dumped and excavated fill in centre of property.	Flat volcanic plain, devoid of landform features.	[redacted]
39	Vehicular access tack. Small single storey house in SW corner of property.	Very flat volcanic plains landform.	[redacted]
41	Small single storey house and sheds in NE corner of property. Artificial drainage channel running parallel to western boundary fence.	Predominantly flat, land slopes gently to swampy depression on neighbouring property located to the immediate west ([redacted])	[redacted]

PSP ID	Disturbance / Landuse	Key Landforms	[redacted]
42	House and landscaped yards adjacent to Neale Road (extending approx. 100m north from Neale Road. West of housing complex is a small running track for horses.	Flat, devoid of landform features.	[redacted]
43	Temple and landscaped yards adjacent to Kororoit Creek. Substantially disturbed by earthworks along section of creek.	Flat descending to gently simple slope to creek.	[redacted]
44	Property contains a large brick church near eastern boundary. Substantially disturbed by earthworks along section of creek	Flat descending to gently simple slope to creek.	[redacted]
45	Small, single storey brick dwelling, several sheds. Areas of orcharding limiting to southernmost extent of property around housing complex.	Flat, devoid of landform features.	[redacted]
46	House and landscaped yards adjacent to Neale Road (extending approx. 100m north from Neale Road). Includes dams, sheds and some minor orcharding. Paddock north of house comparatively undisturbed. Currently used for grazing, cropped in the past however drought has prevented this in recent years.	Flat volcanic plain devoid of landform features.	[redacted]

PSP ID	Disturbance / Landuse	Key Landforms	[redacted]
48	Small, single storey brick dwelling and landscaped yards. Small dam in NE corner of yard. Horse trotting track in paddock north of house.	Extremely flat paddock, devoid of landform features.	[redacted]
49	Most of the block has been developed. Block contains a house, orcharding, sheds, a formal driveway and vehicular access tracks.	Flat volcanic plain devoid of landform features.	[redacted]
50	Disturbance is largely limited to the eastern half of the property and includes a single storey brick d welling, landscaped yards and excavation of an earthen embankment around the periphery of the housing complex	Flat volcanic plain devoid of landform features.	[redacted]
67	Vehicular access track. Most of the paddock had been ploughed and cropped at the time of survey.	Flat – gently undulating volcanic plain which contains a high volume of basalt floaters. Gentle simple slope to open depression (Kororoit Creek). Creek forms southern boundary of property. Minor drainage channel running east-west through centre of property.	[redacted]

PSP ID	Disturbance / Landuse	Key Landforms	[redacted]
68	Ploughed and seeded at time of survey. Basalt floaters have been removed from the landscape and stockpiled. Section of natural drainage corridor has been dammed. High voltage powerlines run north-south through the property.	Flat – gently undulating volcanic plain	[redacted]
69	Ploughed and seeded at time of survey. Vehicular access track on which artefacts were located was no longer extant at time of survey.	Flat – gently undulating volcanic plain. Minor drainage channel running east west through centre of paddock.	[redacted]
70	Parks Victoria managed land. Access tracks and revegetation works – otherwise minimal disturbance	Flat to gently undulating volcanic plain landform. Gentle simple slope to creek	[redacted]
71	Ploughed in rear paddocks (basalt floaters removed and stockpiled).	Flat to gently undulating volcanic plain landform. Gentle simple slope to creek. Basalt floaters located on gentle simple slope	[redacted]
78	Parks Victoria managed land. Access tracks and revegetation works – otherwise minimal disturbance	Gentle simple slope leading to creek. Outcropping basalt.	[redacted]

PSP ID	Disturbance / Landuse	Key Landforms	[redacted]
81	Ploughed in the recent past. 1 small dwelling sheds and dam in south eastern corner of property. Shallow drainage channel running parallel to southern boundary appears to be artificial.	Predominantly flat – gently undulating volcanic plain.	[redacted]
88	Cut and fill for construction of road bank for western highway along southern boundary of property. Burning, grazing and vehicular access track around boundary.	Predominantly flat, slight areas of elevation in NW and NE quadrant of property.	[redacted]
89	Disturbance associated with cattle grazing. Land has not been used for crops- most likely due to the large volume of basalt floaters. Vehicle access track.	Swampy depression in south east quadrant, land is slightly elevated in north west quadrant. Otherwise land is flat to gently undulating.	[redacted]

6.4 General Observations

The key landform feature within the activity area is Kororoit Creek which flows east west through the centre of PSP 1080 and demarcates the boundary between the suburbs of Plumpton and Melton. The Kororoit Creek drainage channel is a broad, meandering creek that cuts through the low relief volcanic plain that characterises the local landscape. Slope gradients are flat to gently undulating. Minor drainage channels that cross the plain have been substantially modified as a result of agricultural and pastoral land uses. The majority of the Kororoit PSP is currently used for sheep, cattle and horse grazing.

Figure 12. [redacted] *showing low ground surface visibility with and high grasses typical of the activity area.*

Figure 13. Example of relatively unmodified section of Kororoit Creek ([redacted]).

Kororoit Creek is bordered in sections by basalt outcrops or low rises which contain basalt floaters. Many of the basalt outcrops contained Aboriginal cultural heritage in the form of stone artefact scatters of varying density. Basalt outcrops are also considered to have cultural and spiritual significance to the traditional owner groups – the WTL&CCHC, the BLCAC and the BWF.

Most of the properties had extremely low visibility at the time of survey (typically <1% pm2). Low grazing grasses covered most of the activity area limiting ground surface exposure. Areas of higher ground surface visibility (80-100%pm^2) were typically restricted to isolated patches under trees, along tracks and in areas of ploughing, stock trampling, and in discrete patches devoid of grass on basalt outcrops.

A small portion of the PSP activity area is used for market gardening (shaded pink on Figure 9), with associated deep garden beds, extensive underground irrigation

systems and dam construction. Although ground surface visibility was typically good in these areas, the extensive disturbance that results from market gardening strongly militates against finding any intact cultural deposits in these areas.

Vegetation consists predominantly of modified native vegetation (immature eucalypts) and exotic Cyprus pines used to demarcate property boundaries. Native vegetation was limited to small pockets in several properties where several non-mature eucalyptus gums were observed. Few mature trees of sufficient age were located during the survey

The survey was used as an opportunity to improve our model of the extent and nature of past ground disturbance which had previously been assessed from historical and recent aerial images.

Disturbance within the activity area was extensive and caused by a wide range of factors. The following specific disturbances to the activity area were observed during the survey:

- Ploughing across most of the PSP in the past;
- Orcharding
- Construction of dams;
- Limited construction of houses and out-buildings;
- Construction of formal gardens around the periphery of houses;
- Construction of sheds for farm activities;
- Construction of a high pressure gas pipeline;
- Construction of major and minor roads throughout the activity area;
- Construction of driveways and path networks;
- Construction of farm tracks; and

- Installation of boundary fences.

These impacts have been previously discussed in the Desktop Assessment (Figure 9) and have been confirmed by field inspection undertaken during the Standard Assessment. It is considered unlikely that archaeological material will be located within areas of cut and fill disturbance (shaded red on Figure 9) these areas comprise substantially modified and/or highly disturbed ground resulting from cut and fill for construction of dams, buildings and a high pressure gas pipe. This is likely to have resulted in the complete removal of archaeological deposits from these parts of the activity area.

6.5 Kororoit Creek bridge crossings

Additional site visits were carried out on the 29th January and 28 March 2014 at the request of MPA. The purpose of the site visits was to examine proposed Melton City Council and VicRoads road crossings over Kororoit Creek and identify corridors that will limit harm on Aboriginal archaeological and cultural values.

The January site visit included representatives of MPA, VicRoads, Melton City Council, AHMS and representatives of Boonwurrung Foundation and Bunurong Land Council Aboriginal Corporation. Wurundjeri Tribe Land and Compensation Cultural Heritage Council were invited to attend but their representative elected not to participate on the morning of the first site visit. A second visit, on 28 March, was carried out in the company of a representative from Wurundjeri Tribe Land and Compensation Cultural Heritage Council.

The three crossing points were as follows:

- A proposed new Council local road crossing between property 30 and property 8 in the western portion of the PSP (see Figure 1 for property ID plan). Examination of this area by AHMS and the Aboriginal community representatives identified a corridor that could exploit disturbed land to the north of the creek and avoid basalt outcrop that has important cultural

values to the traditional owner representatives. Our preferred corridor is shown on Figure 39.

- A proposed new VicRoads arterial road between properties 35 and 19 in the central portion of the PSP (see Figure 1 for property ID plan). Examination of this area by AHMS and the Aboriginal community representatives identified a logical corridor that would avoid an area of basalt outcrop and high archaeological potential on the northern side of the creek as well as avoiding a large surface scatter of stone artefacts further to the west and exploiting an area of high disturbance associated with cut, fill and prior residential development disturbance to the south of the creek. Our preferred corridor is shown on Figure 39.

- A proposed new Council bridge crossing for Sinclairs Road, which is currently server by a low ford crossing that is subject to frequent flooding and closures. The bridge crossing would be in the vicinity of properties 66, 71, 27 and 44 shown on Figure 1. During the site visit the AHMS archaeologists and Aboriginal community representatives identified a preferred corridor that would overlie areas of prior fill and ground disturbance whilst avoiding recorded Aboriginal places, an area of basalt outcrop and areas of higher archaeological potential associated with mature trees. Preference is that any new bridge is located on the eastern side of the existing crossing, within the location identified on Figure 39.

6.6 Aboriginal Cultural Heritage in the Activity Area

Two hundred and ninety-four knapped stone artefacts, one possibly ground stone and one possible scarred tree were identified over fifteen different properties within the boundaries of the PSP (Table 8 and Table 9). These artefacts comprise three new VAHR Aboriginal Place recordings (VAHR 7822-3741; 7822-3751; 7822-3731 1-104) and form parts of five previously recorded Aboriginal places (VAHR 7822-0779; 7822-0790; 7822-0182; 7822-1138; 7822-0187).

Where flaked stone artefacts were found at densities of less than ten artefacts per $10m^2$, according to the Office of Aboriginal Affairs Guidelines, the place fulfils the requirements of a "Low Density Artefact Distribution" (LDAD) Aboriginal Place. This LDAD has been registered on the VAHR and assigned the name "Kororoit Precinct Structure Plan LDAD" (VAHR 7822-3731 1-104).

The density of recorded artefacts varied across the activity area, with high density sites being identified on landforms [redacted]. These high density areas are recorded as Artefact Scatters (AS), rather than LDADs. The locations of artefacts recorded within the activity area are shown on Figure 39. Details of the Aboriginal places found during the survey are described below.

In addition to locating new Aboriginal places, an attempt was made during the survey to relocate the previously registered places within the activity area (see Table 9). Five places were able to be relocated (VAHR 7822-0779; 7822-0790; 7822-0182; 7822-1138; 7822-0187), whereas the remaining previously recorded places were not identified during the survey. These places may have been removed or transported by processes such as ploughing or earthworks, or may have been disguised by poor visibility.

