Croskell Precinct Structure Plan

Aboriginal Cultural Heritage Impact Assessment – public release

Authors: Dr Peter Mathews, Melinda Albrecht, David Mathews, Joseph Minter Brooke and Cameron Frost
Date of completion: 8 May 2024
Report prepared for: Victorian Planning Authority
Registered Aboriginal Party: Bunurong Land Council Aboriginal Corporation

Note: Some information in the report has been redacted for public release

UNEARTHED HERITAGE

Revision History:

Revision	Revision Date	Details	Authorised	Comments
0.1	20 March 2023	Draft 1	Joseph Minter Brooke	
0.2	22 March 2023	Draft 2: Section 4 altered to reflect enlarged study area extent	Joseph Minter Brooke	
0.3	7 June 2023	Final draft: Updates following VPA and RAP comments	Joseph Minter Brooke	
0.4	8 May 2024	Updates following VAHR 7921-1989 registration in study area	Joseph Minter Brooke	

Acknowledgement of Bunurong Land Council Aboriginal Corporation Traditional Owners

We respectfully acknowledge First Australian peoples as the Traditional Custodians of this country and their continued connection to land, sea, and culture. We also acknowledge the Traditional Owners of the lands covered in this report, the Bunurong People, whose estates they are, and whose ancestors are mentioned, and we pay our respects to all their Elders, past, present, emerging, and future, and to all First Australian peoples.

Acknowledgements

The authors wish to thank the Bunurong Land Council Aboriginal Corporation, Traditional Owners and staff, in particular those who were involved in the project: Joseph Bowden O'Leary, Jeff Bowden, Timani Edwards, Kira Edwards, Bradley Ward, Meg Haas and David Tutchener. The authors also wish to thank the following staff from the Victorian Planning Authority (VPA): Richard Overall, Suzanne Barker and David Portelli.

Aboriginal and Torres Strait Islander people should be aware that this report contains names and words of deceased persons.

In addition, some quotations and references contain terms or views that should not have been acceptable in the times when they were written, and certainly are not appropriate now.

Cover photo: The Study Area, facing north_MSteel_25July2022

Bunurong Land Council Aboriginal Corporation Statement of Significance

BLCAC respectfully offer the below statement of significance which covers all of our traditional land and water Country.

Over the last 35,000 years Bunurong people have adapted to a range of significant changes within their Country. Our stories of the Bay flooding with water, asteroid impacts near Cranbourne, Arthurs Seat once being an Island, volcanic activity in the western suburbs, the great floods, fires and earthquakes, all speak of such events.

Over 1000 generations of our people have been here before us. Archaeological excavation within our Country has already demonstrated about 35,000 year's worth of occupation. These sites can show us how our ancestors interacted with their environment and how that interaction changed over time. We regard all evidence of our people's occupation as sacred.

No amount of data can compensate for the loss of a site but if we can't *literally* preserve a site, the only other way it may be preserved is by way of careful data collection as part of a Cultural Heritage Management Plan (CHMP). The importance of the accuracy of this data being collected *for protection* is paramount as we regard this information as sacred. It holds the stories of our people and our past. In some places our archaeology is the only thing that remains within a given landscape, the only thing left that hasn't been changed or moved, and because of this, it is now sacred to us.

All of our Country is highly significant, every square inch, every rock, every leaf, every dune, every artefact. If we could attribute the cause of this blanket high significance rating of our Country to any one thing, it would be that in Melbourne especially, so much has been destroyed and lost as the city grew, and so quickly. If you loose enough of something, what little you have left becomes so much more important. Similarly, when someone passes, their earthly possessions become more important to those they left behind.

With regards to knowledge and stories, each of our Elders that passed away during early colonization is the equivalent of a state library burning down today. One Bunurong Elder of the time was famously quoted saying that, '*Once we are gone, no one is going to know where anything is'.* Clearly considering the vast amount of knowledge he and his people had collected about the landscape, all written in their songs and stories. Another Elder was noted as saying, '*one day smart people will lament at our passing',* no doubt acknowledging again the ocean of information collected on every living thing here, every tree, every animal and the key to the complex balance of all things that his people had managed to evolve and sustain. European people are still learning of the complexities of Aboriginal culture.

With no written language and change occurring here so quickly, we have lost many of the ancient stories of this landscape. At the *time*, Bunurong people's focus was more on trying to stay alive than the luxuries of continuing to practice culture, which included the careful passing on of stories and knowledge, different levels of which would require certain initiations, performed over time.

The Bunurong Land Council Aboriginal Corporation

Abbreviations

ACHIA	Aboriginal Cultural Heritage Impact Assessment
ACHRIS	Aboriginal Cultural Heritage Register and Information System
BLCAC	Bunurong Land Council Aboriginal Corporation
FP-SR	First Peoples – State Relations
HA	Heritage Advisor
LDAD	Low Density Artefact Distribution
PSP	Precinct Structure Plan
RAP	Registered Aboriginal Party
UHA	Unearthed Heritage Australia
VPA	Victorian Planning Authority

Executive Summary

This report is an Aboriginal cultural heritage impact assessment (ACHIA) prepared for Victorian Planning Authority (VPA) to inform planning for Croskell Precinct Structure Plan (PSP). The Registered Aboriginal Party (RAP) for the study area is the Bunurong Land Council Aboriginal Corporation (BLCAC).

The Study Area

The Study Area encompasses *c*. 318.56 hectares (ha) of land. The study area is located between Thompsons Road to the north, Berwick-Cranbourne Road to the east, existing residential areas to the south in the area north of Linsell Boulevard, existing residential areas to the west, and private properties located east of Narre Warren Road. The study area is located in Clyde North and Cranbourne East.

Desktop Assessment

Following the desktop assessment, the following observations can be made:

- The study area is located on *Bun wurrung* Country within the clan boundaries of the *Mayune balug*;
- At the time of desktop assessment, there were a total of 38 Aboriginal places registered within the geographic region, with seven[1] registered within the study area itself;
- Registered (i.e. known) Aboriginal cultural material is exclusively represented by stone artefacts (artefact scatters, LDADs, isolated artefact occurrences);
- A general pattern of artefact distribution exists, with a general background of isolated and low density occurrences across the floodplain plain/alluvial plains landform with higher frequency and density associated with elevated land (particularly with sandy rises, dunes and sand drifts) and proximity to water sources including creeks, drainage lines and former swamps and wetlands. The presence of deep Cranbourne Sands within areas has also led to the identification of medium and higher density artefact scatters within the geographic region (Weaver 1992, Long et al. 2004, Vines 2007, Murphy and Rymer 2007, Murphy and Dugay-Grist 2008, Murphy and Dugay-Grist 2009, Murphy and Rymer 2009b, Vines 2008, Ford et al. 2009, Vines and Orr 2010, Kayandel 2010, Green et al 2011, Lawler et al. 2012 , St George and Spry 2016, Reich and Liousas 2020, Stevens 2021);
- The lower lying floodplains landforms appear to be less archaeologically sensitive than drier elevated areas, likely due to seasonal inundation (Chamberlain et al 2003, TerraCulture 2003, Murphy and Rymer 2009a, Murphy and Rymer 2009b, Murphy and Dugay-Grist 2009, Day 2010, Patton 2015, Stevens 2017a, Stevens 2017b, Barker 2017, Kapteinis 2018, Stevens 2018, Stevens 2021)
- Highly disturbed and modified areas such as road reserves and areas where deep ploughing for activities such as market gardening or quarrying has occurred are unlikely to contain *in situ* subsurface Aboriginal cultural heritage material (Hislop 2014, St George and Spry 2016, Stevens 2017a, Barker 2017, Murphy and Thomson 2018)
- Artefacts are predominately made on silcrete, with quartz, crystal quartz, quartzite, chert, basalt found in smaller quantities.

