CULTURAL HERITAGE MANAGEMENT PLAN No 12115

SUBDIVISION OF LAND 1505-1525 (LOT 2) POUND ROAD, CLYDE NORTH

CULTURAL HERITAGE MANAGEMENT PLAN

Sponsored by
Pound Road Clyde Pty Ltd

Completed 12 September 2012

Prepared by Heritage Advisors
Andrea Murphy & Dr Tom Rymer

Archaeology At TARDIS
cultural heritage advisors
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SUBDIVISION OF LAND
1505-1525 (LOT 2) POUND ROAD, CLYDE NORTH

CULTURAL HERITAGE MANAGEMENT PLAN

AAV Management Plan Identifier:	12115
Activity Size:	Large (r.68 *Aboriginal Heritage Regulations 2007*)
Assessment Type:	Desktop, Standard & Complex (r.56 *Aboriginal Heritage Regulations 2007*)
Sponsor:	Pound Road Clyde Pty Ltd (ACN 111 056 896)
Heritage Advisors:	Andrea Murphy & Dr Tom Rymer (Archaeology At Tardis Pty Ltd)
CHMP Authors:	Andrea Murphy & Dr Tom Rymer
Completed:	12 September 2012

Aboriginal Heritage Act 2006
Section 65

Cultural Heritage Management Plan – Notice of Approval

CHMP NAME:	**Subdivision of Land 1505-1525 (Lot 2) Pound Road, Clyde North**		
CHMP NUMBER:	12115		
SPONSOR:	Pound Road Clyde Pty Ltd	*ACN/ABN:*	111 056 896
Cultural Heritage Advisor(s):	Andrea Murphy and Dr Tom Rymer		
Author(s):	Andrea Murphy and Dr Tom Rymer		
Cover date:	12 September 2012	*Pages:*	xiv + 109
Received for approval:	12 September 2012		

TO BE COMPLETED BY THE SECRETARY (OR DELEGATE) **I have considered the Evaluation Report for this CHMP and:**	**Yes**	**No**
I am satisfied that the CHMP has been prepared in accordance with the standards prescribed for the purposes of section 53 (in the Aboriginal Heritage Regulations 2007 and the Approved Form).	✓	
I am satisfied that the CHMP adequately addresses the matters set out in section 61.	✓	
In considering this application, I consulted with and considered the views of Aboriginal persons or bodies I considered relevant to the application.	✓	
I have given proper consideration to any relevant human rights	✓	

I, Steven Avery, Acting Deputy Director, Aboriginal Affairs Victoria, acting under authority delegated to me by the Secretary, Department of Planning and Community Development, and pursuant to section 65(2) of the *Aboriginal Heritage Act 2006* hereby **approve / refuse to approve** this cultural heritage management plan:

Signed: .....

STEVEN AVERY

Dated: 12 · 10 · 12

- **This notice of approval should be inserted after the title page and bound with the body of the management plan.**
- **The recommendations in this management plan are now compliance requirements. Officers from the Department of Planning and Community Development may attend the subject land to monitor compliance with the recommendations.**

EXECUTIVE SUMMARY

This cultural heritage management plan (CHMP) has been commissioned by the Sponsor, Pound Road Clyde Pty Ltd (ACN 36 535 154 270). The proposed activity is a residential subdivision and development incorporating housing, roads, open space areas and associated services and infrastructure. Andrea Murphy and Dr Tom Rymer (Archaeology At Tardis Pty Ltd) are the heritage advisors and authors of this plan. The activity area is located at 1505-1525 (Lot 2) Pound Road, Clyde North, approximately 48km southeast of Melbourne (Map 1). The activity area measures a total of 48.35 hectares. The activity area consists of one parcel of land and the cadastre is presented in Table 1 (Section 1.3). The activity area comprises a broad gently sloping very low rise adjacent to the Kee Wee Rup Swamp and Cardinia Creek plain. There are no known local or regional strategic values for pre-contact Aboriginal people within the activity area.

This CHMP is not required by the *Aboriginal Heritage Regulations 2007*. No part of the activity area is an area of cultural heritage sensitivity although the proposed activity is a high impact activity (r.6 *Aboriginal Heritage Regulations 2007*). The activity is a high impact activity being a subdivision of land (r.46 *Aboriginal Heritage Regulations 2007*). The Sponsor has elected to prepare a voluntary CHMP to manage any Aboriginal cultural heritage issues that may arise prior to and during the conduct of the activity.

A *Notice of Intent to Prepare a Cultural Heritage Management Plan* (NoI) was submitted to Aboriginal Affairs Victoria (AAV) on 9 March 2012. AAV notified the Sponsor on 15 March 2012 that they will evaluate the plan when completed and that the CHMP has been allocated CHMP No 12115. Landowners and occupiers were also notified that a CHMP was being prepared (Appendix 1).

There is no RAP responsible for the activity area. Relevant Aboriginal groups who have been consulted and have participated in this CHMP are the Wurundjeri Tribe Land and Compensation Cultural Heritage Council Incorporated (WTLCCHCI), the Bunurong Land Council Aboriginal Corporation (BLCAC) and the Boon Wurrung Foundation Limited (BWFL) (Section 4).

PART 1 – ASSESSMENT

DESKTOP ASSESSMENT (SECTION 5)

The desktop assessment reviewed the relevant geographic region (Section 5.3); registered Aboriginal places (Section 5.4); reports and published works (Section 5.5); history and ethnohistory (Section 5.6); landforms and geomorphology, including geology, soils and environment (Section 5.7); landuse history (Section 5.8); strategic values (Section 5.9) and cultural heritage research questions (Section 5.10). The relevant evidence was summarised (Section 5.11) and used to produce an Aboriginal cultural heritage sensitivity model for the activity area (Section 5.12). The model predicted the most likely place-type in the activity area would be artefact scatters on sandy silt undulation, if present (see Table 8). The desktop assessment concluded that in relation to the activity area:

1. There were no registered places within the activity area.
2. There were areas of cultural heritage sensitivity being low sandy silt undulations.
3. It was reasonably possible that Aboriginal cultural heritage is present.

EXECUTIVE SUMMARY

Based on the results of the desktop assessment, a standard assessment was required (r.58 *Aboriginal Heritage Regulations 2007*).

STANDARD ASSESSMENT (SECTION 6)

The standard assessment was conducted on 29 May 2012 by Tom Rymer (Supervisor, Archaeology At Tardis Pty Ltd), Barry Green, Alana Doyle (Archaeologists, Archaeology At Tardis Pty Ltd), Darren Symington (BLCAC) and John Winch (BWFL). Ground surface visibility was typically very poor (0-10% per m^2) because of heavy grass cover. Atypical areas of excellent ground surface visibility were encountered below windrows and isolated trees, around dams, water troughs and gates. Effective survey coverage was approximately 1%. The land has been disturbed by agricultural use involved in clearing the land, improving pasture, farm house and farming infrastructure (buildings, fences, dams, gates, windmills etc).

No Aboriginal cultural heritage was found. Sandy silt was observed in some areas of excellent ground surface visibility while other areas comprised dark brown clayey silts with minor sand fractions. The extent of sandy silts across the activity area was unable to be determined because of the general lack of ground surface visibility. The broad gentle sloping low rise is not associated with any strategic value within the activity area. Since minor exposures of sandy silt was identified in the activity area, and Aboriginal cultural heritage is often found in sandy silt soil profiles, it was considered possible, albeit very low that Aboriginal cultural heritage may be present in the activity area.

The standard assessment demonstrated that in relation to the activity area (see Map 10):

1. There were areas of Aboriginal cultural heritage scientific sensitivity being sandy silt profiles.
2. It was likely that additional cultural heritage is present.
3. It was not possible to identify the extent, nature and significance of the cultural heritage.

Based on the results of the standard assessment, a complex assessment was required (r.60 *Aboriginal Heritage Regulations 2007*).

COMPLEX ASSESSMENT (SECTION 7)

A complex assessment was conducted to test the predictions of the standard assessment model. Fieldwork was conducted between 29 May and 7 June 2012 by Barry Green (Field Supervisor, Archaeology At Tardis Pty Ltd), Alana Doyle (Archaeologists, Archaeology At Tardis Pty Ltd), Darren Symington, Izzy Pepper (BLCAC), John Winch, Josh Luttrell, Wenzel Carter (BWFL) and Shane Nicolson (WTLCCHC). Due to poor ground surface visibility a systematic sample was conducted by excavating test pits located at the nodes of a 100m x 100m grid across the activity area (test pits TP1 to TP40). A total of two new Aboriginal cultural heritage places (VAHR 7921-1420 & 7921-1426) were registered as a result of the complex assessment.

ABORIGINAL CULTURAL HERITAGE (SECTION 8)

A total of two places (VAHR 7921-1420 & 7921-1426) were recorded during the preparation of this plan. VAHR 7921-1420 comprises a single silcrete flake found at 5cm to 10cm depth and was assessed having extremely low scientific significance. VAHR 7921-1426 comprises a single quartz flake found at 20cm to 25cm depth and was assessed having extremely low scientific significance. Both places represent either casual artefact discard or loss. Neither place has research potential. The complex assessment has demonstrated that the activity area has very low cultural heritage values. There are no strategic values in the activity area (eg major waterways) and significant regional cultural heritage values are to be found elsewhere in the region (eg along Cardinia Creek). No archaeological evidence was found to show high intensity, repeated activities by Aboriginal groups were conducted in the activity area (such as base camps) likely to result in significant archaeological places. This is considered due to the lack of strategic values in or close to the activity area. Based on the evidence from this investigation a significance summary of known cultural heritage is as follows (Tables 12).

Significance Summary (Table 12)

VAHR No Place Name	Relevant Aboriginal Group Cultural Significance	Scientific Significance
7921-1420 1505-1525 (Lot 2) Pound Road Clyde North IA 1	*TBA*	Extremely low
7921-1426 1505-1525 (Lot 2) Pound Road Clyde North IA 2	*TBA*	Extremely low

IMPACT ASSESSMENT (SECTION 9)

Avoiding Harm to Known Aboriginal Cultural Heritage

Harm cannot be avoided to VAHR 7921-1420 and 7921-1426 the place locations are located in development areas. The City of Casey also requires open space to be unencumbered. In addition, both places have extremely low scientific significance, no research potential and there is unlikely to be any additional cultural material associated with the places. The places are defined by their archaeological components which have been removed, recorded and data preserved on ACHRIS.

Minimising Harm to Known Aboriginal Cultural Heritage

Due to the shallow depth of the stone artefacts, the nature of ground disturbance required for the subdivision of land, and the reasons stated above, harm cannot be minimised.

Management of Known Aboriginal Cultural Heritage

The only management measure relates to the stone artefacts found during the complex assessment (Section 9.4. No salvage is required for the following reasons:

1. The places have extremely low scientific significance.

2. The places are unlikely to contain additional cultural material.
3. The archaeological components have been removed, recorded and preserved on ACHRIS.
4. The places have no research potential.
5. Salvage excavations are unlikely to make any contribution to knowledge of the places, the activity area or the geographic region.

Contingency Plan

The contingency plan in Section 11 must be adopted in the case Aboriginal cultural heritage is discovered during the course of the activity and in relation to any disputes, delays and other obstacles that may affect the conduct of the activity.

Custody and Management of Aboriginal Cultural Heritage

The custody and management of Aboriginal cultural heritage presented in Section 10.4 must be adopted.

PART 2 – CULTURAL HERITAGE MANAGEMENT RECOMMENDATIONS

SPECIFIC MANAGEMENT RECOMMENDATIONS (SECTION 10)

These recommendations become compliance requirements once the Cultural Heritage Management Plan is approved.

Based on the findings of this report the following recommendations are made:

10.1 VAHR 7921-1420 (Map 15)

Harm to VAHR 7921-1420 cannot be avoided or minimised (see Sections 9.1.1 & 9.1.2). Based on lack of research potential or likelihood of additional material, no management measures are required (see Section 9.1.3). No harm avoidance, minimisation or management measures are required prior to the activity commencing.

10.2 VAHR 7921-1426 (Map 15)

Harm to VAHR 7921-1426 cannot be avoided or minimised (see Sections 9.2.1 & 9.2.2). Based on lack of research potential or likelihood of additional material, no management measures are required (see Section 9.2.3). No harm avoidance, minimisation or management measures are required prior to the activity commencing.

10.3 Contingency Plan

The Contingency Plan presented in Section 11 must be adopted.

10.4 Custody and Management of Aboriginal Cultural Heritage

Stone artefacts retrieved during the complex assessment are currently held by the heritage advisor. Artefacts will be retained by the cultural heritage advisor until the plan is approved

or until a RAP is approved, whichever is earlier. If no RAP is approved then custody of the artefacts will be offered to the following in order of priority:

- any relevant registered native title holder
- any relevant native title party
- any relevant Aboriginal person or persons with traditional or familial links
- any relevant Aboriginal body or organisation which has historic or contemporary interest in Aboriginal heritage
- the owner of the land
- the Museum of Victoria (s.61(e))

If no party accepts custody of the artefact, then the Sponsor must ensure the artefact is reburied as close to the original place location as practical within four weeks after the completion of the activity. The reburial location must be documented to submeter accuracy using GDA94 MGA coordinates and reported to AAV.

Any Aboriginal cultural heritage found during the conduct of the activity must be dealt with according to the Contingency Plan.

Aerial Photograph Courtesy of Nearmap Website 2012

0 100 200
Scale of Metres

Legend:

Activity Area Boundary
48.35 hectares (approx)

xxxx Artefact Scatter
VAHR 7921-xxxx

N

GDA
Zone 55

VAHR 7921-1420 & 7921-1426: No Management Measures Required (Map 15)

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CONTENTS **PAGE**

PART 2 – CULTURAL HERITAGE MANAGEMENT RECOMMENDATIONS

TABLES (IN TEXT)

MAPS (IN TEXT)

PHOTOS (IN TEXT)

APPENDICES

ACKNOWLEDGEMENTS

Archaeology At Tardis Pty Ltd would like to thank the following people for their assistance:

Joe Nasr – Pound Road Clyde Pty Ltd
Sonia Murray, Darren Symington, Izzy Pepper – BLCAC
John Winch, Josh Luttrell, Wenzel Carter – BWFL
Shane Nicolson - WTLCCHC

ABBREVIATIONS

AAT	Archaeology at Tardis Pty Ltd
AAV	Heritage Services Branch, Aboriginal Affairs Victoria
ACHRIS	Aboriginal Cultural Heritage Register and Information Services
af	Approved Form under clause 64(a) of the Aboriginal Heritage Regulations 2007, specifying the required format of CHMPs
asl	Meters Above Sea Level
ASTT	Australian Small Tool Tradition
BP	Years Before Present (1950)
CHMP	Cultural Heritage Management Plan
CHP	Cultural Heritage Permit
dGPS	Differential Global Positioning System
DPCD	Department of Planning and Community Development
DSE	Department of Sustainability and Environment
GPS	Global Positioning System
Ka	Thousand years ago
LGM	Last Glacial Maximum
LV	Land Victoria
Ma	Million years ago
NoI	Notice of Intent to Prepare a Cultural Heritage Management Plan
OSL	Optically Stimulated Luminescence
RAP	Registered Aboriginal Party
PGC	Primary Grid Coordinate
SLV	State Library of Victoria
VAHR	Victorian Aboriginal Heritage Registry

**Throughout this report several technical terms are used that may not be familiar to some readers. An extensive glossary has been included as Appendix 2 and should be referenced for an explanation of terms.*

PART 1 - ASSESSMENT

1 INTRODUCTION

This cultural heritage management plan (CHMP) has been commissioned by the Sponsor, Pound Road Clyde Pty Ltd (ACN 111 056 896). The proposed activity is a residential subdivision and development.

1.1 Reasons for Preparing this CHMP

This CHMP is not required by the *Aboriginal Heritage Regulations 2007*. No part of the activity area is an area of cultural heritage sensitivity (Map 2) although the proposed activity is a high impact activity (r.6 *Aboriginal Heritage Regulations 2007*). The activity is a high impact activity being a subdivision of land (r.46 *Aboriginal Heritage Regulations 2007*). The Sponsor has elected to prepare a voluntary CHMP to manage any Aboriginal cultural heritage issues that may arise prior to and during the conduct of the activity.

1.2 Notice of Intent to Prepare a Cultural Heritage Management Plan (NoI)

A *Notice of Intent to Prepare a Cultural Heritage Management Plan* (NoI) was submitted to Aboriginal Affairs Victoria (AAV) on 9 March 2012. AAV notified the Sponsor on 15 March 2012 that they will evaluate the plan when completed and that the CHMP has been allocated CHMP No 12115. Landowners and occupiers were also notified that a CHMP was being prepared (Appendix 1).

1.3 Location of the Activity Area and Cadastre

The activity area is located at 1505-1525 (Lot 2) Pound Road, Clyde North, approximately 48km southeast of Melbourne (Maps 1 & 2). The activity area comprises a total of 48.35 hectares. The activity area cadastre is presented in Table 1.

Table 1 Activity Area Cadastre & Landowner / Occupier

Landowner / Occupier	Address	Parcel / SPI	Parish
Ms Nancye Gearon	1505-1525 (Lot 2) Pound Road, Clyde North, 3978	2 PS327975	Cranbourne

1.4 Sponsor

The Sponsor is Pound Road Clyde Pty Ltd (ACN 111 056 896)

1.5 Cultural Heritage Advisor

Andrea Murphy and Dr Tom Rymer (Archaeology At Tardis Pty Ltd) are the cultural heritage advisors and authors of this plan. Andrea Murphy holds an Honours degree in archaeology and has over twenty years experience in all facets of cultural heritage management. Tom Rymer has a doctorate in archaeology and over ten years experience in excavation overseas and cultural heritage management in Victoria (Appendix 9).

1.6 Owners and Occupiers

The land is not owned by the Sponsor. The name of owners and occupiers are shown in Table 1 (Section 1.3).

1.7 Registered Aboriginal Party (RAP)

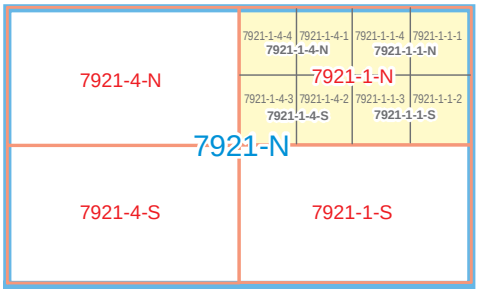
There is no RAP responsible for the activity area.

1.8 Registered Aboriginal Party and CHMP Evaluation

There is no RAP to elect to evaluate the CHMP. The Secretary (Department of Planning and Community Development) will evaluate the plan.

VICMAP TOPOGRAPHIC 1:30 000

VICTORIA'S MAP INDEX SYSTEM



7921-N	Vicmap Topographic 1:50 000
7921-1-N	Vicmap Topographic 1:25 000
7921-1-1-S	Vicmap Topographic 1:30 000 A3
7921-1-1-1	Vicmap Topographic 1:30 000 A4

TRANSPORT

- Built up area
- Freeway, highway, bridge
- Secondary road: sealed, unsealed
- Local road: sealed, unsealed
- Vehicular track: 2WD, 4WD
- Proposed road
- Walking track and/or bicycle track
- Surf Coast Walk
- Australian Alps Walking Track
- Road Restrictions (M.V.O.) (S.S.C.) (S.H.W.L.) (R.P.C.) (P.A.) (R.U.)
  - M.V.O. Maintenance Vehicles Only
  - S.S.C. Subject to Seasonal Closure
  - S.H.W.L. Subject to Height or Weight Limits
  - R.P.C. Road Permanently Closed
  - P.A. Private Access
  - R.U. Road Unmaintained
- Gate or cattlegrid, levee bank
- Embankment, cutting
- Railway, tramway
- Railway station, railway siding
- Railway: disused, dismantled (Disused, Dismantled)
- Railway bridge, railway tunnel

FEATURES

- Building, post office, church, public hall (PO, C, PH)
- School, police station, fire station, ambulance (S, F, A)
- SES, Hospital (emergency, non emergency)
- Emergency Beach Access Point (98W)
- Pipeline, disappearing underground (Gas/Water)
- Power transmission line with pylons
- Trigonometric station, spot elevation (83, 34)
- Landmark area: quarry
- Landmark object: tank or well, tanks to scale. (Silo, Oil)
- Mine, helipad
- Landmark area, recreation area

VEGETATION

- Tree cover: sparse, medium and dense
- Plantation
- Orchard or vinyard

RELIEF

- Contours, rocky outcrop, hill shading (600)
- Depression contours
- Cliff
- Sand
- Sand dunes

HYDROGRAPHY

- River, creek, crossing, adit
- Aqueduct, channel, drain (Drain)
- Lake: perennial, intermittent
- Dam or weir, dam carrying road
- Falls, rapids (Falls, Rapids)
- Rapids in large river
- Lock (Lock)
- Waterholes, swimming pool
- Water well or bore, spring (Bore)
- Land subject to inundation
- Swamp or marsh
- Shoreline with mud or sand flats, mangroves.
- Rock: bare or awash, rocky ledge or reef
- Exposed wreck, lighthouse
- Breakwater, pier or jetty, boat ramp
- Navigation beacon, wharf

ADMINISTRATION

- Crown land, cadastre
- Local Government Area boundary (MELTON SHIRE)
- State boundary

Topographic Map
Information Sheet

VICMAP PRODUCTS

The Department of Sustainability and Environment's framework spatial information products are managed by Spatial Information Infrastructure (SII) and distributed under the Vicmap brand. Vicmap is a registered trademark of the Victorian Government, and has been synonymous with authoritative government mapping for more than 30 years.
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NOTES TO THE MAP USER

Roads - Depiction of roads and tracks on this map does not necessarily indicate a right of way. For the most up to date walking track information in Parks and Reserves refer to the Parks Victoria website: www.parkweb.vic.gov.au

Administrative Boundaries - The position of administrative boundaries shown on this map are only approximate.

Nomenclature - Inclusion of a name on this map does not imply its approval by the relevant nomenclature authority.

Maritime Navigation - This map is not to be used for maritime navigation purposes.

Fence lines - Fence lines are not depicted on this map.

This map has been automatically generated and may contain errors.

GEOCENTRIC DATUM OF AUSTRALIA

This map is produced on the Geocentric Datum of Australia (GDA). GDA supersedes the Australian Geodetic Datum 1966 (AGD).

For all practical purposes GDA is the same as the World Geodetic System (WGS84).

DATUM CONVERSIONS FOR VICTORIA (+/- 10 Metres)

TO CONVERT	GDA94 to AGD66	AGD66 to GDA94
Latitude (numeric value)	Increase by 5.5 secs	Decrease by 5.5 secs
Longitude (numeric value)	Decrease by 4.5 secs	Increase by 4.5 secs
Easting	Decrease by 112 metres	Increase by 112 metres
Northing	Decrease by 185 metres	Increase by 185 metres

Example 1: AGD66 Latitude -37° 50' Longitude 145° 00'
Converts to GDA94 Latitude -37° 49' 54.5" Longitude 145° 00 04.5"
Example 2: AGD/AMG66/Zone 54H East. 320600 North. 5813000
Converts to GDA/MGA94/Zone 54H East. 320712 North. 5813185

Contact the Intergovernment Committee on Surveying and Mapping (ICSM) for more details at www.icsm.gov.au/icsm/gda/

Vicmap™ GDA Victoria The Place To Be

TECHNICAL NOTES

PROJECTION:
Universal Transverse Mercator (UTM) Projection

DATUM:
Horizontal: Geocentric Datum of Australia (GDA).
Vertical: Australian Height Datum (AHD).

GRID:
Grid Interval 1000 metres.
Map Grid of Australia 1994 (MGA94)
Tiles 7021 to 7627: Zone 54
Tiles 7721 to 8823: Zone 55
Grid values are shown in full at each grid corner of the map.

ELEVATION:
Contour interval 10 metres or 20 metres depending on terrain.
Index contour interval is 100 metres.

ACCURACY:
Standard of accuracy conforms to specificiations and classification AA1 of the survey Co-ordination (Surveys) Regulations 1992.
HORIZONTAL:
+/- 12.5 metres of true position at map scale.
VERTICAL:
Not less than 90% of well defined detail within +/- half of the contour interval.

COMPILATION:
Compiled from DSE Vicmap and Corporate Spatial Data Library (CSDL) information.
The currency range of source data is as follows:

- Vicmap Transport: 2007
- Vicmap Property: 2007
- Vicmap Features: 2007
- Vicmap Vegetation (not including Treecover): 1974 - 1995
- CGDL Treecover: 2000
- Plantation data derived from PLANT100: 2003 - 2005
- Vicmap Hydro: 2007
- Vicmap Elevation Statewide Contours: 2007
- Vicmap Admin (Local Government Areas): 2007
- Parks and Conservation Reserves information derived from Vicmap Property and other Victorian Government Data: 2007
- Other Crown Land information derived from Vicmap Property and PLM100: 2007

PRODUCTION:
Prepared under the direction of the Director, Spatial Information Infrastructure, Department of Sustainability and Environment, Victoria.