Table 8 Details of Aboriginal cultural heritage places recorded during the Standard Assessment

Property ID	Aboriginal Place Name/ID	Aboriginal place recording type	Artefacts recorded
[redacted]	[redacted] VAHR 7822-3731-1	Low Density Artefact Distribution	1
[redacted]	[redacted] VAHR 7822-3751	Artefact scatter	57
[redacted]	[redacted] VAHR 7822-3731-2-4	Low Density Artefact Distribution	3
[redacted]	[redacted] VAHR 7822-3731-5-19	Low Density Artefact Distribution	15
[redacted]	[redacted] VAHR 7822-0779	Site reinspection	4
[redacted]	[redacted] VAHR 7822-0790	Site reinspection	2
[redacted]	[redacted] VAHR 7822-3741	Artefact scatter	76
[redacted]	[redacted] VAHR 7822-3731-20-49	Low Density Artefact Distribution	30
[redacted]	[redacted] VAHR 7822-3731-50-60	Low Density Artefact Distribution	11
[redacted]	[redacted] VAHR 7822-0182	Site reinspection	10

Property ID	Aboriginal Place Name/ID	Aboriginal place recording type	Artefacts recorded
[redacted]	[redacted] VAHR 7822-3731-61-71; 103-104	Low Density Artefact Distribution	13
[redacted]	[redacted] VAHR 7822-3731-72-77	Low Density Artefact Distribution	6
[redacted]	[redacted] VAHR 7822-3731-78-79	Low Density Artefact Distribution	2
[redacted]	[redacted] VAHR 7822-3731-80-86	Low Density Artefact Distribution	7
[redacted]	[redacted] VAHR 7822-3731-87	Low Density Artefact Distribution	1
[redacted]	[redacted] VAHR 7822-3731-88	Low Density Artefact Distribution	1
[redacted]	[redacted] VAHR 7822-3731-89	Low Density Artefact Distribution	1
[redacted]	[redacted] VAHR 7822-1138	Site reinspection	15
[redacted]	[redacted] VAHR 7822-1138	Site reinspection	22
[redacted]	[redacted] VAHR 7822-3731-90-102	Low Density Artefact Distribution	13

Property ID	Aboriginal Place Name/ID	Aboriginal place recording type	Artefacts recorded
[redacted]	[redacted] 7822-0187	Site reinspection	4

Table 9 Relocation information regarding previously recorded Aboriginal places registered within the PSP

Property ID	Place Name/ID	Previous Recording	Relocation information
9	[redacted] VAHR 7822-0779	Artefact scatter n<10 (1995)	Aboriginal place on basalt slope. Four artefacts identified. Site extent revised to 30m x 10m.
9	[redacted] VAHR 7822-0780	Artefact scatter n<10 (1995)	Aboriginal place on alluvial terrace with poor GSV. Not relocated.
9	[redacted] VAHR 7822-0781	Artefact scatter n<10 (1995)	Aboriginal place on alluvial terrace with poor GSV. Not relocated.
9	[redacted] VAHR 7822-0782	Artefact scatter n<10 (1995)	Aboriginal place on alluvial terrace which has been recently ploughed. Not relocated.
9	[redacted] VAHR 7822-0790	Artefact scatter n=4 (1995)	Aboriginal place on alluvial terrace which has been recently ploughed. Two artefacts located.
9	[redacted] VAHR 7822-0791	Artefact scatter n=14 (1995)	Aboriginal place on alluvial terrace which has been recently ploughed. Not relocated.
16	[redacted] VAHR 7822-0183	Artefact scatter 80m x 10m (1989)	Access not granted to property.
29	[redacted] VAHR 7822-0182	Artefact scatter 10m x 16m; 35m x 10m (1989)	Aboriginal place on basalt outcrop with moderate GSV. 25 artefacts located (sample 10 recorded).
29	[redacted] VAHR 7822-0778	Artefact scatter 15m x 15m (1995)	Aboriginal place on basalt outcrop with poor GSV. Not relocated.
68	[redacted] VAHR 7822-1141	Artefact scatter 50m x 50m (2000)	Aboriginal place in ploughed field. Not relocated.
68	[redacted] VAHR 7822-1142	Artefact scatter 250m x 75m (2000)	Aboriginal place in ploughed field. Not relocated.
68	[redacted] VAHR 7822-1143	Isolated artefact n=1-4 (2000)	Aboriginal place in ploughed field. Not relocated.
68	[redacted] VAHR 7822 -1144	Isolated artefact n=1-4 (2000)	Aboriginal place in ploughed field. Not relocated.
69	[redacted] VAHR 7822-1138	Artefact scatter 750m x 100m (2000)	Aboriginal place in ploughed field. 37 artefacts located. Site extended to 750m x 180m.

Property ID	Place Name/ID	Previous Recording	Relocation information
69	[redacted] VAHR 7822-1139	Artefact scatter 75m x 40m (2000)	Aboriginal place in ploughed field. Not relocated.
69	[redacted] VAHR 7822-1140	Artefact scatter 225m x 40m (2000)	Aboriginal place in ploughed field. Not relocated.
70	[redacted] VAHR 7822-0289	Artefact scatter 250m x 150m (1990)	Aboriginal place in area of poor GSV. Not relocated.
71	[redacted] VAHR 7822-0187	Soil Deposit 1m x 40m (1989)	Aboriginal place on basalt outcrop. Four artefacts located.
71	[redacted] VAHR 7822-2917	Artefact scatter n=2 artefacts (2011)	[redacted]. The artefacts were collected during CHMP 11609.
78	[redacted] VAHR 7822-0307	Artefact scatter 150m x 5m (1990)	[redacted] poor GSV. Not relocated.
78	[redacted] VAHR 7822-0489	Artefact scatter 300m x 200m (1990)	Artefacts were salvaged in 2003. No new cultural material was located.

6.6.1 VAHR 7822-3731 1 [redacted]

Table 10 Description of VAHR 7822-3731-1

Site name: Site number:	[redacted] VAHR 7822-3731-1
Primary Grid ref:	[redacted]
Location:	[redacted]
Landform:	Volcanic plain (ploughed field)
Artefacts:	I x silcrete retouched flake (broken)
Artefact density per m^2:	1
Place extent:	Primary grid co-ordinate (see above)
Place condition:	Poor
Place type:	LDAD
Scientific significance:	Low scientific significance

Figure 14 Retouched flake recorded [redacted] *at VAHR 7822-3731-1*

VAHR 7822-3731 1: Nature

The Aboriginal place comprises an isolated stone artefact located within a ploughed field. The artefact is a silcrete retouched flake that has been broken at the distal end (Table 10).

Examination of the landscape during survey indicates much of the site area has been subject to prior disturbance in the form of ploughing which has affected the horizontal and vertical integrity of the site by removing the artefact from its primary archaeological context. The Aboriginal place has therefore been assessed as being in poor condition.

VAHR 7822-3731 1: Extent

The extent of 7822-3731 1 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian

Aboriginal Heritage Register for the artefact. This co-ordinate relates to the location of the artefact on the ground surface (Table 10).

As the artefact is isolated and in a ploughed context, it is expected that there would be low-nil potential for sub-surface artefacts at this location.

VAHR 7822-3731 1: Scientific Significance

VAHR 7822-3731 1 is an isolated artefact comprising part of a broad low density surface stone artefact scatter. This type of site is very common throughout the geographic region and reflects background artefact scatter that extends across the Newer Volcanic plains. The integrity of the site has been affected by repeated ploughing as well as animal trampling/scuffage and has been assessed as being in poor condition. The artefact has very low research potential and is unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731 1 is assessed as having low scientific significance.

6.6.2 VAHR 7822-3751 [redacted]

Table 11 Description of VAHR 7822-3751

Site name: Site number:	[redacted] VAHR 7822-3751
Primary Grid ref:	[redacted]
Location:	[redacted]
Landform:	Low rise and basalt outcrop [redacted]
Artefacts:	57 (sample recording)
Artefact density per m^2:	Minimum <1 Maximum 20
Place extent:	180m (N-S) x 130m (E-W)
Place condition:	Good
Place type:	Surface Artefact Scatter and Possible Scarred Tree
Scientific significance:	High local scientific significance

Table 12- Sample recording of artefacts within 7822-3751

Raw material	Artefact type					
	Angular fragment	Complete flake	Broken flake	Retouched flake	Geometric microlith	Anvil stone
Basalt						1
Quartz		5	2			
Quartzite		2	3			
Silcrete	1	12	28	2	1	
Total	**1**	**19**	**33**	**2**	**1**	**1**

Figure 15 Example of artefacts recorded at VAHR 7822-3751. Top-left and bottom-left: high densities of artefacts located within 1m² areas. Top-right: retouched flake located on low rise. Bottom-right: basalt anvil located on low rise.

PHOTOGRAPH REDACTED

Figure 16 Possible scarred tree [redacted] *(VAHR 7822-3751)*

VAHR 7822-3751: Nature

[redacted].

Stone Artefacts.

[redacted]

A sample recording of artefacts across the Aboriginal place was undertaken. In total, fifty-seven items were recorded in detail. A variety of raw materials were noted including silcrete, quartz, quartzite and basalt. Artefact types present comprise a high density of broken flakes, as well as other unmodified debitage forms (Table 12). Retouched artefact forms comprise two flake tools, and one backed artefact (geometric microlith). A basalt cobble that had been used as an anvil and subsequently broken was also identified (see photo in Figure 15).

Possible Scarred Tree.

The possible scarred tree at VAHR 7822-3751 was identified, comprising a small bark-removal scar on a river red gum (*Eucalyptus camaldunensis*). The scar is

roughly rectangular in shape, measuring 25cm x 11cm. The extent of regrowth was measured at an average of 7cm. [redacted]

Therefore it is likely that the tree post-dates European settlement and the scar was created during the post-contact period[105].

VAHR 7822-3751: Extent

The Aboriginal Place extent is defined by the distribution of artefacts on the surface, across a low rise and basalt outcrop, as well as by the location of the scarred tree. The boundaries of the artefact distributions approximately correlate with the landforms on which they were found. The extent of [redacted] (VAHR 7822-3751) measures 180m x 130m, and is [redacted].

Due to the high density of artefacts and the good condition of the surrounding deposits, it is highly likely that there would be a sub-surface component to this place.

VAHR 7822-3751: Scientific Significance

VAHR 7822-3751 comprises a scarred tree and artefact scatter located on an elevated landform [redacted]. The Aboriginal place is in good condition, though some disturbance may have occurred during the construction of a nearby dry stone wall [redacted].

The place currently has high research potential due to the density of artefacts present, which is sufficient to overcome small sample biases and can be used to inform on the nature of occupation along Kororoit Creek. The artefact scatter also

[105] *Long 2005*

has a relatively high level of integrity because the level of past disturbance has been minimal compared with most sections of land adjacent to Kororoit Creek. Therefore, there is potential for retention of horizontal and vertical integrity, which provides an opportunity to explore the nature of past occupation and use represented by the artefacts at the site.

The location of the site [redacted] also provides an opportunity to explore questions surrounding site use in an area that may have been more frequently visited than other locations [redacted].

The presence of a site with a high density of artefacts that retains integrity and is located at a confluence on a major waterway is relatively rare locally and somewhat rare in the region. Most Aboriginal places along the Kororoit Creek corridor have been very heavily disturbed by past land uses, therefore a well preserved place is relatively rare.

The scarred tree is likely to post-date European settlement and it is unclear whether the scar is the result of Aboriginal cultural practices. Therefore, the scarred tree may not be able to provide information about past Aboriginal bark procurement or inferred activities.

As a result of these factors regarding the condition, rarity and research potential of the Aboriginal place VAHR 7822-3751 has been assessed as having high scientific significance at a local level.

6.6.3 VAHR 7822-3731 2-4 [redacted] LDAD

Table 13 Description of VAHR 7822-3731-2-4

Site name: Site number:	[redacted] VAHR 7822-3731 2-4
Primary Grid ref:	[redacted] [redacted]
Location:	[redacted] [redacted]
Landform:	Basalt outcrop [redacted]
Artefacts:	1 x quartzite partially backed artefact 1 x quartzite distal flake 1 x quartz complete flake
Artefact density per m^2:	3
Place extent:	Primary grid co-ordinate (see above)
Place condition:	Fair
Place type:	LDAD
Scientific significance:	Low scientific significance

Figure 17 Artefacts recorded at [redacted] *as part of Kororoit Precinct Structure Plan LDAD (VAHR 7822-3731 2-4)*

VAHR 7822-3731 2-4: Nature

The Aboriginal place comprises three stone artefacts located on a basalt outcrop [redacted]. The artefacts comprise two quartzite artefacts (a distal flake and a backed artefact) as well as one quartz complete flake. The artefacts are located on the surface and may not be in primary context due to the impacts of erosion and weathering. The artefacts are therefore assessed as being in fair condition. [redacted]. It is therefore possible that higher densities of artefacts are associated with this location, but were not visible during the survey.

VAHR 7822-3731 2-4: Extent

The extent of 7822-3731 2-4 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian

Aboriginal Heritage Register for the artefact. These co-ordinates relate to the location of the artefacts on the ground surface (Figure 16).

As the context of the artefacts is in quite good condition, it is considered there would also be a sub-surface component to VAHR 7822-3731 2-4.

VAHR 7822-3731 2-4: Scientific Significance

VAHR 7822-3731 2-4 comprises three artefacts that form part of a broad low density surface stone artefact scatter. The Aboriginal place is likely to have a sub-surface component, but in its present state, the number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site (LDAD) is very common throughout the geographic region. The integrity of the site has been affected by surface exposure and the artefacts may not be in primary context due to weathering processes. The artefacts have low research potential and are unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731 2-4 is assessed as having low scientific significance.

6.6.4 VAHR 7822-3731 5-19 [redacted]

Table 14 Description of VAHR 7822-3731-5-19

Site name: Site number:	[redacted] VAHR 7822-3731-5-19
Primary Grid ref:	[redacted]
Location:	[redacted]
Landform:	Basalt outcrop overlooking Kororoit Creek
Artefacts:	15
Artefact density per m^2:	Minimum 1 Maximum 5
Place extent:	Primary grid co-ordinates (see above)
Place condition:	Poor
Place type:	Basalt outcrop overlooking Kororoit Creek
Scientific significance:	Low scientific significance

Table 15 Artefact assemblage recorded as VAHR 7822-3731 5-19 [redacted].