[1] As of rev 0.4 to this ACHIA, six Aboriginal places are registered within the study area, reflecting the merger of VAHR 7921-0880 and VAHR 7921-1841 into VAHR 7921-1989 (Donohue Street Dune AS)

- Where excavation has occurred, sandy deposits of the Cranbourne sands generally comprise brown/grey silty sandy topsoil over grey sand becoming lighter with depth over coarse sand and coffee rock. Archaeological deposits within the Cranbourne sands have been found at various depths from 130 mm to 1800mm. Most artefacts have been found at a depth range of 200-950mm.
- Excavations on the floodplains and low-lying landforms have revealed clayey loam soils with some sand content over yellowish brown clay.
- The land within the study area has generally remained agricultural with clearing and ploughing as consistent broad impacts and minor constructions associated with residences and farming, road and access track construction and dams forming significant localised disturbance. There is a services easement situated within the study area, running north east to south west. A sand quarry and concrete batching plant are located in the north western section with sandy quarrying activities having taken place. Drainage channels are also located across the study area. There are overhead transmission lines in the southern section, running east-west.
- It is likely that isolated or low density occurrences of stone artefacts will occur across the entire study area and areas of increased sensitivity (higher frequency/density stone artefact scatters) are likely to be associated with:
    - Any elevated landforms within the study area depending upon the disturbances present;
    - Sandy landforms such as sand drifts and dunes, depending upon the disturbances present.

Archaeological survey

- Permission was granted by landowners and land managers for the VPA to access 19 of the 22 lots within the study area for field survey.
- 16 of the 22 lots were accessed for archaeological field survey over a period of four days (25-28 July 2022).
- Ground surface visibility was varied throughout the study area (0-98%) but was low in most areas, with median and mode GSV at 5% and an overall mean GSV of 20.8%. Low GSV resulted in an effective survey coverage of 9.14%.
- The recorded locations for all Aboriginal places previously registered within the study area (n=7) were accessed and these registered places were subject to reinspection by the field survey team.
- No Aboriginal cultural heritage was identified during the field survey.
- A range of past disturbances were identified throughout the study area, ranging from low-moderate to high level.
- The study area was divided into four areas of Aboriginal archaeological sensitivity: low-moderate for lower-lying areas of the undulating coastal plain landform, moderate for relatively higher-elevated areas of the coastal plain landform and lower dune slopes, moderate-high for middle dune slopes, and high for dune crests and upper slopes or pronounced sandy rises on the coastal plain landform.
- The study area was divided into six areas of Aboriginal archaeological potential, which included areas of very low archaeological potential (c. 20.16 ha or 6.33%), low archaeological potential (c. 21.60 ha or 6.78%), low-moderate archaeological potential (c. 139.99 ha or 43.94%), moderate archaeological potential (c. 97.47 ha or 30.60%), moderate-high archaeological potential (c. 20.08 ha or 6.30%), and areas considered to be of high archaeological potential (c. 19.26 ha or 6.05%).

Recommendations

Refer to Section 7 for full details of the following recommendations. The following recommendations are provided for each zone of Aboriginal archaeological potential mapped in Figure 0-1.

High archaeological potential (Most Likely): As much as possible, these areas should be retained in their current form and, where applicable, be rehabilitated to further stabilise them (such as from erosion). This should be in the form of passive open space or other non-developable reserved land. Where lower impact works are proposed in these areas, such as pedestrian and/or bike paths, these works should be designed to minimise impacts and be placed largely on top of the surface, to avoid impacting below the ground surface.

Moderate-High archaeological potential (Moderately-Highly Likely): Wherever possible, consideration should be made to retain these areas in their current form (and/or rehabilitate) and protected from development, particularly as passive open space or similar (e.g. other reserved land), or in non-developable portions of residential parcels (e.g. outside construction envelopes). Where lower impact works are proposed in these areas, such as pedestrian and/or bike paths, these works should, where possible, be designed to be placed largely on top of the surface, to avoid impacting below the ground surface.

Moderate archaeological potential (Moderately Likely): Where there is an opportunity, development impact should be minimised, where practicable. This could be through establishing passive open space (or similar, as above) or through impact mitigation design features.

Low-Moderate archaeological potential (Low – Moderately Likely): No design or planning recommendations, though interpretative material and or *Bunurong* language/naming should be incorporated into planning/design, in consultation with the RAP.

Low archaeological potential (Least Likely): No design or planning recommendations, though interpretative material and or *Bunurong* language/naming may be incorporated into planning/design, in consultation with the RAP.

Where possible, following these recommendations will protect a greater degree of areas that contain high potential for larger archaeological deposits and significant Aboriginal places, and also reduce the scope of costly and time-consuming archaeological assessment (test excavation) and mitigation measures (e.g. salvage). It is important to note that CHMPs regularly take c. 6 months to prepare and seek approval with the RAP.

CHMPs

A mandatory CHMP must be prepared for properties, where they are proposed for a high impact activity and they overlap with an area of CHS (consistent with the Aboriginal Heritage Regulations 2018).

For properties that do not have areas of CHS, it is **strongly recommended** that proposed high impact activity developments prepare voluntary CHMPs where there are areas of Moderate, Moderate-High or High archaeological potential within the proposed development areas; furthermore it is **recommended** that voluntary CHMPs be prepared in these areas regardless of the activity's impact level (see Figure 5-16). Note that although unnamed or historical waterways are not afforded the same protections as named waterways under the Act, land within 200 m of unnamed waterways is still considered an area of cultural sensitivity by BLCAC.

It is recommended that CHMPs be undertaken at smaller scales, such as at the level of single activities, rather than at larger scales. An important note in the preparation of CHMPs is the inclusion of relevant adjacent areas within a project's 'CHMP activity area' to encompass activities

associated with the development, such as for any required road upgrade works, site offices, material lay downs, and any areas needed for service installation and provision.