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Address: PO Box 500, East Melbourne, Victoria, 3002
Phone: (03) 8636 2333 Email: vicmap.info@dse.vic.gov.au

Parks and Conservation Reserves Abbreviations

BR	Bushland Reserve	NCR	Nature Conservation Reserve
CGR	Cave and Geological Reserve	NFR	Natural Features Reserve
CR	Coastal Reserve	NFSR	Natural Features and Scenic Reserve
EA	Education Area	NHP	National Heritage Park
FFR	Flora and Fauna Reserve	NP	National Park
FR	Flora / Fauna Reserve	RP	Regional Park
GR	Geological Reserve	SR	Scenic Reserve
HA	Historic Area	SP	State Park
HCFR	Historic and Cultural Features Reserve	SSR	Stream Side Reserve
MNP	Marine National Park	WR	Wildlife Reserve
MS	Marine Sanctuary		

SAMPLE MAP GRID REFERENCE MAY NOT BE RELEVANT TO MAP SHEET

BEFORE GIVING A GRID REFERENCE,
ALWAYS STATE THE NAME, NUMBER AND DATUM OF THIS MAP

GRID ZONE DESIGNATION
54H or 55H

100,000 METRE SQUARE IDENTIFICATION

XD

Locate 100,000 metre square identification value

IGNORE the SMALLER figures of any grid number; these are for finding the full coordinates. Use ONLY the LARGER figures of the grid number. For example:

456 000

TO GIVE A STANDARD REFERENCE ON A SHEET TO THE NEAREST 100 METRES

SAMPLE POINT ▪ 290

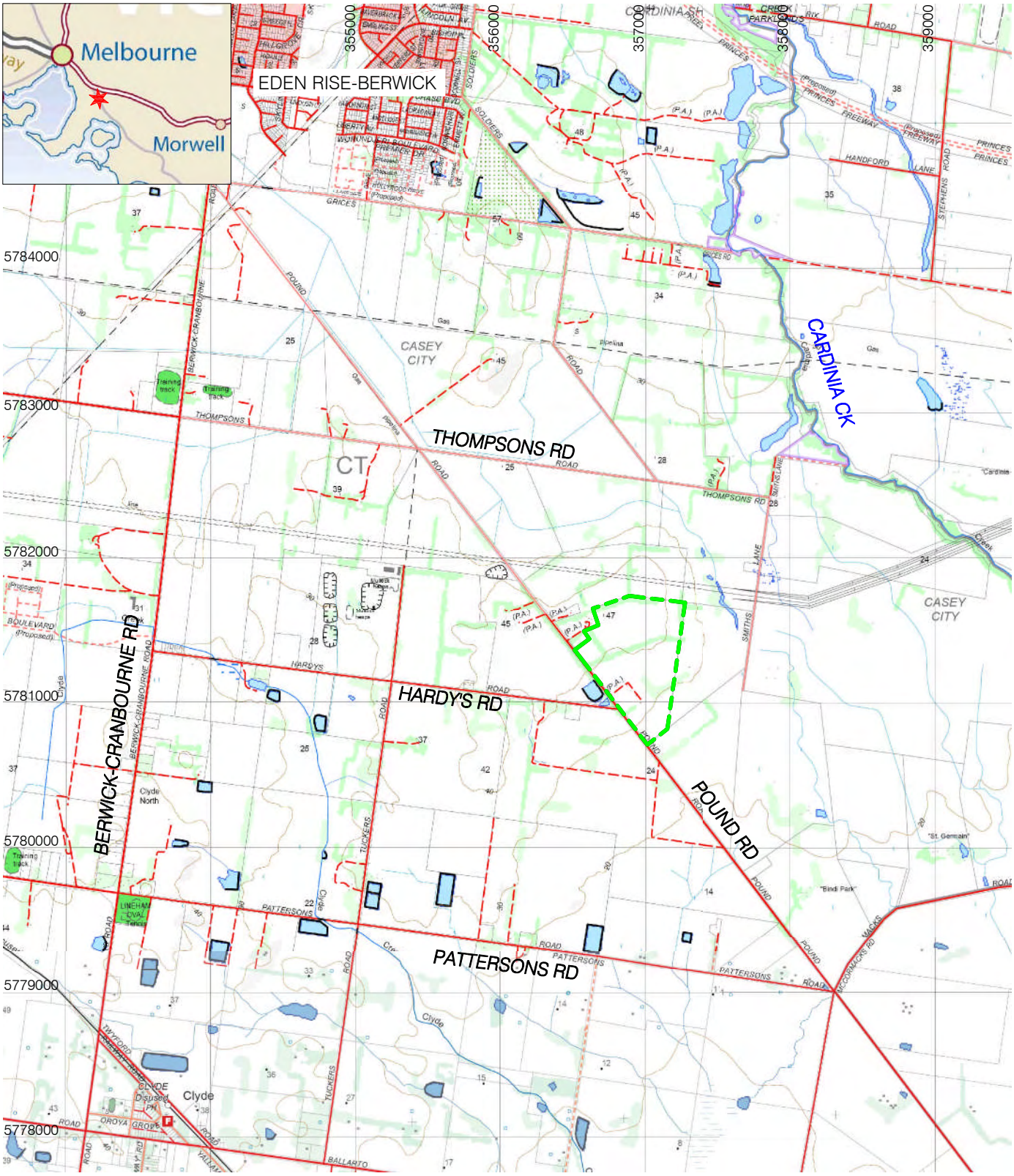
1 Locate the first VERTICAL grid line to LEFT of point and read LARGE figure labelling the line either in the top or bottom margin, or on the line itself: 52
2 Estimate tenths from grid line to point 7
3 Locate first HORIZONTAL grid line BELOW point and read LARGER figure labelling the line in either the left or right margin, or on the line itself: 70
4 Estimate tenths from grid line to point 5

SAMPLE REFERENCE 527 705

If reporting beyond 18 degress in any direction, prefix Grid Zone designation as: 54HDV527705, GDA or 55HDV527705, GDA

Grid North

All maps are orientated towards Grid North



Topographic map used for Location Plan: 1:30,000 Number T7921-1-4-2

Legend:

Activity Area Location (Inset)

Activity Area Boundary
48.35 hectares (approx)

Parish: Cranbourne
LGA: Casey

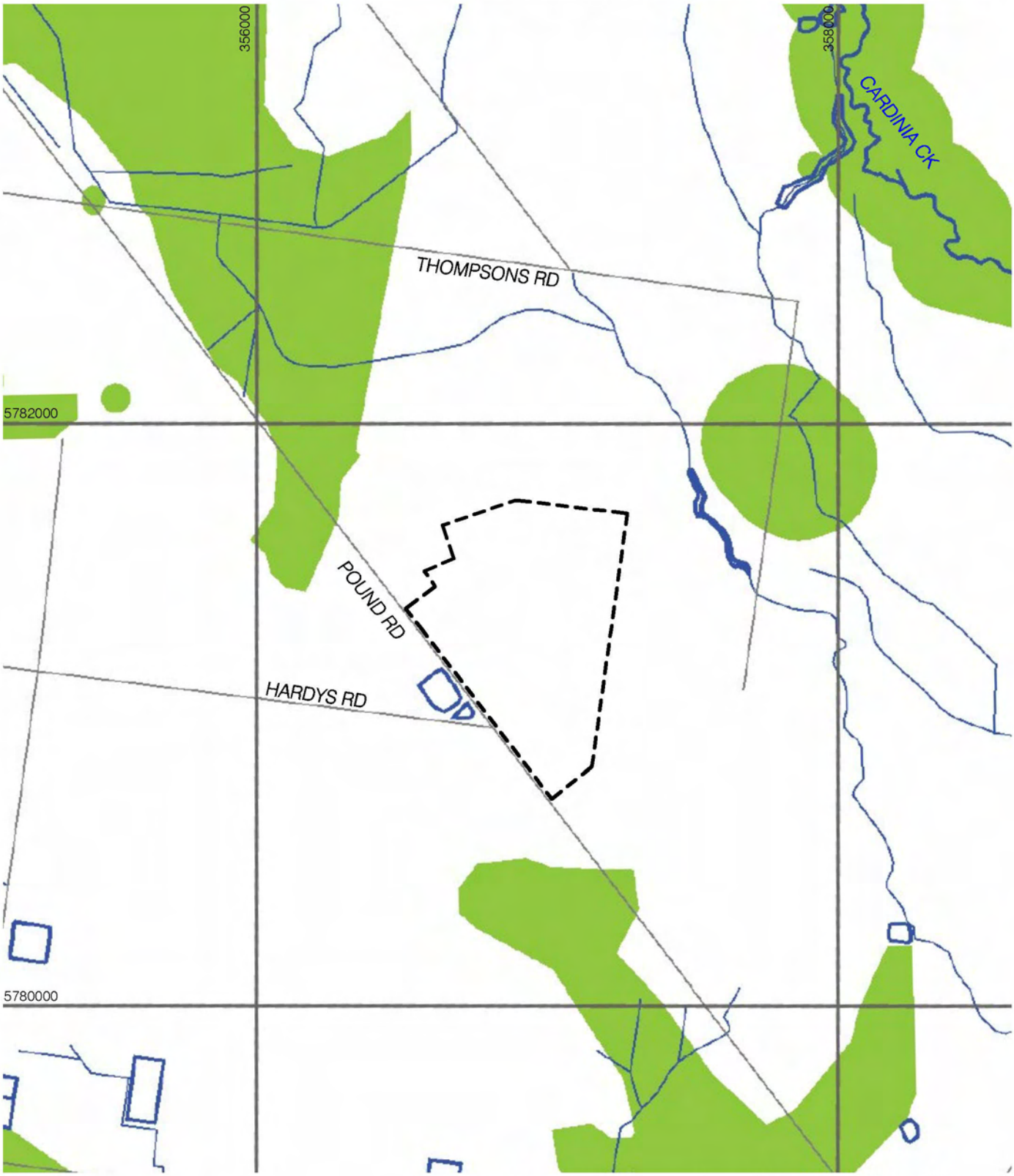
0 1000 2000
Scale of Metres

N

GDA
Zone 55

Map 1 Activity Area Location

(Melway Ref: 135 H3)



Map 2 Statutory Areas of Aboriginal Cultural Heritage Sensitivity

(Melway Ref: 135 H3)

Aerial Photograph Courtesy of Nearmap Website 2012

0 100 200
Scale of Metres

Legend:

Activity Area Boundary
48.35 hectares (approx)

CHMP 10620

N

GDA
Zone 55

Parish: *Cranbourne*
LGA: *Casey*

Map 3a Extent of Activity Area: Exisiting Conditions and Cadastre

(Melway Ref: 135 H3)

Aerial Photograph Courtesy of Nearmap Website 2012

0 100 200
Scale of Metres

Legend:

Activity Area Boundary
48.35 hectares (approx)

Contour Lines
Interval: 0.5 metre

N

GDA
Zone 55

Parish: *Cranbourne*
LGA: *Casey*

Map 3b Extent of Activity Area: Aerial and Contours

(Melway Ref: 135 H3)

2 ACTIVITY DESCRIPTION

Currently the activity area is zoned Urban Growth Zone (UGZ) under the Casey City Planning Scheme (CCPS). The purpose of the UGZ zoning is to manage the transition of non-urban land into urban land in accordance with the CCPS (CCPS 2012a). The proposed activity will include, but will not be exclusively limited to, activities under Division 5, Part 2 of the *Aboriginal Heritage Regulations 2007* that are permitted under any subsequent zone pursuant to the CCPS. For example, the use of the lots permitted by Residential 1 Zone under the relevant planning scheme is described as follows (CCPS 2012b):

> To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
>
> To provide for residential development at a range of densities with a variety of dwellings to meet the housing needs of all households.
>
> To encourage residential development that respects the neighbourhood character.
>
> In appropriate locations, to allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs.

The proposed activity comprises a residential subdivision and development incorporating:

- Housing.
- Roads
- Open space areas
- Associated services and infrastructure

The earthworks of the proposed development will require clearing, cutting, grading and filling. Final and detailed cut and fill specifications are not currently available. For the purposes of the cultural heritage assessment, it will be assumed that the cut and fill requirements will likely impact all development areas in the activity area (Map 3a). This includes present and buried former land surfaces, if present. The activity will likely cause harm to any Aboriginal cultural heritage, if it is present. Detailed information on the depth of the impact of any construction below the contemporary land surface associated with the activity is not required to be presented because the assessment for this CHMP assumes that all the subsurface deposits with any potential for Aboriginal cultural heritage will be harmed (that is, geological deposits formed within 50Ka during the period of inferred human occupation of southeast Australia).

3 EXTENT OF THE ACTIVITY AREA

The activity area is located at 1505-1525 (Lot 2) Pound Road, Clyde North, approximately 48km southeast of Melbourne (Maps 1 & 2). The activity area comprises one land parcel. For cadastre see Table 1 (Section 1.3). The land measures approximately 48.35 hectares. The property is bounded to the north, east and south by farm land and to the west by Pound Road.

The regional context of the activity area is the *coastal plains with ridges and dunefields* (Unit 7.1.1) and *alluvial plain* (Unit 7.1.2) of the *Eastern Plains*, in particular, the plain associated with the Koo Wee Rup Swamp. The salient prominent structures and works in, and natural features of, the activity area are (Maps 3ab):

- Gently undulating plain
- Land gently sloping downwards from the northwest to the southeast
- Exotic windrows
- Isolated native revegetation
- Farm house and outbuildings
- Farming infrastructure (sheds, etc)
- Fences
- Ploughed paddocks

The Aboriginal Cultural Heritage Register and Information System (ACHRIS) shows that there are no places within the activity area or within 200 metres of the activity area boundary (accessed 2 April 2012, Section 5.2).

3.1 Relevant Local Municipality

The relevant local municipality is the City of Casey (Maps 3ab).

4 DOCUMENTATION OF CONSULTATION

4.1 RAP Representation & Participation

There is no RAP. Relevant Aboriginal groups who have been consulted and have participated in this CHMP are the Wurundjeri Tribe Land and Compensation Cultural Heritage Council Incorporated (WTLCCHCI), the Bunurong Land Council Aboriginal Corporation (BLCAC) and the Boon Wurrung Foundation Limited (BWFL). Presently only the WTLCCHCI have a RAP application over the activity area. The relevant Aboriginal groups appointed the representatives in Table 2.

Table 2 Relevant Aboriginal Group Representation & Participation

Name	Activity	Function
Darren Symington (BLCAC) John Winch (BWFL	Standard Assessment	Relevant Aboriginal group fieldwork representatives
Darren Symington, Izzy Pepper (BLCAC) John Winch, Josh Luttrell, Wenzel Carter (BWFL) Shane Nicolson (WTLCCHC)	Complex Assessment	Relevant Aboriginal group fieldwork representatives
Sonia Murray (BLCAC) Administrator (BWFL) Rap Officer (WTLCCHC)	Recommendations Consultation	Relevant Aboriginal group representative

4.2 Meetings and Consultation (Assessment)

Meetings and consultation were conducted as shown in Table 3.

Table 3 Meetings and Consultation (Assessment)

Date	Meeting / Consultation	Discussion & Outcomes
29.5.2012	Meeting Tom Rymer (AAT), Darren Symington (BLCAC), John Winch (BWFL)	Tom presented the desktop information and proposed activity. After the standard assessment it was agreed that a grid testing over the activity area would help inform on the likely values in the activity area.

4.3 Meetings and Consultation (Recommendations)

Meetings and consultation were conducted as shown in Table 4.

Table 4 Meetings and Consultation (Recommendations)

Date	Meeting / Consultation	Discussion & Outcomes
14.8.2012	Email Tom Rymer (AAT) to Sonia Murray (BLCAC), BWFL & Darren Griffin (WTLCCHCI)	Draft of relevant parts of CHMP sent to all groups for review and comment with a request for any oral information, statement of significance for Aboriginal cultural heritage or the activity area.

Date	Meeting / Consultation	Discussion & Outcomes
7.9.2012	Email Tom Rymer (AAT) to Sonia Murray (BLCAC), BWFL & Darren Griffin (WTLCCHCI)	As above

4.4 Other Consultation

The following were also consulted:

- Aboriginal Cultural Heritage Register and Information System (ACHRIS).
- State Library of Victoria.
- Land Victoria.
- Public Records Office.
- Land Managers.

4.5 Summary of Consultation Outcomes

The consultation outcomes are:

1. There is no RAP
2. BLCAC, BWFL and WTLCCHCI participated in the assessment
3. BLCAC, BWFL and WTLCCHCI were consulted during the assessment
4. BLCAC, BWFL and WTLCCHCI were consulted in relation to the recommendations
5. BLCAC, BWFL and WTLCCHCI provided no oral information or statement of significance in relation to the activity area

5 DESKTOP ASSESSMENT

The aim of the desktop assessment is to formulate an Aboriginal cultural heritage sensitivity model for the activity area (Section 5.10) in order to identify:

- Whether it is reasonably possible that Aboriginal cultural heritage is present in the activity area.
- Areas of Aboriginal cultural heritage sensitivity.
- The depth under the contemporary ground surface any Aboriginal cultural heritage may be buried.

5.1 Victorian Aboriginal Heritage Registry Access and Search

ACHRIS was accessed for reports and places on 2 April 2012 and 1 August 2012.

5.2 Relevant Geographic Region

The relevant geographic region of the activity area is defined as land within approximately 5km of the activity area. This area is considered to contain a representative sample of all features that exist throughout the region and provide sufficient data to formulate an Aboriginal cultural heritage scientific sensitivity model. Other commonly accepted definitions of geographic region are not considered practical or relevant for this investigation, for example, the Koo Wee Rup Swamp, Cranbourne Sands or, Cardinia Creek watershed. There areas extend for considerable distances and the extremely large number of cultural heritage reports and places within each of these areas will not be directly relevant or useful to analyse in detail.

5.3 Map showing the Relevant Geographic Region

The boundary of the relevant geographic region is shown in Map 4.

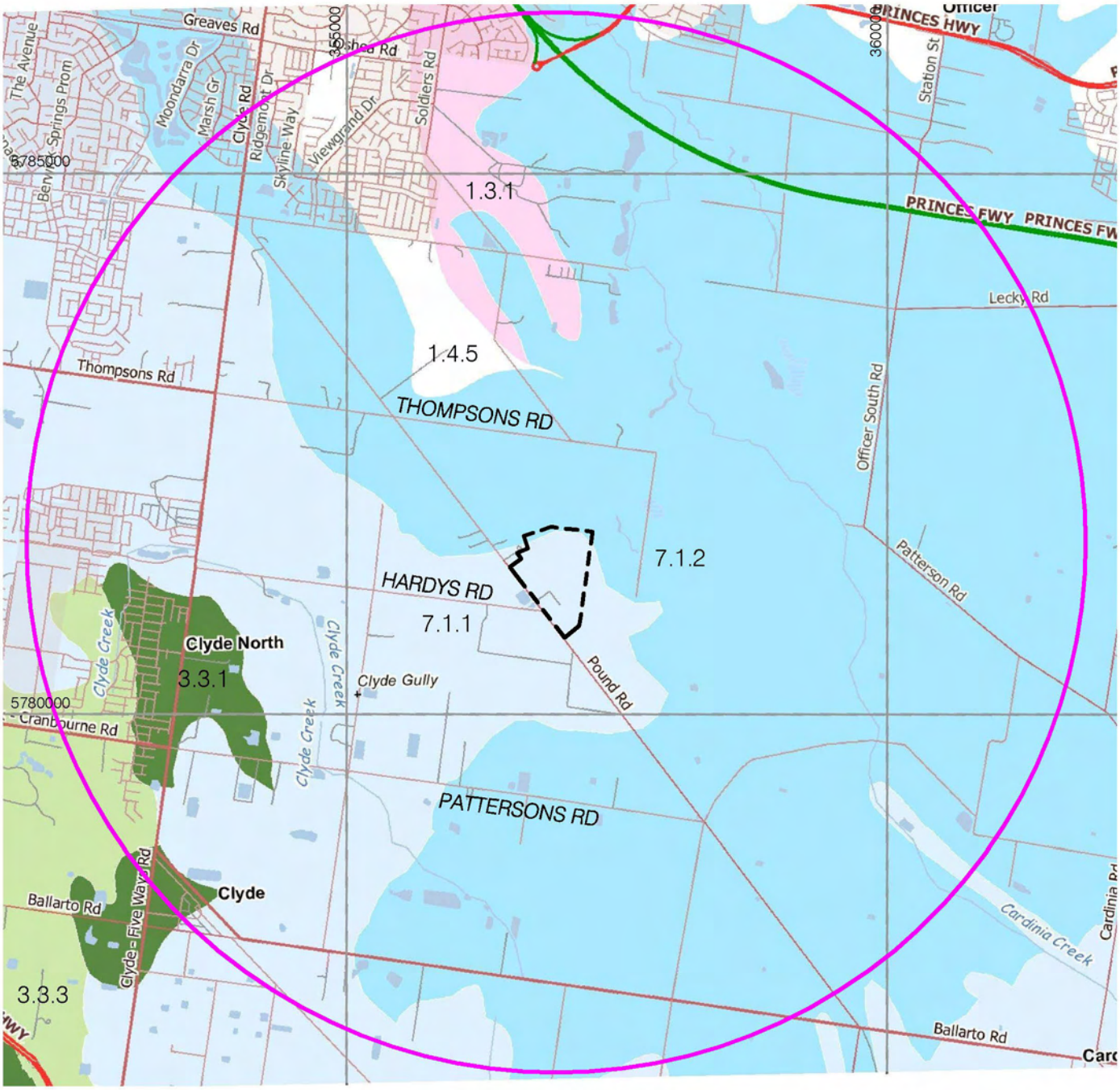
5.4 Registered Aboriginal Places in the Relevant Geographic Region

There are no previously registered Aboriginal places within the activity area. There are 85 previously registered Aboriginal places within the geographic region comprising artefact scatters (n=81) followed by scarred trees (n=3) and one earth feature (soil deposit) (Table 5; Appendix 7). There is one historical reference being *Ghin Ghin Bean Station* (Historical Reference ID 1.3-11) located north of the activity area and east of Cardinia Creek.

Table 5 Place-Types within the Geographic Region

Place-Type	Number
Stone Artefact Scatter	81
Earth Feature (Soil Deposit)*	1
Scarred Tree	3
Total	**85**

* Place also has an artefact scatter component



Map Courtesy of DSE Website

0 1000 2000

Scale of Metres

Legend:

GDA

Zone 55

Activity Area Boundary
48.35 hectares (approx)

Geographic Region Boundary

1.3.1 Low Relief Landscapes at Low Elevation (Eastern Uplands)
1.4.5 Moderately Dissected Ridge and Valley Landscapes (Eastern Uplands)
3.3.1 Plateau (South Uplands)
3.3.3 Basaltic Residuals (Southern Uplands)
7.1.1 Coastal Plains with Ridges and Dunefields (Eastern Plains)
7.1.2 Alluvial Plains (Eastern Plains)

N

Map 4 Desktop Assessment: Relevant Geographic Region

(Melway Ref: 135 H3)

Three places (VAHR 7921-0834, 7921-1118 & 7921-1132) have been subject to radiometric dating. VAHR 7921-0834 was subject to OSL dating of a relatively high density stone artefact horizon returning dates of 3±0.3Ka and 8±0.7Ka BP indicating a Late Holocene occupation. VAHR 7921-1118 was subject to OSL dating of a high density stone artefact horizon at 40cm to 60cm depth returning dates of 0.6±0.1Ka and 2.4±0.3Ka BP. Similarly VAHR 7921-1134 was subject to C14 dating and returned a date of 4,829.5 cal BP to 4,409.5 cal BP. Radiometric dating indicates that artefact scatters in the geographic region are unlikely to date prior to the Late Holocene. Consequently, Pleistocene place are unlikely to occur.

Three scarred trees (VAHR 7921-0196, 7921-0403 & 7921-0883) are recorded as probably or uncertain Aboriginal scarred trees. Only one (VAHR 7921-0403) was identified for species being Yellow Gum. VAHR 7921-0196 and 7921-0403 are recorded within 100m of Cardinia Creek while VAHR 7921-0883 was recorded on a sandy rise more than 900m from Clyde Creek. VAHR 7921-0245 is registered as an earth feature (soil deposit) but also has an artefact scatter component.

A total of 5,095 artefacts are recorded in the geographic region comprising flakes (n=2,202 / 44%), angular fragments (n=2,383 / 48%), flaked pieces (n=72 / 1%), tools (n=256 / 5%), cores and core fragments (n=50 / 1%), two hammer stones, one ground stone and 24 unidentified. Flakes, angular fragments and flaked pieces (93%) dominate the regional assemblage followed by tools (5%), core and core fragments (1%) with very minor components of ground stone and unidentified artefact data classes. Tools comprise microliths, points, scrapers, backed blades and utilised flakes. Microliths are typical of the Australian Small Tool Tradition (ASTT) and date the regional assemblage to the Late Holocene.

The majority of artefact scatters (66%) comprise one or two raw material types but may have up to six raw material types. The latter instance is rare and only found at VAHR 7921-0834. The main raw material within artefact scatters is silcrete (50 places) followed by quartz (10 places), crystal quartz (2 places), basalt (2 places), chert (2 places) and quartzite (1 place). It is unsurprising therefore that the regional assemblage is dominated by silcrete (80%) followed by quartz (15%), crystal quartz (4%) and quartzite (1%) with all other materials (chert, flint, basalt, sandstone, fine grained siliceous, volcanic) comprising minor components (in total less than 1%)

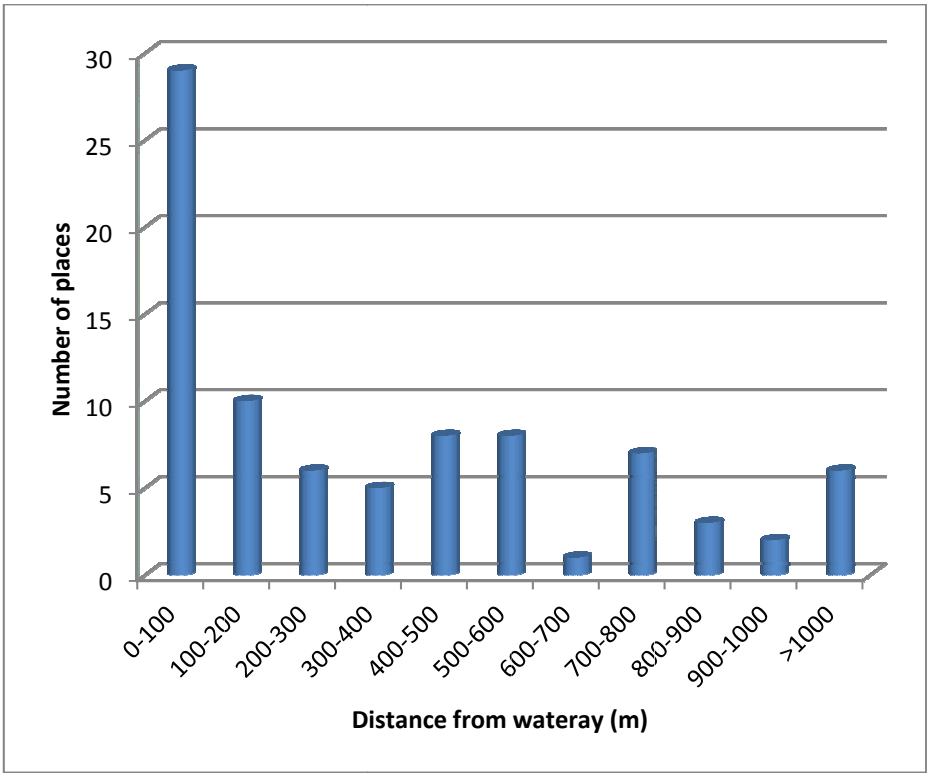
Approximately half of the artefact scatters (n=33) can be considered isolated artefacts with less than 5 artefacts recorded within each place. Only seven artefact scatters have recorded more than 100 artefacts (VAHR 7921-0245, 7921-0739, 7921-0832, 7921-0833, 7921-0834, 7921-1118 & 7921-1132). This is reflected in the recorded extent of artefact scatters which is as follows: 72 up to 10,000m^2, 43 up to 100m^2 and 26 only 1m^2. Only four artefact scatters (VAHR 7921-0833, 7921-0881, 7921-1008 &7921-1118) have an extent greater than 10,000m^2.

Artefacts can be found to a maximum depth of 110cm in sand, silty sand or silt A-horizons overlying a clay B-horizon (eg VAHR 7921-0881, 7921-0884, 7921-0988 & 7921-1132). The depth of highest density is not found below a maximum depth of 75cm (eg VAHR 7921-0988 & 7921-1131). However, generally the highest density of artefacts is found to a maximum depth of 40cm (n=29) rather than between 40cm and 75cm (n=14). In the former instance there is a greater proportion of clayey silt A-horizons and the clay B-

horizon is closer to the contemporary land surface. High density artefact horizons found at greater depth are generally associated with the Cranbourne Sands landform.

A high proportion of places are found within 200m of waterways (n=39 / 46%), in particular, Cardinia Creek (Chart 1). However, there is a long tail with places found more than 1,000m from a waterway. This may reflect places found on the Cranbourne Sands and indicate that place location was not only associated with strategic waterways (eg potable water) but other factors.

Chart 1 Places and Distance from Waterway



This supposition is supported by association of places with landform. The majority of places were recorded on floodplains, creek terraces and creek banks (n=35) followed by hills, low hills, rises (n=21), sandy rises (n=19) and alluvial plain (n=9). Places on the hills and rises are found further away from waterways than places on the plain and floodplain / creek terraces. Since the majority of places have been recorded on the plains and floodplain / creek terraces, so the highest proportion of places are recorded within 200m of waterways.

The rating of scientific significance by heritage advisors is generally highly subjective. In the geographic region authors and place recorders have assessed 39 places with below moderate scientific significance and 28 with moderate or above scientific significance. Where sufficient data is available, these places have been reassessed using the scientific significance assessment framework in Appendix 6. The majority of places have below moderate scientific significance with six places having moderate or above scientific significance (VAHR 7921-0245, 7921-0737, 7921-0739, 7921-0833, 7921-0834 & 7921-1118). VAHR 7921-0245, 7921-0737, 7921-0739, are located within 200m of the east bank of Cardinia Creek, demonstrating the regional strategic value of this waterway. VAHR 7921-0833 and 7921-0834 are located adjacent to Clyde Creek and surrounding former

swamp land. VAHR 7921-1118 is a sand sheet on the margins of the Koo Wee Rup plain. Sites of highest scientific significance are found within 200m of regional strategic values (eg major waterways).