	Angular Fragment	Manuport	Flake - Complete	Flake - Distal	Flake - Proximal	Total
Fine-grained volcanic		1				1
Quartz	3		3	1	1	8
Quartzite			2			2
Silcrete			1		3	4
Total	3	1	6	1	4	15

Figure 18 Surface artefacts [redacted] that form part of VAHR 7822-3731 5-19

VAHR 7822-3731 5-19: Nature

The Aboriginal place comprises fifteen stone artefacts located on a basalt outcrop overlooking Kororoit Creek. The artefacts comprise eight quartz, four silcrete, two quartzite and one fine-grained volcanic raw materials (Table 15). Artefact types present are predominantly debitage, including broken flakes, angular fragments and complete flakes, as well as one manuport. VAHR 7822-3731 5-18 are located on the surface and have been exposed to erosion and weathering. Rubbish dumping and movement of imported fill have taken place within the same landform, which may have altered the true artefact density for this area. VAHR 7822-3731 19 is [redacted], and is therefore considered to be in a disturbed location. This artefact is in poor condition.

VAHR 7822-3731 5-19: Extent

The extent of 7822-3731-5-19 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian Aboriginal Heritage Register for each artefact. These co-ordinates relate to the location of the artefacts on the ground surface (Figure 16).

As the context of artefacts 5-18 is in fair condition, it is considered there would also be a sub-surface component on the basalt outcrop where these artefacts were located. There is not considered to be any sub-surface potential in the vicinity of VAHR 7822-3731-19 due to substantial disturbance caused as a result of the dam excavation.

VAHR 7822-3731 5-19: Scientific Significance

VAHR 7822-3731-5-19 comprises fifteen artefacts that form part of a broad low density surface stone artefact scatter. The Aboriginal place is likely to have a sub-surface component, but in its present state, the number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site (LDAD) is very common throughout the geographic region. The integrity of the site has been impacted [redacted], and the

artefacts may not be in primary context. The surface artefacts have low research potential and are unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731-5-19 is assessed as having low scientific significance. It should be noted, however, that the place has sub-surface archaeological potential and the nature, extent and significance of the place would need to be revisited after excavation.

6.6.5 VAHR 7822-0779 [redacted]

Table 16 Description of VAHR 7822-0779

Site name: Site number:	[redacted] VAHR 7822-0779
Primary Grid ref:	[redacted] [redacted]
Location:	[redacted] [redacted]
Landform:	Slope
Artefacts:	4
Artefact density per m^2:	1
Place extent:	30m x 10m
Place condition:	Poor
Place type:	Artefact scatter
Scientific significance:	Low scientific significance

PHOTOGRAPH REDACTED

Figure 19 Setting of artefacts relocated as part of VAHR 7822-0779: [redacted]

VAHR 7822-0779: Nature

The Aboriginal place comprises four stone artefacts [redacted] (

Figure 19). The artefacts comprise silcrete and quartz artefacts and were originally recorded by Clark and Newby[106] as unretouched waste flakes. Clark describes the site as an isolated artefact[107], and indicates that the unspecified artefact density was likely only 2 or 3 artefacts. Four artefacts were able to be relocated through extensive survey of the ground surface surrounding the primary grid coordinate. The artefacts are located on the surface and have been exposed to erosion and weathering. Clark also noted that disturbance from vehicles and earthworks had occurred in the vicinity. The artefacts are likely to have moved downslope from the crest of the outcrop, where a higher density of artefacts has been recorded (as part

[106] *According to the site card for Vere Court 01, VAHR 7822-0779*

[107] *Report 792, p.15*

of VAHR 7822-3731 5-18). The place has therefore been assessed as being in poor condition.

VAHR 7822-0779: Extent

The extent of VAHR 7822-0779 has been recorded as an isolated artefact, and a primary grid co-ordinate has been recorded on the Victorian Aboriginal Heritage Register for the artefact. These co-ordinates relate to the location of the artefacts on the ground surface at the time of recording (Table 16). As a result of the reinspection, four artefacts dispersed over a 30m x 10m area were found in the vicinity of the primary grid co-ordinate.

According to the reinspection, the revised site extent of VAHR 7822-0779 is 30m x 10m.

VAHR 7822-0779: Scientific Significance

VAHR 7822-0779 comprises four artefacts that form part of a previously recorded surface stone artefact scatter. The Aboriginal place may have a sub-surface component, but in its present state, the number of artefacts recovered is too low for any meaningful analysis to be performed. Low density artefact scatters are very common throughout the geographic region. The integrity of the site has been affected by surface erosion and slope wash and the artefacts are unlikely to be in primary context. The artefacts have low research potential and are unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors VAHR 7822-0779 is assessed as having low scientific significance.

6.6.6 VAHR 7822-0790 [redacted]

Table 17 Description of VAHR 7822-0790

Site name: Site number:	[redacted] VAHR 7822-0790
Primary Grid ref:	[redacted] [redacted]
Location:	[redacted] [redacted]
Landform:	Creek flat/Alluvial terrace
Artefacts:	2
Artefact density per m^2:	2
Place extent:	5m x 8m
Place condition:	Poor
Place type:	Artefact scatter
Scientific significance:	Low scientific significance

PHOTOGRAPH REDACTED

Figure 20 Ploughed setting of artefacts relocated as part of VAHR 7822-0790: [redacted]

VAHR 7822-0790: Nature

The Aboriginal place comprises two stone artefacts located on a ploughed section of an alluvial flat[redacted]. The relocated artefacts comprise two silcrete artefacts, but according to the report prepared by Clark[108] the scatter originally consisted of forty stone artefacts. According to the site card, these artefacts were manufactured from quartz, silcrete and quartzite[109]. The artefacts are located on the surface and have been subject to repeated ploughing. The place has therefore been assessed as being in poor condition.

VAHR 7822-0790: Extent

The extent of VAHR 7822-0790 was recorded as 5m x 8m according to the site card. The primary grid co-ordinate relates to the location of the two silcrete artefacts that were relocated due to the ground survey (Table 17). The context of the artefacts is in poor condition, [redacted], and the original site recording as comprising more artefacts than could be identified, it is probable that more artefacts are buried within this landform than were visible at the time of survey. The place extent for the relocated site VAHR 7822-0790 has therefore not been altered.

[108] *Report 792 p.15*

[109] *According to the site card for Vere Court 05, VAHR 7822-0790*

VAHR 7822-0790: Scientific Significance

VAHR 7822-0790 comprises two artefacts that form part of a previously recorded surface stone artefact scatter. The Aboriginal place may have a sub-surface component, but in its present state, the number of artefacts recovered is too low for any meaningful analysis to be performed, and therefore the research potential since original recording has been diminished.

The integrity of the site has been affected by extensive ploughing and the artefacts are unlikely to be in primary context. As a result of these factors 7822-0790 is assessed as having low scientific significance.

According to the previous site recording of VAHR 7822-790, the place originally comprised an artefact density of 40 artefacts. In the case that a higher density of artefacts were recovered through excavation or as a result of improved ground surface visibility, the significance assessment would need to be revisited.

6.6.7 VAHR 7822-3741 90 [redacted]

Table 18 Description of VAHR 7822-3741

Site name: Site number:	[redacted] VAHR 7822-3741
Primary Grid ref:	[redacted]
Location:	[redacted]
Landform:	Basalt outcrop and Creek margin
Artefacts:	76 (sample recording)
Artefact density per m^2:	Minimum 1 Maximum 70
Place extent:	230m (N-S) x 100m (E-W)
Place condition:	Good
Place type:	Artefact scatter
Scientific significance:	High scientific significance

Table 19- Sample recording of artefacts within VAHR 7822-3741

Raw material	Artefact type					
	Angular fragment	Complete flake	Broken flake	Backed artefact	Flake tool	Hammer stone
Basalt			1			
Quartz		4	5			
Quartzite	1	3	1			
Silcrete	1	16	34	5	4	
River cobble						1
Total	**2**	**23**	**41**	**5**	**4**	**1**

Figure 21 Example of artefacts recorded at VAHR 7822-3741 [redacted]. Top-left and Top-right: photographs of artefacts found within 1m² of each other which were sample recorded. Bottom-left: artefacts found within 1m of hammer stone. Bottom-right: hammer stone.

PHOTOGRAPH REDACTED

Figure 22 VAHR 7822-3741

VAHR 7822-3741: Nature

VAHR 7822-3741 [redacted].

Stone artefacts were distributed across the basalt outcrop, however, particularly high densities were noted on exposed areas of the outcrop where ground surface visibility was very high (for example, see Figure 21). Sample recording was undertaken on these dense areas, with a total of seven areas of high density being identified across the landform. The highest densities encountered were a maximum of 70 artefacts within $1m^2$. A low density background scatter was identified between these seven dense artefact areas. These differences may be due to variation in ground-surface visibility across the outcrop. The total recorded stone artefact assemblage was seventy-six, but the estimate of the true (surface) artefact density is approximately 500 stone artefacts, with high potential for in situ deposits.

A variety of raw materials were noted during the sample recording including silcrete, quartz, quartzite and basalt. Artefact types present comprise a high density of broken flakes, as well as other unmodified debitage forms (

Table 19). Retouched artefact forms comprise one retouched flake, two flakes with usewear and one thumbnail scraper, as well as five backed artefacts (including two geometric microliths). A river-rolled cobble that had been used as a hammerstone was also identified.

VAHR 7822-3741: Extent

[redacted].

Due to the high density of artefacts and the good condition of the surrounding deposits, it is highly likely that there would be a sub-surface component on the crest of the basalt outcrop.

VAHR 7822-3741: Scientific Significance

VAHR 7822-3741 [redacted]

The artefact scatter is in good condition, though some of the spatial integrity of the artefact deposits may have been affected by weathering and rainwash on the ground surface.

The place currently has high inherent research potential due to the density of artefacts present which are sufficient to overcome small sample biases and can be used to inform the nature of past Aboriginal occupation along Kororoit Creek. The

location of the site on a prominent landform on a bend in the creek with a wide view along the length of the waterway provides an opportunity to answer questions surrounding site use in an area that may have been more frequently visited than other locations along Kororoit Creek.

Stone artefact scatters in association with Kororoit Creek are quite common. VAHR 7822-3741 represents the highest artefact density per m^2 found across the PSP study area.

As a result of these factors regarding the condition, rarity and research potential of the Aboriginal place VAHR 7822-3741 has been assessed as having high local scientific significance.

6.6.8 VAHR 7822-3731 -20-49 [redacted]

Table 20 Description of VAHR 7822-3731-20-49

Site name: Site number:	[redacted] VAHR 7822-3731 20-49
Primary Grid ref:	[redacted]
Location:	[redacted]

Landform:	Basalt outcrop
Artefacts:	30
Artefact density per m^2:	Minimum 1 Maximum 2
Place extent:	Primary grid co-ordinates (see above)
Place condition:	Fair
Place type:	LDAD
Scientific significance:	Moderate

Table 21 Artefact assemblage recorded as VAHR 7822-3731-20-49 [redacted].

	Core	Complete Flake	Split Flake	Angular Fragment	Broken Flake	Flake tool	Partially backed
Basalt							1
Quartz		1	1	1			
Quartzite	1	2			1	1	
Silcrete	2	7			8		4
Total	3	10	1	1	9	1	5

Figure 23 Surface artefact [redacted] *that form part of VAHR 7822-3731 20-49*

VAHR 7822-3731 20-49: Nature

The Aboriginal place comprises thirty stone artefacts located on a low rise [redacted]. The artefacts were manufactured from a variety of raw materials including basalt, quartz, quartzite and silcrete (Table 21). Artefact types present are predominantly debitage, including broken flakes, angular fragments and complete flakes, as well as three cores. One quartzite flake tool and five partially backed artefacts indicate that some manufacture and use occurred at this location. VAHR 7822-3731-20-49 are located on the surface and have been exposed to erosion and weathering, otherwise the artefacts are considered to be in good condition.

VAHR 7822-3731 20-49: Extent

The extent of 7822-3731 20-49 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian

Aboriginal Heritage Register for each artefact. These co-ordinates relate to the location of the artefacts on the ground surface (Table 20).

VAHR 7822-3731-20-49 were identified on a low rise, [redacted].

VAHR 7822-3731 20-49: Scientific Significance

VAHR 7822-3731-20-49 comprise thirty artefacts that form part of a broad low density surface stone artefact scatter. The Aboriginal place is likely to have a sub-surface component, but in its present state, the number of artefacts recovered is too low for any detailed analysis to be performed. This type of site (LDAD) is very common throughout the geographic region. The integrity of the site has been affected by surface exposure and the artefacts may not be in primary context due to weathering processes. The surface artefacts have some potential to be researched in conjunction with other higher density sites and may produce some new information about past Aboriginal use and occupation of basalt outcrops along Kororoit Creek. As a result of these factors 7822-3731 20-49 is assessed as having moderate scientific significance. It should be noted, however, that the place has sub-surface archaeological potential and the nature, extent and significance of the place would need to be revisited after excavation.