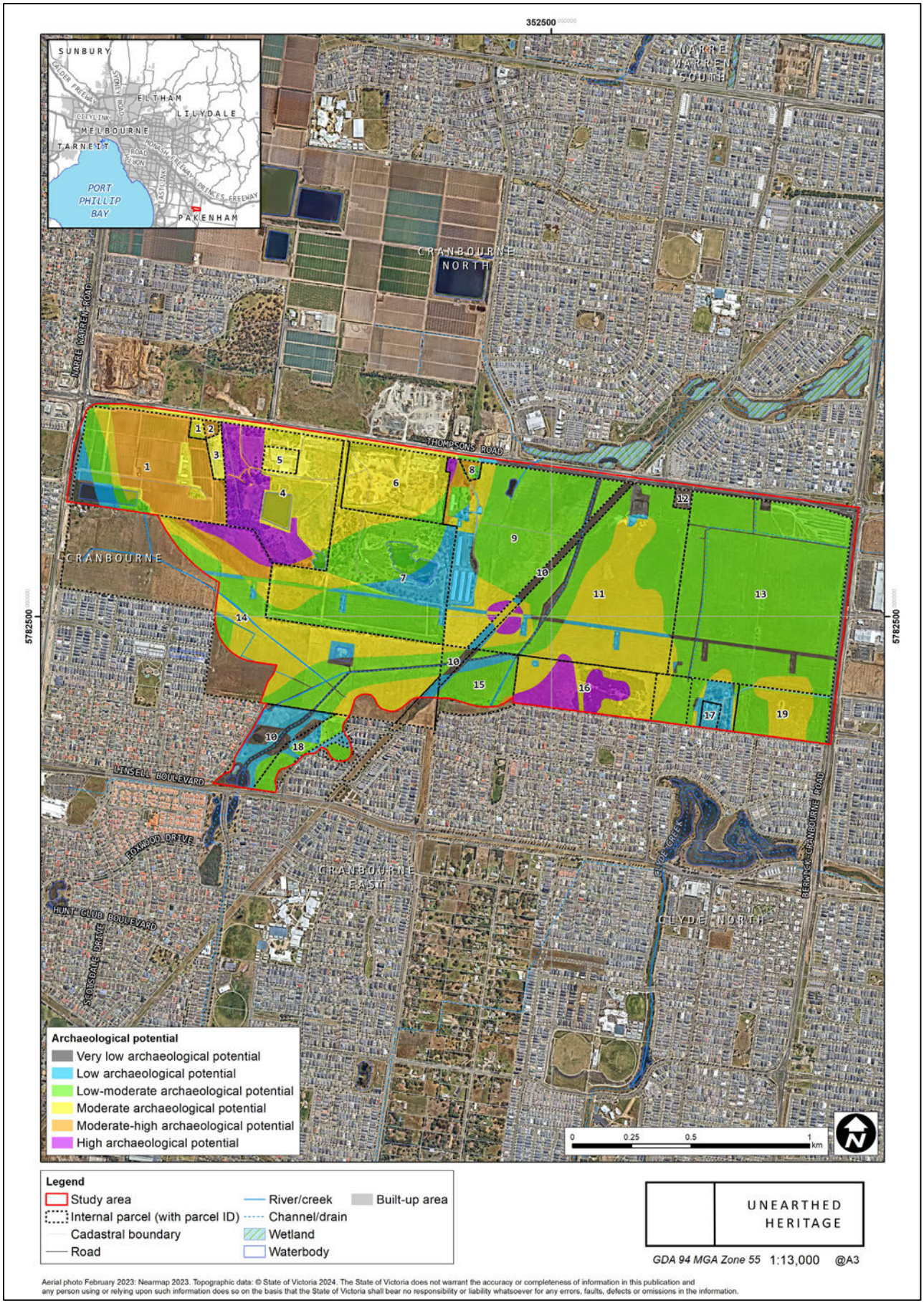


Figure 0-1 - Archaeological potential ratings established for the PSP through this assessment

Table of Contents

Table of Figures

Table of Tables

1 Study Area

1.1 The project and the study area

This Aboriginal cultural heritage impact assessment (ACHIA) has been prepared for the Victorian Planning Authority (VPA) to inform and support planning for the Croskell Precinct Structure Plan (PSP). A Cultural Values Assessment has been undertaken broadly in parallel with this ACHIA by the Bunurong Land Council Aboriginal Corporation (BLCAC).

The Study Area encompasses *c*. 318.56 hectares (ha) of land (Figure 1-1, Figure 1-2 and Figure 1-3). The Study area is located between Thompsons Road to the north, Berwick-Cranbourne Road to the east, existing residential areas to the south in the area north of Linsell Boulevard, existing residential areas to the west, and private properties located east of Narre Warren Road. The study area is located in Clyde North and Cranbourne East.

The primary purpose of this ACHIA is to document the known and potential Aboriginal cultural heritage values of the study area to assist in planning work and development designs within the study area. Post-contact/non-Indigenous historical heritage is not considered within this report.

The study area is located within the Casey City Council local government area. The VPA has provided the following description of the PSP:

The VPA is preparing a Precinct Structure Plan (PSP) and accompanying Infrastructure Contributions Plan (ICP) for the Croskell precinct, working in partnership with Casey City Council, State government agencies and service authorities.

The Croskell precinct is located approximately 40km southeast of Melbourne's central business district within the City of Casey. The precinct encompasses around 317 hectares and is bounded by Thompsons Road to the north, Berwick Cranbourne Road to the east, and Narre Warren Cranbourne Road to the west. The boundary of the Croskell precinct was expanded in January 2023 to encompass the entirety of 1450 Thompsons Road, an addition of 12.23ha.

The vision for Croskell is a regionally significant commercial precinct with more than 5,500 jobs, along with a mix of housing types, community facilities, drainage infrastructure, roads, pedestrian/bike paths and open space that builds on the character of the surrounding Cranbourne and Clyde community.

1.2 Proponent

The proponent of this Aboriginal Cultural Heritage Impact Assessment is the Victorian Planning Authority (VPA).

1.3 Registered Aboriginal Party (RAP)

The *Aboriginal Heritage Act 2006* establishes a system of Registered Aboriginal Parties (RAPs) that are given the responsibility of most Aboriginal heritage matters within their current registered area. Bunurong Land council Aboriginal Corporation (BLCAC) is the RAP for the Study Area. Pursuant to the *Aboriginal Heritage Act 2006* (Victoria).

1.4 Authors

This report was prepared by Unearthed Heritage Australia Pty Ltd. Dr Peter Mathews, Melinda Albrecht, David Mathews, Joseph Minter Brooke and Cameron Frost are the authors of this report.

Peter Mathews[2] is an Emeritus Professor of archaeology and a MacArthur Fellow with extensive experience in archaeology, linguistics and ethnohistory.

David Mathews[3] has over 15 years of experience in heritage management and archaeology and is qualified as both a heritage advisor and an archaeologist and is on the FP-SR list of approved Victorian heritage advisors. David's previous archaeological experience also includes archaeological investigations of a similar scope and scale as this CHMP.

Melinda Albrecht[4] is a Heritage Advisor in accordance with heritage advisor qualification requirements under Section 189 of the *Aboriginal Heritage Act* 2006. Melinda gained a Master of Arts (Archaeology) from La Trobe University in 2004 and has provided heritage advice and services for 15 years.

Joseph Minter Brooke[5] has over 14 years of experience in cultural heritage management and archaeology and is qualified as a heritage advisor and an archaeologist and is on the FP-SR list of approved Victorian heritage advisors. Joseph is a full member of the Australian Association of Consulting Archaeologists Inc. Joseph's previous archaeological experience includes archaeological investigation of a similar scope and scale as this assessment.

Cameron Frost[6] is a project archaeologist with professional industry experience dating back to 2021, and is listed on the FP-SR register of approved Victorian heritage advisors.

This report focusses on Aboriginal heritage and has been prepared with consideration for requirements of the Victorian *Aboriginal Heritage Act 2006*.

[2] Bachelor of Arts, Honours - first class (1975), University of Calgary, Canada.
MPhil (1979), Yale
PhD (1988), Yale

[3] Bachelor of Archaeology (Honours – first class) 2005, University of Calgary, Canada.

[4] Bachelor of Arts in Classics and Archaeology (Honours) 1997, University of Melbourne; Masters of Arts in Archaeology 2004, La Trobe University.

[5] Bachelor of Archaeology (Honours – first class) 2006, La Trobe University.

[6] Bachelor of Arts (History), La Trobe University 2005, Graduate Diploma of Education(Primary), RMIT University, 2007, Master of Professional Archaeology, La Trobe University in progress – industry experience from 2021.