Stone artefact scatters are the most likely place type in the geographic region. Stone artefact scatters on the Koo Wee Rup plain can be found on sand sheets on the margins of the plain and can have moderate or above scientific significance.

5.5 Reports and Published Works in the Relevant Geographic Region

Regional Investigations

Gaughwin (1981) investigated the Western Port Catchment from Cranbourne to Pearcedale, Tooradin, French and Phillip Islands, comprising an area of over 2,000 km^2. The survey was generally confined to the coastal region, and only limited sample surveys were undertaken in the northern regions. The present activity area was not surveyed. A total of 264 places were recorded with less than 1% located away from the coast or coastal plains. Thirteen were recorded within the *Top of the Bay* area, which included the Cranbourne Sands, from a survey sample less than 2%. The highest place and artefact densities were found to occur on sandy ridges in the Cranbourne area, particularly those associated with water. Other early investigators have also noted this pattern (Ellender 1991; Smith 1989; Presland 1983: 89). Places on sand ridges likely took advantage of resources associated with swamp depressions. Places were highly disturbed with their original context destroyed and were assessed having low scientific significance. The dominant stone material types were chert and quartz. Artefact types comprised predominantly flaked pieces and flakes. Less than 2% were formal tools. Bondi points were only found at place within the *Top of the Bay*. Gaughwin (1981: 39) proposed that the clustering of this tool type possibly represented greater antiquity than landform units. The site prediction model for the *Top of the Bay* landscape unit applicable to that part of the geographic region immediately to the southwest of the present activity area predicts that (Gaughwin 1981: 134):

- Artefact scatters and isolated artefacts are the most likely site-type to occur within this unit;
- Most sites will occur within 100m of a water source. Water sources include swamps, ponds, seepage, springs, coastline, lagoons and soaks;
- The highest inland site densities will be found in the 'Cranbourne Sands', and high dry ground such as ridges and hummocks;
- It is highly unlikely that scarred tree sites will be located within the study area due to the lack of suitable trees and past clearing;
- It is also unlikely that burial remains will be located within the study area;
- Surface scatters and silcrete, quartz and chert artefacts will dominate isolated artefact sites in this unit. The rare 'Bondi Point' tool type may be located within surface scatters situated in the Cranbourne Sands.

Gaughwin (1981: 134) concluded that poor surface visibility constrained the effectiveness of the survey and predicted that many additional places exist.

Sullivan (1981) conducted an archaeological survey of the Mornington Peninsula which although located to the south of Frankston and the current activity area and geographic region, evaluated ethnographic research and archaeological findings of direct relevance to

the present plan in relation to strategic values. Her study area was defined as the 15-20km division between Port Phillip and Western Port Bays incorporating 70,000ha. A total of 289 places were recorded. Sullivan estimated that 2.3% of the study area was effectively surveyed. The middens along Port Phillip Bay were found to reflect intensive exploitation of shellfish resources during recent times. Middens were thought to reflect the exploitation of resources linked with hinterland base camps (p95). In contrast there was little evidence for intensive exploitation along the Western Port coastline or around the Mangrove swamps in the northern part of Western Port Bay. The high density of places along the Bass Strait coastline at the southwest of the Peninsula were predominantly associated with shellfish exploitation; although the presence and quantity of lithics within these places suggested concurrent exploitation of hinterland faunal resources (p95). The location of middens in close proximity to accessible rock platforms suggested shellfish formed an important part of the diet (p96). It was also noted that post-depositional processes impacted the survival of many middens. The local lithic industry was characterised as a 'flake and blade industry' with a microlithic tradition dating to the last 6,000 years (p96). Changing sea levels and coastlines could explain the apparent absence of Pleistocene places within the Mornington Peninsula and that during the Pleistocene the area may have been less frequently visited due richer resource area in the Port Phillip and Western Port Bays. Sullivan concluded that the archaeological evidence supported the ethnographic evidence from the immediate post-Contact period and with the resource distribution patterns for the Mornington Peninsula. The extensive rock platforms along the Bass Strait coastline appear to have been the major resource attraction and groups travelled between the coastline and the resource rich areas around the swamps and the Western Port Plains to the north. The seasonal exploitation of Aboriginal groups likely encompassed both the Mornington Peninsula and the present activity area region.

Smith (1989 [1991]) conducted a regional investigation of the Aboriginal archaeology of the Berwick to Bunyip Corridor; the activity area lies adjacent to this corridor. Sixty-two Aboriginal places were recorded. Places comprise 32 stone artefact surface scatters, 15 scarred tree sites and 15 isolated artefact occurrences. The highest place and artefact densities were found to occur on sandy ridges in the Cranbourne area, particularly those associated with water. This finding has also been previously noted by Presland (1983) and Gaughwin (1981). The dominant stone material types identified in the surface scatters by Smith (1989) were chert and quartz. The majority of artefact types were flaked pieces and flakes, with less than 2% of the recorded assemblage consisting of formalised tools (Smith 1989: 47). The activity area is most congruent with Landscape Units 3 & 4 (Smith 1989: 11-12, Figure 2). The prediction model formulated for these landscape units is (Smith 1989: 60):

Landscape Unit 3

1. Scarred trees are the most likely site type to occur in this unit. A relatively high density of scarred tree sites occurs in this unit despite the degree of clearing that has occurred over this unit.
2. Scarred trees could occur anywhere in this unit wherever river red gum trees still exist.
3. Artefact scatters appear to be quite rare in this unit but it is not really known if this is an actual archaeological patterning or a function of very poor surface visibility in this area.

Landscape Unit 4

1. Site densities in this unit are the highest yet recorded within the corridor. The recorded densities may simply reflect the relatively higher surface visibility occurring in this area or they may be a function of the small sample size surveyed in this unit. However, the relatively high food resources occurring in unit 4 suggests that this unit could support high site densities. Landscape unit 4 may also have provided dry camping spots from which the river red gums in unit 3 could have been exploited for bark implements.
2. Scarred trees are very unlikely to occur in this unit due to the absence of suitable trees.

Small Scale Investigations

ACHRIS shows there are 32 local investigations (**Murphy 1992**, **2001**, **2005ab**; **Marshall 1997**; **Sciusco 1996**; **Debney 1999**; **Marshall & Webb 2001**; **Chamberlain, Marshall & Webb 2003**; **Tulloch 2001**; **Bell 2001**, **2002**; **Haley & Weaver 2001**; **Webb & Chamberlain 2002**; **Stone 2002**; **Muir 2003ab**, **2005**; **Long, Schell & Howell-Meurs 2004**; **Matthews & Nicolson 2005**; **Muir & Nicolson 2006**; **Thomson & Nicolson 2006**; **Thomson & Muir 2006**; **Howell-Meurs & Long 2006**; **Murphy & Rymer 2006**, **2007ab**; **Murphy, Thomson & Rymer 2007**; **Long 2007**; **Orr 2007**; **Nicolson & Ford 2009**; **Jenkins 2010**; **Atkinson et al 2010**). None of these have investigated any part of the current activity area. Cultural heritage investigations are dominated by survey (n=15) followed by subsurface testing (n=9), desktops (n=4), salvage (n=3) and one excavation permit. Survey has identified 29 new places in eight assessments. Subsurface testing also found 29 new places but in only six investigations. A total 12,767.21m^2 was excavated with Aboriginal cultural heritage found in 5,206.35m^2. The latter is likely an over estimation because reports do not accurately describe the location of finds in mechanical trenches and a large excavated area may have only recovered a single artefact. Cultural heritage assessments typically identify areas of Aboriginal cultural heritage sensitivity as follows: elevated land, hill crests, rises, sandy rises, Cardinia Creek, terraces, waterways and land near waterways.

Cultural Heritage Management Plans

ACHRIS shows there are 16 approved CHMPs in the region (**Long, Matthews & Light 2007**; **Clarke et al 2009**; **Murphy & Rymer 2008**, **2009**, **2011**; **Murphy & Dugay-Grist 2009**; **Schell et al 2009**; **Adams & Stevens 2008**; **Debney et al 2009**; **Jenkins & Paterson 2009**; **Gilchrist 2011**; **Kennedy, Murphy & Rymer 2011**; **Day 2010**; **Green 2011**). One CHMP (10620) has investigated part of the activity area along Pound Road (see below & **Map 3a**). All of the CHMPs have included a complex assessment. A total of twelve of these have discovered new Aboriginal places (n=54). A total area of 647.72m^2 was excavated (excluding CHMP 10620 which has highly corrupted data and with the majority of activity area outside the geographic region). A total area of 135.79m^2 found Aboriginal cultural heritage. CHMPs typically identify the following areas of Aboriginal cultural heritage sensitivity: sandy rises, rises, sand sheets, creek terraces, land within 200m of waterways, Cardinia Creek and elevated land on floodplains.

Activity Area Specific Investigations

CHMP 10620 (**Debney et al 2009**) investigated the utilities corridor for the Victorian Desalination Plant. The corridor passed through the present activity area east of Pound

Road. A series of test probes west of Pound Road opposite the activity area found no Aboriginal cultural heritage (Map 33d). A total of 21 (50cm x 50cm) test pits were excavated (5.25m^2). The soil profile in this area was described as 'very brown humic silty layer to 16cm over a black stained layer to 25cm and a mid brownish-grey silty clay sand layer with clay content increasing towards a base of broken gravel' (Debney et al 2009: Appendix, 46). Test pits were excavated to a maximum depth of 67cm. Excavations approximately 1.9km to the northwest found artefact scatter VAHR 7921-1038. The soil profile was described as silty sand over clay to a maximum depth of 46cm (Debney et al 2009: Appendix, 31). Excavations approximately 1.15km to the southeast found no Aboriginal cultural heritage. A total of 16 (50cm x 50cm) test pits were excavated (4m^2). The soil profile was described as 'light brown friable silty sand over mottled yellow, orange, brown, grey clay base' (Debney et al 2009: Appendix, 37). Approximately 3km to the south, artefact scatter VAHR 7921-1118 was found on an extensive sand sheet and subsequently subject to salvage excavation (Murphy & Rymer 2011b). VAHR 7921-1118 was a low density scatter with the occasional high density patch. OSL dating attributed the place to the Late Holocene. The evidence shows that artefact scatters may be found sandy silt A-horizons along Pound Road but there is no necessary or very strong association between the two.

5.6 History and Ethnohistory in the Relevant Geographic Region

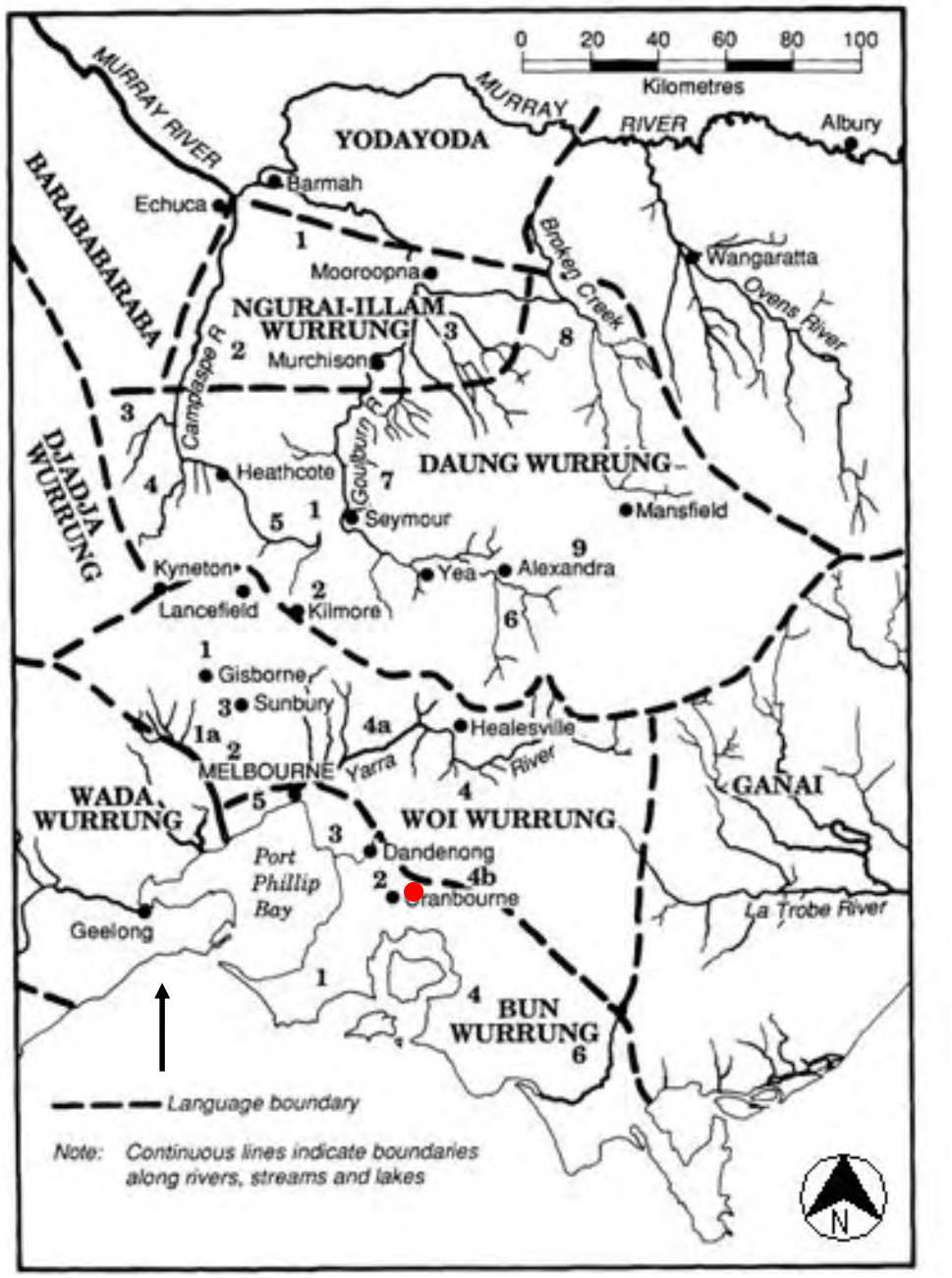
At contact the *Bunurong* tribe were associated with the activity area region (Map 5). The *Bunurong* tribe belonged to the inter-marriage and language group known as the *Kulin*, which inhabited areas around Melbourne. The *Kulin* were a confederation of five language groups that shared mutual economic and social relationships. They shared religious beliefs, having common creation legends and dreamtime ancestors. These religious beliefs formed the basis for social organisation and management of land and resources. *Kulin* people were affiliated with either one of two religious groups named after dreamtime ancestors (*Bunjil* – Eaglehawk, *Waa* – crow). Affiliation was determined by birth and established marriage relationships (Clark 1990).

The territory of the *Bunurong* is thought to have extended north from Western Port Bay to the Dandenong Ranges (Thomas in Gaughwin & Sullivan 1984: 86). The northern boundary is thought to have been delineated by the source of streams in the Dandenong Ranges, while the western boundary is thought to have been the Werribee River, and the eastern boundary was the Nicholson River (Gaughwin & Sullivan 1984: 87). An 1839 census of the *Bunurong* by Thomas suggested that at the time of colonisation, this tribe comprised of approximately 500 persons or 'six square miles per person' (Thomas nd 9: 47). Other descriptions of *Bunurong* territory suggest that the territory (Massola 1959: 180):

> extended along the coast from Werribee River on the west, to Cape Liptrap on the east, in an area taking in Williamstown (Koort-Boork-Boork), St Kilda (Euro-yoroke), the eastern environs of Port Phillip (Nerm) and all of Westernport (Warn-mer-in). Inland it reached to the Dandenong Ranges (Cor-han-warabul), Miboo, Warragul, Neerim and the Upper Latrobe.

The *Woiworung* clan who may have had reciprocal land use rights in the activity area were the *Baluk-willam*. The *Baluk-willam* clan occupied territory extending from the "ranges and swamps south of Yering on the upper Yarra, extending southeast to Koo Wee Rup Swamp and headwaters of Latrobe River, southwest to adjoin *Bunurong* clans about Cranbourne

and Dandenong" (Barwick 1984: 120; Clark 1990: 386). The clan was patrilineal and belonged to the *Waa* moiety system. Clan leaders were known as *ngurungaeta* and the recognised leader of the *Baluk-willam* at the time of contact was *Morundulk* (ca 1773-1840) – his son *Bolete* (1819-1845) was a member of the Native Police (Barwick 1984: 120; Clark 1990: 386).



● approximate location of activity area

Map 5 Desktop Assessment: Language Areas and Clans (Clark 1990: 364)

There is little ethnographic information about the lifestyles of the *Baluk-willam* clan at the time of European settlement. The few instances and recollections cited by early residents make no reference to clans or clan estates, movements or names. However, information cited within local histories can be assumed to be that of *Baluk-willam* clan members.

Exchange of goods and intermarriage between the *Woiworung* and the *Bunurong* groups is known to have occurred (Sullivan 1981: 36). *Kulin* people often met for interclan gatherings, such as that recorded in 1844 when groups of *Woiworung* people were camped on the site of the future MCG, and a group of *Bunurong* were camped on the site of the future Government House (Presland 1994: 47). The *Bunurong* held meetings every three months and corroborees were held during full and new moons (Thomas nd 21: 97). Notices of planned gatherings were distributed to neighbours via message sticks. During these inter-tribal gatherings marriages were arranged, disputes settled and goods traded. Greenstone from the Mt William quarries in the *Woiworung* territory was transported or traded into the *Bunurong* territory (McBryde 1984).

In the early days of European settlement numerous Aboriginal people were known to reside in the district, and were considered to belong to the *Bunurong* tribe. They are cited camping by the edge of dense vegetation with their activities focused along the major watercourses such as Cardinia and Toomuc Creeks. The women collected fresh water mussels from creeks as well as small animals, and plant foods. Men speared fish, hunted kangaroo, possum, snake and emu, and children played around camps or in shallow sections of creeks (Beaumont et al 1979: 34). Aboriginal activity was recorded at a large waterhole on Cardinia Creek (northern end of Akoonah Park) where they speared fish and barter for other food from local settlers such as Robert Henry. Fish were both plentiful and larger than the milk dish in which they were carted by the Aboriginals (Beaumont et al 1979: 13). The Aboriginal name for this deep water hole was Ghin Ghin Bean, which was adopted for the extensive pastoral run to the south. There are references to Aboriginal people visiting homesteads to seek tobacco, or to investigate curious objects such as a music box. Canoe trees were known to exist along Cardinia Creek and by the Grasmere Swamp, where stone axes were also collected.

One early resident, Mrs Fritzlaff is known to have had cordial relationships with local Aboriginal, whom she gave sweet tea whenever they visited her property. Mrs Fritzlaff is also known to have been visited by Aboriginal women, some of who carried their children in wooden coolamons on their backs. Another local resident at that time, a Mrs Halleur, was often greeted with a large quantity of wood-grubs to be exchanged for jam. Local Aboriginal women were also cited as feeding ground-up woodworms to young European children (Beaumont et al 1979: 69). In the 1860s, a 'corroboree' ground was thought to have been located near a hill north of Princes Highway and east of Pakenham Road (Murphy 2004).

By the 1860s the traditional Aboriginal owners had been dispossessed of their land and food resources. The dense scrub which characterised the low-lying areas for much of its early settlement period hampered both European and Aboriginal movement in the area. There are no recorded Aboriginal pathways through this region; however, it can be assumed that at least some of the present day roads through the area likely followed narrow tracks established and maintained by local Aboriginal people. Most early settlers initially followed the tracks of explorers McMillan (1839) and Strzelecki (1840) that kept to the lower foothills (BPHS 1982: 30). It is possible that these explorers were also following pre-existing Aboriginal pathways.

Many local place names and properties have supposedly originated from extracts of the local Aboriginal language. There is little possibility now to challenge the accuracy of these words. However, their existence verifies some level of verbal communication between early

European landowners and local Aboriginal people. The Aboriginal word *Karr-Din-Yarr* (Cardinia) was interpreted to mean "Looking at the Rising Sun" (Beaumont et al 1979: 10). Another early run *Ghin Ghin Bean* (Gin Gin Bin) was said to have meant "Deep Dark Waters" and refers in particular to a deep water hole, one of the best known features of Cardinia Creek. There is no specific reference to the activity area in the above histories.

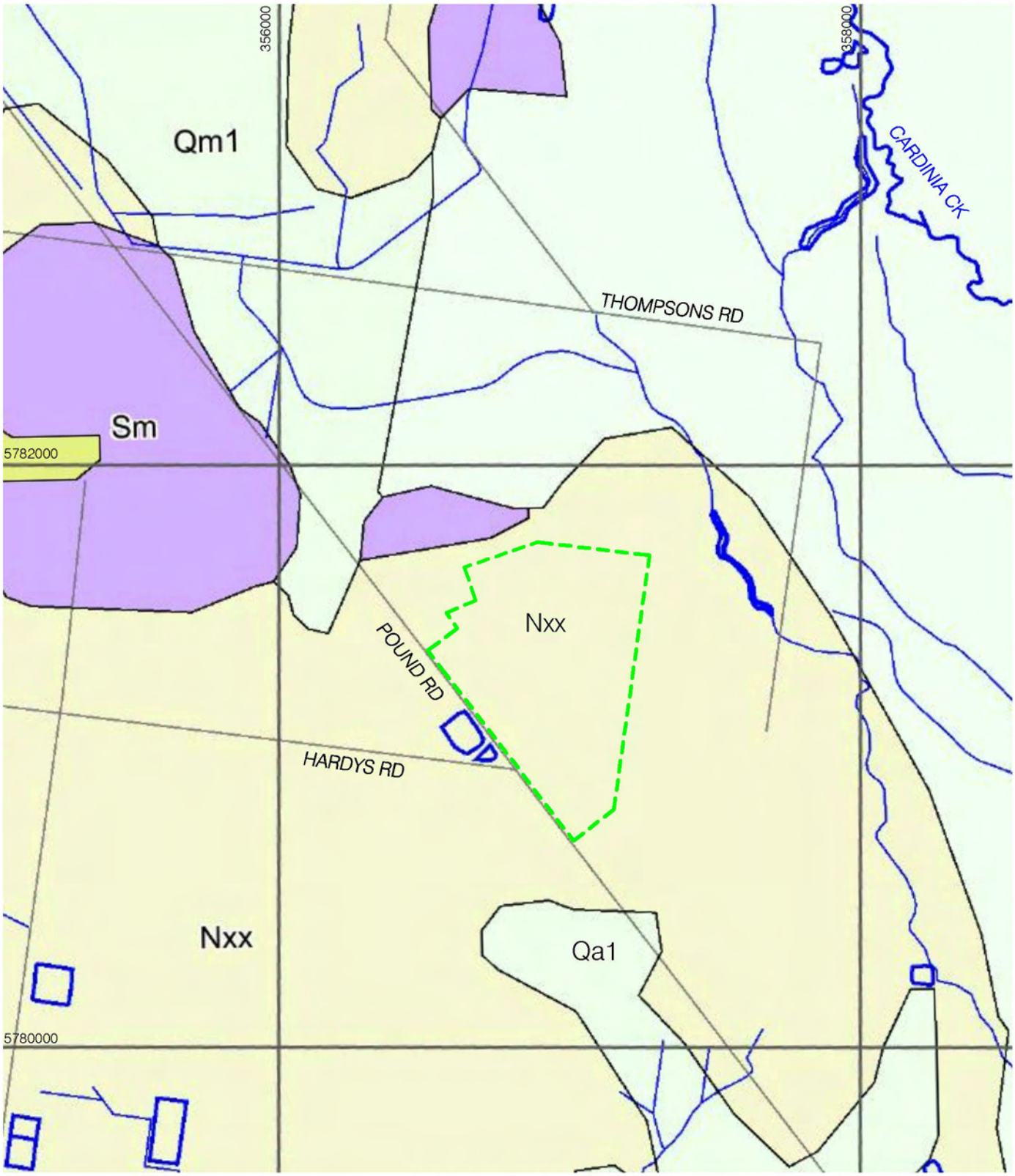
5.7 Landform and Geomorphology in the Activity Area

The Upper Tertiary (Miocene to Pliocene 5-2Ma BP) Baxter Sandstone dominates the geology of the activity area, and is marginal to non-marine in origin deposited in lagoonal conditions (Wallace et al 2005; Holdgate & Gallagher 2003; Jenkin 1974). The bedrock is strongly differentiated, poorly sorted, mainly coarse sands with variable amounts of conglomerate, sandstone and claystone (Holdgate & Gallagher 2003). Coarse material tends to occur in lenses, and is frequently cross-bedded, with finer particles present in continuous beds (Jenkin 1974). There are limited, discontinuous coal seams present (Holdgate & Gallagher 2003). Surface soils are sandy, and vary between red and pink in colour, and approach laterite in nature due to the ferruginisation of the bedrock (Jenkin 1974). The Baxter Formation is typically 12 metres thick, but can be up to 24 metres thick in places, particularly inland, away from the coast (Jenkin 1974; Abele 1976).

Underlying the Tertiary deposits, as seen to the north of the activity area, are weathered undifferentiated marine metasediments deposited during rapidly shallowing seas in the Silurian. These consist of light coloured shales, mudstones and medium to coarse sandstones (Jenkin 1974). These sediments are poorly fossiliferous, with few examples of well-preserved marine fossils (Jenkin 1974).

Table 6 Geological Units Relevant to the Activity Area

Age	Map Symbol	Description
Holocene 11Ka – present	Qm1	Sedimentary: non-marine: paludal: lagoon and swamp deposits: silt, clay
Holocene 11Ka – present	Qa1	Sedimentary: non-marine: fluvial: alluvium, gravel, sand, silt
Pleistocene 1.8Ma – 11Ka	Qd2	Sedimentary: non-marine: unnamed dune deposits: Aeolian: dune deposits: sand, clay, calcareous sand
Miocene to Pliocene 23Ma – 1.8Ma	Nxx	Baxter Sandstone: sedimentary: non-marine: fluvial: sandstone, conglomerate, siltstone, ironstone
Silurian to Devonian 444Ma – 359Ma	Sm	Murrindindi Supergroup: sedimentary: marine: mudstone, sandstone



Map Courtesy of DSE Website

0 500 1000

Scale of Metres

Legend:

Activity Area Boundary
48.35 hectares (approx)

Qm1	Unnamed swamp and lake deposits
Qa1	Unnamed alluvium
Qd2	Unnamed Dune Deposits
Nxx	Baxter Sandstone
Sm	Murrindindi Supergroup

N

GDA
Zone 55

Map 6 Desktop Assessment: Activity Area Geology

(Melway Ref: 135 H3)

The northern section of the Mornington Peninsula is part of the Eastern Plains geomorphic region of Victoria (Joyce et al 2003). The plains have flat to undulating relief and are covered with Late Cainozoic sedimentary deposits while the Silurian deposits have a moderately dissected topography (Joyce et al 2003). The elevation of the activity area averages approximately 30m to 40m, with low-gradient slopes facing southeast (Cooney 1978). The plains separate the Westernport and Port Phillip Sunklands to the east and west respectively, with the watershed of both located near Botanic Ridge near Cranbourne, and west of the activity area (Hills 1975; Joyce et al 2003). The region is bounded by faults (Selwyn and Tyabb Faults) and the Clyde Monocline with much of the relief dependent on the past movement of these structures and the subsequent deposition of Quaternary sediments (Joyce et al 2003).