6.6.9 VAHR 7822-3731 50-60 [redacted]

Table 22 Description of VAHR 7822-3731-50-60

Site name: Site number:	[redacted] VAHR 7822-3731-50-60
Primary Grid ref:	[redacted]
Location:	[redacted]
Landform:	Basalt outcrop
Artefacts:	11
Artefact density per m^2:	Minimum 1 Maximum 2
Place extent:	Primary grid co-ordinates (see above)
Place condition:	Fair
Place type:	LDAD
Scientific significance:	Low

Table 23 Artefact assemblage recorded as VAHR 7822-3731-50-60 [redacted].

	Core - Unidirectional	Flake - Complete	Flake - Distal	Flake - Medial	Flake - Proximal	Total
Quartz		2			1	3
Quartzite	1					1
Silcrete		4	1	1	1	7
Total	1	6	1	1	2	11

Figure 24 Surface artefacts [redacted] that form part of VAHR 7822-3731-50-60

VAHR 7822-3731-50-60: Nature

The Aboriginal place comprises eleven stone artefacts located on a basalt outcrop [redacted]. The artefacts comprise three quartz, seven silcrete and one quartz raw materials (Figure 18). Artefact types present are predominantly debitage, including broken flakes, angular fragments and complete flakes, as well as one core. One of the quartz flakes was manufactured using the bipolar reduction technique. VAHR 7822-3731-50-60 are located on the surface and have been exposed to erosion and weathering, otherwise the artefacts are considered to be in fair condition.

VAHR 7822-3731-50-60: Extent

The extent of 7822-3731-50-60 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian Aboriginal Heritage Register for each artefact. These co-ordinates relate to the location of the artefacts on the ground surface (Figure 16).

As the context of artefacts 50-60 is in quite good condition, it is considered there would also be a sub-surface component on the basalt outcrop where these artefacts were located

VAHR 7822-3731-50-60: Scientific Significance

VAHR 7822-3731-50-60 comprise eleven artefacts that form part of a broad low density surface stone artefact scatter. The Aboriginal place is likely to have a sub-surface component, but in its present state, the number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site (LDAD) is very common throughout the geographic region. The integrity of the site has been affected by surface exposure and the artefacts may not be in primary context due to weathering processes. The surface artefacts have low research potential and are unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731 50-60 is assessed as having low scientific

significance. It should be noted, however, that the place has sub-surface archaeological potential and the nature, extent and significance of the place would need to be revisited after excavation.

6.6.10 VAHR 7822-0182 [redacted]

Table 24 Description of VAHR 7822-0182

Site name: Site number:	[redacted] VAHR 7822-0182
Primary Grid ref:	[redacted] [redacted]
Location:	[redacted] [redacted]
Landform:	Basalt outcrop
Artefacts:	25
Artefact density per m^2:	Minimum 1 Maximum 5
Place extent:	15m (N-S) x 75m (E-W)
Place condition:	Fair
Place type:	Artefact scatter
Scientific significance:	Moderate

Figure 25 Artefacts relocated as part of VAHR 7822-0182: [redacted]

VAHR 7822-0790: Nature

The Aboriginal place comprises twenty-five stone artefacts located on a basalt outcrop [redacted]. According to the site card made out by du Cros[110] the site comprised two concentrations of artefacts located on the outcrop, comprising an unspecified number of retouched and unretouched flakes, manufactured from quartz, silcrete, quartzite and glass. The artefacts are located on the surface and may have been disturbed as a result of basalt floater and cobble removal which is evident from the basalt stockpiles located within the property area. The place has therefore been assessed as being in fair condition.

VAHR 7822-0182: Extent

The extent of VAHR 7822-0182 was recorded as two concentrations [redacted]. The primary grid co-ordinate referred to in Table 24 relates to the location of the highest density of artefacts (5) in any $1m^2$ area. Twenty-five artefacts in close proximity were relocated due to the ground survey, suggesting that only one of

[110] *According to the site card for Sinclairs Rd, VAHR 7822-0182*

these concentrations was able to be found. The context of the artefacts is in fair condition, [redacted], and the original site recording as comprising a wider distribution of artefacts, it is probable that more artefacts are present on this landform than were visible at the time of survey. Therefore, the extent of VAHR 7822-0182 is considered to be the same extent as the basalt outcrop on which the artefacts were located.

VAHR 7822-0182: Scientific Significance

VAHR 7822-0182 comprises twenty-five artefacts that form part of a previously recorded surface stone artefact scatter. The Aboriginal place may have a sub-surface component, but in its present state, the number of artefacts recovered is too low for any meaningful analysis to be performed. Low density artefact scatters are very common throughout the geographic region. The integrity of the site has been affected by the removal of basalt pieces from the deposit and the artefacts may not be in primary context. The surface artefacts have some potential to be researched in conjunction with other higher density sites and may produce some new information about past Aboriginal use and occupation of basalt outcrops [redacted]. As a result of these factors 7822-0182 is assessed as having moderate scientific significance. However, were more artefacts to be found in association with this landform through improved ground surface visibility or excavation, the research potential and significance of this Aboriginal place would be revised.

6.6.11 VAHR 7822-3731 61-71;103-104 [redacted]

Table 25 Description of VAHR 7822-3731-61-69

Site name: Site number:	[redacted] VAHR 7822-3731-61-71; 103-104
Primary Grid ref:	[redacted]
Location:	[redacted]
Landform:	Volcanic plain
Artefacts:	11
Artefact density per m^2:	1
Place extent:	Primary grid co-ordinates (see above)
Place condition:	Fair
Place type:	LDAD
Scientific significance:	Low

Table 26 Artefact assemblage recorded as VAHR 7822-3731 61-71; 103-104 [redacted].

	Core	Flake - Complete	Flake - Distal	Flake - Longitudinal Split	Flake - Proximal	Total
Quartz	2					2
Quartzite		1				1
Silcrete	1	4	2	1	2	8
Total	3	5	1	1	1	13

Figure 26 Surface artefacts [redacted] that form part of VAHR 7822-3731 61-71;103-104

VAHR 7822-3731 61-71;103-104: Nature

The Aboriginal place comprises nine stone artefacts located [redacted] and two stone artefacts [redacted]

[redacted]. An additional two artefacts [redacted]. The artefacts comprise one quartzite, two quartz and ten silcrete artefacts (Figure 18). Artefact types present are predominantly debitage, including broken and complete flakes, as well as three cores. One of the quartz cores was manufactured using the bipolar reduction technique. VAHR 7822-3731 61-71;103-104 are located on the surface and have been exposed to erosion and weathering, as well as vehicle activity. Otherwise the artefacts are considered to be in fair condition.

VAHR 7822-3731 61-71;103-104: Extent

The extent of 7822-3731 61-71;103-104 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian Aboriginal Heritage Register for each artefact. These co-ordinates relate to the location of the artefacts on the ground surface (Figure 16).

As the context of artefacts 61-71;103-104 is in fair condition, it is considered there would be potential for sub-surface artefacts in the vicinity.

VAHR 7822-3731 61-71;103-104: Scientific Significance

VAHR 7822-3731-61-71;103-104 comprise eleven artefacts that form part of a broad low density surface stone artefact scatter. The Aboriginal place is likely to have a sub-surface component, but in its present state, the number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site (LDAD) is very common throughout the geographic region. The integrity of the site has been impacted by vehicle activity, as well as surface exposure and the artefacts may not be in primary context due to weathering processes. The surface artefacts have low research potential and are unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731-61-71;103-104 is assessed as having low scientific significance. It should be noted, however, that the place has sub-surface archaeological potential and the nature, extent and significance of the place would need to be revisited after excavation.

6.6.12 VAHR 7822-3731 72-77 [redacted]

Table 27 Description of VAHR 7822-3731-72-77

Site name: Site number:	[redacted] VAHR 7822-3731-72-77
Primary Grid ref:	[redacted]
Location:	[redacted]
Landform:	Volcanic plain (dam)
Artefacts:	6
Artefact density per m^2:	1
Place extent:	Primary grid co-ordinates (see above)
Place condition:	Poor
Place type:	LDAD
Scientific significance:	Low

Figure 27 Artefacts recorded [redacted] as part of Kororoit Precinct Structure Plan LDAD (VAHR 7822-3731-72-77)

VAHR 7822-3731-72-77: Nature

The Aboriginal place comprises six stone artefacts [redacted]. The artefacts comprise two quartz complete flakes, three silcrete artefacts (a complete flake, a proximal flake and a backed artefact) as well as one trachyte complete flake. The artefacts are located on the surface and have been exposed to erosion and weathering, as well as disturbance associated with the excavation of the dams. [redacted]. Artefact 74 is an isolated artefact associated with a soil exposure on a gentle rise that forms part of an undulating plain. The Aboriginal place [redacted] has therefore been assessed as being in poor condition.

VAHR 7822-3731-72-77: Extent

The extent of 7822-3731-72-77 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian

Aboriginal Heritage Register for the artefact. These co-ordinates relate to the location of the artefacts on the ground surface (Table 27).

As the contexts of the artefacts in this place are in poor condition, it is considered unlikely that there would be a sub-surface component to VAHR 7822-3731-72-77.

VAHR 7822-3731-72-77: Scientific Significance

VAHR 7822-3731-72-77 comprise six artefacts that form part of a broad low density surface stone artefact scatter. The number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site (LDAD) is very common throughout the geographic region. The integrity of the site has been affected by soil movement as a result of dam excavation and the artefacts are unlikely to be in primary context. The artefacts have low research potential and are unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731-72-77 is assessed as having low scientific significance.

6.6.13 VAHR 7822-3731-78-79 [redacted]

Table 28 Description of VAHR 7822-3731-78-79

Site name: Site number:	[redacted] VAHR 7822-3731-78-79
Primary Grid ref:	[redacted]
Location:	[redacted]
Landform:	Volcanic plain
Artefacts:	2
Artefact density per m^2:	1
Place extent:	Primary grid co-ordinates (see above)
Place condition:	Poor
Place type:	LDAD
Scientific significance:	Low

Figure 28 Artefacts recorded [redacted] as part of Kororoit Precinct Structure Plan LDAD (VAHR 7822-3731-78-79)

VAHR 7822-3731-78-79: Nature

The Aboriginal place comprises two stone artefacts located on a soil exposure on the volcanic plain, [redacted]. The artefacts comprise two silcrete broken flakes. The artefacts are located on the surface and have been exposed to erosion and weathering. [redacted]. The paddock may also have been subject to ploughing in the past. The place has therefore been assessed as being in poor condition.

VAHR 7822-3731-78-79: Extent

The extent of 7822-3731-78-79 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian

Aboriginal Heritage Register for the artefact. These co-ordinates relate to the location of the artefacts on the ground surface (Figure 16).

As the context of the artefacts is in poor condition, it is considered unlikely that there would be a sub-surface component to VAHR 7822-3731-78-79.

VAHR 7822-3731-78-79: Scientific Significance

VAHR 7822-3731-78-79 comprise two artefacts that form part of a broad low density surface stone artefact scatter. The number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site (LDAD) is very common throughout the geographic region. The integrity of the site has been affected by ploughing and horse trampling and the artefacts are unlikely to be in primary context. The artefacts have low research potential and are unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731-78-79 is assessed as having low scientific significance.

6.6.14 VAHR 7822-3731-80-86 [redacted] Kororoit Precinct Structure Plan LDAD

Table 29 Description of VAHR 7822-3731-80-86

Site name: Site number:	[redacted] VAHR 7822-3731-80-86
Primary Grid ref:	[redacted]
Location:	[redacted]
Landform:	Basalt outcrop overlooking Kororoit creek
Artefacts:	7
Artefact density per m^2:	1
Place extent:	Primary grid co-ordinates (see above)
Place condition:	Poor
Place type:	LDAD
Scientific significance:	Low

Figure 29 Artefacts recorded [redacted] *as part of Kororoit Precinct Structure Plan LDAD (VAHR 7822-3731-80-86)*

VAHR 7822-3731-80-86: Nature

The Aboriginal place comprises seven stone artefacts located in two small scatters [redacted]. The artefacts comprise one quartz complete flake and six silcrete artefacts (three complete flakes and three broken flakes). The artefacts are located on the surface and have been exposed to erosion and weathering. Artefacts 83-86 were found on a sloping landform, and may have been transported from the crest above. The Aboriginal place [redacted] has therefore been assessed as being in poor condition.