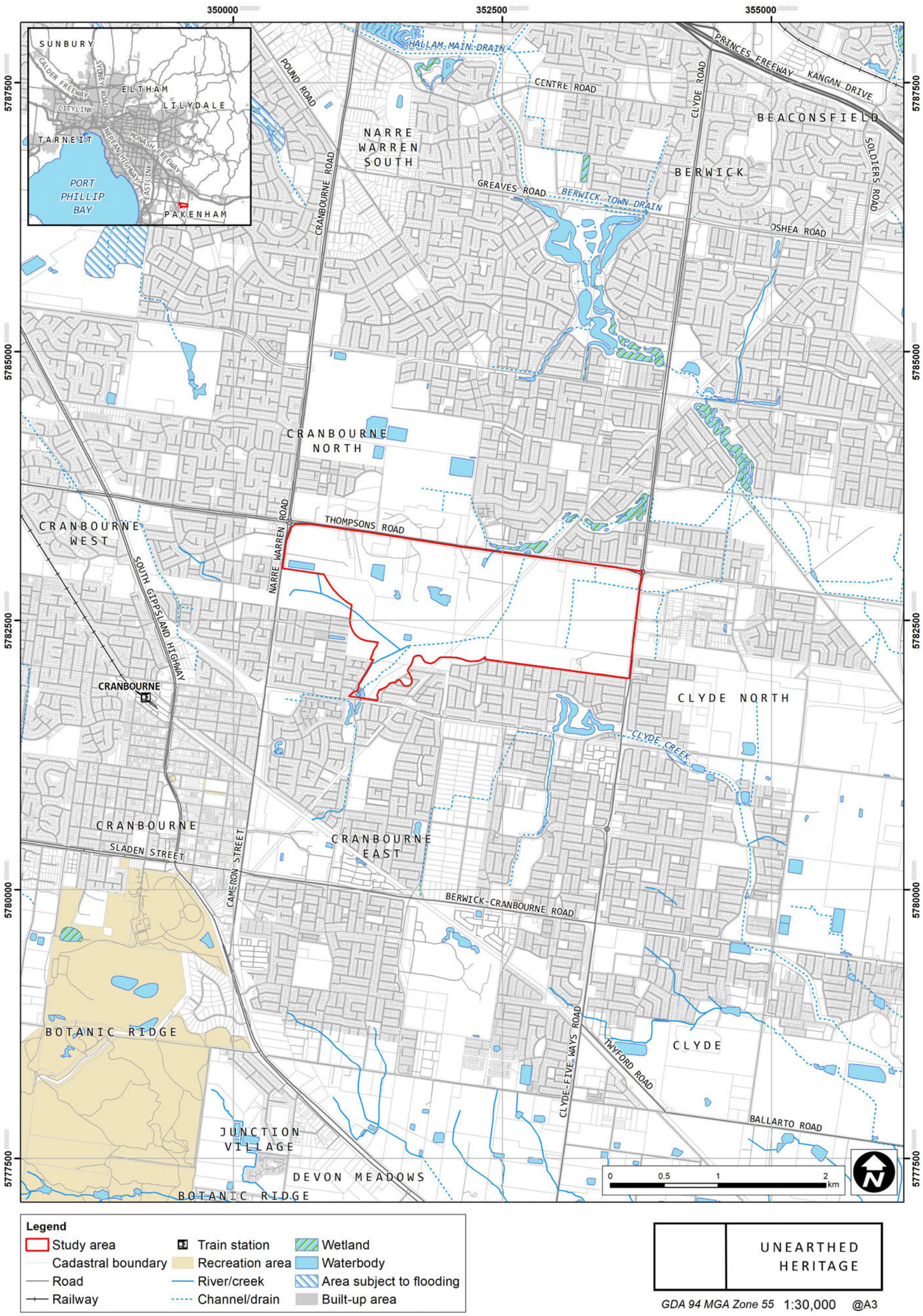


Figure 1-1 Location of the Study Area

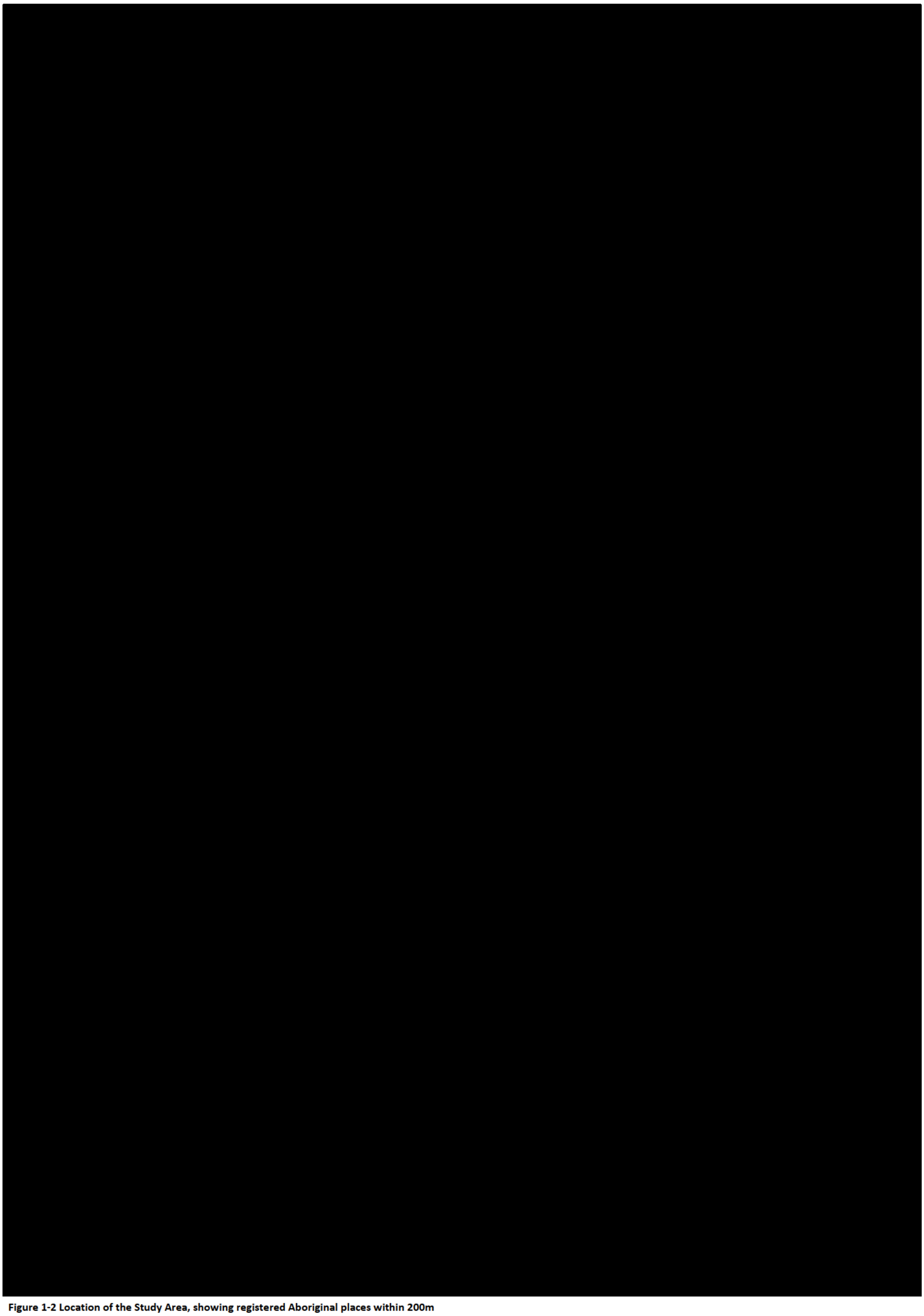


Figure 1-2 Location of the Study Area, showing registered Aboriginal places within 200m

Figure 1-3 Photomap of the Study Area

2 Legislative requirements

2.1 Aboriginal Heritage Act 2006

The Victorian *Aboriginal Heritage Act 2006* (the AH Act) and its Regulations (the Aboriginal Heritage Regulations 2018, or AH Regulations), is the primary piece of legislation providing protection for Aboriginal cultural heritage in Victoria.