Drainage on the Mornington Peninsula is linear in orientation, with sediment bedding planes playing little part in drainage patterns (Jenkin 1974). Instead, the drainage patterns are largely due to the orientation of the dunes present. Most drainage lines are parallel to each other, flowing from southeast to northwest along the dune swales towards the Carrum Swamp (Jenkin 1974). Just to the east of the activity area, however, the drainage runs from north to south in the form of Cardinia Creek and its tributaries. Networks of past channels (palaeochannels) of Cardinia Creek and its tributaries can be seen on satellite images crossing the landscape to the east of the activity area, and probably flow during periods of higher rainfall. The most relevant geomorphic processes in relation to the activity area are as follows:

1. During the Miocene marine incursion and subsequent regression (~5-2Ma BP), the Baxter Sandstone was deposited in marginal marine environments by south-flowing streams over a Tertiary erosional surface of Palaeozoic marine sediments.
2. Sea level fluctuated during the Pleistocene, and after the high stand during the Last Interglacial (~120ka BP), began to recede in the lead up to the Last Glacial Maximum (LGM) approximately 20Ka BP.
3. Cranbourne Sand dunes were deposited across the northern areas of the Mornington Peninsula during the Last Glacial Period (33Ka-18Ka BP).
4. The climate became wetter and warmer after the LGM until the Holocene Climatic Optimum (HCO) (~6Ka BP) when sea levels grew to ~1m to 2m higher than present. Sedimentation increased during this period.
5. Sea level dropped after the HCO as climates became more arid. Finer particles were deposited over the landscape by aeolian and alluvial processes.
6. European occupation increased erosion due to agricultural practices (ploughing & clearing etc).

As discussed above in Section 5.4 and Section 5.5, previous archaeological investigations near the activity indicate that the soil profile of activity area likely comprises a sandy silt A-horizon over a clay B-horizon. This is consistent with the geology and geomorphology which show the activity area geology comprising Baxter Sandstone. The clay B-horizon is related to the Baxter Sandstone and has no potential to contain Aboriginal cultural heritage. The sandy silt A-horizon may be a combination of both LGM dune and subsequent deposition processes (see above). The potential for Aboriginal cultural heritage using only the expected geological profile of the activity area is shown in Table 7 below. This determination only takes into account the earliest known human occupation of southeast Australia. It does not consider whether it is likely (see Section 5.12).

Table 7 Typical Soil Profile and Cultural Heritage Potential

Morphology	Horizon	Depth (cm)	Likely Age	Cultural Heritage Potential
Silty sand	A	0-70cm	Pleistocene to Holocene (<33Ka)	Yes
Orange clay	B	70cm↓	Pleistocene (>1.8Ma)	No

The soil profile information presented above has the following implications for any complex assessment in the activity area:

- Aboriginal cultural heritage, if present, will only be in the A-horizon.
- There is no potential for Aboriginal cultural heritage in the B-horizon.
- Buried former land surfaces with potential for Aboriginal cultural heritage are not expected to be found within the A-horizon.
- The youngest buried former land surface is expected to be associated with the top of the B-horizon. The B-horizon predates human occupation of southeast Australia and has no potential for Aboriginal cultural heritage.
- If a complex assessment is required, there is no scientific reason to excavate into the B-horizon.

5.8 Landuse History of the Activity Area

Since settlement by Europeans of the Berwick – Pakenham region in the 1840-50s, dramatic changes have been made to the landscape in Clyde. The dominant changes are associated with pastoral activities (such as the clearing of vegetation, repeated ploughing, construction of dams, minor drainage schemes), orchards, residential development, road and rail construction, and the installation of services. These changes are of particular relevance to the Clyde North area, an area that was targeted early in European settlement due to the presence of fertile alluvial soil. Whilst orchards were the dominant historic activity in the upper catchment area, the activity area appears to have been mainly used for grazing. This is primarily due to the low-lying nature of the land, which would have generally proved unsuitable for orchards.

Tree clearance and land development for pastoral activities would have adversely impacted any places that may have existed in the area. Cultural material (such as stone tools) may have been disturbed, re-deposited, or even destroyed. Any scarred trees that existed in the area prior to clearance have been destroyed. Cultural material, particularly stone tools can move several hundred metres from their original discard point via repeated ploughing (Gaynor 2004).

There are no original landowners remaining in the activity area, but direct evidence of historic landuse is seen in Photo 1 dating to 1968. The land appears to have been ploughed, cropped and likely grazed. Since that time with the arrangement paddocks and infrastructure have remained essentially the same. A dam has been excavated, remaining isolated gums have been removed and a new house, several shed and yards established. Significant impact has occurred with the grading and excavation for the installation of the

Victorian Desalination pipeline and other utilities. The land is currently cropped and grazed.

In summary, the European activities that would have acted to degrade archaeological resources within the activity area are:

- Native vegetation clearance.
- Ploughing, cropping and grazing of paddocks.
- House and farming infrastructure.
- Victorian Desalination utilities installation.

Photo 1 Aerial Photograph of the Activity Area (1968)
(Melbourne Project, Run 41E, Film 2140, Photo 113)

5.9 Strategic Values

A discussion of strategic values in the activity area and surrounding region is important because variations in strategic values likely influenced pre-contact Aboriginal cultural heritage place location and visitation frequency (Walsh 1987). Strategic values include strategic resources (eg potable water, flora, fauna, stone sources), routes of movement

(eg along waterways or ridgelines) and vantage points (eg prominent hills above plains). In general, strategic values were likely of greater importance to Aboriginal people rather than landform or soil type, that is, Aboriginal groups generally would have chosen long-term campsites close to the richest and most diverse resources within the activity area region. Information about strategic values provides insight into Aboriginal cultural heritage place patterning and informs directly on the desktop model presented in Section 5.10.

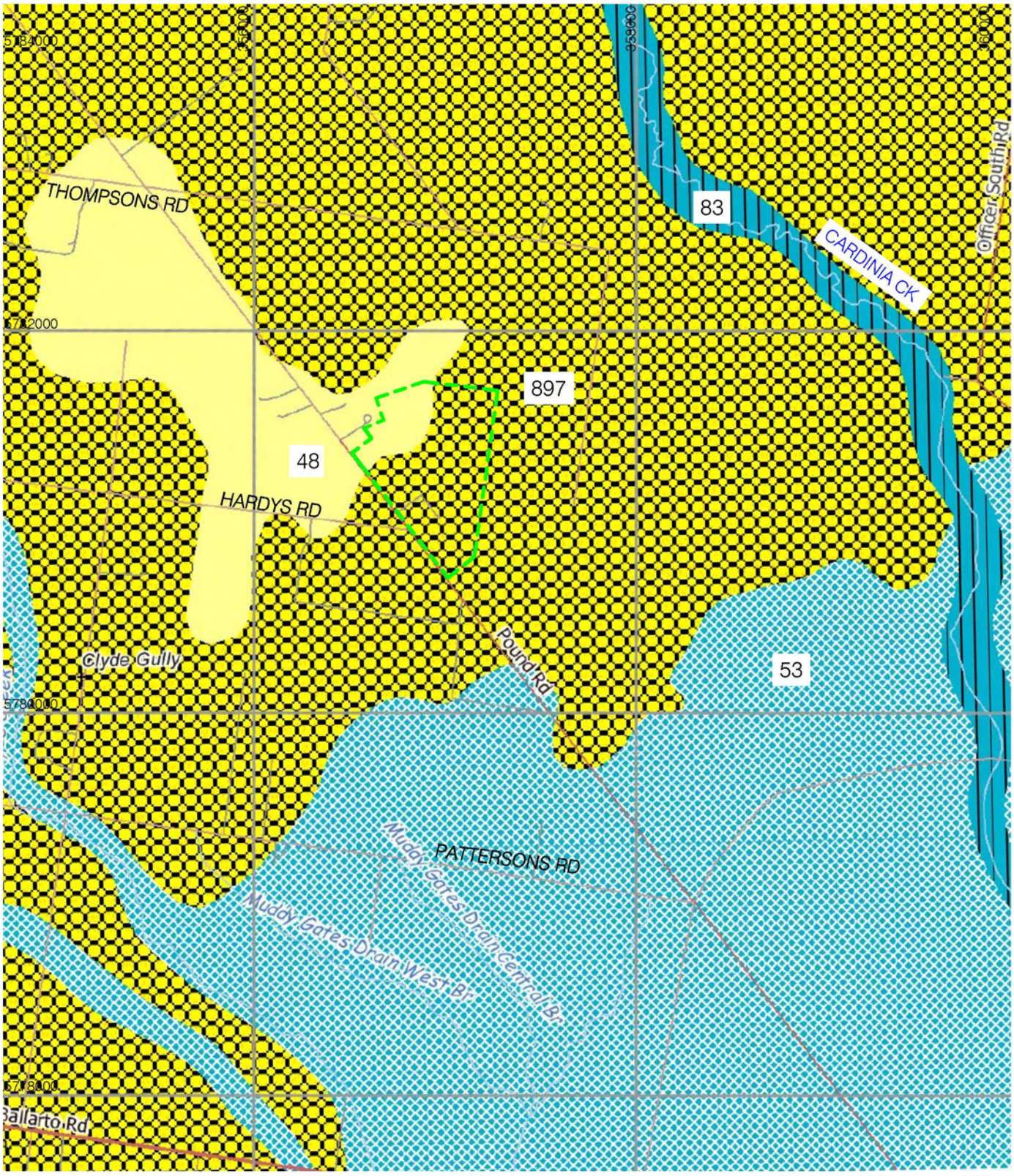
The strategic hydrological values in the region are Cardinia Creek and Koo Wee Rup Swamp. Both would have provided potable water as well as rich flora and fauna. Prior to European settlement the activity area comprised Heathy Woodland (EVC48) and Plains Grassland / Plains Grassy Woodland (EVC 897[55 & 132]). Plants known to have been exploited by Aboriginal groups for food, medicinal and ceremonial purposes in these EVCs include Black Wattle, Blackwood, Black Sheoak, Small Leaved Clematis, River Red Gum, Messmate, Manna Gum, Spiny Headed Mat Rush, Large Tussock Grass, Kangaroo Grass and Grass Tree (Appendix 8).

Based on the evidence of the EVCs and parish maps there does not appear to be any particular strategic resource in the activity area that is significantly more valuable to that found in the surrounding region. There are no significant ecotone boundaries (ie more than 3 EVCs) in the activity area. Often places are located at the boundary of ecotones to exploit a wider range of resources. This suggests that there were no strategic floral resources that Aboriginal groups would specifically target in the activity area requiring long-term camping. It is likely that Aboriginal groups exploited resources mainly while traversing the landscape.

Thomas noted that Aboriginal people would congregate around swamps to spear eels (Gaughwin 1981: 75). Eels were noted by Thomas as being an important food and allowed people to stay at one camp spot for extended periods (Gaughwin & Sullivan 1984: 89-90). Lyrebirds, wombats, wallabies and other animals were hunted in forests during summer (Snoek 1987: 7).

Stone sources for the region include sources of silcrete, coastal flint, chert and quartz. The flint is likely to be sourced along the coastline, having been washed onshore from offshore outcrops of limestone during periods of higher sea level (Scott-Virtue 1982). Silcrete boulders in southeastern Australia are typically sub-basaltic silcrete, and can be associated with basalt flows of the Older Volcanic group along the Mornington Peninsula. Erosion of the basalt can promote subsequent erosion of the underlying silcrete deposits, and these boulders can form aprons along slopes and stream courses (Webb 1995). Chert and quartz can be sourced from the Silurian and Ordovician marine sediments along the Mornington Peninsula, with the quartz occurring in hydrothermal veins that have been weathered and exposed to the surface over time. The Baxter Sandstone is another source for quartz; however, the quartz inclusions are typically only fragments.

Since the activity area is on the gently undulating plain, there are no particular strategic routes of movement and no vantage points. In summary there are no known strategic values within the activity area. The regional strategic values are Koo Wee Rup Swamp and Cardinia Creek.



Map Courtesy of DSE Website

0 500 1000
Scale of Metres

Legend:

Activity Area Boundary
48.35 hectares (approx)

48	Heathy Woodland
53	Swamp Scrub
83	Swampy Riparian Woodland
897	Plains Grassland/Plains Grassy Woodland

GDA
Zone 55
N

Map 7 1750 Ecological Vegetation Classes (EVCs)

(Melway Ref: 135 H3)

5.10 Aboriginal Cultural Heritage Scientific Sensitivity Model

The following model predicts the likely Aboriginal cultural heritage values within the activity area in relation to strategic values and landform. The relevant information for the model is presented below (Table 8, Map 8):

1. Strategic resources are located outside the activity area.
2. The activity area comprises an alluvial plain.
3. The soil profile likely comprises sandy silt A-horizon over a orange clay B-horizon.
4. Only the A-horizon has potential for Aboriginal cultural heritage.
5. Artefact scatters are the only likely place-type to be present.
6. All other place-types are unlikely to be present.
7. Areas disturbed by the construction of the Desalination Pipeline, houses and farm buildings are unlikely to contain Aboriginal cultural heritage.
8. Vegetation clearance means there is no potential for Aboriginal scarred trees.
9. Stone artefact scatters
    - Artefact scatters are most likely to be found on low undulations with sandy silt A-horizons in the activity area.
    - Artefact scatters are most likely to be small low density subsurface scatters. Stone artefacts may be found up to 110cm in depth, but most likely up to 40cm depth.
    - High integrity occupation deposits are unlikely to be present.
    - The predominant raw material for stone tool manufacture will be silcrete with minor components of quartz, crystal quartz and quartzite.
    - Stone artefact types will be represented predominantly by flakes and angular fragments with a smaller component of former tool types (eg microliths, cores).
    - Stone artefact scatters likely date to the Late Holocene.
10. Land clearance and agricultural use (eg ploughing, cropping & grazing) over 150 years means that the upper 40cm has likely been repeatedly disturbed.
11. Ground disturbance reduces the spatial and temporal integrity of stone artefact scatters and consequently reduces their scientific significance.
12. It is unlikely that any places above moderate scientific significance are present within the activity area.

Table 8 Desktop Assessment Aboriginal Cultural Heritage Scientific Sensitivity Model (Map 8)

Place Types	Location / Landform	Sensitivity
Artefact scatters (very low density)	Low sandy silt undulations, if present	Likely (Low)
	Disturbed locations – Desalination Pipeline, houses & farm infrastructure	Unlikely
Earth features, human remains, quarries, rock art, scarred trees, shell middens, stone features	Entire activity area	Unlikely

5.11 Conclusions

The desktop assessment has demonstrated that in relation to the activity area:

1. There are no registered places within the activity area.
2. There are areas of cultural heritage sensitivity being low sandy silt undulations.
3. It is reasonably possible that Aboriginal cultural heritage is present.

A standard assessment is recommended pursuant to r.58(1) *Aboriginal Heritage Regulations 2007*:

> ... the results of a desktop assessment show that it is reasonably possible that Aboriginal cultural heritage is present in the activity area.

Aerial Photograph Courtesy of Nearmap Website 2012

0 100 200
Scale of Metres

Legend:

Activity Area Boundary
48.35 hectares (approx)

Parish: Cranbourne
LGA: Casey

Areas of Aboriginal Cultural Heritage Scientific Sensitivity

Likely (Low) low sandy silt undulations, if present

Unlikely

GDA
Zone 55
N

Map 8 Desktop Assessment: Areas of Aboriginal Cultural Heritage Scientific Sensitivity

6 STANDARD ASSESSMENT

6.1 Methodology

The ground survey was conducted in a systematic manner and in accordance with proper archaeological practice. A combination of systematic and judgemental sampling was conducted (Burke & Smith 2004: 66-69) in order to assess 100% of the activity area by foot. All impact areas were examined to determine areas of good ground surface visibility and / or high potential archaeological sensitivity for Aboriginal cultural material. Individuals walked linear transects 10m apart examining all areas and comprehensively sampling all landform patterns, elements and attributes. When good ground surface visibility was identified a micro-survey was conducted. Transects were walked 2m apart across the entire extents of these micro-survey areas so that it was highly likely that, if present, any obtrusive or surface Aboriginal cultural heritage would be detected. Detailed notes were taken including description of landform elements, ground surface visibility, ground surface disturbance, geology, geomorphology, vegetation, water sources and potential Aboriginal cultural heritage sensitivity (Burke & Smith 2004: 69-80). Photographs were also taken.

The activity area was considered a single survey area because it was essentially a single landform, that is, a broad gently sloping low rise (Map 9). For detailed information on ground surface visibility, disturbances and effective survey coverage for the activity area generally and individual survey areas see Section 6.7.

Table 9 Survey Areas (Map 9)

Survey Area	Description
Survey Area 1: entire activity area	Broad gently sloping low rise

6.2 Map showing Survey Areas, Aboriginal Places and Effective Survey Coverage

A map showing survey areas, Aboriginal places (if any) and estimates of effective survey coverage is shown in Map 9.

6.3 Ground Surface, Mature Trees, Caves, Rock Shelters or Cave Entrances

The survey examined the ground surface of the activity area. There are no native mature trees remaining in the activity area. No caves, rock shelters or cave entrances were identified within the activity area.

6.4 Fieldwork Participants

The standard assessment was conducted on 29 May 2012 by Tom Rymer (Supervisor, Archaeology At Tardis Pty Ltd), Barry Green, Alana Doyle (Archaeologists, Archaeology At Tardis Pty Ltd), Darren Symington (BLCAC) and John Winch (BWFL).

6.5 Obstacles

No obstacles were encountered in completing the standard assessment.

Aerial Photograph Courtesy of Nearmap Website 2012

0 100 200
Scale of Metres

Legend:

Activity Area Boundary & Survey Area 1
48.35 hectares (approx)

Parish: *Cranbourne*
LGA: *Casey*

GDA
Zone 55

N

Map 9 Standard Assessment: Survey Areas & Effective Survey Coverage

6.6 Results and Discussion

No places were recorded during the ground surface survey. A full discussion of Aboriginal cultural heritage incorporating the results of the complex assessment is found in Section 8. This section only refers to the survey results.

Table 10 Survey Area, Ground Surface Visibility & Effective Survey Coverage

Survey Area	Ground Surface Visibility	Effective Survey Coverage
Entire Activity Area	<5%	1%

Ground surface visibility was typically very poor (0-10% per m^2) because of heavy grass cover. The improved pasture is used to graze cattle. Atypical areas of excellent ground surface visibility were encountered below windrows and isolated trees, around dams, water troughs and gates (Photos 2-6). Effective survey coverage was approximately 1%. Two abandoned houses are found on the property, one has recently been vandalised and burnt to the ground. There are also sheds and cattle yards. A number of earthen channels have been made to drain the land, with one dam in the south of the activity area. The recently constructed Victorian Desalination Plant pipeline runs within the activity area along Pound Road. The pipeline easement has been stripped of topsoils during construction which has been recently reinstated. Land between the house and farm buildings and the Desalination Pipeline also appears to be highly disturbed. These areas are considered unlikely to contain Aboriginal cultural heritage.

Sandy silt was observed in some areas of excellent ground surface visibility while other areas comprised dark brown clayey silts with minor sand fractions. The extent of sandy silts across the activity area was unable to be determined because of the general lack of ground surface visibility. The broad gentle sloping low rise is not associated with any strategic value within the activity area. East of the activity area are some minor waterways and any Aboriginal cultural heritage is most likely to be found in close association with them and not in the present activity area. There was no evidence of stone outcrops or other stone sources that may have provided a stone quarry source. Although there are views from the top of the rise, this is generally the case on the margins of the Koo Wee Rup floodplain and Cardinia Creek flood plain and therefore is of no particular strategic value within the activity area.

Since minor exposures of sandy silt was identified in the activity area, and Aboriginal cultural heritage is often found in sandy silt soil profiles, it was considered possible, albeit very low that Aboriginal cultural heritage may be present in the activity area in areas that have not been subject to a high degree of disturbance (eg pipeline easement, houses, farm buildings and land between the buildings and the pipeline easement). The possibility was considered to be very low because the activity area was not considered to be associated with any strategic value which is typically a stronger influence on the presence or absence of Aboriginal cultural heritage than sandy silt soil profiles alone. A limited complex assessment was therefore considered necessary to test this prediction.

Photo 2

Typical very poor ground surface visibility facing northeast

Photo 3

Atypical excellent ground surface visibility around a water trough facing northwest

Photo 4

Atypical excellent ground surface visibility below isolated trees

Photo 5

Atypical excellent ground surface visibility below windrows facing east

Photo 6

Atypical excellent ground surface visibility around gate facing southeast

Photo 7

Victorian Desalination Plant pipeline easement facing north, the topsoils have been stripped, the utilities installed and the land reinstated.

6.7 Areas Likely to Contain Aboriginal Cultural Heritage & Aboriginal Cultural Heritage Scientific Sensitivity Model

Areas evaluated as likely containing Aboriginal cultural heritage places are areas of cultural heritage scientific sensitivity. These areas usually have poor ground surface visibility so that any surface or subsurface archaeological deposits may be obscured by factors such as thick vegetation or sediment. Areas of cultural heritage sensitivity may or may not be limited to areas of Aboriginal cultural heritage sensitivity as defined under the *Aboriginal Heritage Regulations 2007*. Areas may be deemed as being likely or unlikely to contain cultural heritage.

Based on the desktop and standard assessments (Sections 5-6), the activity area has been assessed as having very low cultural heritage sensitivity for small low density stone artefact scatters. A refined Aboriginal cultural heritage scientific sensitivity model is presented below (Table 11).

Table 11 Standard Assessment Aboriginal Cultural Heritage Scientific Sensitivity Model (Map 10)

Place Types	Location / Landform	Sensitivity
Artefact scatters	Sandy silt soil profiles in the activity area	Likely (very low)
	Remainder of the activity area including disturbed locations	Unlikely
Earth features, human remains, quarries, rock art, scarred trees, shell middens, stone features	Entire activity area	Unlikely

6.8 Conclusions

The standard assessment has demonstrated that in relation to the activity area (Map 10):

1. There are areas of Aboriginal cultural heritage scientific sensitivity being sandy silt profiles obscured by present grass cover.
2. It is likely that additional cultural heritage is present.
3. It was not possible to identify the extent, nature and significance of the cultural heritage.

A complex assessment is required pursuant to r.60(1) *Aboriginal Heritage Regulations 2007*:

> (a) Aboriginal cultural heritage is, or is likely to be, present in the activity area; and
> (b) it is not possible to identify the extent, nature and significance of the Aboriginal cultural heritage in the activity area unless a complex assessment is carried out.

Aerial Photograph Courtesy of Nearmap Website 2012

0 100 200
Scale of Metres

Legend:

Activity Area Boundary
48.35 hectares (approx)

Parish: Cranbourne
LGA: Casey

Areas of Aboriginal Cultural Heritage Scientific Sensitivity

Likely (very low) sandy silt soil profiles, if present

Unlikely

GDA
Zone 55

N

Map 10 Standard Assessment: Areas of Aboriginal Cultural Heritage Scientific Sensitivity

7 COMPLEX ASSESSMENT

7.1 Aims and Methodology

The aims of subsurface testing were:

1. To determine the presence or absence of Aboriginal cultural heritage.
2. To investigate in detail the extent, nature and significance of any Aboriginal cultural heritage identified during subsurface testing.
3. To test the predictions in the standard model

The aims were fulfilled by an excavation program of 54 test pits according to the following methodology. All test pits were controlled hand excavations. The stratigraphy and general subsurface nature of the activity area was investigated by test pit TP18. Due to poor ground surface visibility during the standard assessment and in order to test the model, a systematic sampling of the entire activity area was conducted by placing a 100m x 100m grid across the extent of the land and excavating test pits located at the nodes (test pits TP1 to TP40) excluding the Desalination utilities easement. Since artefacts were found in test pits TP18 and TP36, the nature, extent and significance was identified by the presence and absence of positive archaeological evidence, that is: the absence of cultural material in radial test pits. Radial test pits are excavated 5m apart along cardinal points until such time a test pit is found with no cultural material. The boundary of the place extent was defined as the furthermost point from the nominal centre of the place to any test pit from which cultural material was found.

Excavations were conducted by hand and recorded in 5cm arbitrary layers and stratigraphic units. Hand tools including long-handled spades, picks, hand spades, hand picks, trowels and brushes were used where appropriate. All hand tools were used in a controlled manner removing sediments in thin layers (typically 1-2.5cm) keeping sections at 90° at all times. When Aboriginal cultural heritage was encountered particular care was taken to remove all sediments by hand trowel. All sediments were 100% hand sieved using 5mm mesh. No suitable material or sediments (C14 or OSL) were encountered that could be submitted or used for dating purposes or to assist in environmental analysis. Excavations ceased when geological horizons were encountered which area known to have no cultural heritage potential (Section 5.7).

Test pits were recorded with a hand-held GPS using GDA94 MGA coordinates and marked onto an activity area plan. If a test pit was found to contain any Aboriginal cultural material the location was subsequently recorded using a dGPS by Tom Rymer. Detailed notes were recorded for each test pit including stratigraphy, sediment descriptions, Munsell colour, pH levels, disturbance, and presence (or absence) of archaeological materials (Appendix 5). Photos were taken of each excavation including detailed views of stratigraphic profiles using a standard range pole marked with 20cm intervals (Photos 12 & 13). All artefacts were recorded in detail and photographed using a scale marked with 1cm intervals. Artefacts were bagged, tagged and stored in a secure facility ready for transfer to a designated custodian (Section 10).

Post excavation analysis and interpretation of the stone artefact assemblage and other data is presented in Sections 8.2 to 8.5 in order to assess the extent, nature and significance of Aboriginal cultural heritage places (Section 8.6, Appendix 6).

7.2 Map showing Subsurface Testing Locations

Subsurface testing locations are shown in Map 11.

7.3 Excavations with Cultural Heritage

Scaled section drawings and scaled photos of test pits TP18 and TP36 with Aboriginal cultural heritage are found in Appendix 4.

7.4 Excavations of Relevant Landform

A scaled photograph and scaled section drawing of test pit TP18 investigating the gentle rise of the activity area is found in Appendix 4. The complex assessment is generally consistent with the predictions on the likely nature of the soil profile in relation to silty sand A-horizon that overlays a clay B- horizon (Section 5.7). When sandy silts have a smaller fraction of sandy they can be quite shallow (eg TP18) compared to when sand is encountered then test pits may be up to 70cm in depth (eg TP39).

7.5 Test Pit Details

A total of 54 (50cm x 50cm) test pits and 2 (1m x 1m) test pits were excavated. Test pit details are presented in Appendix 4, including the coordinates of all subsurface testing locations. A total area of 15.5m^2 was excavated. A total area of 2m^2 was found with Aboriginal cultural heritage.

7.6 Fieldwork Participants

Fieldwork was conducted between 29 May and 7 June 2012 by Barry Green (Field Supervisor, Archaeology At Tardis Pty Ltd), Alana Doyle (Archaeologists, Archaeology At Tardis Pty Ltd), Darren Symington, Izzy Pepper (BLCAC), John Winch, Josh Luttrell, Wenzel Carter (BWFL) and Shane Nicolson (WTLCCHC).