VAHR 7822-3731 80-86: Extent

The extent of 7822-3731 80-86 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian

Aboriginal Heritage Register for each artefact. These co-ordinates relate to the location of the artefacts on the ground surface (Figure 16).

As the contexts of the artefacts in this place [redacted], it is considered possible that there would be a sub-surface component to VAHR 7822-3731-80-86.

VAHR 7822-3731-80-86: Scientific Significance

VAHR 7822-3731-80-86 comprise seven artefacts that form part of a broad low density surface stone artefact scatter. The number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site (LDAD) is very common throughout the geographic region. The integrity of artefacts 83-86 has been affected by artefact movement as a result of slope wash and these artefacts are unlikely to be in primary context. The artefacts have low research potential and are unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731-80-86 is assessed as having low scientific significance.

6.6.15 VAHR 7822-3731-87 [redacted]

Table 30 - Description of VAHR 7822-3731-87

Site name: Site number:	[redacted] VAHR 7822-3731-87
Primary Grid ref:	[redacted] [redacted]
Location:	[redacted] [redacted]
Landform:	Wetland/swamp (dam)
Artefacts:	1
Artefact density per m^2:	1
Place extent:	Primary grid co-ordinate (see above)
Place condition:	Poor
Place type:	LDAD
Scientific significance:	Low

Figure 30 Quartz flake recorded [redacted] *at VAHR 7822-3731-87*

VAHR 7822-3731-87: Nature

The Aboriginal place comprises an isolated stone artefact [redacted]. The artefact is a quartz complete flake. [redacted].

Examination of the landscape during survey indicates much of the site area has been subject to prior disturbance due to the dam excavation which has affected the horizontal and vertical integrity of the site by removing the artefact from its primary archaeological context.

VAHR 7822-3731-87: Extent

The extent of 7822-3731-87 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian Aboriginal Heritage Register for the artefact. This co-ordinate relates to the location of the artefact on the ground surface (Figure 16).

As the artefact is isolated and in a disturbed context, it is expected that there would be low-zero potential for sub-surface artefacts at this location.

VAHR 7822-3731-87: Scientific Significance

VAHR 7822-3731-87 is an isolated artefact comprising part of a broad low density surface stone artefact scatter. It contains no evidence of intact occupation deposits or features. The number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site is very common throughout the geographic region. The integrity of the site has been affected [redacted] and has been assessed as being in poor condition. The artefact has very low research potential and is unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731-87 is assessed as having low scientific significance.

6.6.16 VAHR 7822-3731-88 [redacted]

Table 31 - Description of VAHR 7822-3731-87

Site name: Site number:	[redacted] VAHR 7822-3731-88
Primary Grid ref:	[redacted]
Location:	[redacted] [redacted]
Landform:	Volcanic plain
Artefacts:	1 x quartz unidirectional core
Artefact density per m^2:	1
Place extent:	Primary grid co-ordinate (see above)
Place condition:	Poor
Place type:	LDAD
Scientific significance:	Low

Figure 31 Quartz core recorded [redacted] *at VAHR 7822-3731-88*

VAHR 7822-3731-88: Nature

The Aboriginal place comprises an isolated stone artefact located on the volcanic plain [redacted]. The artefact is a quartz unidirectional core. The property contains evidence for substantial landscape modification in the creation of vehicle tracks that form an embankment of a swampy depression (the depression is in the neighbouring property). However, the artefact is located some distance from this disturbance, and would mainly have been subject to trampling and scuffage by horses.

VAHR 7822-3731-88: Extent

The extent of 7822-3731-88 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian Aboriginal Heritage Register for the artefact. This co-ordinate relates to the location of the artefact on the ground surface (Figure 16).

As the artefact is isolated and in a disturbed context, it is considered that there would be low potential for sub-surface archaeological deposits at this location.

VAHR 7822-3731-88: Scientific Significance

VAHR 7822-3731-88 is an isolated artefact comprising part of a broad low density surface stone artefact scatter. It contains no evidence of intact occupation deposits or features. The number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site is very common throughout the geographic region. The integrity of the site has been affected by the modification of the paddock and through horse trampling and scuffage. The place has been assessed as being in poor condition. The artefact has very low research potential and is unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731-88 is assessed as having low scientific significance.

6.6.17 VAHR 7822-3731-89 [redacted]

Table 32 - Description of VAHR 7822-3731-87

Site name: Site number:	[redacted] VAHR 7822-3731-89
Primary Grid ref:	[redacted] [redacted]
Location:	[redacted] [redacted]
Landform:	Low rise [redacted]
Artefacts:	1
Artefact density per m^2:	1
Place extent:	Primary grid co-ordinate (see above)
Place condition:	Poor
Place type:	LDAD
Scientific significance:	Low

Figure 32 Silcrete proximal flake recorded [redacted] *at VAHR 7822-3731-89*

VAHR 7822-3731-89: Nature

The Aboriginal place comprises an isolated stone artefact located on a crest of a low rise within the volcanic plain, [redacted]. The artefact is a silcrete proximal flake. [redacted] contains evidence for landscape modification [redacted]. The artefact is therefore assessed as being in poor condition.

VAHR 7822-3731-89: Extent

The extent of 7822-3731-89 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian Aboriginal Heritage Register for the artefact. This co-ordinate relates to the location of the artefact on the ground surface (Figure 16).

As the artefact is isolated and in a disturbed context, it is considered that there would be low potential for sub-surface archaeological deposits at this location.

VAHR 7822-3731-89: Scientific Significance

VAHR 7822-3731-89 is an isolated artefact comprising part of a broad low density surface stone artefact scatter. It contains no evidence of intact occupation deposits or features. The number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site is very common throughout the geographic region. The integrity of the site has been affected by ploughing and the construction of powerlines. The place has been assessed as being in poor condition. The artefact has very low research potential and is unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731-89 is assessed as having low scientific significance.

6.6.18 VAHR 7822-1138 [redacted]

Table 33 - Description of VAHR 7822-1138

Site name: Site number:	[redacted] VAHR 7822-1138
Primary Grid ref:	[redacted] [redacted]
Location:	[redacted] [redacted] [redacted]
Landform:	Basalt outcrop and ploughed field
Artefacts:	37
Artefact density per m^2:	Minimum 1 Maximum 12
Place extent:	750 x 180m
Place condition:	Fair-Poor
Place type:	Artefact scatter
Scientific significance:	Moderate

Figure 33 Artefacts relocated as part of VAHR 7822-1138: Plumpton SAS [redacted]. Upper photographs show artefacts identified within the ploughed field. Bottom photograph shows 12 artefacts located within 1m² on basalt out crop [redacted].

VAHR 7822-1138: Nature

The Aboriginal place comprises thirty-seven stone artefacts located on a ploughed field and basalt outcrop [redacted]. According to the original site

recording undertaken by Cekalovic[111] the site comprised a dense concentration of artefacts [redacted], with generally decreasing artefact densities moving north away from the creek. The assemblage comprises an unspecified number of retouched and unretouched flakes, manufactured from silcrete, quartz, quartzite, chert, basalt and glass. As a result of the recent survey, twenty-nine artefacts were relocated [redacted]. This is likely to be less than the original site recording (though the original artefact density is unspecified), and this may be due to the impacts of ploughing and erosion on the Aboriginal place.

The artefacts are located on the surface and may have been disturbed as a result of basalt floater and cobble removal, as well as ploughing which has occurred in areas of the site [redacted]. Several artefacts were also located on the slopes of the basalt outcrop which may have been transported through weathering and rain wash from the crest of the outcrop. The place has therefore been assessed as being in fair-poor condition.

VAHR 7822-1138: Extent

The extent of VAHR 7822-1138 was recorded by Cekalovic[112] as an elongate shape stretching 750m north-south, and 150m at its widest point running parallel with the creek. As part of the original site investigations, [redacted]. During the recent survey, artefacts were also located [redacted]. Therefore, the extent of VAHR 7822-1138 has been extended on its east-west axis, with the revised extent entailing 750m x 180m. The density of artefacts [redacted] make it highly likely that there would also be a sub-surface component to this place.

[111] *Report #1845*

[112] *According to the site card for VAHR 7822-1138*

VAHR 7822-1138: Scientific Significance

VAHR 7822-1138 comprises a minimum of 37 artefacts that form part of a previously recorded surface stone artefact scatter. The Aboriginal place may have a sub-surface component, but in its present state, the number of artefacts recovered is too low for any highly detailed analysis to be performed. High density artefact scatters are common throughout the geographic region. The integrity of the site has been partially impacted by the removal of basalt pieces from the deposit and ploughing of the northern part of the site, but is in fairly good condition [redacted]. The artefacts have low research potential and are able to be analysed in conjunction with similar landform sites in the geographic region. As a result of these factors 7822-1138 is assessed as having moderate scientific significance. However, were more artefacts to be found in association with this landform through improved ground surface visibility or excavation, the research potential and significance of this Aboriginal place would be updated.

6.6.19 VAHR 7822-3731 90-102 [redacted]

Table 34 Description of VAHR 7822-3731-90-102

Site name: Site number:	[redacted] VAHR 7822-3731-90-102
Primary Grid ref:	[redacted]
Location:	[redacted]
Landform:	Volcanic plain (ploughed field)
Artefacts:	13
Artefact density per m^2:	Minimum 1 Maximum 5
Place extent:	Primary grid co-ordinates (see above)
Place condition:	Poor
Place type:	Low Density Artefact Distribution
Scientific significance:	Low scientific significance

Table 35 - Artefact assemblage recorded as VAHR 7822-3731 90-102 at [redacted].

	Angular Fragment	Flake - Split	Flake - Complete	Flake - Distal	Flake - Proximal	Flake - Medial	Total
Quartz			2	1	1	1	5
Quartzite	1	1			2		4
Silcrete			2	1	1		4
Total	1	1	4	2	4	1	13

Figure 34 Surface artefacts [redacted] that form part of VAHR 7822-3731-90-102

VAHR 7822-3731-90-102: Nature

The Aboriginal place comprises thirteen stone artefacts located within a ploughed field [redacted]. The artefacts comprise five quartz, four quartzite and four silcrete raw materials (Table 35). Artefact types present are predominantly debitage, including broken flakes, angular fragments and complete flakes. VAHR 7822-3731-90-102 are located on the surface and have been impacted by repeated ploughing. Rubbish dumping and movement of imported fill have taken place within the property area, which may have altered the true artefact density.

VAHR 7822-3731-90-102: Extent

The extent of 7822-3731-90-102 has been recorded as part of a low density artefact distribution and a primary grid co-ordinate has been recorded on the Victorian Aboriginal Heritage Register for each artefact. These co-ordinates relate to the location of the artefacts on the ground surface (Figure 16).

The context of artefacts-90-102 is in poor condition, although there may be sub-surface potential [redacted]. Intact archaeological deposits may exist beneath the plough impact zone.

VAHR 7822-3731-90-102: Scientific Significance

VAHR 7822-3731-90-102 comprises thirteen artefacts that form part of a broad low density surface stone artefact scatter. The Aboriginal place has potential to comprise a sub-surface component, but in its present state, the number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site (LDAD) is very common throughout the geographic region. The integrity of the site has been impacted by ploughing, soil dumping and movement, and the artefacts may not be in primary context. The surface artefacts have low research potential and are unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors 7822-3731-90-102 is assessed as having low scientific significance.

6.6.20 VAHR 7822-0187 [redacted]

Table 36 Description of VAHR 7822-2917

Site name: Site number:	[redacted] VAHR 7822-0187
Primary Grid ref:	[redacted]
Location:	[redacted]
Landform:	Basalt outcrop [redacted]
Artefacts:	4
Artefact density per m^2:	Minimum 1 Maximum 2
Place extent:	25m x 11m
Place condition:	Poor
Place type:	Soil Deposit
Scientific significance:	Low scientific significance

Table 37 Artefact assemblage recorded as VAHR 7822-0187 [redacted].

	Notched Tool	Flake - Distal	Flake - Proximal	Total
Quartzite		1		1
Silcrete	1		2	3

Figure 35 Notched tool with usewear [redacted] *that forms part of VAHR 7822-0187*

VAHR 7822- 0187: Nature

The Aboriginal place comprises four stone artefacts located on a basalt outcrop [redacted]. The artefacts comprise one quartzite broken flake and three silcrete artefacts (Table 37). One of the silcrete artefacts is a complete flake with notched retouch and usewear. The artefacts are located on the surface and have been subject to erosion and weathering. [redacted]

The Aboriginal place was first recorded in 1989 by du Cros in her assessment of the Western Region[113]. According to the site card, the place was registered as a soil deposit, specifically an exposed creek bank with cultural material eroding out. du

[113] *du Cros & Goulding (1989) Report# 337*

Cros noted the presence of silcrete and quartz artefacts, as well as freshwater mussel.