The AH Act establishes a number of processes to protect Aboriginal cultural heritage, in particular how to manage cultural heritage for proposed developments. The principal method for this management is a CHMP, which includes a cultural heritage investigation and assessment of proposed development in an activity area and provides management conditions that must be followed to manage and mitigate impact on cultural heritage within the activity area. This process includes the involvement of and consultation with Registered Aboriginal Parties (RAPs), who are also responsible for the evaluation and approval or rejection of CHMPs for their prescribed area. This consultation is undertaken through meetings and through involvement in fieldwork in the identification and assessment of Aboriginal heritage, and subsequent development of management conditions.

The requirement for the undertaking of a CHMP is triggered by the AH Regulations (Regulation 7) when an activity includes a *high impact activity* and the defined activity area includes an *area of cultural heritage sensitivity*. These are further defined below.

2.1.1 High Impact Activities

The AH Regulations define numerous high impact activities, one of which is the subdivision of land into three or more lots (Regulation 46). As such, any properties that propose subdivisions into three or more lots would be classed as a high impact activity.

2.1.2 Areas of Cultural Heritage Sensitivity

Areas of cultural heritage sensitivity (CHS) are defined in the AH Regulations by a number of different spatial parameters intended to reflect where *Aboriginal cultural heritage places* (Places) are most commonly found. The study area includes the following areas of CHS; being:

- Registered cultural heritage places and land within 50 m of these (r. 25)
- Sand sheets (r. 41)

The AH Regulations state that an area that has been previously subject to **significant ground disturbance** is no longer an area of CHS. Significant ground disturbance is defined in r. 5 as disturbance of the topsoil layer by machine excavation or grading but excludes ploughing.

2.1.3 Registered Aboriginal Parties

The AH Act establishes a system of Registered Aboriginal Parties (RAPs) that are given the responsibility of most Aboriginal heritage matters within their registered area, including being responsible for the evaluation of any CHMPs in that area. The RAP for the entirety of the study area is:

- Bunurong Land council Aboriginal Corporation (BLCAC).

3 Consultation

3.1 Government consultation

A Notice of Intent to Survey was submitted to the Secretary, Department of Premier and Cabinet on 13 July 2022 (see Appendix A). An automated response from the Victorian Aboriginal Heritage Register (VAHR) on 13 July 2022 allocated the AV Survey Number 171 for the survey.

3.2 Aboriginal stakeholder consultation

The Registered Aboriginal Party (RAP) for the study area is:

- Bunurong Land council Aboriginal Corporation (BLCAC).

The Notice of Intention to carry out a survey was provided to the RAP on 12 July 2022 (see Appendix A). Project particulars, field methods, Aboriginal heritage values within the study area, and results were discussed with the RAP during meetings and during field investigations for the Aboriginal cultural heritage impact assessment.

The RAP was consulted as part of this assessment. Cultural Heritage Officers representing the RAP were involved in archaeological field survey, as follows:

- Joseph Bowden O'Leary – 25 and 26 July 2022
- Jeff Bowden – 25 and 26 July 2022
- Timani Edwards – 27 and 28 July 2022
- Kira Edwards – 27 and 28 July 2022

Table 3-1 summarises the consultation undertaken during this ACHIA.

Table 3-1 Summary of substantive consultation undertaken with the RAP during the preparation of this ACHIA

Date	From	To	Format	Summary
26 May 2022	Joseph Minter Brooke (UHA)	BLCAC	Email	Field representative booking request for archaeological survey
13 July 2022	Joseph Minter Brooke (UHA)	FP-SR	Electronic, Email	Notice of Intent to carry out a survey form
13 July 2022	Joseph Minter Brooke (UHA)	BLCAC	Email	Notice of Intent to carry out a survey form
13 July 2022	VAHR	Joseph Minter Brooke, Bradley Ward (BLCAC) and BLCAC Submissions	Email	Automatic response and provision of AV Survey Number 171
20 July 2022	See below for attendees		Meeting	Inception meeting – see below for details
25-28 July 2022	See Section 3.2 (above) and Section 5.2 for attendees		Archaeological survey fieldwork	
11 May 2023	See below for attendees		Meeting	Results meeting – see below for details

3.2.1 Summary of meetings

One meeting was held with the RAP and the Sponsor as part of the preparation of this ACHIA.

Inception meeting, 20 July 2022 - Online Meeting

Attendees: Bradley Ward (Heritage Assessment Coordinator, BLCAC), Meg Haas (Archaeologist and Heritage Advisor, BLCAC), Joseph Minter Brooke and David Mathews (UHA), Richard Overall and Suzanne Barker (VPA).

- The meeting commenced with Joseph offering an Acknowledgement of Country.
- Attendees introduced themselves and their roles in relation to the project.
- Richard and Suzanne summarised the Croskell PSP project and background.
- Joseph provided a background with environmental and archaeological data for the study area.
- Bradley and Joseph discussed and agreed that conversations could be had with David Tutchener, to provide feedback on ethnohistorical information within the ACHIA based on the Cultural Values Assessment being produced by BLCAC.
- Bradley made the following points:
    - BLCAC would encourage voluntary CHMPs across the PSP
    - Dunes are areas of CHS even if they are not currently mapped
- Bradley suggested manual augers, especially on small rises
- Bradley asked about native remnant vegetation
    - Suzanne and Richard said that an assessment is about to take place and that material can be passed on to heritage team and to David Tutchener.
    - Some native veg is present in the southern boundary and around the northwest (land on edge of quarry).
- Survey methodology was discussed, with the following points agreed upon:
    - The survey team would be encouraged to look at rises
    - It is desirable to focus on areas that haven't been surveyed before
    - Archaeologists would be responsive to feedback from CH officers
- Bradley and Meg agreed that BLCAC would open to predictive model / likelihood model but stress there is potential for heritage across the study area.

Results meeting, 11 May 2023 - Online Meeting

Attendees: Bradley Ward (Heritage Assessment Coordinator, BLCAC), Dr Fleur King (Archaeologist and Heritage Advisor, BLCAC), Joseph Minter Brooke, Richard Overall (Senior Strategic Planner, VPA).

- The meeting commenced with Joseph recapping fieldwork assessments that had occurred to date as part of the ACHIA.
- Richard provided an overview of the Croskell Precinct Structure Plan goals and the processes involved.
- Bradley and Fleur explained the purpose of the current ACHIA as an effort to preserve natural landforms, and thereby Aboriginal cultural heritage, and that these goals were shared by a Cultural Values Assessment being prepared broadly in parallel for the study area.
- Bradley and Fleur requested that disturbance from the desalination plant powerlines (high level disturbance) be added to the mapped disturbance.

- Bradley and Fleur requested that the ACHIA report specify areas in which mandatory CHMPs would be required, namely where high impact activities are proposed within areas of cultural heritage sensitivity.
- Likewise, BLCAC would like for the ACHIA to recommend voluntary CHMPs for all activities (regardless of impact level) within areas of determined to have moderate, moderate-high and high levels of Aboriginal archaeological sensitivity.
- Bradley and Fleur discussed BLCAC's preference that CHMPs be undertaken at smaller scales, such as at the level of single activities, rather than at larger scales.
- Discussions between VPA and BLCAC are to continue regarding signage, namings, cultural and cultural heritage interpretation, plantings and land preservation.

4 Desktop Assessment

This section provides background information on the study area and the surrounding region. This information is presented to provide an understanding of the physical, historical, cultural and archaeological setting in which the study area is located. This information is useful in developing archaeological place prediction models. Melinda Albrecht, Peter Mathews and David Mathews undertook the background research for the desktop assessment. There were no obstacles encountered to undertaking the desktop assessment.