7.7 Fieldwork Supervisor

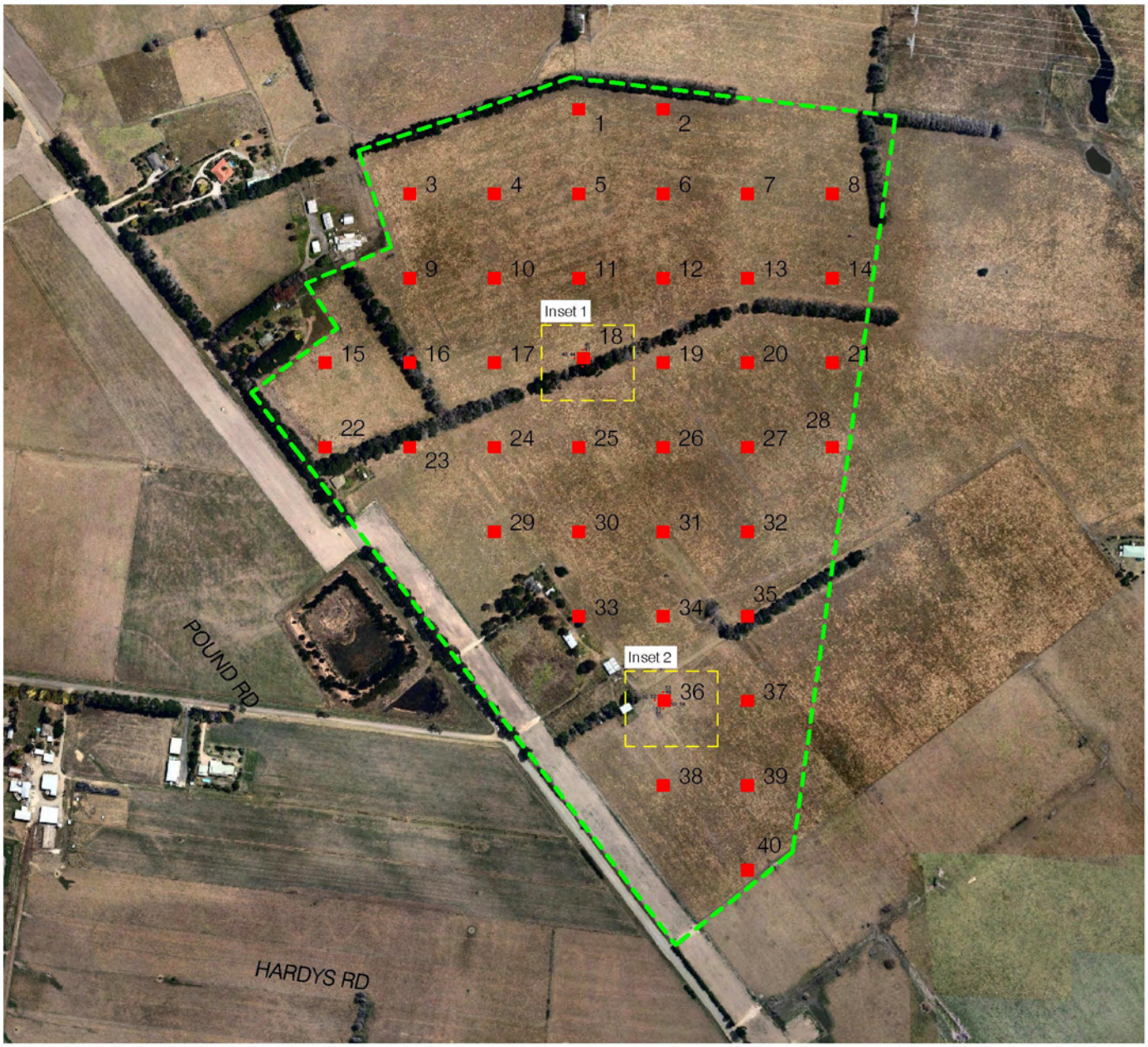
The fieldwork was supervised by Barry Green (Archaeologist, Archaeology At Tardis Pty Ltd). He is suitably qualified in archaeology to supervise the excavations (Appendix 9).

7.8 Obstacles

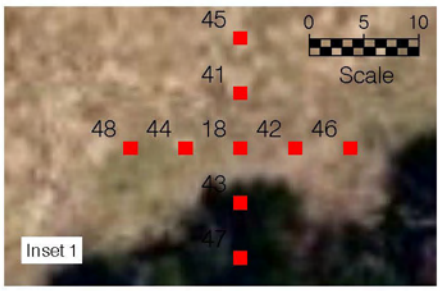
No obstacles were encountered in completing the complex assessment.

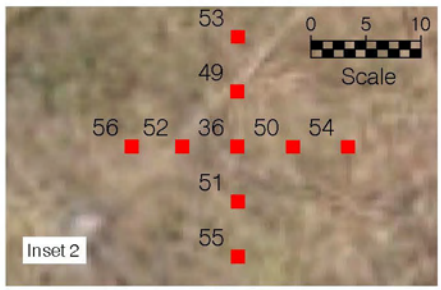
7.9 Results and Conclusions

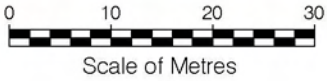
A total of two new Aboriginal cultural heritage places (VAHR 7921-1420 & 7921-1426) were registered as a result of the complex assessment. The results and conclusions of the subsurface testing considered in light of the desktop assessment are presented in Section 8.



Aerial Photograph Courtesy of Nearmap Website 2012







Legend:

Activity Area Boundary
48.35 hectares (approx)

xx Test Pit
xx = test pit number

GDA
Zone 55

Map 11 Complex Assessment: Subsurface Testing Locations

(Melway Ref: 135 H3)

8 ABORIGINAL CULTURAL HERITAGE

8.1 Details of the Assessment

8.1.1 Stone Artefacts

A total of two stone artefacts were recovered during the complex assessment (Appendix 5): one silcrete flake from TP18 (VAHR 7921-1420) and one quartz flake from TP36 (VAHR 7921-1426). Silcrete and quartz are typical raw materials and flakes are typical artefact data classes in the regional artefact assemblage (Section 5.4). There is no typological evidence to indicate what time period they were manufactured.

8.1.2 Site Formation Processes

Both stone artefacts were found close to the contemporary land surface: VAHR 7921-1420 at 5cm to 10cm depth and VAHR 7921-1426 at 20cm to 25cm depth. This zone is subject to stock trampling and disturbance from European landuse (pasture improvement, vehicular movement, etc). Since both finds are isolated artefacts they were most likely causally discarded or lost while Aboriginal groups traversed the activity area. T

8.2 Information in Relation to Discovered Aboriginal Cultural Heritage

BLCAC, BWFL and WTLCCHC were requested to provide information in relation to Aboriginal cultural heritage discovered during the assessment (Section 4).

8.3 Oral Information in Relation to Aboriginal Heritage of the Activity Area

BLCAC, BWFL and WTLCCHC were requested to provide, if they wished, any oral information in relation to the Aboriginal heritage of the activity area (Section 4).

8.4 Results of the Assessment of Aboriginal Cultural Heritage

VAHR 7921-1420 and 7921-1426 are isolated artefact finds comprising a raw material and artefact data class which can be found throughout any landform in Victoria. Such finds have no particular association with landform, soil horizon or strategic value and consequently have little research value or contribution to interpreting past Aboriginal behaviour in the landscape. There was no typological evidence to suggest when the artefacts were manufactured, used or discarded, but they are not inconsistent with the Late Holocene within the last 3,000 years. The archaeological and geomorphologic context supports this conclusion (ie low depth of artefacts in the soil profile). No high integrity cultural charcoal was encountered during the complex assessment and therefore no appropriate samples were available for radiometric dating. OSL dating was not considered suitable due to the lack of sufficient place attributes such as high integrity artefact horizons. Places with very low scientific significance typically lack these attributes. Unless there was some evidence to suggest greater antiquity than the Late Holocene (such as evidence of pre-ASTT assemblages), such dating methods cannot be reasonably justified on a scientific basis.

Isolated stone artefacts can be found throughout Victorian in all landform contexts. VAHR 7921-1420 and 7921-1426 represent causal artefact discard or loss. No archaeological

evidence was found to show high intensity, repeated activities by Aboriginal groups were conducted in the activity area (such as base camps) likely to result in significant archaeological places. This is considered due to the lack of strategic values in or close to the activity area.

The research potential of stone artefact scatters can be assessed by the likelihood that further salvage excavations can provide additional data to significantly change the answer to the research questions already provided in the complex assessment (Section 8.5). This can be assessed by determining whether places contain the attributes sufficient to supply this data. These attributes are essentially the same as those used to assess the scientific significance of places (Appendix 6) and include the following:

- A high density of stone artefacts
- Heterogeneous high density artefact clusters with significant temporal and spatial integrity
- Stratified high integrity occupation deposits and features
- Suitable samples for radiometric dating
- Evidence of intra and inter-site variability

The complex assessment has demonstrated that the known Aboriginal cultural heritage in the activity area represented by stone artefact scatters VAHR 7921-1420 and 7921-1426 lack the attributes required to have any significant research potential.

Statement of Significance and Final Sensitivity Model

A statement of cultural heritage significance is a mandatory component of a CHMP. Cultural heritage significance includes (s.4 *Aboriginal Heritage Act 2006*):

> (a) archaeological, anthropological, contemporary, historical, scientific, social or spiritual significance; and
> (b) significance in accordance with Aboriginal tradition;

European assessments of cultural heritage significance (especially archaeological, scientific, anthropological, aesthetic, historic or social / spiritual) may not accord with those of the Aboriginal community. It is up to the Aboriginal people to decide the Aboriginal cultural significance (Sections 4, 8.2 & 8.3).

The detailed assessment of scientific significance of Aboriginal cultural heritage identified within the activity area is presented in Appendix 6 while a summary of place significance is presented in Table 12 below. The complex assessment has demonstrated that the activity area has very low cultural heritage values. The known values are limited to isolated artefacts VAHR 7921-1420 and 7921-1426. Both these places have attributes that can be found anywhere throughout Victoria and were assessed as having extremely low scientific significance and no research value. There are no strategic values in the activity area (eg major waterways) and significant regional cultural heritage values are to be found elsewhere in the region (eg along Cardinia Creek). Based on the evidence from this investigation a significance summary of known cultural heritage is presented in Tables 12.

Table 12 Significance Summary

VAHR No Place Name	Relevant Aboriginal Group Cultural Significance	Scientific Significance
7921-1420 1505-1525 (Lot 2) Pound Road Clyde North IA 1	*TBA*	Extremely low
7921-1426 1505-1525 (Lot 2) Pound Road Clyde North IA 2	*TBA*	Extremely low

8.5 Map showing Aboriginal Cultural Heritage in the Activity Area

All Aboriginal cultural heritage investigated in the activity area with reference to Victorian Aboriginal Heritage Register numbers is shown in Map 12.

Aerial Photograph Courtesy of Nearmap Website 2012

0 100 200
Scale of Metres

Legend:

Activity Area Boundary
48.35 hectares (approx)

xxxx Artefact Scatter
VAHR 7921-xxxx

N

GDA
Zone 55

Map 12 Known Aboriginal Cultural Heritage Places in the Activity Area

(Melway Ref: 135 H3)

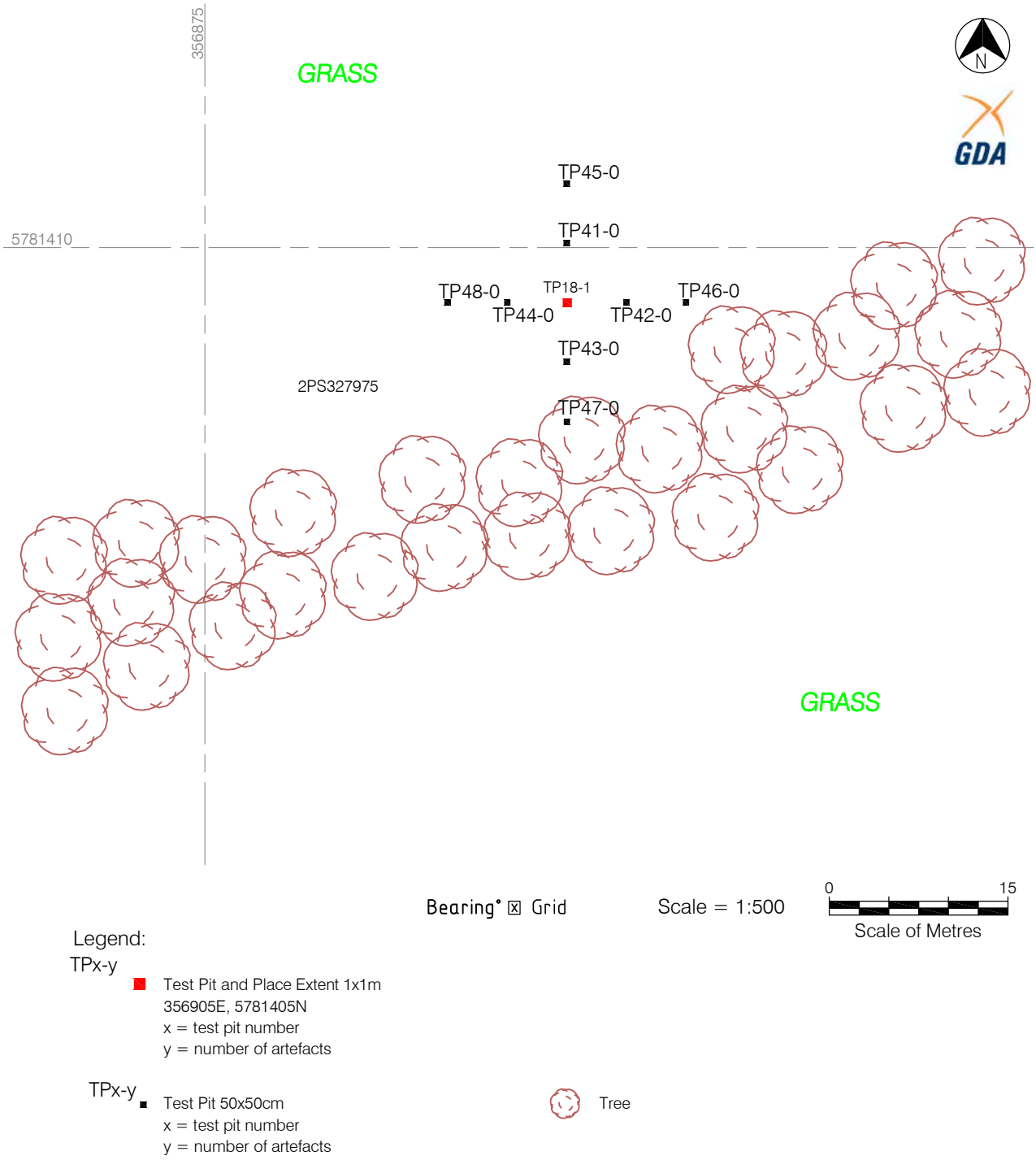
8.6 Cultural Heritage Places

Two Aboriginal cultural heritage places VAHR 7921-1420 and 7921-1426 were recorded during this assessment.

8.6.1 VAHR 7921-1420: Extent, Nature and Significance (Map 13)

Place Name:	1505-1525 (Lot 2) Pound Road Clyde North IA 1
VAHR No:	7921-1420
Place Type:	Artefact scatter
Primary Grid Coordinate*:	356905E 5781405N
Published Map No:	(1:30K) 7921-1-4-2
Cadastre:	2 PS327975 / Parish of Cranbourne / City of Casey
Test Pits:	TP18 (n=1)
Contents:	One silcrete complete flake
Vertical Artefact Distribution:	5cm – 10cm
Artefact Density per m^2:	Maximum=1; Minimum=1; Average=1
Typical Soil Profile Description:	0-5cm weak brown sandy silt 5-22cm weak light brown sandy silt with gravel 22-32cm weak yellowish brown silt 32cm↓ strong yellow clay
Known Extent:	1m (length), 1m (width), 10cm (depth), $1m^2$ (area)
Disturbance:	Stock trampling
Location:	455m bearing 13° from the intersection of Hardys Road & Pound Road, Clyde North
Geomorphic Unit:	Eastern Plains (7) – Central Sunklands (7.1) – Coastal plains with ridges and dunefields (7.1.1)
Landsystem Code:	8.5fFq7-1
Landform:	Present flood plain – gentle very low rise – upper slope
Bioregion & EVC:	Gippsland Plain: Plains Grassland / Plains Grassy Woodland Mosaic (EVC897)
Waterways:	1.92km southwest of Cardinia Creek & 670m southwest of drainage line
Scientific Significance:	Extremely low

*GDA94 MGA Zone 55



Map 13 VAHR 7921-1420: Known Extent of Place

(Melway Ref: 135 H3)

Photo 8

VAHR 7921-1420 place location (red arrow) facing west

Photo 9

VAHR 7921-1420 artefact

Extent

The known place dimensions measure approximately 1m (length), 1m (width), 10cm (depth) and 1m^2 (area). The extent is determined by the presence of artefacts found in test pits TP18

Nature

VAHR 7921-1420 is a subsurface isolated artefact comprising one silcrete flake. Excavation demonstrated that the artefact was associated with a light brown sandy silt with gravel soil horizon. Due to the surficial depth of the artefact, it is likely that the soil horizon has been disturbed by at least stock trampling. There was no evidence of high integrity occupation deposits or features, stratified or otherwise (Appendix 2). No suitable material was available for radiometric dating or environmental analyses. The evidence demonstrated that the place likely represents casual artefact discard or loss. No evidence was found for significant stone reduction sequences, tool manufacturing workshops, long-term camping or food preparation.

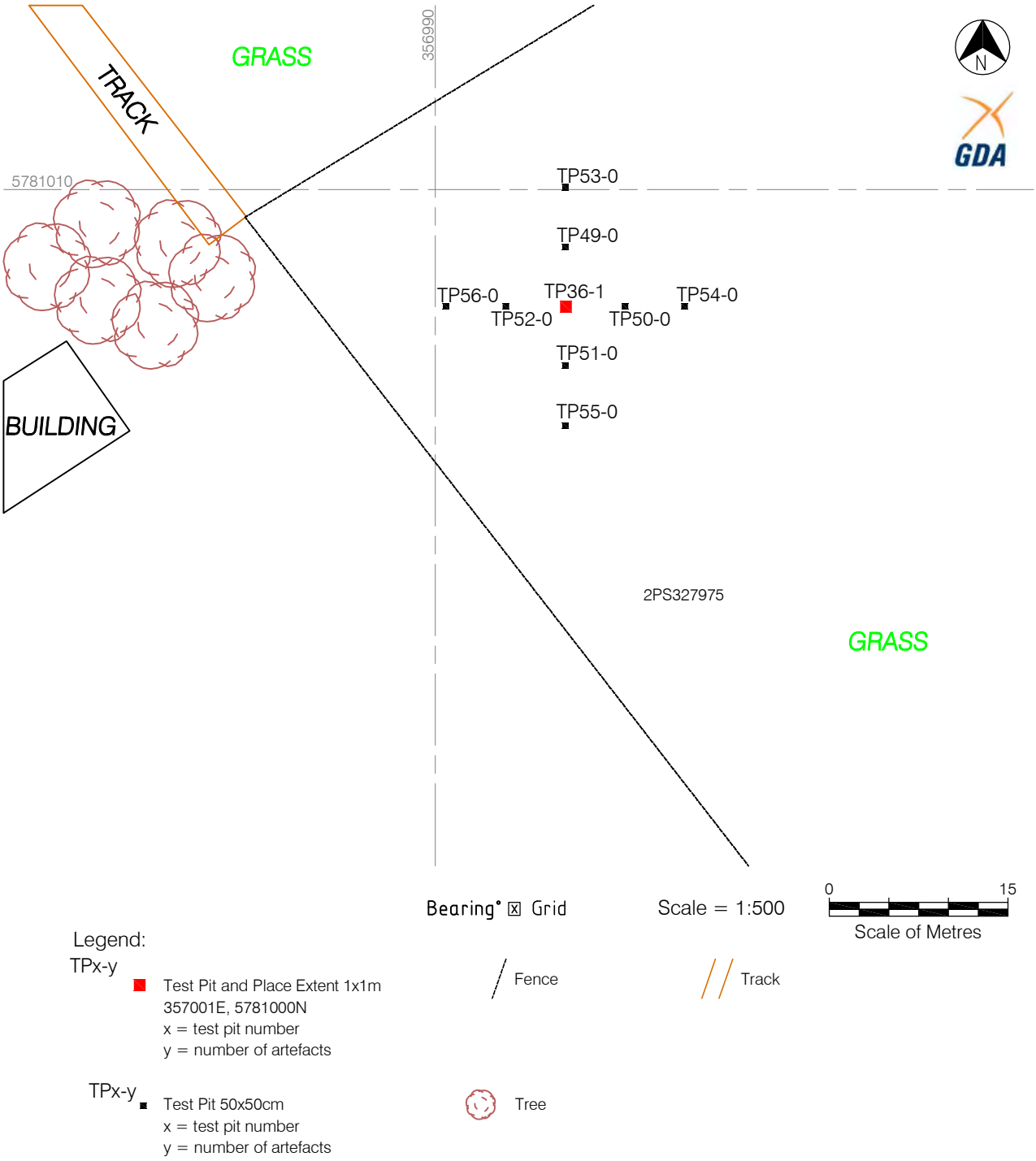
Significance

VAHR 7921-1420 has not been attributed by the relevant Aboriginal groups having cultural significance (Section 8.2). Based on the nature of the place and its scientific attributes, VAHR 7921-1420 has been assessed having *extremely low* scientific (archaeological) significance (s.4 *Aboriginal Heritage Act 2006*; see Appendix 6).

8.6.2 VAHR 7921-1426: Extent, Nature and Significance (Map 14)

Place Name:	1505-1525 (Lot 2) Pound Road Clyde North IA 2
VAHR No:	7921-1426
Place Type:	Artefact scatter
Primary Grid Coordinate*:	357001E 5781000N
Published Map No:	(1:30K) 7921-1-4-2
Cadastre:	2 PS327975 / Parish of Cranbourne / City of Casey
Test Pits:	TP36 (n=1)
Contents:	One quartz complete flake
Vertical Artefact Distribution:	20cm – 25cm
Artefact Density per m^2:	Maximum=1; Minimum=1; Average=1
Typical Soil Profile Description:	0-5cm weak brown sandy silt 5-30cm weak light brown silty sand 30-65cm weak light brown & grey mottled sand 65cm↓ strong yellow & gray mottled clay
Known Extent:	1m (length), 1m (width), 10cm (depth), 1m^2 (area)
Disturbance:	Stock trampling
Location:	200m bearing 78° from the intersection of Hardys Road & Pound Road, Clyde North
Geomorphic Unit:	Eastern Plains (7) – Central Sunklands (7.1) – Coastal plains with ridges and dunefields (7.1.1)
Landsystem Code:	8.5fFq7-1
Landform:	Present flood plain – gentle very low rise – lower slope
Bioregion & EVC:	Gippsland Plain: Plains Grassland / Plains Grassy Woodland Mosaic (EVC897)
Waterways:	2.14km southwest of Cardinia Creek & 830m southwest of drainage line
Scientific Significance:	Extremely low

*GDA94 MGA Zone 55



Map 14 VAHR 7921-1426: Known Extent of Place

(Melway Ref: 135 H3)

Photo 10

VAHR 7921-1426 place location facing southwest

Photo 11

VAHR 7921-1426 artefact

Extent

The known place dimensions measure approximately 1m (length), 1m (width), 25cm (depth) and 1m^2 (area). The extent is determined by the presence of artefacts found in test pits TP36.

Nature

VAHR 7921-1426 is a subsurface isolated artefact comprising one quartz flake. Excavation demonstrated that the artefact was associated with a light brown silty sand soil horizon. Due to the surficial depth of the artefact, it is likely that the soil horizon has been disturbed by at least stock trampling. There was no evidence of high integrity occupation deposits or features, stratified or otherwise (Appendix 2). No suitable material was available for radiometric dating or environmental analyses. The evidence demonstrated that the place likely represents casual artefact discard or loss. No evidence was found for significant stone reduction sequences, tool manufacturing workshops, long-term camping or food preparation.

Significance

VAHR 7921-1426 has not been attributed by the relevant Aboriginal groups having cultural significance (Section 8.2). Based on the nature of the place and its scientific attributes, VAHR 7921-1426 has been assessed having *extremely low* scientific (archaeological) significance (s.4 *Aboriginal Heritage Act 2006*; see Appendix 6).

8.7 Areas Likely to Contain Aboriginal Cultural Heritage but will Not be Impacted

No areas that will not be impacted by the activity and likely to contain Aboriginal cultural heritage were identified.

8.8 Conclusions

The complex assessment has demonstrated that:

- The known cultural heritage values comprise artefact scatters VAHR 7921-1420 and 7921-1426
- VAHR 7921-1420 and 7921-1426 have extremely low scientific significance.
- VAHR 7921-1420 and 7921-1426 have no research potential (Section 8.6).
- The activity is unlikely to harm any undetected Aboriginal cultural heritage values.
- Any additional Aboriginal cultural heritage, if present, is unlikely to have significant scientific or research value.

9 CONSIDERATION OF SECTION 61 MATTERS – IMPACT ASSESSMENT

9.1 VAHR 7921-1420

9.1.1 Can Harm be Avoided?

Harm cannot be avoided because the place locations are located in development areas. The City of Casey also requires open space to be unencumbered. In addition, VAHR 7921-1420 has extremely low scientific significance, no research potential and there is unlikely to be any additional cultural material associated with the place. The place is defined by its archaeological component which has been removed, recorded and data preserved on ACHRIS.

9.1.2 Can Harm be Minimised?

Due to the shallow depth of the stone artefact, the nature of ground disturbance required for the subdivision of land, and the reasons stated in Section 9.1.1, harm cannot be minimised.

9.1.3 Are Specific Management Measures Required?

The only management measure relates to the stone artefact found during the complex assessment (Section 9.4). No salvage is required for the following reasons:

1. The place has extremely low scientific significance.
2. The place is unlikely to contain additional cultural material.
3. The archaeological component has been removed, recorded and preserved on ACHRIS.
4. The place has no research potential.
5. Salvage excavation is unlikely to make any contribution to knowledge of the place, the activity area or the geographic region.

9.2 VAHR 7921-1426

9.2.1 Can Harm be Avoided?

Harm cannot be avoided because the place locations are located in development areas. The City of Casey also requires open space to be unencumbered. In addition, VAHR 7921-1426 has extremely low scientific significance, no research potential and there is unlikely to be any additional cultural material associated with the place. The place is defined by its archaeological component which has been removed, recorded and data preserved on ACHRIS.

9.2.2 Can Harm be Minimised?

Due to the shallow depth of the stone artefact, the nature of ground disturbance required for the subdivision of land, and the reasons stated in Section 9.2.1, harm cannot be minimised.

9.2.3 Are Specific Management Measures Required?

The only management measure relates to the stone artefact found during the complex assessment (Section 9.4). No salvage is required for the following reasons:

1. The place has extremely low scientific significance.
2. The place is unlikely to contain additional cultural material.
3. The archaeological component has been removed, recorded and preserved on ACHRIS.
4. The place has no research potential.
5. Salvage excavation is unlikely to make any contribution to knowledge of the place, the activity area or the geographic region.

9.3 Contingency Plan

A Contingency Plan is required by the Act and Regulations (s.61(d) *Aboriginal Heritage Act 2006*, sch.2, cl.13 *Aboriginal Heritage Regulations 2007*). The Contingency Plan is manages potential issues including: specific measures in the unlikely event that any Aboriginal cultural heritage beyond known cultural heritage will be unexpectedly discovered during the activity; any contingency plans required in relation to disputes, delays and other obstacles that may affect the conduct of the activity; reviewing compliance with the cultural heritage management plan and mechanisms for remedying non-compliance; the notification of the discovery of Aboriginal cultural heritage during the carrying out of the activity; and requirements relating to the custody and management of any Aboriginal cultural heritage found during the course of the activity. The Contingency Plan is presented in Section 11.