VAHR 7822-0187: Extent

The extent of 7822-0187 was recorded as a 40m x 1m eroding creek bank comprising freshwater mussel shell and stone artefacts. As part of this assessment, four artefacts have been identified at the eastern extent of du Cros' site recording. [redacted]. The basalt outcrop on which the artefacts were identified is a relatively undisturbed landform and may have potential for sub-surface deposits similar to those recorded by du Cros. The revised site extent for VAHR 7822-0187 is proposed as [redacted], and measures 25m x 11m.

VAHR 7822-0187: Scientific Significance

VAHR 7822-0187 comprises four artefacts located on a basalt outcrop [redacted]. The Aboriginal place has potential to comprise a sub-surface component, but in its present state, the number of artefacts recovered is too low for any meaningful analysis to be performed. This type of site (Artefact Scatter) is very common throughout the geographic region. The integrity of the site is fair, due to the probability of intact sub-surface deposits. The surface artefacts have low research potential and are unlikely to provide any new information about past Aboriginal use and occupation. As a result of these factors VAHR 7822-0187 is assessed as having low scientific significance.

6.7 Summary of Aboriginal Place Data

A total of two hundred and ninety-four artefacts were recorded as part of the Kororoit PSP Aboriginal Cultural Heritage Assessment. The majority of artefacts were manufactured from silcrete (70.5%), with low percentages of quartz (16.9%), quartzite (10.1%), various fine-grained volcanic materials (1.8%) and locally sourced river cobbles (0.7%) also present across the activity area (Figure 36). The most commonly encountered artefacts were those representing by-products, or debitage, created during tool manufacture and maintenance. Artefacts considered debitage include any unmodified (no retouch or usewear) flakes, broken flakes or angular fragments. These categories amount to 84.5% of the artefact assemblage.

In addition to debitage, a small number of cores (2.9%) and retouched implements (10.8%) were also identified. Cores represent the abandoned parent material from which flakes are struck in the manufacture of tools. Retouched implements comprise either partially made formal tools, or unstandardised retouched flakes that are assumed to have been used as general purpose cutting tools. Two hammer stones, one manuport and one anvil were also identified.

Figure 37 compares the typological variation between the high and low density sites. The variety of artefact types suggest that all stages of stone reduction were occurring within the PSP, including core preparation and reduction, flake blank manufacture and tool resharpening and use. Rare artefact types such as anvils and hammer stones are considered to be tools that occur in assemblages that accumulate over a long term inhabitation of a place. Similarly, a long term occupation is more likely to comprise wide variation in tool types and raw materials as residues from a range of activities gradually accumulate.

The high densities encountered suggest that [redacted] (VAHR 7822-3741) and [redacted] (VAHR 7822-3751) were likely centres of focused activity along the creek corridor.

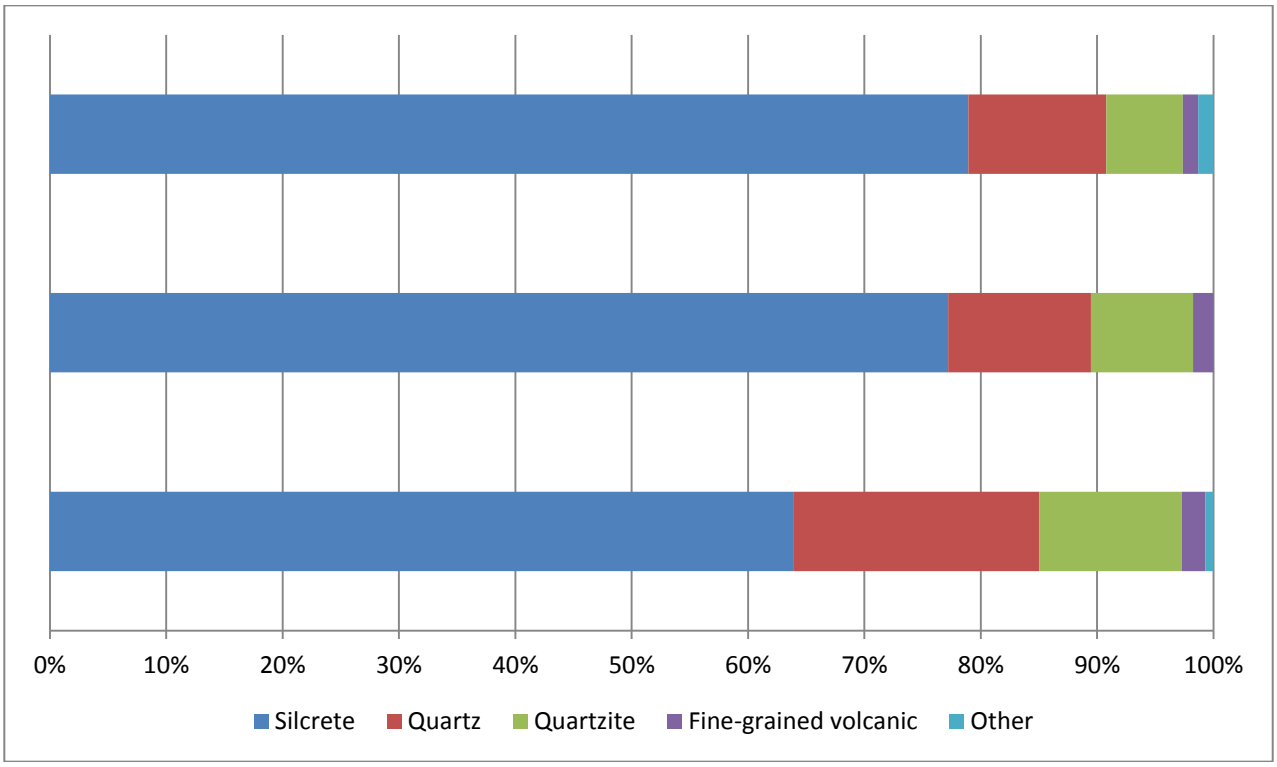

Figure 36 Proportions of raw materials identified within the activity area.

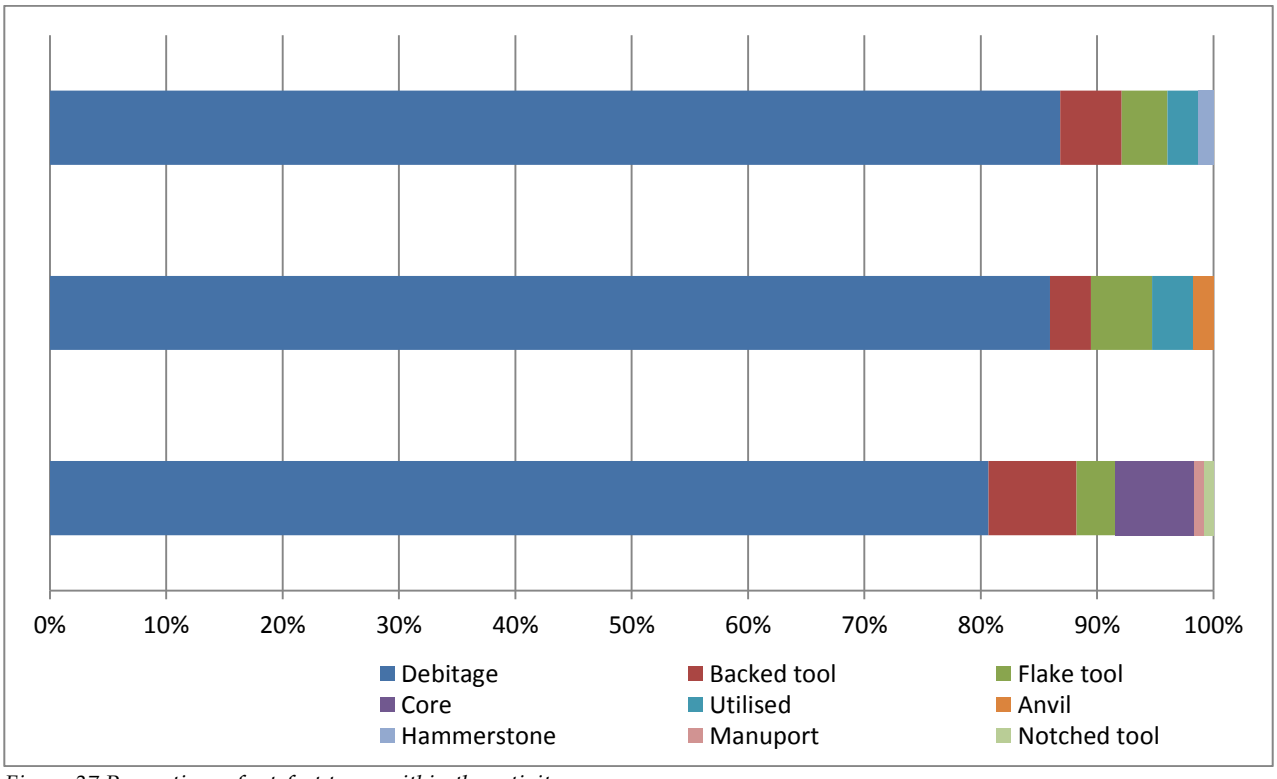

Figure 37 Proportions of artefact types within the activity area

As a result of the survey, several aspects of the predictive model were able to be verified regarding where Aboriginal places might be located as part of future investigations.

For example, as a result of the desktop assessment it was predicted that "Higher density artefact scatters and sub-surface deposits may be found on crest landforms" and that "Higher density artefact scatters and sub-surface deposits may be found adjacent to original drainage channels, particularly permanent and reliable water sources such as Kororoit Creek". Of the artefacts recorded as part of the survey (including existing sites subject to site reinspections), 71% were located on the crests of low rises or basalt outcrops overlooking Kororoit Creek.

The remaining low density sites are distributed across most of the PSP area with decreasing artefact density with distance from Kororoit Creek (Figure 39). This confirms the prediction made in the Desktop Assessment that "Stone artefact deposits are likely to be found at varying densities across most landforms within PSP 1080" and "The density and complexity of artefact scatters and sub-surface deposits is likely to decrease with distance from water sources and wetlands".

6.8 Conclusions

The results of the archaeological survey indicate the study area has very low ground surface visibility which resulted in very low effective survey coverage. The poor ground visibility across the majority of the activity area indicates the survey was generally ineffective in identifying the nature, extent and significance of cultural heritage across the activity area. The results of the survey supported the predictions made in the predictive modelling and preliminary sensitivity mapping developed as part of the desktop assessment.

A limited number of conclusions regarding likely archaeological patterning were made drawing on the results of survey:

- Ground surface visibility in PSP 1080 was generally low and was therefore ineffective at determining the nature and density of potential surface Aboriginal cultural material within areas of dense pasture grass coverage or other ground cover;

- Although native vegetation was examined (particularly along the creek corridors), none contained definitive evidence of scarring;

- Areas of prior cut and fill disturbance initially identified during the desktop assessment were examined during the survey and the disturbance in these areas has been considerable – likely resulting in the complete removal of any archaeological deposits that may have originally been present. The survey confirmed these areas are unlikely to contain Aboriginal cultural heritage, and therefore should be excluded from the scope of Complex Assessment;

- Two large high density artefact scatter sites were identified during the standard assessment ([redacted] VAHR 7822-3741 and [redacted] VAHR 7822-3751). Both were assessed as having high local significance and should be retained during future development, where possible;

- Areas of very high, high, moderate and low sensitivity should be included in a programme of landform based test excavation as part of complex assessments prepared for future Cultural Heritage Management Plans;

- Areas of very low sensitivity should be excluded from future Complex Assessment because the nature, extent and significance of Aboriginal cultural heritage in these areas is well understood as a result of numerous recent investigations in the region and the results of AHMS investigations for the current project. The model in this region is robust and indicates these areas will contain low density, low frequency surface and sub-surface deposits reflective of occasional use and casual discard. The Desktop and Standard Assessments undertaken for this CHMP also demonstrate the integrity of archaeological deposits in these areas is almost certainly low as a result of market gardening; and

- In the case of areas of 'disturbed' sensitivity, it is unlikely that these areas contain cultural heritage deposits and should therefore be excluded from future CHMP complex assessments.

6.9 Cultural Values.

During the survey, the Aboriginal community representatives were consulted about key cultural and landscape values.

The aim of this consultation was to gain an indication of the cultural values which may be relevant to the landscape and to assist in developing a scope for more detailed cultural values assessment during complex assessments.