4.1 Bunurong and First Nations terms and place names

The following spellings have been used to refer to Aboriginal language group names throughout the desktop assessment:

- Bunurong
- Wurundjeri Woi wurrung
- Wadawurrung
- Taungurung
- Dja Dja Wurrung
- Ngurai-illam wurrung
- Gulidjan
- Djargurd wurrung
- Tjap Wurrung
- Dhauwurd wurrung
- Girai wurrung (Eastern Maar)
- Gunai Kurnai
- Gadubanud
- Wemba-wemba
- Waveroo
- Wiradjuri (New South Wales)
- Kamilaroi (New South Wales)

The following spellings have been used to refer to Bunurong clan group names in this desktop assessment (numbering links to Clark 1990: 365, 366-369):

- Bun Wurrung balug Bunurong 1
- Mayune balug Bunurong 2
- Ngaruk willam Bunurong 3
- Yallock balug Bunurong 4
- Yalukit willam Bunurong 5
- Yowengarra Bunurong 6

Table 4-1 and Table 4-2 list the Bunurong and non-Bunurong Aboriginal place names used throughout the desktop assessment, referring to ethnohistorical sources where available.

Table 4-1 Bunurong place names referred to in the desktop assessment

Bunurong place name	Other place name(s)	Reference
Berringwallin	Mt Eliza	Thomas, cited in Sullivan 1981: 29
Birrarung Marr	Yarra River	N/A
Cor-han-warabul	Dandenong Ranges	Massola 1959: 180
Dandenong	Dandenong	Thomas, cited in Sullivan 1981: 29
Euro-yoroke	St Kilda	Massola 1959: 180
Koort-Boork-Boork	Williamstown	Massola 1959: 180
Mahoon	Western Port plains	Thomas, cited in Sullivan 1981: 29
Mirboo	Mirboo	Massola 1959: 180
Mon Mare	Point Nepean	Thomas, cited in Sullivan 1981: 29
Moody Yallock	Mordialloc	Stevens 2021: 59
Mordialloc	Nine-mile beach	Thomas, cited in Sullivan 1981: 29
Naarm	Melbourne	N/A
Neerim	Neerim	Massola 1959: 180
Nerm	Port Phillip	Massola 1959: 180
Nungallin	Mt Martha	Thomas, cited in Sullivan 1981: 29
Tarwin	Tarwin River	N/A
Tunnahan	Cape Schank	Thomas, cited in Sullivan 1981: 29
Wamoon	Wilson's Promontory (specifically Mount Oberon)	N/A
Warn Marin	Western Port	N/A
Warn-mer-in	Western Port	Massola 1959: 180
Warragul	Warragul	Massola 1959: 180
Wonga	Arthur's Seat	N/A
Wongho	Arthur's Seat	Thomas, cited in Sullivan 1981: 29
Yellodunwho	Sandy Point	Thomas, cited in Sullivan 1981: 29

Table 4-2 Non-Bunurong Aboriginal place names referred to in the desktop assessment

Non-Bunurong place name	Other name(s)	Reference
Werribi-Yulluk	Werribee River	N/A

4.2 Aims of the Assessment

The aims of the desktop assessment were:

- To determine the level of previous Aboriginal heritage investigation of the study area and the surrounding region;
- To determine the presence of registered Aboriginal heritage places within the study area and the surrounding region;
- To determine the environmental context of the study area; and
- Review the historical and cultural setting of the study area and surrounding region.

The methods used to undertake the desktop assessment included:

- Reviewing appropriate sources, including Victorian government on-line information, and summarising relevant environmental background;
- Searching the Victorian Aboriginal Heritage Register (VAHR) and other research sources (for example, consultancy reports and academic research) for information relating to the study area and the geographic region
    - A VAHR search was undertaken (on 6 June 2022)

- Reviewing this information to identify and characterise Aboriginal site types likely to be present within the study area and to obtain relevant information to inform the assessment.

4.3 Environmental Context

This section provides an overview of the environmental context of the study area, with particular focus on factors that may have influenced past human behaviour and hence archaeological place formation processes and the distribution of Bunurong living cultural heritage places. The land-use history of the study area is also reviewed as it assists in identifying any site formation processes that may have impacted the occurrence and/or location of Bunurong living cultural material and values.

Geographic Region

In order to allow for an understanding of broader environmental resources available to the Bunurong who utilised the study area, it is necessary to place geographical parameters on this desktop assessment to provide a meaningful context broad enough to capture regional environmental and Bunurong place distribution patterns, while remaining targeted so that these patterns are not missed. While the study area itself provides a large information sample given its size (318.56 ha), the geographic region used for this assessment covers an additional 498.99 ha surrounding the study area (with a total area of 817.55 hectares as per Figure 4-1). The area of the geographic region is based on a 500 m buffer around the study area; following a minor change to the study area midway through the completion of this ACHIA, the original geographic region has been retained. This geographic region provides a view of immediately neighbouring accessible resources and variations regarding flora and fauna, geology, soils, geomorphology, the occupation by Bunurong people since deep time that may have led to the creation of Bunurong places, living cultural heritage meanings and obligations to such places and/or corridors, whether today on the terrestrial surface of this study area, or throughout the land-use history since the advent of colonialism, including the activities that may have disturbed Bunurong places.

4.3.1 Geology and Geomorphology

The study area and the geographic region are situated within the Gippsland Plain (GipP) bioregion (Environment, Land, Water and Planning 2022). The study area is located on the Eastern Plains Central sunklands geomorphological unit (GMU), on the subunit of 'Coastal plains with ridges and dunefields' (GMU 7.1.1) (Table 4-4 & Figure 4-1). The geographic region, while dominated by this same GMU, also encompasses a very small area of the Southern Uplands, very low relief (very low elevation generally less than 100 m) GMU, on the subunit 'Plateau' (GMU 3.3.1) (Table 4-3 & Figure 4-1).

GMU 7.1.1 ('Coastal plains with ridges and dunefields') is described as (VRO 2022a):

> *"The coastal plains with ridges and dunes which are typified in the Brighton, Cranbourne and Tyabb areas are formed over Neogene sediments, generally mantled by a layer of sand of variable thickness. The series of low parallel northwest trending dune ridges that lie parallel to the present coastline are believed to represent stranded Neogene dune ridges or former coastlines. The soils are either acidic sandy texture contrast soils (Chromosols) or deep, strongly acid sands with bleached subsoil and a hard, dark brown "B" horizon of "coffee rock" at about 0.8 m, composed of organic matter and aluminium and/or iron compounds (Podosols).*
>
> *The present climate is humid to sub-humid, with rainfall generally well distributed over the year. The original vegetation is believed to be grassy woodland/damp sands herb-rich woodland mosaic with areas of heathy woodland/heathy herb-rich woodland mosaic. Remnants of the older vegetation on the acidic sands may be seen at the Botanical Reserve south of Cranbourne. Most of the area is now subdivided for housing or used for recreation,*

> *mainly golf courses. Earlier the area was renowned for its market gardens. The former sand quarries that supplied Melbourne with sand are located within this area and now serve as landfill sites."*

GMU 3.3.1 ('Plateau') has relatively low topography, which reflects the initial flat-topped structural blocks before recent uplift. The landform can be described as rolling hills with shallow valleys that become deeper towards the margin of the plateau. Most of the surface soils developed on Cretaceous sediments, but the plateau also has a discontinuous basalt cap. The soils that have developed on the Cretaceous sediments are moderately deep, fertile brown gradational soils (Dermosols) up to 2 m deep (VRO 2022b).

In terms of geology, both the geographic region and the study area are dominated by the Red Bluff Sandstone (Nbr), with Inland dune deposits (Qd1) also present, and smaller quantities of Monbulk Volcanic Group (Nuo), with the geographic region also including small sections of Swamp and lake deposits (Qm1) and Murrindindi Supergroup (Sm) (Figure 4-2).