9.4 Custody and Management of Aboriginal Cultural Heritage

Stone artefacts retrieved during the complex assessment are currently held by the heritage advisor. Custody and management of these stone artefacts must be conducted according to Section 10.4. Any Aboriginal cultural heritage found during the conduct of the activity must be dealt with according to the Contingency Plan (Section 11.3.2).

PART 2 – CULTURAL HERITAGE MANAGEMENT RECOMMENDATIONS

10 SPECIFIC CULTURAL HERITAGE MANAGEMENT REQUIREMENTS

These recommendations become compliance requirements once the Cultural Heritage Management Plan is approved.

Based on the findings of this report the following recommendations are made:

10.1 VAHR 7921-1420 (Map 15)

Harm to VAHR 7921-1420 cannot be avoided or minimised (see Sections 9.1.1 & 9.1.2). Based on lack of research potential or likelihood of additional material, no management measures are required (see Section 9.1.3). No harm avoidance, minimisation or management measures are required prior to the activity commencing.

10.2 VAHR 7921-1426 (Map 15)

Harm to VAHR 7921-1426 cannot be avoided or minimised (see Sections 9.2.1 & 9.2.2). Based on lack of research potential or likelihood of additional material, no management measures are required (see Section 9.2.3). No harm avoidance, minimisation or management measures are required prior to the activity commencing.

10.3 Contingency Plan

The Contingency Plan presented in Section 11 must be adopted.

10.4 Custody and Management of Aboriginal Cultural Heritage

Stone artefacts retrieved during the complex assessment are currently held by the heritage advisor. Artefacts will be retained by the cultural heritage advisor until the plan is approved or until a RAP is approved, whichever is earlier. If no RAP is approved then custody of the artefacts will be offered to the following in order of priority:

- any relevant registered native title holder
- any relevant native title party
- any relevant Aboriginal person or persons with traditional or familial links
- any relevant Aboriginal body or organisation which has historic or contemporary interest in Aboriginal heritage
- the owner of the land
- the Museum of Victoria (s.61(e))

If no party accepts custody of the artefact, then the Sponsor must ensure the artefact is reburied as close to the original place location as practical within four weeks after the completion of the activity. The reburial location must be documented to submeter accuracy using GDA94 MGA coordinates and reported to AAV.

Any Aboriginal cultural heritage found during the conduct of the activity must be dealt with according to the Contingency Plan.

Aerial Photograph Courtesy of Nearmap Website 2012

0 100 200
Scale of Metres

Legend:

Activity Area Boundary
48.35 hectares (approx)

xxxx Artefact Scatter
VAHR 7921-xxxx

N

GDA
Zone 55

Map 15 VAHR 7921-1420 & 7921-1426: No Management Measures Required

11 CONTINGENCY PLAN

This Contingency Plan is required to manage potential issues including: specific measures in the unlikely event that any Aboriginal cultural heritage beyond known cultural heritage will be unexpectedly discovered during the activity; any contingency plans required in relation to disputes, delays and other obstacles that may affect the conduct of the activity; reviewing compliance with the cultural heritage management plan and mechanisms for remedying non-compliance; the notification of the discovery of Aboriginal cultural heritage during the carrying out of the activity; and requirements relating to the custody and management of any Aboriginal cultural heritage found during the course of the activity. The Sponsor must ensure that the relevant Contingency Plan is followed. To assist in this aim, a checklist has been provided (Appendix 10).

11.1 Changes to Section 61 Matters or the Activity

The *Aboriginal Heritage Act 2006* requires a new CHMP to be prepared in the following circumstances:

1. Changes to the activity or actions that are inconsistent with this CHMP.
2. Changes to the activity that will require a statutory authorisation (eg an amendment to a planning permit).

Actions which are considered as inconsistent to an approved plan are described in Part 6 (81(1)(a)(b)(c)) of the *Aboriginal Heritage Act 2006*. This section indicates that when the Sponsor of an approved plan has (a) contravened or is likely to contravene the recommendations in the plan or (b) the impact on Aboriginal cultural heritage will be greater than that determined at the time the plan was approved then the Minister may order a cultural heritage audit.

A cultural heritage audit must be conducted by/or under the direction of an inspector or a cultural heritage advisor who will prepare (at the Sponsors cost) a report to the Minister to determine whether a contravention to the plan has occurred. If the Minister orders a cultural heritage audit, then a stop order (Part 6, Division 2, 5.87) will also be issued to the Sponsor for the activity, whilst the audit is underway. The Sponsor is referred to Part 6 of the *Aboriginal Heritage Act 2006* for full details relating to management of plan inconsistencies.

Statutory authorisations are described in s.50 *Aboriginal Heritage Act 2006*. A decision maker must not grant a statutory authorisation for the activity if the activity would be inconsistent with the approved CHMP (s.52(3) *Aboriginal Heritage Act 2006*).

If the custody and management arrangements established by the CHMP must change, then any Aboriginal cultural heritage should be returned to the 'owner' of that heritage.

11.2 Dispute Resolution between the RAP and the Sponsor

As there is no RAP currently appointed for the activity area to evaluate the CHMP, contingency plans for dispute resolution in relation to the implementation of the CHMP or the conduct of the activity is not applicable.

11.3 Management of Aboriginal Cultural Heritage Discovered during the Activity

This contingency plan includes discovery, notification, evaluation, section 61 matters and reporting procedures. This contingency plan must be followed if any unexpected cultural heritage is discovered during the activity. In the activity area unexpected cultural heritage comprises:

1. Human remains (see Section 11.3.1).

2. Stone artefact scatters that contain cultural heritage attributes which, when assessed, are below the analytical threshold of moderate scientific significance outlined in Appendix 6 (see Section 11.3.2).
3. Stone artefact scatters that contain cultural heritage attributes which, when assessed, equal or exceed the analytical threshold of moderate scientific significance outlined in Appendix 6 (see Section 11.3.2).
4. All other place-types not mentioned above (see Section 11.3.2).

11.3.1 Discovery of Human Skeletal Remains

If any suspected human remains are found during the activity, works must cease. The Victoria Police and the State Coroner's Office should be notified immediately. If there are reasonable grounds to believe that the remains are Aboriginal, the Department of Sustainability and Environment's Emergency Coordination Centre must be contacted immediately on 1300 888 544. This advice has been developed further and is described in the following 5 step contingency plan. Any such discovery at the activity area must follow these steps.

1 Discovery:

- If suspected human remains are discovered, all activity in the vicinity must *stop* to ensure minimal damage is caused to the remains; and
- The remains must be left in place, and protected from harm or damage.

2 Notification

- Once suspected human skeletal remains have been found, the Coroner's Office and Victoria Police must be notified immediately;
- If there is reasonable grounds to believe that the remains could be Aboriginal, the DSE Emergency Coordination Centre must be immediately notified on 1300 888 544;
- All details of the location and nature of the human remains must be provided to the relevant authorities; and
- If it is confirmed by these authorities that the discovered remains are Aboriginal skeletal remains; the person responsible for the activity must report the existence of the human remains to the Secretary, DPCD, in accordance with s.17 of the Act.

3 Impact Mitigation or Salvage:

- The Secretary, after taking reasonable steps to consult with any Aboriginal person or body with an interest in the Aboriginal human remains, will determine the appropriate course of action as required by s.18(2)(b) of the Act;
- An appropriate impact mitigation or salvage strategy as determined by the Secretary must be implemented. This will depend on the circumstances in which the remains were found, the number of burials found and the type of burials, and the outcome of consultation with any Aboriginal person or body.

4 Curation and Further Analysis:

- The treatment of salvaged Aboriginal human remains must be in accordance with the direction of the Secretary.

5 Reburial:

- Any reburial site(s) must be fully documented by an experienced and qualified archaeologist, clearly marked and all details provided to AAV;

- Appropriate management measures must be implemented to ensure that the remains are not disturbed in the future.

11.3.2 Management of Other Aboriginal Cultural Heritage

1. A person making such a discovery will immediately suspend any relevant works at the location and within a 10m radius of the relevant place extent.

2. If not already in attendance, that person shall immediately notify the nominated Project Delegate for AAV and the nominated Project Delegate for the Sponsor.

Sponsor – Project Delegate	Joe Nasr Dennis Family Corporation for Pound Road Clyde Pty Ltd Strategic Planning Manager 211 Waverley Road East Malvern VIC 3145 P 03 9573 1205 E JNasr@denniscorp.com.au

3. The Sponsor's Project Delegate will notify the heritage advisor, and if necessary to prevent any further disturbance, the location will be isolated by a fence, safety webbing or other suitable barrier and works may recommence outside this 10m area of exclusion.

4. The heritage advisor will evaluate the Aboriginal cultural heritage. The heritage advisor will determine if it is part of an already known place or should be registered as a new place. The heritage advisor must report the discovery to the Secretary by updating and / or completing place records and advise on possible management strategies.

5. The heritage advisor will facilitate the involvement of the RAP in the onsite investigation and assessment of significance of the Aboriginal cultural heritage.

6. If the Aboriginal cultural heritage is assessed by the heritage advisor, in consultation with the RAP, as a place with below moderate scientific significance or no specific cultural significance, then after recording the material, no further management is required and works may proceed. The heritage advisor must submit relevant documentation to Site Registry, AAV.

7. If other Aboriginal cultural heritage is discovered, the heritage advisor in consultation with the RAP and the Sponsor, must explore all options to avoid impact to the Aboriginal cultural heritage. If impact is unavoidable, then it must be minimised where possible and salvage excavation of the Aboriginal cultural heritage undertaken to minimise impact, if considered appropriate by the heritage advisor. In consultation with the RAP salvage excavation methodology must be carried out in accordance with proper archaeological practice taking into account occupational health and safety issues. After recording the material works may proceed. The heritage advisor must complete the appropriate Victorian Aboriginal Heritage Registry forms and submit a report to AAV detailing the results of excavations. If human remains are discovered the contingency in Section 11.3.1 must be followed.

8. Within a period not exceeding three (3) working days a decision must be made by the heritage advisor in consultation with the RAP and the Sponsor, as to the process to be followed to manage the Aboriginal cultural heritage in a culturally appropriate manner, and how to proceed with the works.

Failure of parties to reach an agreed course of action in this manner will be classed as a Dispute under this agreement;

9. Work may recommence within the 10m radius exclusion zone:

    - When the appropriate protective measures have been taken;
    - Where the relevant Aboriginal cultural heritage records have been updated and / or completed;
    - Where all parties agree there is no prudent or feasible course of action; or
    - Once any relevant dispute has been resolved.

10. Where relevant, the cultural heritage advisor, Sponsor and RAP will ensure that the above steps are followed and that legal obligations and requirements are complied with at all times.

11. Custody and management of any artefactual material discovered during the activity must be arranged by the cultural heritage advisor in consultation with the RAP. Currently there is no relevant RAP for the activity area. All artefacts will be stored in bags that have provenance information recorded on the labels. Artefacts will be retained by the cultural heritage advisor for 12 months after the activity is completed or until a RAP is approved, whichever is earlier. If no RAP is approved then custody of the artefacts will be offered in order of priority to the following:

    - Any relevant Native Title holder
    - Any relevant person/s with traditional or familial links
    - Any relevant Aboriginal body with historical or contemporary interests
    - The land owner
    - The Museum of Victoria (s.61(e))

11.4 Notification of the Discovery of Aboriginal Cultural Heritage found during the Activity

The notification of the discovery of Aboriginal cultural heritage is dealt with in Section 11.3 above. Please note that there is different notification procedures for the discovery of human skeletal remains (Section 11.3.1, point 2) compared to all other Aboriginal cultural heritage (Section 11.3.2, point 2).

11.5 Reviewing Compliance with the CHMP and Mechanisms for Remedying Non-Compliance

Review of this plan can be undertaken at any time by project delegates representing the Sponsor and AAV, or an agreed independent reviewer, to ensure that all parties are complying with the terms of the plan. A checklist is provided in Appendix 10.

APPENDIX 1 – NOTICE OF INTENT TO PREPARE A MANAGEMENT PLAN DOCUMENTATION

DENNIS FAMILY CORPORATION

9 March 2012

Ms Nancye Gearon
1505 – 1525 Pound Road
CLYDE NORTH VIC 3978

Dear Ms Gearon,

I wish to provide notice that a Cultural Heritage Management Plan (CHMP) is to be prepared in regards to your land identified on the attached *Notice of Intent to prepare a Cultural Heritage Management Plan for the purposes of the Aboriginal Act 2006.*

Archaeology at Tardis Pty Ltd have been employed to undertake the preparation of the CHMP. Access to the site will be required to undertake field work.

Should you have any questions relating to any of the above, please do not hesitate to contact me on (03) 9573 1205 or jnasr@denniscorp.com.au

Yours faithfully,

Joseph Nasr
on behalf of Pound Road Clyde Trust

HEAD OFFICE
211 Waverley Road, East Malvern Victoria 3145 Australia
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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 1800-762-003.

SECTION 1 – Sponsor information (mandatory)

Sponsor (*natural person or body corporate seeking to undertake the activity*):	Pound Road Clyde Trust
ABN/ACN:	ABN: 36535154270
Contact name:	Joseph Nasr
Postal Address:	211 Waverley Road, East Malvern, Vic, 3145
Telephone Number	(03) 9573 1205 Fax number: (03) 9573 2205
Mobile:	0408 517 406
Email Address:	jnasr@denniscorp.com.au

Sponsor's agent (if relevant)

Company:	Archaeology At Tardis
Contact name:	Dr Tom Rymer
Postal Address:	PO Box 776, Beaconsfield
Telephone Number	(03) 9676 9009 Fax number:
Mobile:	
Email Address:	trymer@tardisenterprises.com.au

SECTION 2 – Description of proposed activity and location

Project Name: 1505 - 1525 (Lot 2) Pound Road, Clyde North

List the relevant municipal district/s (ie, Local Council or Shire): City of Casey

Clearly identify the proposed **activity** for which the cultural heritage management plan is to be prepared (ie, mining, road construction, housing subdivision):

Residential subdivision and development, incorporating housing, roads, open space areas and associated services and infrastructure

Clearly identify the **location** (such as listing cadastral information, attaching a copy of a title search, or indicating the street address):

1505 - 1525 (Lot 2) Pound Road, Clyde North (Lot 2 on PS 327975F) - Melways Ref 135 H4

Attach a map (to scale, with a north arrow and indicating the municipal district - if any) that clearly identifies the activity area and its boundaries in respect of which the cultural heritage management plan is to be prepared.

- Please ensure the map refers to existing roads and features, rather than proposed roads and features, and includes their names.
- Please ensure the map has the activity area outlined on it (this area should include all works relating to the proposed activity including location of temporary buildings, space for machinery, etc).
- The map should have a legend; at least three readily identifiable geographical locations (such as road intersections, parcel boundaries, or road/river crossings) and should state the map's projection.
- **Spatial data (ie a GIS file) containing the Activity Area will assist in the processing of your notification**. Please refer to "Lodging Spatial Data in the VAHR" on the AAV website for further information.

SECTION 3 – Cultural Heritage Advisor

If you would like a Cultural Heritage Advisor (a person who has the qualifications or experience [or both] required under s.189 of the Act) notified of the status of this Cultural Heritage Management Plan, please provide the following details for that person:

Name	Company (if any)	Email address
Dr Tom Rymer	Archaeology At Tardis	trymer@tardisenterprises.com.au

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

Start date 12 / 3 / 2012 *Finish date* 12 / 3 / 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? _____

Is any part of the activity in an area of cultural heritage sensitivity, as listed in the regulations? **Yes** / **No** (*please circle*)

☒ Other reasons (Voluntary)

☐ An Environmental Effects Statement is required

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

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

This section is to be completed only where there is a registered Aboriginal party in relation to the management plan

SECTION 7 – Signature of Sponsor

I certify that to the best of my knowledge and belief that the information supplied is correct and complete.

Signed: _____ *Date:* 7 / 3 / 2012

[Sponsor]

SECTION 8 – Notification checklist

☒ Ensure appropriate attachment/s are completed and attached to this notification (see section 2 of this form).

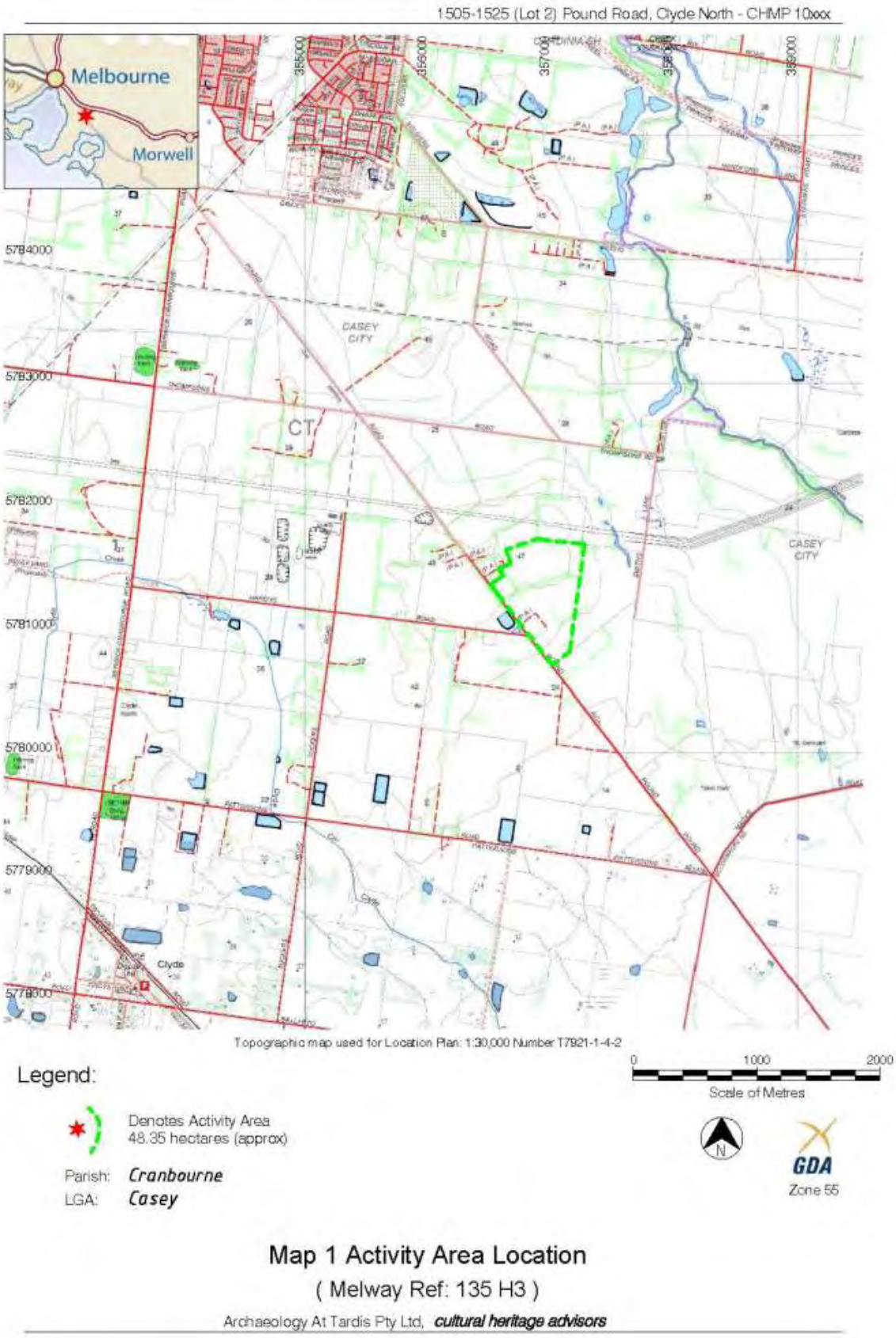
Please ensure this notice and all attached items are sent to the:

Deputy Director
Aboriginal Affairs Victoria
Department of Planning and Community Development
GPO Box 2392
MELBOURNE VIC 3001

OR ***Email: vahr@dpcd.vic.gov.au***

Notes:

- **Ensure that any relevant registered Aboriginal party/s is also notified. A copy of this notice 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 registered 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 may be used for this purpose.**



Map 1 Activity Area Location

(Melway Ref: 135 H3)

Archaeology At Tardis Pty Ltd, ***cultural heritage advisors***

APPENDIX 2 – GLOSSARY

Anvil: A portable flat stone, usually a river pebble, which has been used as a base for working stone. Anvils that have been used frequently have a small circular depression in the centre where cores were held while being struck. An anvil is often a multifunctional tool used also as a grindstone and hammer stone.
Archaeological Site: A place/location of either Aboriginal or non-Aboriginal origin. Aboriginal archaeological sites have been formed prior to the European settlement of Australia, and may be in any of the forms outlined above.
Artefact: Any product made by human hands or caused to be made through human actions.
Artefact Horizon: A discernable horizontal distribution of artefacts within a natural soil horizon. An artefact horizon has generally suffered a degree of post depositional disturbance that has affected the spatial and temporal integrity of the deposits and associated artefact assemblage.
Artefact Scatter: A scatter of cultural material, most commonly stone artefacts. Artefact scatters are often the only physical remains of places where Aboriginal people have camped, prepared and eaten meals and worked stone material.
Blade: A long parallel sided flake from a specially prepared core. Blade flakes are twice as long as they are wide.
Bipolar: A core or a flake, which, presumably, has been struck on an anvil. That is, the core from which the flake has been struck has been rotated before the flake has been struck off. Bifacial platforms tend to indicate that the flake has come off a heavily worked core.
Broken Flake: Defined by the part of the flake remaining, ie proximal (where the platform is present), medial (where neither the platform nor termination is present), or distal (where the termination is present).
Complete Flake: An artefact exhibiting a ventral surface (where the flake was originally connected to the core), dorsal surface (the surface that used to be part of the exterior of the core, platform and/or flake scar).
Core: An artefact from which flakes have been detached using a hammer stone. Core types include blade, single platform, multiplatform and bipolar forms. These artefacts exhibit a series of negative flake scars, each of which represents the removal of a flake. Core types are as follows:

- *Unidirectional cores* - These cores have scars originating from a single platform, and all the flakes struck from the core have been struck in the same direction from that platform.
- *Bidirectional cores* - These cores have two platforms, one opposite the other; flakes have been struck from each of the platforms, and thus from opposite directions.
- *Bifacial cores* - These kinds of core have a single platform, but the flakes struck from it have been detached from two core faces.
- *Multidirectional cores* - These cores have two or more platforms and there is no clear pattern, either in the orientation of the platforms or in the orientation of the scars resulting from the striking of flakes from those platforms.
- *Bipolar core* - Nodules or cobbles that are flaked using an anvil. The resulting artefacts exhibit crushing on their proximal, distal and often their lateral margins, where they have been rotated.

Cultural Heritage: Something that is inherited or passed down because it is appreciated and cherished. Categories of cultural heritage include; built structures and their surrounds, gardens, trees; cultural landscapes; sites; areas; precincts; cemeteries; ruins and archaeological sites; shipwrecks; sites of important events; commemorative sites; contents of buildings and significant relics, objects artefacts and collections of objects.
Burials: Burial places may occur in association with campsites, in mounds or shell middens or in specific burial grounds that lack any other cultural material. Softer ground was chosen for burials, and any sandy area can be expected to contain burials. Burial places can contain one or a number of individuals. Burials places and cemeteries are a common archaeological place type in the sand country adjoining the Murray River, though are a rare feature in the southern part of Victoria.
Contact Place: These are places relating to the period of first contact between Aboriginal and European people. These places may be associated with conflict between Aboriginal people and settlers, mission stations or reserves, or historic camping places. The artefact assemblage of contact places will often include artefacts manufactured from glass.
Hearth: Usually a subsurface feature found eroding out of a river or creek bank or in a sand dune - it indicates a place where Aboriginal people cooked food. The remains of a hearth are usually

identifiable by the presence of charcoal and sometimes clay balls (like brick fragments) and hearth stones. Remains of burnt bone or shell are sometimes preserved within a hearth.

High Integrity Occupation Deposit: The laying down of deposits by human activities that bury artefacts to form distinct stratigraphic entities such as layers (eg dense lens of stone artefacts & bone between environmental deposits, stratified shell deposits) or features (hearths, occupation mounds). High integrity occupation deposits have a high degree of spatial and temporal integrity.

Holocene Period: The time from the end of the Pleistocene Ice Age (c 10,300 BP) to the present day.

Lithic: Anything made of stone.

Middens: Midden is a term borrowed from the Danish. It originally applied to the accumulations of shell and other food remains left by Mesolithic man. Australian middens are an accumulation of hearth and food debris, which has built up a deposit over a length of time. Middens are generally comprised of charcoal and either freshwater or coastal shell species, depending on the place's location. Middens may also contain stone artefacts, and the food refuse of other native animals such as small mammals. The thick deposit of burnt shells and dark grey/black deposit can distinguish middens within the landscape. Coastal shell middens are often found in close association with rock platforms. Freshwater shell middens are found in close proximity to areas with freshwater mussels.

Mounds: Mounds are accumulation of hearth (fire place) debris, which has over time built a thick deposit on the ground's surface. Mounds are generally comprised of charcoal; burnt clay balls and burnt food refuse (eg native animal bones). Mounds may also contain stone artefacts. On rare occasions mounds may also contain human burial remains. Mounds can be distinguished in the landscape by their characteristic dark grey/black deposit and height above surrounding land. Mounds that have been utilised over long periods can obtain dimensions of over 100 metres in length and 1 metre in height. Mounds are generally situated close to major streams, and large water bodies. In times of flood, mounds are often become marooned, and provide dry land points from which surrounding resources could have been exploited.

Occupation Surface: A distinct layer or interface between depositional strata upon which human activities were carried out and artefacts/features deposited. Most commonly this may be a prior land surface (eg soil horizon) that has been subsequently buried by later environmental deposits (eg dune deposits).

Pleistocene: The geological period corresponding with the last or Great Ice Age. The onset of the Pleistocene is marked by an increasingly cold climate. The date for the start of the Pleistocene is not well established, and estimates vary from 3.5 to 1.3 million years ago. The period ends with the final but gradual retreat of the ice sheets, which reached their present conditions around 10,300 BP.

Raw Material: Organic or inorganic matter that has not been processed by people.

Scarred Tree: Scars on trees may be the result of removal of strips of bark by Aboriginal people for the manufacture of utensils, canoes or for shelter; or resulting from small notches chopped into the bark to provide toe and hand holds to climber after possums, koalas and/or views of the surrounding area. A scar made by humans as opposed to naturally made by branches falling off, *etc*. is distinguished by the following criteria: symmetry and rounded ends, scar does not extend to the ground, some re-growth has occurred around the edges of the scar, and no holes or knots present in the heartwood.

Sensitivity: Based on collated existing data and place inspection an area or specific place may contain sensitivity for extant or archaeological deposits. Background research will present the most likely place types, contents and state of preservation.

Visibility: Refers to the degree to which the surface of the ground can be observed. It is generally expressed in terms of the percentage of the ground's surface visible for an observer on foot (Bird 1992). For example 10% visibility equates to 10cm^2 per 1 m^2 of ground surface that is not covered by vegetation or soil deposit. The following applies to descriptions of ground surface visibility within this report.

0%	No visible ground surface	50 – 70%	Good
0 – 10%	Very Poor	70 – 90%	Very Good
10 – 30%	Poor	90 – 100%	Excellent

30 – 50% Fair

Aeolian Sediments: Wind-borne, wind-blown or wind-deposited material, usually sand, but also silt and clay.

Alluvium: Sedimentary unconsolidated deposits lain down through the action of running water. Usually found in or near rivers and floodplains. It is usually applied to coarser sediments such as sands and gravels, but sometimes to finer particles such as silt and clay.

Basalt: Fine-grained, hard, but easily weathered dark-grey igneous rock formed by the cooling of lava.