[redacted]

[redacted]

During the survey, the Aboriginal community representatives were asked to comment on any cultural values, particularly in regards to the importance of remnant native vegetation, traditional food plants and landscape values. [redacted]

6.10 Predictive Sensitivity Mapping

The results of the standard assessment/survey were used to test and revise the predictions developed during the desktop assessment phase of the project. The standard assessment results supported the predictive model developed during the desktop assessment. Therefore the model and sensitivity traits are unchanged from that presented in the desktop assessment.

The sensitivity mapping has, however, been revised with the following additions (please refer to Figure 39):

Areas of basalt outcrop (also including the two Aboriginal places assessed as having high significance - [redacted] VAHR 7822-3741 and [redacted] VAHR 7822-3751)

The areas of basalt outcrop have been overlain onto the sensitivity map and outlined in bright pink on Figure 39. [redacted]

High Pressure Gas Pipeline – A high pressure gas pipeline easement was identified during the standard assessment survey and has been added into the 'disturbed' sensitivity category.

[redacted]

Preferred road crossing corridors – the preferred corridors identified during the site visit with the stakeholders on the 29th January 2014 are overlaid on the sensitivity map and outlined in blue.

It is important to note that the predictive sensitivity mapping is based on the results of Desktop research and the Standard Assessment. The accuracy of the modelling and mapping presented in this report should be quite robust, given the amount of archaeological investigation carried out over the last few years within the western growth areas that underpin the predictions made. Therefore, the sensitivity mapping could be used to inform high level PSP design work, particularly in regards to proposed configuration of open space networks, activity centre and key infrastructure such as main roads that need to be established early in the PSP planning and design process.

The predictive modelling and predictive sensitivity mapping should be tested during future Complex Assessments, preferably using systematic landform based test excavation specifically designed to test conclusions made in the predictive modelling and shown on the sensitivity mapping. The model and sensitivity mapping should then be refined (if necessary) and used as the basis for making design decisions at an individual CHMP / development project level in consultation with Office of Aboriginal Affairs Victoria and Aboriginal traditional owner representative groups.

FIGURE REDACTED

Figure 38. Area of Aboriginal Cultural Heritage Sensitivity within PSP 1080.

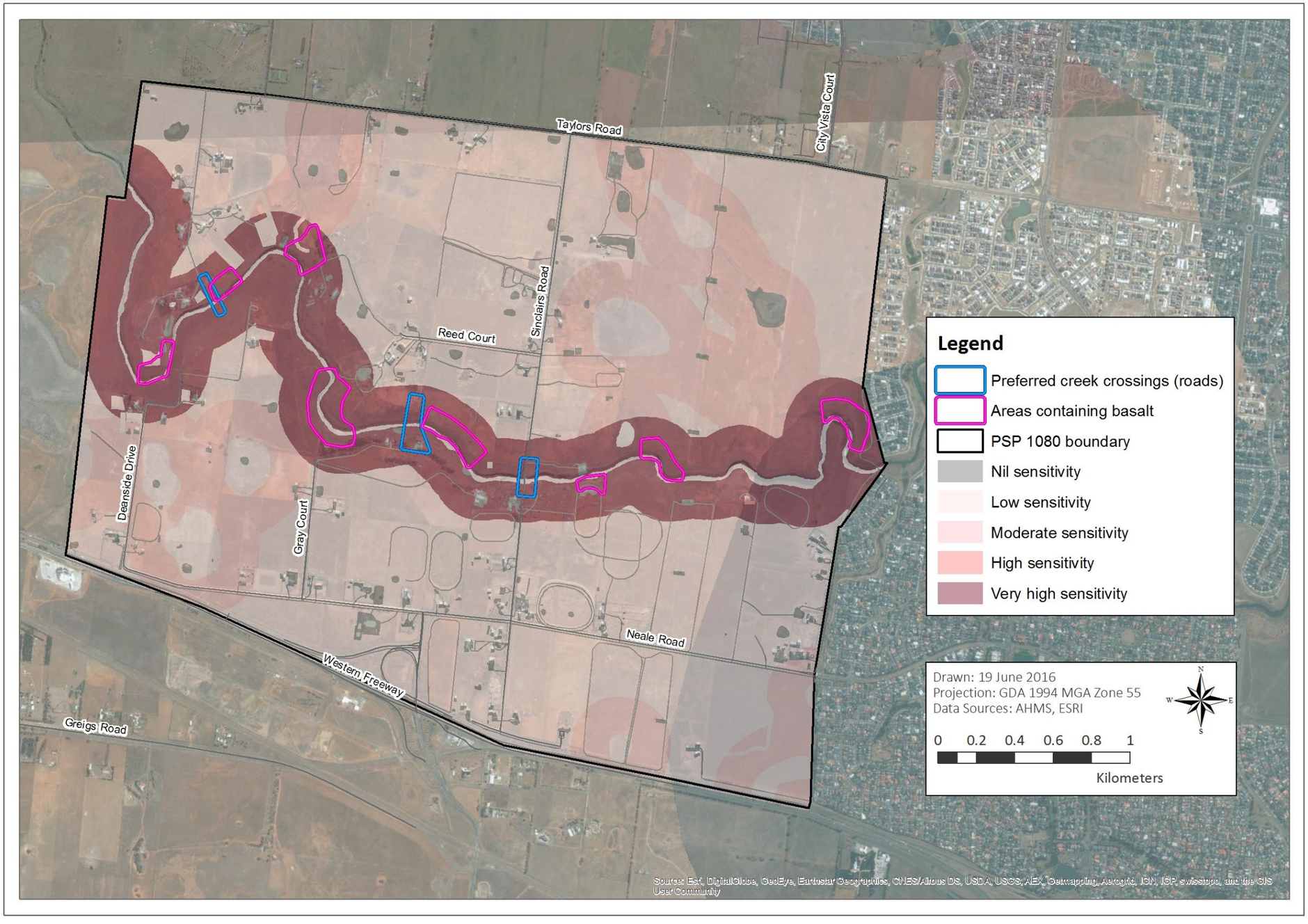

Figure 39. Revised sensitivity mapping showing [redacted] *areas containing culturally sensitive basalt outcrops. NB: Aboriginal place locations redacted.*

7 MANAGEMENT RECOMMENDATIONS

7.1 PSP Planning and Design

The results of the Desktop and Standard Assessment were used to develop a predictive model of the archaeological sensitivity of the activity area.

The predictive model and archaeological sensitivity map shown on Figure 39 is designed to inform PSP design and planning work. The sensitivity map is also designed to provide landowners and development proponents with a guide to archaeological sensitivity within various parts of the activity area to assist in gauging risk and making informed decisions about development design.

In general terms, the risk of impact on significant archaeological and Aboriginal cultural heritage values is likely to increase in accordance with sensitivity level. Therefore, areas that are in the very high sensitivity zones are likely to have the highest level of archaeological significance and as a result these areas are also likely to have the highest level of risk for development proponents. Likewise, areas of very low sensitivity or which are disturbed have a very low risk level.

We would recommend the following PSP design responses with reference to the sensitivity zones shown on Figure 39:

Aboriginal places [redacted] (VAHR 7822-3741) and [redacted] (VAHR 7822-3751) - These Aboriginal places [redacted] within areas of basalt outcrop (outlined bright pink on Figure 39) have been assessed as having a high level of archaeological and cultural significance and should be retained in conservation as part of the PSP design and planning process.

Areas containing basalt outcropping: (outlined bright pink on Figure 39): We recommend these areas have the highest priority for retention (Very High Sensitivity). Where decisions about conservation or open space allocation are made by MPA or individual landowners / development proponents in consultation with the Aboriginal communities, the higher priority areas should be considered as 'first

priority' options for retention because of the important cultural and mythological values that are associated with the basalt outcrops along the creek. These areas also have a high level of sub-surface archaeological potential and better preservation conditions. It may not be possible to retain all of this land, however, where it is feasible it should be actively considered and where it isn't feasible harm should be minimised.

Very High and High Sensitivity: retain as much as possible in open space, riparian, bio-link, set-backs and asset protection zones. The aim of PSP design should be to minimise future development impact on these areas (particularly the Very High sensitivity zone). This approach will protect areas with high potential for significant archaeological deposits and cultural values. The areas outlined in pink on Figure 39 are particularly sensitive and should be the first priority for retention.

This approach to management will also save time and money in reducing the scope of mitigation and salvage of sensitivity areas.

Moderate Sensitivity: where there is an opportunity, development impact should be minimized where practicable. For instance, where there are opportunities to establish open space, these could be placed on areas of moderate sensitivity to protect Aboriginal heritage and reduce the scope of expensive and time consuming archaeological mitigation measures and salvage.

Low Sensitivity: no design and planning recommendations. These areas are essentially archaeologically 'neutral'.

Nil Sensitivity and Disturbed: these areas could be the focus of development, particularly high impact features of a subdivision like a town centre, medium or high density residential, industrial or commercial.

7.2 Complex Assessments

The proposed activity (residential subdivision) would be a 'high-impact' development and would be considered a 'sub-division' under Regulation 48 of the *Aboriginal Heritage Regulations 2007*.

Prior to the commencement of individual development projects within the PSPs, projects that are located within or partly within an area of cultural heritage sensitivity as defined by the *Aboriginal Heritage Regulations 2007* (this currently includes all the areas shaded green on Figure 38 as well as the site buffers outlined green on Figure 39) will be required to prepare a Cultural Heritage Management Plan (CHMP).

It is important to note that areas of cultural heritage sensitivity change over time as new Aboriginal places are identified and new landforms added – therefore it is critical that all proponents check the sensitivity overlay mapping included on OAAV's ACHRIS mapping system or on the Department of Primary Industries GeoVic website to determine whether a management plan may be triggered by their development proposal.

There is an exemption from the requirement to complete a mandatory CHMP if all of the development area has been subject to significant ground disturbance in the past. Significant ground disturbance is defined as disturbance of the topsoil or surface rock layer of the ground or a waterway by machinery in the course of grading, excavating, digging, dredging or deep ripping but does not include ploughing or other deep ripping in the *Aboriginal Heritage Regulations 2007*. In most cases, it is very difficult to demonstrate significant ground disturbance across the entirety of a typical residential sub-division project. Therefore any developments within or partly within the areas of sensitivity shown on Figure 38, and/or within 50m of any known Aboriginal place (see the location of Aboriginal places recorded within the study area shown on Figure 39) are highly likely to require completion of a complex CHMP before a Planning Permit can be approved for those projects.

Where a CHMP will be required we recommend the use of a landform based approach to complex assessment (test excavation). The landform based approach aims to systematically test each landform within an activity area to establish the extent of cultural material present. This approach is recommended because it is a very efficient and effective means of assessing the nature, extent and significance of Aboriginal cultural heritage across large landscapes. It also provides for a consistent approach across PSP 1080 and significant sampling efficiencies by using a common approach that can be utilized by all the landowners and proponents within the activity area.

The extent of testing and sample effort should be based on the level of sensitivity shown on the predictive sensitivity mapping shown on Figure 39. Areas which are disturbed or have very low sensitivity should not require further test excavation because they are considered 'unlikely' to contain Aboriginal cultural heritage (the *Aboriginal Heritage Regulations 2007* only require complex assessment in areas that are 'likely' to contain Aboriginal cultural heritage). However, areas ranging from low to very high sensitivity should be included in a systematic programme of landscape-based archaeological test excavation that aims to establish the extent nature and significance of the Aboriginal cultural material within areas of proposed development impact (NB: Areas set aside as open space, conservation or other uses that do not entail development disturbance will not be included in complex assessment and can therefore be excluded from complex assessment scope of work). Levels of sensitivity ranging from low to very high will need to be included in the scope of complex assessments in order to efficiently test the predictive model.

In addition to test excavation, individual complex assessments should also include consultation with the Bunurong Land Council Aboriginal Corporation, Boonwurrung Foundation and the Wurundjeri Tribe Land & Compensation Cultural Heritage Council to identify cultural values. These groups must also be invited to participate in any further survey or test excavation fieldwork.

Proposed sampling densities for complex assessments are outlined below. These densities are based upon previous landform based testing, conducted at Botanic

Ridge PSP and Minta Farm PSP for the Metropolitan Planning Authority in which the level of testing outlined below was successfully used to establish the extent, nature and significance of the Aboriginal Cultural Heritage across each landscape and identify statistically robust landform and environmental trait patterning. We recommend a minimum sampling density as per Table 38 below.

Table 38. Proposed Sampling Densities.