The study area is of relatively low elevation (Figure 4-3 shows the study area overlain on a digital elevation model or DEM, with Figure 4-4 showing a Lidar DEM map of the study area), with land in the north western corner of higher elevation where the existing sand quarry is situated. Landforms within the geographic region can be divided into several useful analytical categories:

- Flat to gently undulating plain;
- Swamps and wetlands (former and ephemeral);
- Sandy rises and dune landforms, and
- Floodplain.

Table 4-3: Geomorphological units within the Geographic Region

Geomorphological Units (Tier 3)	GMU Tier 1 Description	GMU Tier 2 Description	GMU Tier 3 Description	Lithology	Area (ha)	Area (%)
3.3.1	Southern Uplands (SU)	Very low relief (very low elevation, generally less than 100 m)	Plateau (Bellarine Peninsula, Cape Liptrap, Moorooduc Plains; including Mt. Martha and Mt. Eliza)	Sedimentary	0.28	0.03%
7.1.1	Eastern Plains (EP)	Central sunklands	Coastal plains with ridges and dunefields (Brighton, Cranbourne)	Aeolian and Alluvium	817.27	99.97%
Total					**817.55**	**100.00%**

Table 4-4: Geomorphological units within the Study Area

Geomorphological Units (Tier 3)	GMU Tier 1 Description	GMU Tier 2 Description	GMU Tier 3 Description	Lithology	Area (ha)	Area (%)
7.1.1	Eastern Plains (EP)	Central sunklands	Coastal plains with ridges and dunefields (Brighton, Cranbourne)	Aeolian and Alluvium	318.56	100.00%
Total					**318.56**	**100.00%**

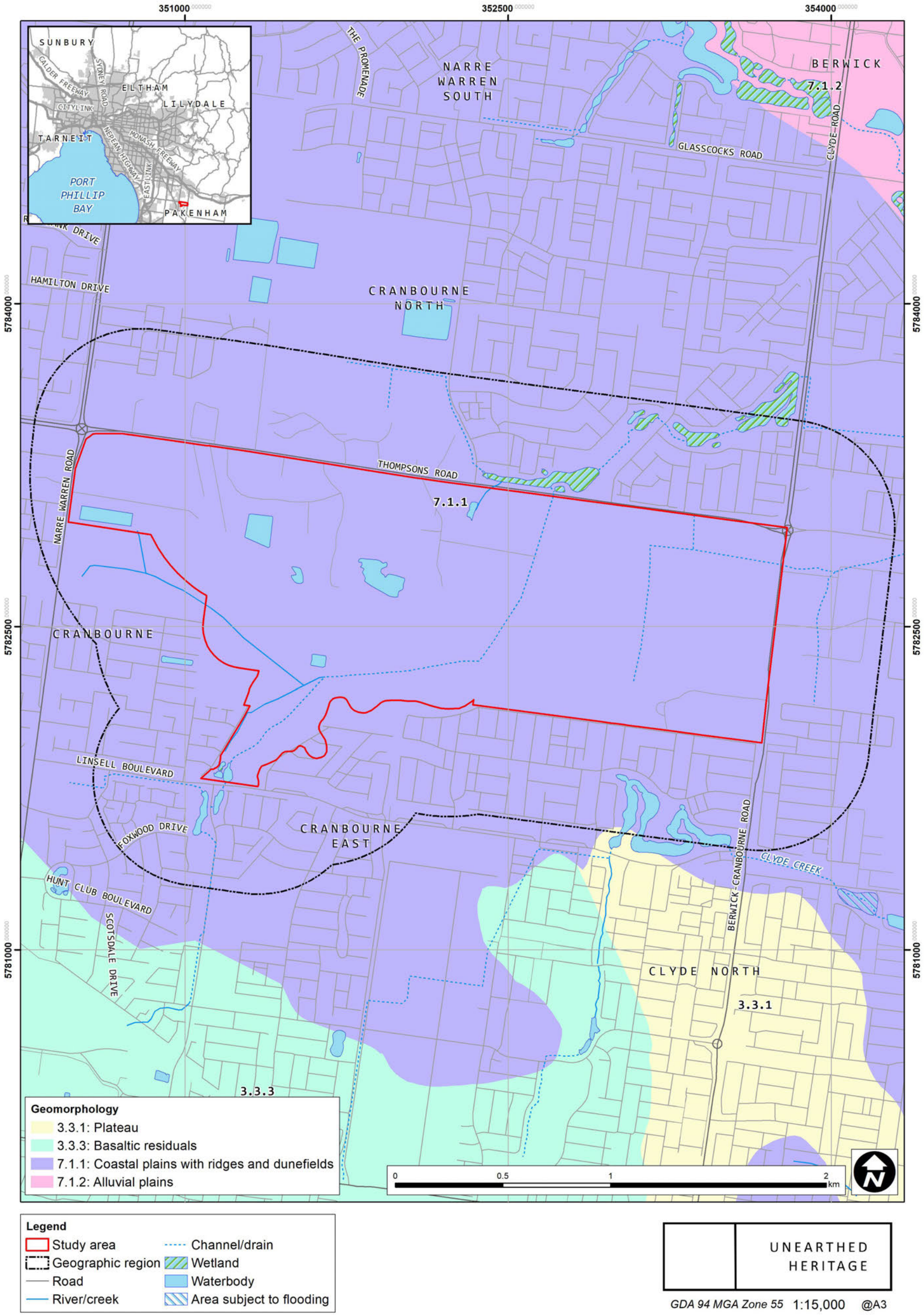
Table 4-5: Geological units within the Geographic Region

ID	Name	Description	Area (ha)	Area (%)
Nbr	Red Bluff Sandstone (Nbr): generic	Sandstone, conglomerate: pale yellow and brown; fine to coarse-grained, massive to well bedded; cross-bedded; local ironstone	602.89	73.74%
Nuo	Monbulk Volcanic Group (Nuo): generic	Basaltic lava flows: basanite, olivine tholeiite, hawaiite	35.54	4.35%

ID	Name	Description	Area (ha)	Area (%)
Qd1	Inland dune deposits (Qd1): generic	Sand, silt, clay: friable to consolidated; well sorted; includes both lunette deposits and deposits of longitudinal dunes	147.04	17.98%
Qm1	Swamp and lake deposits (Qm1): generic	Grey to black carbonaceous mud, silt, clay, minor peat: generally unconsolidated; rare dolomite	22.64	2.77%
Sm	Murrindindi Supergroup (Sm): generic	Siltstone, shale, sandstone, rare conglomerate and limestone; sandstone typically quartz-rich in the lower part and lithic in the upper part; siltstone commonly bioturbated; marine to fluvial	9.45	1.16%
Total			**817.55**	**100.00%**