Bedrock: Solid rock at the surface or rock at depth that has been undisturbed by weathering.

Calcareous: A sediment containing calcium carbonate in concentrations of up to 50%.

Coffee Rock: A term used to describe a hardened iron- and organic-rich cemented deposit that when wet, resembles coffee grains. It is usually found in sandy soils that have a source of iron and organic matter.

Colluvium: An unconsolidated mixture of weathered material (gravel, sand, silt and clay) transported downslope by the force of gravity.

Dune: A mound or ridge of wind-blown granular material (usually sand) that is partially, fully or bare of vegetation, and capable of being moved from one location to another while still retaining its characteristic shape.

Ferruginous: Rocks or soils containing a large percentage of iron.

Ferruginisation: The process by which iron minerals move in the sediment and/or regolith, staining and cementing the substrate to form a hard, iron-rich layer.

Fluvial: Referring to rivers and their processes. E.g. stream erosion and deposition.

Groundwater: Water that lies within the saturated zone of rock and soil. It moves between pore spaces, cavities and fractures in the sediment and rock under the influence of gravity. Groundwater can transport trace minerals and elements dissolved in the water.

Iron Staining: Where a crust of iron oxide enriched clay coating precipitates on the surfaces of individual sediment grains, giving an orange-red-yellow stain to the sediment or soil as a whole.

Last Glacial Maximum: A period of cold, dry conditions on Earth when the ice caps on the polar regions were at their largest extent. This period lasted between approximately 18-24 ka BP.

Metamorphism: The process by which rocks are transformed by recrystallisation due to increased heat and/or pressure in the Earth's crust. Metamorphism can be either on a regional scale or on a contact scale.

Regolith: An incoherent mantle of varying thickness that lies above fresh rock. This is usually the decomposed, weathered and broken up derivative of the fresh bedrock. The soil profile lies above this layer.

Sand Sheet: A thin, continuous deposit of sand with no large topographic features on the surface.

Scoria: Pyroclastic volcanic rock containing numerous gas pockets and spaces. Colour ranges from red-brown to black.

Siliceous: Rocks and sediments that contain an abundance of silica.

Stony Rise: Irregular, hummocky and stony ground formed on younger lava flows. Caused by uneven cooling and slumping of basalt flows.

Swale: A linear depression that runs between two ridges. This is usually applied to dune environments where the swale is located between two dune ridges and is occupied by a swampy environment.

Terrace: A gently sloping or flat step-like structure usually associated with a fluvial environment and bounded by steeper slopes on the outer margins. Streams commonly flow along terraces. Terraces can be paired or unpaired according to the depositional environment.

Uplift: Upward surface movement attributed to faulting or movement of the continental plates.

Weathering: The process by which fresh rock degrades/breaks down at or near the surface. This process modifies rock chemically, organically, and/or physically, whereby a mantle of waste known as regolith will remain *in situ* until it is eroded away.

APPENDIX 3 – PLACE GAZETTEER

VAHR No	Place Name	Primary Grid Coordinate*	Place Type
7921-1420	1505-1525 (Lot 2) Pound Road Clyde North IA 1	356905E 5781405N	Artefact scatter
7921-1426	1505-1525 (Lot 2) Pound Road Clyde North IA 1	357001E 5781000N	Artefact scatter

*GDA94 MGA Zone 55

APPENDIX 4 – EXCAVATION INVENTORY

Test Pit Details

VAHR No	No	Easting[1]	Northing[1]	Extent[2]	Depth[3]	Arts[4]	Distribution[5]	Landform / Disturbance	Profile Description	PH
-	TP1	356900	5781700	50 x 50	25	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-25cm weak orangey brown silt [3] 25cm↓ strong mid orange clay	6
-	TP2	357000	5781700	50 x 50	35	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-12cm weak light brown sandy silt with gravel [3] 12-35cm weak orangey brown silt [4] 35cm↓ strong mid orange clay	6
-	TP3	356800	5781600	50 x 50	35	-	-	US, C, H / ST, VC	1] 0-5cm weak mid brown sandy silt [2] 5-22cm weak light brown sandy silt with gravel [3] 22-50cm weak orangey brown silt [4] 50cm↓ strong mid orange clay	6
-	TP4	356900	5781600	50 x 50	40	-	-	US, C, H / ST, VC	1] 0-5cm weak mid brown sandy silt [2] 5-12cm weak light brown sandy silt with gravel [3] 12-40cm weak orangey brown silt [4] 40cm↓ strong mid orange clay	6
-	TP5	357000	5781600	50 x 50	30	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-12cm weak light brown sandy silt with gravel [3] 12-35cm weak orangey brown silt [4] 35cm↓ strong mid orange clay	6
-	TP6	357100	5781600	50 x 50	40	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-18cm weak light brown sandy silt with gravel [3] 18-40cm weak orangey brown silt [4] 40cm↓ strong mid orange clay	6
-	TP7	357200	5781600	50 x 50	30	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-22cm weak light brown sandy silt with gravel [3] 22-30cm weak orangey brown silt [4] 30cm↓ strong mid orange clay	6
-	TP8	356700	5781600	50 x 50	50	-	-	US, C, H / ST, VC	[1] 0-10cm weak mid brown sandy silt [2] 10-30cm weak light brown silty sand [3] 30-50cm weak pale brown / pale grey sand [4] 50cm↓ strong mid grey / mid orange clay	6

VAHR No	No	Easting[1]	Northing[1]	Extent[2]	Depth[3]	Arts[4]	Distribution[5]	Landform / Disturbance	Profile Description	PH
-	TP9	356700	5781500	50 x 50	42	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-22cm weak light brown sandy silt with gravel [3] 22-42cm weak orangey brown silt [4] 42cm↓ strong mid orange clay	6
-	TP10	356800	5781500	50 x 50	33	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-20cm weak light brown sandy silt with gravel [3] 20-33cm weak orangey brown silt [4] 33cm↓ strong mid orange clay	6
-	TP11	356900	5781500	50 x 50	40	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-18cm weak light brown sandy silt with gravel [3] 18-40cm weak orangey brown silt [4] 40cm↓ strong mid orange clay	6
-	TP12	357000	5781500	50 x 50	35	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-18cm weak light brown sandy silt with gravel [3] 18-35cm weak orangey brown silt [4] 35cm↓ strong mid orange clay	6
-	TP13	357100	5781500	50 x 50	35	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-20cm weak light brown sandy silt with gravel [3] 20-35cm weak orangey brown silt [4] 35cm↓ strong mid orange clay	6
-	TP14	357200	5781500	50 x 50	55	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-25cm weak light brown silty sand [3] 25-55cm weak pale brown / pale grey sand [4] 55cm↓ strong mid grey / mid orange clay	6
-	TP15	356600	5781400	50 x 50	50	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-22cm weak light brown silty sand [3] 22-50cm weak pale brown / pale grey sand [4] 50cm↓ strong mid grey / mid orange clay	6
-	TP16	356700	5781400	50 x 50	45	-	-	MS, H / ST, VC	[1] 0-8cm weak mid brown sandy silt [2] 8-20cm weak light brown silty sand [3] 20-45cm weak pale brown / pale grey sand [4] 45cm↓ strong mid grey / mid orange clay	6
-	TP17	356800	5781400	50 x 50	45	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-25cm weak light brown silty sand [3] 25-45cm weak pale brown / pale grey sand [4] 45cm↓ strong mid grey / mid orange clay	6

VAHR No	No	Easting[1]	Northing[1]	Extent[2]	Depth[3]	Arts[4]	Distribution[5]	Landform / Disturbance	Profile Description	PH
7921-1420	TP18	356900	5781400	100 x 100	32	1	5 - 10	MS, H / ST, VC	[1] 0-5cm weak brown sandy silt [2] 5-22cm weak light brown sandy silt with gravel [3] 22-32cm weak yellowish brown silt [4] 32cm↓ strong yellow clay	6
-	TP19	357000	5781400	50 x 50	38	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-22cm weak light brown silty sand [3] 22-38cm weak pale brown / pale grey sand [4] 38cm↓ strong mid grey / mid orange clay	6
-	TP20	357100	5781400	50 x 50	50	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-30cm weak light brown silty sand [3] 30-50cm weak pale brown / pale grey sand [4] 50cm↓ strong mid grey / mid orange clay	6
-	TP21	357200	5781400	50 x 50	38	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-18cm weak light brown silty sand [3] 18-38cm weak pale brown / pale grey sand [4] 38cm↓ strong mid grey / mid orange clay	6
-	TP22	356600	5781300	50 x 50	58	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-18cm weak light brown silty sand [3] 18-58cm weak pale brown / pale grey sand [4] 58cm↓ strong mid grey / mid orange clay	6
-	TP23	356700	5781300	50 x 50	58	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-20cm weak light brown silty sand [3] 20-58cm weak pale brown / pale grey sand [4] 58cm↓ strong mid grey / mid orange clay	6
-	TP24	356800	5781300	50 x 50	55	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-20cm weak light brown silty sand [3] 20-55cm weak pale brown / pale grey sand [4] 55cm↓ strong mid grey / mid orange clay	6
-	TP25	356900	5781300	50 x 50	40	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-15cm weak light brown silty sand [3] 15-40cm weak pale brown / pale grey sand [4] 40cm↓ strong mid grey / mid orange clay	6
-	TP26	357000	5781300	50 x 50	60	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-20cm weak light brown silty sand [3] 20-60cm weak pale brown / pale grey sand [4] 60cm↓ strong mid grey / mid orange clay	6

VAHR No	No	Easting[1]	Northing[1]	Extent[2]	Depth[3]	Arts[4]	Distribution[5]	Landform / Disturbance	Profile Description	PH
-	TP27	357100	5781300	50 x 50	60	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-20cm weak light brown silty sand [3] 20-60cm weak pale brown / pale grey sand [4] 60cm↓ strong mid grey / mid orange clay	6
-	TP28	357200	5781300	50 x 50	58	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-20cm weak light brown silty sand [3] 20-58cm weak pale brown / pale grey sand [4] 58cm↓ strong mid grey / mid orange clay	6
-	TP29	356800	5781200	50 x 50	65	-	-	MS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-22cm weak light brown silty sand [3] 22-65cm weak pale brown / pale grey sand [4] 65cm↓ strong mid grey / mid orange clay	6
-	TP30	356900	5781200	50 x 50	65	-	-	MS, H / ST, VC	[1] 0-8cm weak mid brown sandy silt [2] 8-22cm weak light brown silty sand [3] 22-65cm weak pale brown / pale grey sand [4] 65cm↓ strong mid grey / mid orange clay	6
-	TP31	357000	5781200	50 x 50	60	-	-	MS, H / ST, VC	[1] 0-8cm weak mid brown sandy silt [2] 8-25cm weak light brown silty sand [3] 25-60cm weak pale brown / pale grey sand [4] 60cm↓ strong mid grey / mid orange clay	6
-	TP32	357100	5781200	50 x 50	55	-	-	MS, H / ST, VC	[1] 0-8cm weak mid brown sandy silt [2] 8-20cm weak light brown silty sand [3] 20-55cm weak pale brown / pale grey sand [4] 55cm↓ strong mid grey / mid orange clay	6
-	TP33	356900	5781100	50 x 50	65	-	-	LS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-20cm weak light brown silty sand [3] 20-65cm weak pale brown / pale grey sand [4] 65cm↓ strong mid grey / mid orange clay	6
-	TP34	357000	5781100	50 x 50	60	-	-	LS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-15cm weak light brown silty sand [3] 15-60cm weak pale brown / pale grey sand [4] 60cm↓ strong mid grey / mid orange clay	6
-	TP35	357100	5781100	50 x 50	60	-	-	LS, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-22cm weak light brown silty sand [3] 22-60cm↓ weak pale brown / pale grey sand Water table from 55cm	6

VAHR No	No	Easting[1]	Northing[1]	Extent[2]	Depth[3]	Arts[4]	Distribution[5]	Landform / Disturbance	Profile Description	PH
7921-1426	TP36	357000	5781000	100 x 100	65	1	20 - 25	LS, F / ST, VC	[1] 0-5cm weak brown sandy silt [2] 5-30cm weak light brown silty sand [3] 30-65cm weak light brown & grey mottled sand [4] 65cm↓ strong yellow & gray mottled clay	6
-	TP37	357100	5781000	50 x 50	65	-	-	LS, F / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-30cm weak light brown silty sand [3] 30-65cm weak pale brown / pale grey sand [4] 65cm↓ strong mid grey / mid orange clay	6
-	TP38	357000	5780900	50 x 50	55	-	-	LS, F / ST, VC	[1] 0-25cm weak mid brown sandy silt [2] 25-40cm weak light brown silty sand [3] 40-55cm weak pale brown / pale grey sand [4] 55cm↓ strong mid grey / mid orange clay	6
-	TP39	357100	5780900	50 x 50	70	-	-	LS, F / ST, VC	[1] 0-25cm weak mid brown sandy silt [2] 25-50cm weak light brown silty sand [3] 50-70cm weak pale brown / pale grey sand [4] 70cm↓ strong mid grey / mid orange clay	6
-	TP40	357100	5780800	50 x 50	60	-	-	LS, F / ST, VC	[1] 0-22cm weak mid brown sandy silt [2] 22-40cm weak light brown silty sand [3] 40-60cm weak pale brown / pale grey sand [4] 60cm↓ strong mid grey / mid orange clay	6
-	TP41	356899	5781410	50 x 50	25	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-15cm weak light brown sandy silt with gravel [3] 15-25cm weak orangey brown silt [4] 25cm↓ strong mid orange clay	6
-	TP42	356902	5781409	50 x 50	25	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-15cm weak light brown sandy silt with gravel [3] 15-25cm weak orangey brown silt [4] 25cm↓ strong mid orange clay	6
-	TP43	356901	5781400	50 x 50	30	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-20cm weak light brown sandy silt with gravel [3] 20-30cm weak orangey brown silt [4] 30cm↓ strong mid orange clay	6

VAHR No	No	Easting[1]	Northing[1]	Extent[2]	Depth[3]	Arts[4]	Distribution[5]	Landform / Disturbance	Profile Description	PH
-	TP44	356904	5781404	50 x 50	30	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-20cm weak light brown sandy silt with gravel [3] 20-30cm weak orangey brown silt [4] 30cm↓ strong mid orange clay	6
-	TP45	356916	5781407	50 x 50	30	-	-	US, C, H / ST, VC	[1] 0-10cm weak mid brown sandy silt [2] 10-20cm weak light brown sandy silt with gravel [3] 20-30cm weak orangey brown silt [4] 30cm↓ strong mid orange clay	6
-	TP46	356913	5781408	50 x 50	30	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-15cm weak light brown sandy silt with gravel [3] 15-30cm weak orangey brown silt [4] 30cm↓ strong mid orange clay	6
-	TP47	356911	5781417	50 x 50	20	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-10cm weak light brown sandy silt with gravel [3] 10-20cm weak orangey brown silt [4] 20cm↓ strong mid orange clay	6
-	TP48	356908	5781413	50 x 50	30	-	-	US, C, H / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-15cm weak light brown sandy silt with gravel [3] 15-30cm weak orangey brown silt [4] 30cm↓ strong mid orange clay	6
-	TP49	356999	5781005	50 x 50	60	-	-	LS, F / ST, VC	[1] 0-22cm weak mid brown sandy silt [2] 22-35cm weak light brown silty sand [3] 35-60cm weak pale brown / pale grey sand [4] 60cm↓ strong mid grey / mid orange clay	6
-	TP50	356998	5781010	50 x 50	75	-	-	LS, F / ST, VC	[1] 0-16cm weak mid brown sandy silt [2] 16-45cm weak light brown silty sand [3] 45-75cm weak pale brown / pale grey sand [4] 75cm↓ strong mid grey / mid orange clay	6
-	TP51	357003	5780997	50 x 50	95	-	-	LS, F / ST, VC	[1] 0-18cm weak mid brown sandy silt [2] 18-65cm weak light brown silty sand [3] 65-95cm weak pale brown / pale grey sand [4] 95cm↓ strong mid grey / mid orange clay	6

VAHR No	No	Easting[1]	Northing[1]	Extent[2]	Depth[3]	Arts[4]	Distribution[5]	Landform / Disturbance	Profile Description	PH
-	TP52	357003	5780992	50 x 50	85	-	-	LS, F / ST, VC	[1] 0-18cm weak mid brown sandy silt [2] 18-55cm weak light brown silty sand [3] 55-85cm weak pale brown / pale grey sand [4] 85cm↓ strong mid grey / mid orange clay	6
-	TP53	357005	5781002	50 x 50	90	-	-	LS, F / ST, VC	[1] 0-18cm weak mid brown sandy silt [2] 18-55cm weak light brown silty sand [3] 55-90cm weak pale brown / pale grey sand [4] 90cm↓ strong mid grey / mid orange clay	6
-	TP54	357010	5781004	50 x 50	75	-	-	LS, F / ST, VC	[1] 0-22cm weak mid brown sandy silt [2] 22-50cm weak light brown silty sand [3] 50-75cm weak pale brown / pale grey sand [4] 75cm↓ strong mid grey / mid orange clay	6
-	TP55	356995	5781002	50 x 50	65	-	-	LS, F / ST, VC	[1] 0-18cm weak mid brown sandy silt [2] 18-40cm weak light brown silty sand [3] 40-65cm weak pale brown / pale grey sand [4] 65cm↓ strong mid grey / mid orange clay	6
-	TP56	356991	5780999	50 x 50	60	-	-	LS, F / ST, VC	[1] 0-5cm weak mid brown sandy silt [2] 5-18cm weak light brown silty sand [3] 18-60cm weak pale brown / pale grey sand [4] 60cm↓ strong mid grey / mid orange clay	6

1. SW- corner, GDA94 MGA Zone 55 coordinates; 2. Extent in cm (length x width); 3. Finishing depth of excavation in cm; 4. Number of artefacts; 5. Depth of artefacts in cm.
C=Crest, D=dune, H=hillock, GR=gentle rise, LS=lower slope, MS=middle slope, P=ploughing, VC=vegetation clearance, ST=stock trampling, OR=occasional roots, UH=undulating hills, US=upper slope

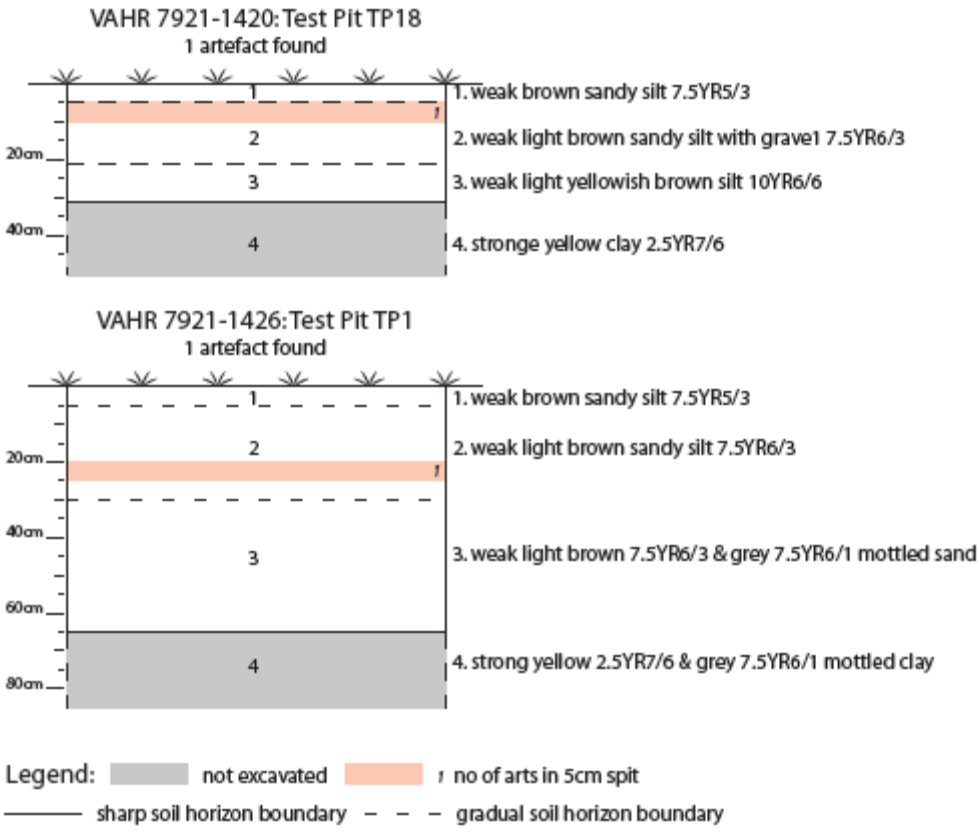
Photo 12

Test pit TP18 after excavation (vertical range pole 10cm intervals; horizontal range pole 20cm intervals)

Photo 13

Test pit TP36 after excavation (vertical range pole 20cm intervals)

Schematic Test Pit Profile Drawings



APPENDIX 5 – ARTEFACT INVENTORY

Artefact 1: VAHR 7921-1420: test pit TP18, 5-10cm depth, 1 light brown fine grained silcrete complete flake, flaked platform, feather termination, no cortex, no modification, length=9mm, width=12mm, thickness=2mm.

Artefact 2: VAHR 7921-1426: test pit TP36, 20-25cm depth, 1 quartz complete flake, flaked platform, feather termination, no cortex, no modification, length=10mm, width=6mm, thickness=1mm

APPENDIX 6 – SCIENTIFIC SIGNIFICANCE ASSESSMENT

The following Appendix presents the scientific significance assessment ratings of Aboriginal cultural heritage places identified within the activity area. Assessment of place significance is complex and encompasses a range of heritage values. The heritage values of a site or place are broadly defined as the 'aesthetic, historic, spiritual scientific or social values for past, present or further generations' (Australia ICOMOS, *The Illustrated Burra Charter* 1999). Cultural significance considers aesthetic, historic, spiritual and social values. The assessment of cultural significance is left to the relevant Aboriginal community to decide, although when no assessment is provided, general cultural significance can be attributed. In this investigation scientific, or archaeological, significance is based on a detailed and transparent set of queries. The results of the assessment are presented in Table 13 while the process is presented subsequently in this Appendix.

Table 13 Stone Artefact Scatter Scientific Significance Assessment Rating

VAHR No	7921-1420		7921-1426	
Query	Answer	Rating	Answer	Rating
Artefact density per m^2	1	0	1	0
Extent of place	1	0	1	0
Natural soil horizons	Yes	0	Yes	0
Disturbance	Low	0	Low	0
Contact or Pleistocene / Early Holocene*	No	0	No	0
More than one period*		0		0
High integrity occupation deposits, surfaces or features*	No	0	No	0
Multiple artefact horizons, stratified high integrity occupation deposits, surfaces or features*	No	0	No	0
Natural history research potential*	No	0	No	0
Representativeness*	Common	0	Common	0
Scientific Significance	Extremely low (0)		Extremely low (0)	

'The scientific or research value of a place will depend upon the importance of the data involved or its rarity, quality or representativeness to the degree which the place may contribute further substantial information' (Australia ICOMOS, *The Illustrated Burra Charter* 1999: 73). Schiffer and Gumerman (1977: 211-212) consider 'a site or a resource ... to be scientifically significant when its further study may be expected to help answer current research questions. This is scientific significance as defined as research potential'. Some places have evidence that may span many thousands of years and therefore have the potential to answer significant research questions regarding natural history, human evolution and adaptation.

The enactment of the *Aboriginal Heritage Act 2006* and *Aboriginal Heritage Regulations 2007* has required the introduction of a new scientific significance assessment framework to replace earlier frameworks. This framework rates Aboriginal cultural heritage places in greater detail so that more transparent cultural heritage outcomes and management strategies can be formulated. It comprises a structured query-based analysis which aims to produce detailed, consistent and replicable place assessments and clear links to place management recommendations. Selected place attributes examine in greater detail questions of place contents, condition and representativeness.

The body of evidence accumulated to date indicates that some place attributes are more significant than others. For example, stratified high integrity occupation deposits are usually in better condition, rarer and contain more significant cultural material than artefact horizons in environmental deposits. However, as archaeological data bases grow and change, the significance of criteria may change. This does not mean that the assessment of archaeological scientific significance is subjective but that it is affected by the interaction of various disciplinary forces including theory, research questions, methodology, knowledge base and the nature of the archaeological record.

After applying the following scientific significance assessment framework, the place rating results are subsequently considered within the context of the analysis of stone artefacts, a discussion of the cultural heritage values within the activity area, answers to specific research questions, an assessment of the research potential of recorded places and a general assessment of the cultural heritage values of the activity area within a regional context.

This process ensures that the scientific significance assessment framework has been applied reasonably and takes into account unusual scenarios. For example, an artefact may have very little *intrinsic* scientific values in itself, say a single isolated geometric microlith in a natural soil horizon; but may be found within a highly significant stratigraphic *context*; say in an undisturbed soil horizon below a buried terminal Pleistocene ground surface. This place would rate low-moderate scientific significance (3) using the criteria below. However, a consideration within a regional context would demonstrate that the place is in fact of very high scientific significance because it would demonstrate that the ASTT began thousands of years earlier than previously thought. In this manner *extraordinary* examples can be accounted for.

Artefact Scatters

The stone artefact scatter is a common place-type found in Victoria and consequently comprises a high proportion of places recorded on the VAHR. Scientific significance is assessed in this investigation by the examining the following criteria.

Average Artefact Density

Places with higher average artefact densities per m^2 contain larger amounts and more varied information. Higher artefact densities usually represent more intensive and varied human behaviour. For example, focussed Aboriginal activity, such as longer-term campsites, will generally leave high concentrations of cultural material. In contrast, Aboriginal people traversing the landscape, dropping or otherwise discarding stone artefacts on a regular basis will often leave a very low density of artefacts. This is considered to represent *background cultural noise* or *background archaeological noise* and is identified by artefact densities with less than five artefacts per m^2. The higher the density of stone artefacts within a place, the higher its scientific significance.

Formal artefact density calculations for place scientific significance assessments are based on the results of hand excavated 1m x 1m test pits and / or 50cm x 50cm probes. Once place boundaries are known the average artefact density is calculated by dividing the number of recorded artefacts by the extent of the area excavated (m^2). The density scale is based on consulting experience and benchmarking conducted on various known places (eg VAHR 7921-0735, VAHR 7921-0736 & VAHR 7921-0769) which have been excavated using proper archaeological practice and have different levels of scientific significance (eg VAHR 7921-0735 & VAHR 7921-0736 having *very high* scientific significance). Artefact density data from most registered places on the VAHR is not used because the data is not of sufficient accuracy for rating scientific significance. It is envisaged that additional benchmark data from the VAHR will be available in the future in order to refine the average artefact density classes used in this scientific significance assessment framework.

Extent of Artefact Densities

Larger places are usually considered to have higher scientific significance than smaller ones because they generally contain more information. Furthermore, larger places were likely the focus of more intensive and varied Aboriginal behaviour. If places have artefact densities of 46 per m^2 or above, then they are likely to be assessed having at least moderate scientific significance (see below). Based on consulting experience and benchmarking (see *Average Artefact Density* above) a significant size threshold is notionally considered here to be at least 100m x 100m in extent (or 10,000m^2). Place-size data from most registered places on the VAHR is not used because it is not of sufficient accuracy for rating scientific significance. It is envisaged that additional benchmark data from the VAHR will be available in the future in order to refine the place-size criteria used in this scientific significance assessment framework.