Sensitivity Level.	Testing Required (per 100 hectare for larger properties)*.
Low	10 Square Metres
Moderate	15 square metres
High	20 square metres
Very High	25 square metres

* *For properties that are less than 100 hectares the same sampling densities would also apply. For example, a 25 hectare property in high sensitivity zoning would still require 20 square metres sample because it is a minimum sample required to understand the nature, extent and significance of sub surface deposits. For properties that include a range of sensitivity zones, the sampling should be weighted according to the proportion of the land in different sensitivity zones.*

8 MANAGEMENT REQUIREMENTS

The following recommendations set out the key legal requirements that will apply to PSP planning and development within the activity area:

a. **Subdivision or development projects** (greater than 2 lots and/or two dwellings) **located within or partly within areas of legislated cultural heritage sensitivity defined under the Aboriginal Heritage Regulations 2007** (shown on Figure 38 and land parcels located within 50m of the Aboriginal places marked green on Figure 39) will require completion of mandatory cultural heritage management plans (CHMPs) before Planning Permits can legally be approved for these projects. Prior to subdivision or development projects taking place a search of the Aboriginal cultural heritage sensitivity overlay on GeoVic or the Office of Aboriginal Affairs Victoria website should be undertaken to ensure that the proponent has the most up to date version of OAAV Aboriginal cultural heritage sensitivity overlay when determining whether or not a mandatory CHMP is required for an activity.

b. Currently there is no Registered Aboriginal Party for PSP 1080 therefore the current evaluating authority would be Office of Aboriginal Affairs Victoria (OAAV). CHMPs must be prepared by a qualified Cultural Heritage Advisor and must be approved by OAAV before they are in force.

   If individual development proponents believe their land has been subject to significant ground disturbance (either mechanical excavation disturbance and/or deep ripping) they could consider engaging a Cultural Heritage Advisor to undertake an assessment and make a determination. Activity areas that have been subject to *significant ground disturbance* as defined by the Aboriginal Heritage Regulations 2007 may not require a mandatory CHMP.

c. **Areas where no development or ground disturbance is proposed** – no Complex Assessment will be required in areas where development and disturbance is not proposed. Inclusion of areas priority conservation areas

and areas of high to very high sensitivity in conservation, open space, biolinks and/or riparian corridors will reduce the scope of Complex Assessment required and provide good outcomes in protecting significant Aboriginal heritage;

d. **Known Aboriginal Places (including Low Density Artefact Distributions) (**shown on Figure 39**)** – registered on the Victorian Aboriginal heritage register (VAHR) and places found during the Standard Assessment described in this report are protected by the *Aboriginal Heritage Act 2006*. It is an offence to disturb or destroy these places without first obtaining either a Permit to Harm or an approved CHMP from OAAV.

e. **Blanket Protection** – Irrespective of whether or not a CHMP is required for a particular development or activity, the *Aboriginal Heritage Act 2006* provides blanket protection for all Aboriginal cultural heritage. If any Aboriginal objects (artefacts), sites, places or skeletal remains are identified at any time before or during development works, they cannot be harmed until either a Permit to Harm or a CHMP that specifically permits harm to that place has been approved by OAAV.

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APPENDIX 1 – NOTICE OF INTENT

Notice of Intent to prepare a Cultural Heritage Management Plan for the purposes of the *Aboriginal Heritage Act 2006*

This form can be used by the Sponsor of a Cultural Heritage Management Plan to complete the notification provisions pursuant to s.54 of the *Aboriginal Heritage Act 2006* (the "Act").

For clarification on any of the following please contact Victorian Aboriginal Heritage Register (VAHR) enquiries on 1800-726-003.

SECTION 1 - Sponsor information

Sponsor:	Growth Areas Authority		
ABN/ACN:	77 803 352 468		
Contact Name:	Stephanie Harder		
Postal Address	Level 29, 35 Collins Street, Melbourne, VIC 3000		
Business Number:	03 9651 9643	Mobile:	
Email Address:	Stephanie.Harder@gaa.vic.gov.au		

Sponsor's agent (if relevant)

Company:			
Contact Name:			
Postal Address			
Business Number:		Mobile:	
Email Address:			

SECTION 2 - Description of proposed activity and location

Project Name:	Plumpton Precinct Structure Plan (PSP) 1078
Municipal district:	Melton Shire Council

Clearly identify the proposed activity for which the cultural heritage managment plan is to be prepared (ie. Mining, road construction, housing subivision)

Subdivision

SECTION 3 - Cultural Heritage Advisor

Name	Company	Email address
Shannon Sutton	AHMS (Archaeological & Heritage Management Solutions Pty Ltd)	shannons@arksolutions.com.au

SECTION 4 - Expected start and finish date for the cultural heritage management plan

Start Date: 03-May-2013 Finish Date: 03-May-2014

Submitted on:03 May 2013

SECTION 5 - Why are you preparing this cultural heritage management plan?

☑ A cultural heritage management Plan is required by the Aboriginal Heritage Regulations 2007

What is the high Impact Activity as it is listed in the regulations?

Subdivision

Is any part of the activity an area of cultural heritage sensitivity, as listed in the regulations? Yes

☐ Other Reasons (Voluntary)

☐ An Environmental Effects Statement is required

☐ A Cultural Heritage Management Plan is required by the Mister for Aboriginal Affairs.

SECTION 6 - List the relevant registered Aboriginal parties (if any)

This section is to be completed where there are registered Aboriginal parties in relation to the management plan.

SECTION 7 - Notification checklist

Ensure that any relevant registered Aboriginal party/s is also notitifed. A copy of this notice with a map attached may be used for this purpose.
(A registered Aboriginal party is allowed up to 14 days to provide a written response to a notification specifying whether or not it intends to evaluate the management plan.)

In addition to notifying the Deputy Director and any relevant registerd Aboriginal party/s, a Sponsor must also notify any owner and/or occupier of any land within the area to which the management plan relates. A copy of this notice with a map attached may be used for this purpose.

Submitted on:03 May 2013

APPENDIX 2 – GLOSSARY OF TECHNICAL TERMS

Aeolian	Wind generated geological processes. In an archaeological context it usually refers to wind blown deposits and sands.
Backed Artefact / Backing	A retouched tool (maybe a complete, distal, medial or proximal flake) that displays evidence of backing along one lateral margin. This backing may be initiated from the ventral surfaces or alternately may be an example of bidirectional backing initiated from both surfaces (Holdaway and Stern 2004:259). There are four main types of commonly recognised backed artefacts, which include 'Bondi Points; geometric microliths (or 'Backed Blades'), Juan Knives and Eloueras'.
Bipolar	A method of removing flakes from a core, by striking a core against an anvil (Holdaway and Stern 2004:11). This is often evidenced by crushing at the platform and/or at the termination of the flake; Bipolar flaking is also evidenced as crushing at the base (end opposite the platform) of a core.
Blade	A flake that is twice as long as its width.
Bulbar	Refers to a bulb of percussion produced during a conchoidal fracture
Chert	'a dense, extremely hard, microcrystalline or cryptocrystalline, siliceous sedimentary rock, consisting mainly of interlocking quartz crystals, sub-microscopic and sometimes containing opal (amorphous silica). It is typically white, black or grey, and has an even to flat fracture. Chert occurs mainly as nodular or concretionary aggregations in limestone and dolomite, and less frequently as layered deposits (banded chert). It may be an organic deposit (radiolarian chert), an inorganic precipitate (the primary deposit of colloidal silica), or a siliceous replacement of pre-existing rocks' (Lapidus 1990:102).
Conchoidal	Where a force strikes the surface of a core forming a circular or

	'ring' crack that bends back towards the surface of the core, forming a partial bulb of percussion. The fracture frequently moves towards the exterior surface of the core, detaching a flake (Holdaway and Stern 2004:34).
Core	Andrefsky (1998:80-81) states a core can be understood as 'an objective piece that has had flakes removed from its surface'; Holdaway and Stern (2004:37; 5-8) provide further clarification 'artefacts that retain the negative flake scars of previous flake removals'.
Cortex	The outer layer of patination of rock is known as cortex. It is found on weathered stone (Holdaway & Stern 2004: 26-27). Cortex types (mostly rough, water worn or pebble) can indicate the source that stone material was obtained from.
Debitage	Small spalls and flakes produced during percussion, bipolar and pressure flaking.
Fine Grained Basalt	Basalt is a volcanic rock. See Volcanic below.
Flake	Depending on the completeness of the flake, a flake may have a number of common characteristics which may include: a platform, bulb of percussion, errailure (or bulbar) scar, point of force impact (PFI or umbo), dorsal ridge and ventral surface, fissures (or indentations), ripple marks (which radiate away from the point of force impact/umbo) and a termination. Not all of these features are typically found on every flake, however they are attributes likely to be present from conchoidal fracture.
Negative Flake Scar	The negative indentation or scar left behind on a flake, core or tool when a flake is removed. The presence and abundance of negative flake scars can reveal information about the process of flaking. For example negative flake scars on a) cores can provide information on how intensely the core has been used, b) on the dorsal surface of a flake can indicate how intensely the core was flaked before this flakes was removed and/or that the core platform was cleaned off to start flaking again

	(platform rejuvenation), c) along the edge of a flake can indicate retouch/backing (Holdaway and Stern 2004:184).
Point	A term applied to certain formal types such as Bondi Points.
Platform	A striking platform or a platform is the surface from which a flake is struck from a Core (Holdaway and Stern 2004:5); flakes retain part of the platform on their proximal end.
Quartz	'crystalline silica, SiO2. It crystallizes in the trigonal system, commonly forming hexagonal prisms. For cryptocrystalline varieties of silica see Chalcedony. Colourless and transparent quartz, is found in good crystals, is known as rock crystal. Varieties that are colours due to the presence of impurities may be used as gemstones, amethyst, purple to blue-violet, rose quartz, pink; citrine, orange- brown; smoky quartz, pale yellow to deep brown' (Lapidus 1990:429).
Quartzite	'a metamorphic rock consisting primarily of quartz grains, formed by the recrystallization of sandstone by thermal or regional metamorphism; a metaquartzite and a sandstone composed of quartz grains cemented by silica; an orthoquartzite' (Lapidus 1990:430).
Retouch	Modification of a flake or core prior to use. Retouch is the 'removal of a series of small, contiguous flakes' from the edges of the artefact (Holdaway and Stern 2004:33). There are several different types of retouch which are identified as backing; stepped; scalar; invasive; notched and serrated retouch.
Reduction	By definition stone material is made smaller when it is struck to produce stone flakes and tools. This process is known as stone reduction. *'Modern stone artefact analyses use the reductive nature of stone artefact manufacture as the basis for reconstructing the processes by which artefacts were made. By analysing the size*

	and form of artefacts, archaeologists can obtain information about how stone was acquired from its source, the form in which the stone was transported to campsites, how it was worked, and the way stone artefacts were use until discarded' (Holdaway and Stern 2004:3).
Scarred Tree	A tree that has been marked as a result of bark being removed by Aboriginal people for cultural reasons or for use in making shields, containers, canoes etc. Some trees may also have marks caused by making toe holds for climbing up trees.
Scraper	'A minimal definition of a scraper is that it is a flake with one or more margins of continuous retouch'. It also indicates the stage of reduction the flake has reached (see Holdaway and Stern 2004:227).
Silcrete	'a hard surface deposit composed of sand and gravel cemented by opal, chert and quartz, formed by chemical weathering and water evaporation in semi-arid climate. Extensive deposits of silcrete are found in S. Africa and Australia. Silcrete is a siliceous duricrust' (Lapidus 1990:472).
Termination	There are a number of different flake terminations (or ends of a flake) which are possible through flaking stone material. The main types of flake terminations include step, hinge, feather and plunging. Flake terminations can provide information about how the flake was removed.
Tool	A tool is an artefact which shows evidence of modification (i.e. by retouch) or without modification (i.e. show signs of usewear) (Holdaway and Stern 2004:33; 39).
Tuff	'pyroclastic rock composed mainly of volcanic ash (fragments <2mm in diameter). Tuffs may be classified as crystal tuff if they contain a large proportion of crystal fragments, vitric tuff composed mainly of glass and pumice fragments and lithic tuff, containing mainly rock fragments. A consolidated mixture of lapilli and ash is a lapilli tuff' (Lapidus 1990:519-520).

Usewear	'Evidence of distinctive patterns of wear [which is] sometimes found on the edges of artefacts that were believed to have been used for specific purposes' (Holdaway and Stern 2004:41). Several types of usewear can be observed. Holdaway and Stern (2004:41; 167) identify 'chattering' and 'edge damage' as one form of usewear.
Volcanic	'All extrusive rocks and associated high-level intrusive ones. The group is entirely magmatic and dominantly basic. Igneous lithic material generally dark in colour and may be glassy (like obsidian) or very fine-grained or glassy igneous rock produced by volcanic action at or near the Earth's surface, either extruded as lava (e.g. basalt) or expelled explosively' (Lapidus 1990:535).