Natural Soil Horizons

Natural formation processes may form natural soil layers or horizons by the laying down of sediments by natural agents such as wind and water (Isbell 2002; McKenzie et al 2004; cf Schiffer 1972, 1976: 15-16, 1983). These horizons may be subsequently created or destroyed by various post-depositional processes. The process of soil profile genesis and development may bury artefacts but without forming obvious anthroposols or high integrity occupation deposits. Artefacts found within natural soil profiles habitually form artefact horizons. The temporal and spatial integrity of artefact horizons will depend on the depositional and post-depositional formation processes of these deposits. Generally they have less temporal and spatial integrity than intact high integrity occupation deposits and, with all other criteria being equal, have less scientific significance. They comprise the overwhelming artefact scatter type encountered during complex assessments.

Disturbance

Disturbance of Aboriginal cultural heritage places can take many forms and include both environmental and human agents not only at the time of deposition but also after places have been abandoned. Disturbance can be categorised as low, high or significant. Low disturbance is when archaeological deposits or features have little discernable disturbance so they are essentially intact and retain a high degree of spatial and temporal integrity. High disturbance is when agents have likely altered the temporal and spatial integrity to such an extent which has lowered their information potential and therefore scientific significance. Examples of high disturbance include deflation, native vegetation clearance, ploughing, rabbit burrowing, heavy stock trampling and stock rubs. Significant ground disturbance has altered the information potential of a place to such a degree that it has effectively destroyed the integrity of the place. Examples of significant ground disturbance include heavy natural erosion, or grading, excavating digging, dredging and deep ripping by machinery. The information potential remaining will essentially be the intrinsic attributes of the artefacts themselves.

Period and Number of Periods Represented

Most places contain stone tool assemblages attributed to the Australian Small Tool Tradition which may be dated 6,000 and 7,000 years ago (Hiscock & Attenbrow 2004). The landform and depositional context is also usually attributed to the period of latest landscape formation associated with present sea level stabilising 5,000 to 6,000 years BP (Marsden & Mallet 1975: 114-116; Bird 1993: 145; Douglas & Ferguson 1993: 387; Kershaw 1995: 669). Other periods, such as the Late Pleistocene and European Contact, are poorly represented in the archaeological knowledge base. Due to their rareness they are of high research interest and significance. Places with more than one period represented allow the investigation of cultural change, interaction and adaptation over a longer period of time. Based on the criteria of research potential and rarity, these places will have increased scientific significance.

High Integrity Occupation Deposits, Surfaces and / or Features

AAV has no official definition of an *occupation deposit or feature* (r.61(6) *Aboriginal Heritage Regulations 2007*) but unofficially defines an occupation deposit as "anything that is indicative of human occupation eg a single artefact ..." (AAV email 25.5.2009). This nominal definition of an occupation deposit takes no account of the depositional context of cultural material which is critical in understanding the archaeological record and the interpretation of past human behaviour – as pointed out by Binford (1964: 431) more than 45 years ago in the distinction between primary and secondary depositional context. Taking the above into account, and in contrast to the nominal definition of AAV, a high integrity occupation deposit can be defined as a deposit formed by the laying down of deposits (artefacts and / or sediments) by human activities that bury artefacts and form distinct *archaeological* stratigraphic entities such as layers (eg dense lens of stone artefacts & bone between natural soil horizons, stratified shell deposits) or features (eg hearths, occupation mounds). An occupation surface is a distinct layer or interface between depositional strata upon which human activities were carried out and artefacts / features deposited. Most commonly this may be represented by a prior land surface (eg soil horizon) that has been subsequently buried by natural soil horizons (eg dune deposits). High integrity occupation deposits, features and surfaces have a high degree of spatial and temporal integrity and therefore will have higher scientific significance than archaeological deposits with lower integrity (eg artefact horizons in environmental deposits).

Multiple Artefact Horizons, Stratified High Integrity Occupation Deposits, Surfaces and / or Features

Places with multiple artefact horizons, stratified high integrity occupation deposits, surfaces and / or features have the potential to investigate chronological change within places; often with greater time depth and chronological resolution compared to places with lower spatial and temporal integrity. They are rarer, have higher research potential, and therefore also have higher scientific significance. High integrity occupation deposits, surfaces and features will likely have higher scientific significance than artefact horizons.

Natural History Potential

Some places have environmental evidence that may span many thousands of years and therefore have the potential to answer significant research questions regarding natural history, climatic and environmental conditions. This evidence can be used to investigate human evolution and adaptation. Generally this evidence is rarely found in Victorian places and has high research potential and scientific significance.

Representativeness

Representativeness refers to the regional distribution of a particular place-type and its scientific significance. It is assessed to whether the place is common, rare or very rare in a given region. Assessments of representativeness are biased by current knowledge of the distribution and numbers of places in a region. Current knowledge varies from place to place, depending on the extent and quality of previous archaeological research. Consequently, a place that is assigned low scientific significance based on other queries, but is considered a rare occurrence, may only be regarded as such in terms of current knowledge of the regional archaeology. Its rareness may not necessarily increase the place significance to moderate or above.

The representativeness used for Aboriginal cultural heritage places are:

- Common occurrence;
- Rare occurrence;
- Very rare occurrence.

Common places include the majority of stone artefact scatters. Typically such stone artefact scatters have the following attributes: below moderate artefact density class (≤45 artefacts per m^2); date to the Late Holocene, and no evidence of high integrity occupation deposits or features, stratified or otherwise. Rare stone artefact scatters typically have the following attributes: moderate or above artefact density class (≥46 artefacts per m^2); more than one artefact horizon; more than one period of occupation (eg early and late Holocene); but may not have high integrity occupation deposits. Very rare stone artefact scatters typically have the following attributes: moderate or above artefact density class (≥46 artefacts per m2); high integrity occupation deposits, stratified or otherwise; and occupation from more than one period (eg late Pleistocene and late Holocene).

Ensuring a representative sample of significant place-types is preserved provides opportunities for research questions and techniques not yet developed to be available for future archaeologists.

Stone artefact scatters identified during this investigation are rated according to the following queries and answers:

1. What is the average artefact density per metre?

Stone Artefact Density (per m^2)*	Score	Density Class
1 – 4	0	Extremely low
5 – 15	1	Very low
16 – 30	2	Low
31 – 45	3	Low – moderate
46 – 60	4	Moderate
61 – 75	5	Moderate – high
76 – 90	6	High
91+	7	Very high

*Minimum artefact size 10mm

2. If the average artefact density rates 46 artefacts per m^2 or above, is the density spatially extensive (more than 100m x 100m, 10,000m^2)? No = 0, Yes = +1
3. Are artefacts within natural soil horizons? No = high integrity occupation deposits (see below), Yes = 0
4. Are the natural soil horizons disturbed? No = 0, Yes (high) = -1, Yes (significant) = -2
5. Are European Contact or Pleistocene / Early Holocene periods represented? No = 0, Yes = +1
6. Is more than one period represented? No = 0, Yes = +1
7. Are there high integrity occupation deposits, occupation surfaces and / or features? No = 0, Yes = +1
8. Are there multiple artefact horizons, stratified high integrity occupation deposits, occupation surfaces and / or features? No = 0, Yes = +1 (artefact horizons), Yes = +2 (high integrity occupation deposits, surfaces, features)
9. Is there an opportunity to research natural history (eg climate & environmental changes)? No = 0, Yes = +1
10. Is the place a common, rare or very rare occurrence? C = 0, Rare = +1, Very rare = +2

Artefact scatters are rated according to the following scores from the detailed list of queries above:

Score	Scientific Significance Rating
0	extremely low
1	very low
2	low
3	low – moderate
4	moderate
5	moderate – high

Score	Scientific Significance Rating
6	high
7+	very high

General Principles on the Appropriate Application of the Framework

Although the framework presented above cannot be applied as a simple formula in all circumstances, the appropriate application of the framework must take into account the following principles:

Current knowledge of stone artefact scatters typically means that places with the following attributes must not be rated having moderate or above scientific significance:

- Average stone artefact density of ≤45 per m^2;
- No evidence of a discernible stone artefact horizons;
- A single stone artefact horizon in natural soil horizons;
- One period of occupation either ASTT or post-ASTT;
- No *high integrity occupation deposits* and / or features, stratified or otherwise.

Places rated moderate or above scientific significance typically must have the following attribute:

- Average stone artefact density of ≥46 artefacts per m^2.

If the place has a lower average density class then the place typically must score one or more of the following queries:

- European Contact or Pleistocene / Early Holocene periods represented;
- More than one period represented;
- *High integrity occupation deposits*, occupation surfaces and / or features;
- Multiple artefact horizons, stratified *high integrity occupation deposits*, occupation surfaces and / or features;
- Natural history research potential; or
- Rare or very rare occurrence;

If the average density score is below moderate, then the number of extra scores required to rate a place with moderate or above scientific significance must be as follows:

Average Density Class	Score	Minimum Extra Score Required
Extremely low	0	4
Very low	1	3
Low	2	2
Low-moderate	3	1

If the principles presented above are not followed, then the framework has not been applied appropriately.

APPENDIX 7 – PREVIOUSLY REGISTERED PLACES WITHIN THE GEOGRAPHIC REGION

Aboriginal Place No	Aboriginal Place Name	Component Type
7921-0188	CARDINIA CREEK 1	Artefact Scatter
7921-0189	CARDINIA CREEK 2	Artefact Scatter
7921-0194	CARDINIA CREEK 6	Artefact Scatter
7921-0195	CARDINIA CREEK 7	Artefact Scatter
7921-0196	CARDINIA CREEK 8	Scarred Tree
7921-0210	CARDINIA CREEK 15	Artefact Scatter
7921-0229	CARDINIA CREEK 17	Artefact Scatter
7921-0230	CARDINIA CREEK 18	Artefact Scatter
7921-0231	CARDINIA CREEK 19	Artefact Scatter
7921-0232	CARDINIA CREEK 20	Artefact Scatter
7921-0233	CARDINIA CREEK 21	Artefact Scatter
7921-0234	CARDINIA CREEK 22	Artefact Scatter
7921-0235	CARDINIA CREEK 23	Artefact Scatter
7921-0244	CARDINIA CK BYPASS 1	Artefact Scatter
7921-0245	CARDINIA CK BYPASS 2	Earth Feature (Soil Deposit)
7921-0401	PAKENHAM BYPASS 3	Artefact Scatter
7921-0402	PAKENHAM BYPASS 4	Artefact Scatter
7921-0403	PAKENHAM BYPASS 6	Scarred Tree
7921-0416	PATTERSON RD 1	Artefact Scatter
7921-0492	BROOKFORD ESTATE 2	Artefact Scatter
7921-0493	BROOKFORD ESTATE 6	Artefact Scatter
7921-0494	BROOKFORD ESTATE 5	Artefact Scatter
7921-0499	CLYDE ROAD 1	Artefact Scatter
7921-0500	CLYDE ROAD 2	Artefact Scatter
7921-0507	EDEN RISE 1	Artefact Scatter
7921-0569	BERWICK-CLYDE 1	Artefact Scatter
7921-0586	CHS 2	Artefact Scatter
7921-0587	CHS 3	Artefact Scatter
7921-0737	PB1 N2	Artefact Scatter
7921-0737	PB1 N2	Object Collection
7921-0738	PB1 N4	Artefact Scatter
7921-0739	PB1 N5	Artefact Scatter
7921-0740	PB1 N6	Artefact Scatter
7921-0786	BROOKFORD ESTATE 1	Artefact Scatter
7921-0787	PBM 1	Artefact Scatter
7921-0788	PBM 2	Artefact Scatter
7921-0789	PBM 3	Artefact Scatter
7921-0790	PBM 4	Artefact Scatter
7921-0799	PB 5	Artefact Scatter
7921-0800	PB 6	Artefact Scatter
7921-0801	PB 7	Artefact Scatter
7921-0801	PB 7	Object Collection
7921-0803	PB 9	Artefact Scatter
7921-0804	BLUE HILLS 1	Artefact Scatter
7921-0805	BLUE HILLS 2	Artefact Scatter
7921-0832	BROOKFORD ESTATE 3	Artefact Scatter
7921-0833	BROOKFORD ESTATE 4	Artefact Scatter
7921-0834	BROOKFORD ESTATE 7	Artefact Scatter
7921-0838	PBCCB SS3	Artefact Scatter
7921-0866	OFFICER SOUTH RISING MAIN 1	Artefact Scatter
7921-0867	OFFICER SOUTH RISING MAIN 2	Artefact Scatter
7921-0880	CRANBOURNE EAST 1	Artefact Scatter

Aboriginal Place No	Aboriginal Place Name	Component Type
7921-0881	CRANBOURNE EAST 2	Artefact Scatter
7921-0882	CRANBOURNE EAST 3	Artefact Scatter
7921-0883	CRANBOURNE EAST 4	Scarred Tree
7921-0884	CRANBOURNE EAST 5	Artefact Scatter
7921-0885	CRANBOURNE EAST 6	Artefact Scatter
7921-0886	CRANBOURNE EAST 7	Artefact Scatter
7921-0887	CRANBOURNE EAST 8	Artefact Scatter
7921-0988	3 THE AVENUE CRANBOURNE NORTH	Artefact Scatter
7921-0991	6 THE AVENUE CRANBOURNE NORTH	Artefact Scatter
7921-0992	7 THE AVENUE CRANBOURNE NORTH	Artefact Scatter
7921-1008	CRANBOURNE EAST 9	Artefact Scatter
7921-1027	CLYDE NORTH 1	Artefact Scatter
7921-1028	CLYDE NORTH 2	Artefact Scatter
7921-1038	THOMPSON RD 1	Artefact Scatter
7921-1039	POUND ROAD 2	Artefact Scatter
7921-1053	LYNCH AS 1	Artefact Scatter
7921-1056	BROOKFORD CRANBOURNE EAST 1	Artefact Scatter
7921-1057	BROOKFORD CRANBOURNE EAST 2	Artefact Scatter
7921-1058	CLYDE NORTH 3	Artefact Scatter
7921-1118	POUND ROAD 3	Artefact Scatter
7921-1129	CLEVELAND PARK AS1	Artefact Scatter
7921-1130	CLEVELAND PARK AS2	Artefact Scatter
7921-1131	LYDAL ISOLATED ARTEFACT	Artefact Scatter
7921-1132	LYDAL AS	Artefact Scatter
7921-1137	RIX - STEPHENS RDS 1	Artefact Scatter
7921-1158	CARRUM SWAMP 1	Artefact Scatter
7921-1170	CLYDE NORTH PRECINCT STRUCTURE PLAN 1	Artefact Scatter
7921-1171	CLYDE NORTH PRECINCT STRUCTURE PLAN 2	Artefact Scatter
7921-1172	CLYDE NORTH PRECINCT STRUCTURE PLAN 3	Artefact Scatter
7921-1173	CLYDE NORTH PRECINCT STRUCTURE PLAN 4	Artefact Scatter
7921-1174	CLYDE NORTH PRECINCT STRUCTURE PLAN 5	Artefact Scatter
7921-1175	CLYDE NORTH PRECINCT STRUCTURE PLAN 6	Artefact Scatter
7921-1176	CLYDE NORTH PRECINCT STRUCTURE PLAN 7	Artefact Scatter
7921-1225	KARA 1	Artefact Scatter
7921-1358	1100 POUND ROAD CLYDE NORTH	Artefact Scatter

APPENDIX 8 – 1750 ECOLOGICAL VEGETATON CLASSES & PLANTS POTENTIALLY USED BY ABORIGINAL PEOPLE

EVC No	Class	Description
48	Heathy Woodland (5.1)	Generally associated with nutrient poor soils including deep uniforms sands (aeolian or outwash) and Tertiary sand / clay which has been altered to form quartzite gravel. Eucalypt-dominated low woodland to 10m tall lacking a secondary tree layer and generally supporting a diverse array of narrow or ericoid-leaved shrubs except where frequent fire has reduced this to a dense cover of bracken. Geophytes and annuals can be quite common but the ground cover is normally fairly sparse. Large trees occur approximately 15 per ha. Typical tree species include Jimmy's Shining Peppermint (*Eucalyptus willisii*), Messmate Stringybark (*Eucalyptus obliqua*), Narrow-leaf Peppermint (*Eucalyptus radiata* s.l.), Rough-barked Manna Gum (*Eucalyptus viminalis* ssp. *pryoriana*) and Saw Banksia (*Banksia serrata*). Typical smaller plant species known to have been exploited by Aboriginal people include Small Grass Tree (*Xanthorrhoea minor ssp lutea*).
53	Swamp Scrub (5.1)	Closed scrub to 8m tall at low elevations on alluvial deposits along streams or on poorly drained sites with higher nutrient availability. Dominated by Swamp Paperbark *Melaleuca ericifolia* (or sometimes Woolly Tea-tree *Leptospermum lanigerum*) which often forms a dense thicket, out-competing other species. Occasional emergent eucalypts may be present. Where light penetrates to ground level, a moss / lichen / liverwort or herbaceous ground cover is often present. Typical smaller plant species known to have been exploited by Aboriginal people include Prickly Currant-bush (*Coprosma quadrifida*), Common Tussock-grass (*Poa labillardierei*), Common Reed (*Phragmites australis*) and Water Ribbons (*Triglochin procerum* sl)
55	Plains Grassy Woodland (5.1)	An open, eucalypt woodland to 15 m tall occurring on a number of geologies and soil types. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer. Large trees occur approximately 10 per ha. Typical tree species include Gippsland Red Gum (*Eucalyptus tereticornis* ssp. *mediana*) and River Red Gum (*Eucalyptus camaldulensis*). Typical smaller plant species known to have been exploited by Aboriginal groups include Black Sheoak (*Allocasuarina littoralis*), Black Wattle (*Acacia mearnsii*), Blackwood (*Acacia melanoxylon*) and Kangaroo Grass (*Themeda triandra*).
83	Swampy Riparian Woodland (5.1)	Woodland to 15 m tall generally occupying low energy streams of the foothills and plains. The lower strata are variously locally dominated by a range of large and medium shrub species on the stream levees in combination with large tussock grasses and sedges in the ground layer. Typical tree species include Swamp Gum (*Eucalyptus ovata*) and Narrow-leaf Peppermint (*Eucalyptus radiata sl*) at approximately 15 per ha. Typical smaller plant species known to have been exploited by Aboriginal groups include Blackwood (*Acacia melanoxylon)*, Woolly Tea Tree (*Leptospermum lanigerum*), Prickly Currant Bush (*Coprosma quadrifida*), Common Reed (*Phragmites australis*), Kangaroo Grass (*Themeda triandra*) and Austral Bracken (*Pteridium esculentum*).
132	Plains Grassland (5.1)	Treeless or with occasional scattered trees above a largely grassy understorey on grey silty loamy soils, often seasonally waterlogged. Shrubs may be also occasionally present. Typical smaller plant species known to have been exploited by Aboriginal groups include Common Tussock-grass (*Poa labillardierei*), Spiny Headed Mat Rush (*Lomandra longifolia*), Kangaroo Grass (*Themeda triandra*) and Small Leaved Clematis (*Clematis microphylla*).

EVC No	Class	Description
897	Plains Grassland / Plains Grassy Woodland (5.1)	see 55 & 132

Scientific & Common Name	Uses	EVC
Black Wattle *Acacia mearnsii*	• Gum and flower nectar dissolved with water to make a sweet drink. • Gum used as resin.	55
Blackwood *Acacia melanoxylon*	• Bark heated over fire and infused in water to treat rheumatism. • Wood used to make shields, clubs & spear-throwers	55
Black Sheoak *Allocasuarina littoralis*	• Wood used to make boomerangs.	55
Small-leaved Clematis *Clematis microphylla*	• Roots cooked in baskets, pounded & kneaded into a dough. • Leaves crushed & inhaled to treat headaches.	132
Prickly Currant Bush *Coprosma quadrifida*	• Edible, sweet currant-like fruits eaten when ripe.	53, 83
River Red Gum *Eucalyptus camaldulensis*	• Large sheets of bark used to make canoes. • Bark used to make shelters, shields & containers. • Sap used to seal burns & mixed with water to treat diarrhoea. • Leaves used in steam baths for range of ailments.	55
Messmate *Eucalyptus obliqua*	• Outer bark powdered & used for fire making. • Inner bark used to make coarse string for bags & fishing nets.	48
Manna Gum *Eucalyptus viminalis*	• Sugary white extrusions on leaves (manna) gathered from the ground & eaten. • Wood used to make shields & water containers. • Smoke from burning older leaves to reduce fever.	48
Woolly Tea-tree *Leptospermum lanigerum*	• Twigs & branches used for spears & digging sticks. • Leaves used to treat scabies & breathing difficulties.	53, 83
Spiny-headed Mat-rush *Lomandra longifolia*	• Leaves woven into bags, baskets & mats.	132
Common Reed *Phragmites australis*	• Crisp, non-starchy root eaten. • Sections of reed strung into necklaces & used as nose ornaments. • Straight stems used as spear shafts. • Leaves twisted into rope for making baskets. • In Gippsland, sharp edges of cane were used as knives for skinning animals.	53, 83
Large Tussock Grass *Poa labillardieri*	• String for nets, bags, baskets & mats.	53, 312
Austral Bracken *Pteridium esculentum*	• Starchy roots roasted in ashes before beaten into paste with water & baked. Toxic unless properly treated?	83

Scientific & Common Name	Uses	EVC
Kangaroo Grass *Themeda triandra*	• Strong from leaves & stem used to make bags & fishing nets. • Seeds ground into flour.	55, 83, 132
Water Ribbons *Triglochin procera*	• Tubers collected & cooked in ground ovens.	53
Austral Grass-tree *Xanthorrhoea australis*	• Nectar collected from flowers. • Roots & soft young leaves eaten. • Waterproof resin used to fasten axe heads & stone flakes. • Dried flower stalk used as a base for making fire with a drilling stick.	48

APPENDIX 9 – SUMMARY CVs

ANDREA MURPHY
project director

Andrea Murphy is a Senior Cultural Heritage Advisor with extensive experience and qualifications in both indigenous and non-indigenous cultural heritage assessment and management, including EES & EIS projects, major urban excavations, desktop assessments, place survey, excavation, monitoring and production of place management strategies. Andrea has been the manager of Archaeology At Tardis Pty Ltd, cultural heritage consultants for 12 years and a heritage professional for more than 23 years.

AWARDS

Winner of the 2003 UNESCO Asia-Pacific Cultural Heritage Conservation Award

QUALIFICATIONS

Bachelor of Arts
(Prehistory)
La Trobe University

Master of Arts
(Historic Archaeology)
La Trobe University

AFFILIATIONS

Member of:
Australian Society of Historic Archaeology
Australian Association of Consulting Archaeologists
Australian Anthropological and Archaeological Society
Historic Gardens Society
National Trust
Royal Historical Society

RECENT RELEVANT EXPERIENCE

MAJOR CULTURAL HERITAGE PROJECTS IN VICTORIA

- Pipeline routes
- Optical fibre cable routs
- Road and highway/freeway infrastructure
- Rail infrastructure – urban and regional fast rail
- Urban developments
- Waterway rehabilitation works
- Wind farms
- Archaeological excavations
- Local government advisor and project manager
- Defence advisor and project manager
- Parks advisor and project manager

TOM RYMER
project manager

Tom Rymer is a heritage advisor with over fifteen years experience in major international research archaeological excavations as well as commercial indigenous and non-indigenous cultural heritage projects. Tom has a strong background in research, survey, archaeological excavation, artefact analysis and technical report production.

QUALIFICATIONS

Doctor of Philosophy (Archaeology) – La Trobe University, 2005

RECENT RELEVANT EXPERIENCE

MAJOR INTERNATIONAL PROJECTS

- BRITISH EXCAVATIONS AT JERABLUS-*TAHTANI*, SYRIA
- SIOUKIOU-*LAONA* SETTLEMENT PROJECT
- AUSTRALIAN-CYPRUS EXPEDITION AT MARKI-*ALONIA*
- UNIVERSITY OF QUEENSLAND ALAMBRA-*MOUTTES* PROJECT

SUBDIVISIONS

- BOTANIC RIDGE ESTATE, CRANBOURNE
- HUNT CLUB ESTATE, CRANBOURNE
- BURVILLES ROAD, ARMSTRONG CREEK
- CASCADES ON CLYDE ESTATE, CLYDE NORTH
- 550 CRAIGIEBURN ROAD, CRAIGIEBURN
- MARONG BUSINESS PARK

WIND FARMS

- BALD HILLS WIND FARM
- STOCKYARD HILL WIND FARM
- LEXTON WIND FARM
- MORTONS LAND WIND FARM
- SALT CREEK WIND FARM
- CHERRY TREE WIND FARM
- ARARAT WIND FARM
- PENSHURST WIND FARM

INFRASTRUCTURE PROJECTS

- VICTORIAN DESALINATION PLANT CORRIDOR SALVAGE
- TARRONE GAS PLANT
- TOOMUC CREEK RETARDING BASIN
- CANDOWIE RESERVOIR UPGRADE

BARRY GREEN
senior archaeologist

Barry Green is an archaeologist with over six years experience specialising in indigenous and historic Australian archaeology as well as the full spectrum of Irish archaeology, from Mesolithic to modern. Barry has a strong background in research, survey, archaeological excavation, artefact analysis and technical report production

QUALIFICATIONS

Bachelor of Arts (Honors)
Ancient History & Archaeology and Latin
Trinity College Dublin

RECENT RELEVANT EXPERIENCE

MAJOR INTERNATIONAL PROJECTS

- KILKENNY COURTHOUSE EXPENSION, KILKENNY CITY, IRELAND
- KILKENNY PARADE REDEVELOPMENT, KILKENNY CITY IRELAND
- N8/M8 CULAHILL-CAHEL ROAD SCHEME, TIPPERARY, IRELAND
- CARLOW BYPASS SCHEME, BARLOW, IRELAND

MAJOR CULTURAL HERITAGE PROJECTS IN VICTORIA

- RAIL INFRASTRUCTURE - HISTORIC
- ROAD AND HIGHWAY / FREEWAY INFRASTRUCTURE
- PIPELINE ROUTE DEVELOPMENTS
- URBAN DEVELOPMENTS
- MIXED USE ZONE DEVELOPMENTS

SUMMARY OF EXPERIENCE

- RESEARCH
- PLACE EXCAVATION
- PLACE SURVEY AND RECORDING
- ARCHAEOLOGICAL TESTING
- ARCHAEOLOGICAL MONITORING
- ARTEFACT ANALYSIS
- DRAFTING
- REPORT WRITING AND PRODUCTION

APPENDIX 10 – CHECKLIST FOR CONTINGENCY

COMPLIANCE CHECKLIST		
1 Recommendations	**Yes**	**No**
Have the recommendations been followed?		
2 Suspected Human Remains		
If suspected human remains are found, has all activity within 10m ceased?		
Have the remains been left in place?		
Has the location been fenced to prevent any further disturbance, if required?		
Has the Coroner's Office and Victoria Police been notified?		
If the remains are reasonably suspected to be Aboriginal, has DSE Emergency Coordination Centre been notified?		
If confirmed to be Aboriginal remains, has the Secretary (DPCD) been notified?		
As determined by the Secretary (DPCD), has the mitigation or salvage strategy been implemented?		
Has the reburial place been fully documented by an experienced and qualified archaeologist, clearly marked and all details provided to AAV?		
Has a strategy been developed to ensure no further disturbance will occur to the remains?		
3 Discovery of Other Unexpected Cultural Material		
Has all activity within 10m ceased?		
Has the Heritage Advisor / RAP been advised?		
Has the Secretary (DPCD) been notified (s.24 *Aboriginal Heritage Act 2006*)?		
Has the find been left in place?		
Has the location been fenced to prevent any further disturbance, if required?		
For all other finds, has an appropriate mitigation / salvage strategy been developed?		
Has the mitigation / salvage works been implemented?		
Have the salvaged finds been appropriately managed in consultation with the RAP?		
4 Changes to Activity		
Has statutory approval been obtained for any changes to the activity?		

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