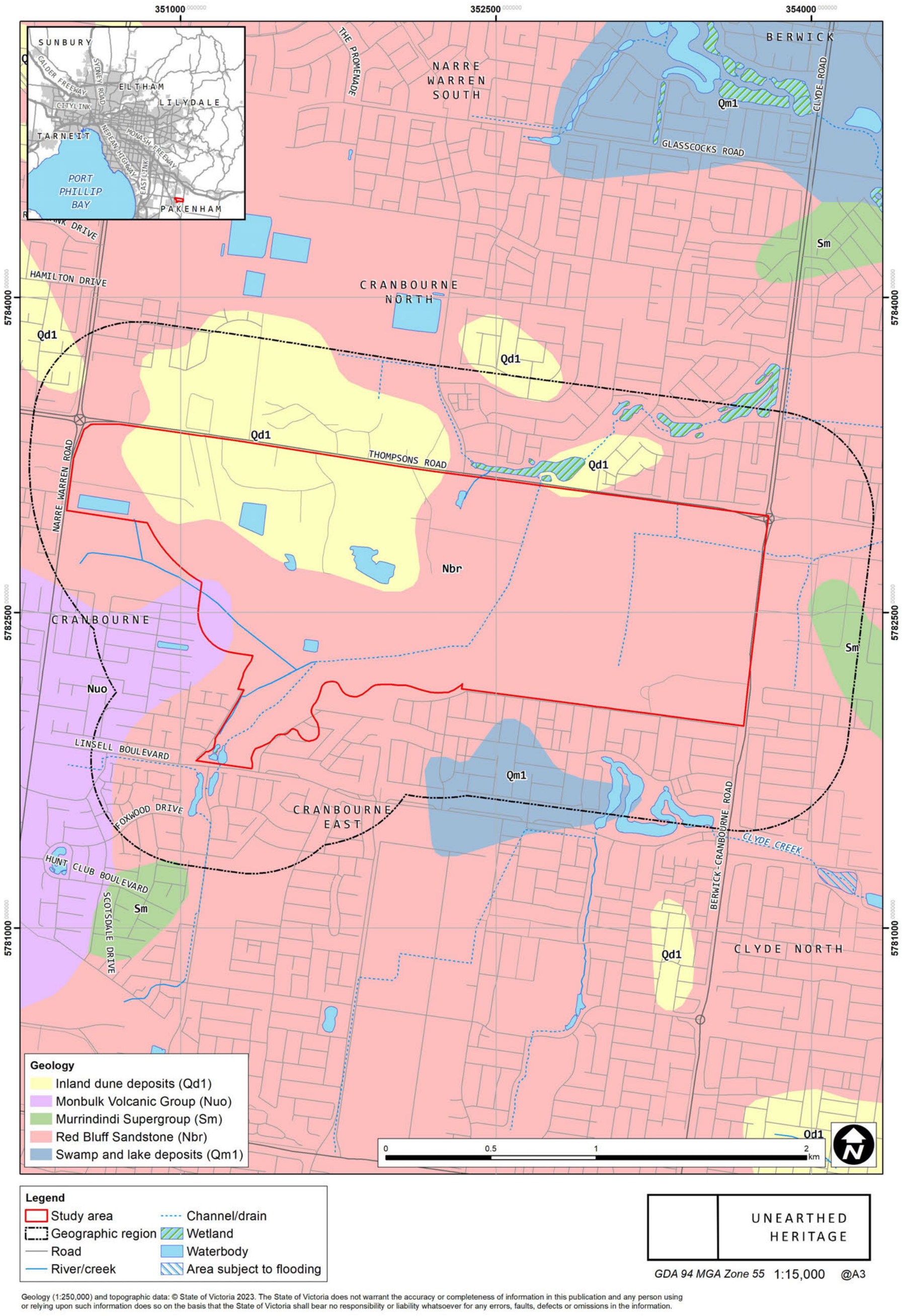
Table 4-6: Geological units within the Study Area

ID	Name	Description	Area (ha)	Area (%)
Nbr	Red Bluff Sandstone (Nbr): generic	Sandstone, conglomerate: pale yellow and brown; fine to coarse-grained, massive to well bedded; cross-bedded; local ironstone	244.47	76.74%
Nuo	Monbulk Volcanic Group (Nuo): generic	Basaltic lava flows: basanite, olivine tholeiite, hawaiite	4.38	1.38%
Qd1	Inland dune deposits (Qd1): generic	Sand, silt, clay: friable to consolidated; well sorted; includes both lunette deposits and deposits of longitudinal dunes	69.71	21.88%
Total			**318.56**	**100.00%**



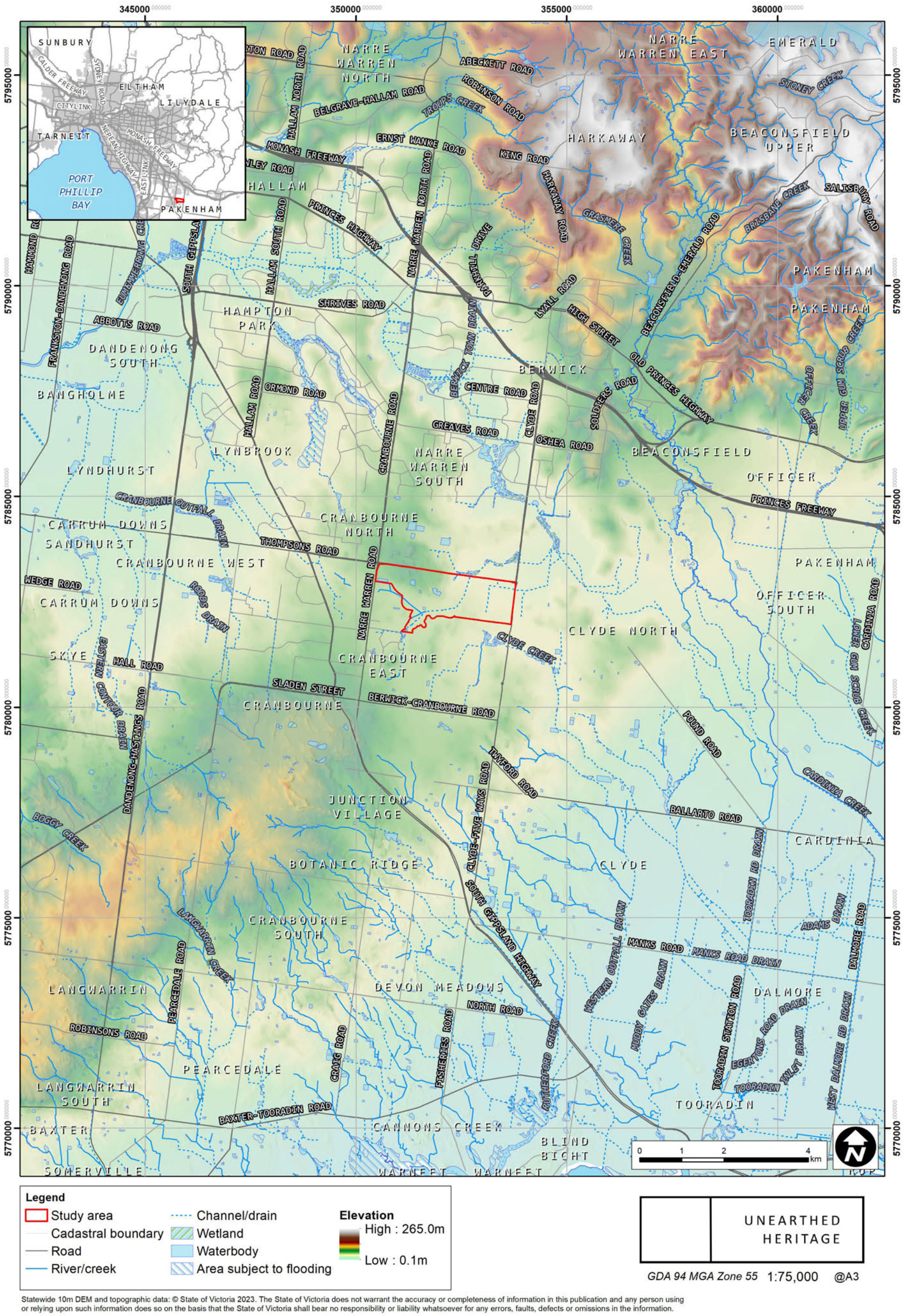
Geomorphology and topographic data: © State of Victoria 2023. The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

Figure 4-1 Geomorphology of the Study Area and geographic region



Geology (1:250,000) and topographic data: © State of Victoria 2023. The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

Figure 4-2 Geology of the Study Area and geographic region



Statewide 10m DEM and topographic data: © State of Victoria 2023. The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

Figure 4-3 Digital Elevation Model (DEM) of the Study Area

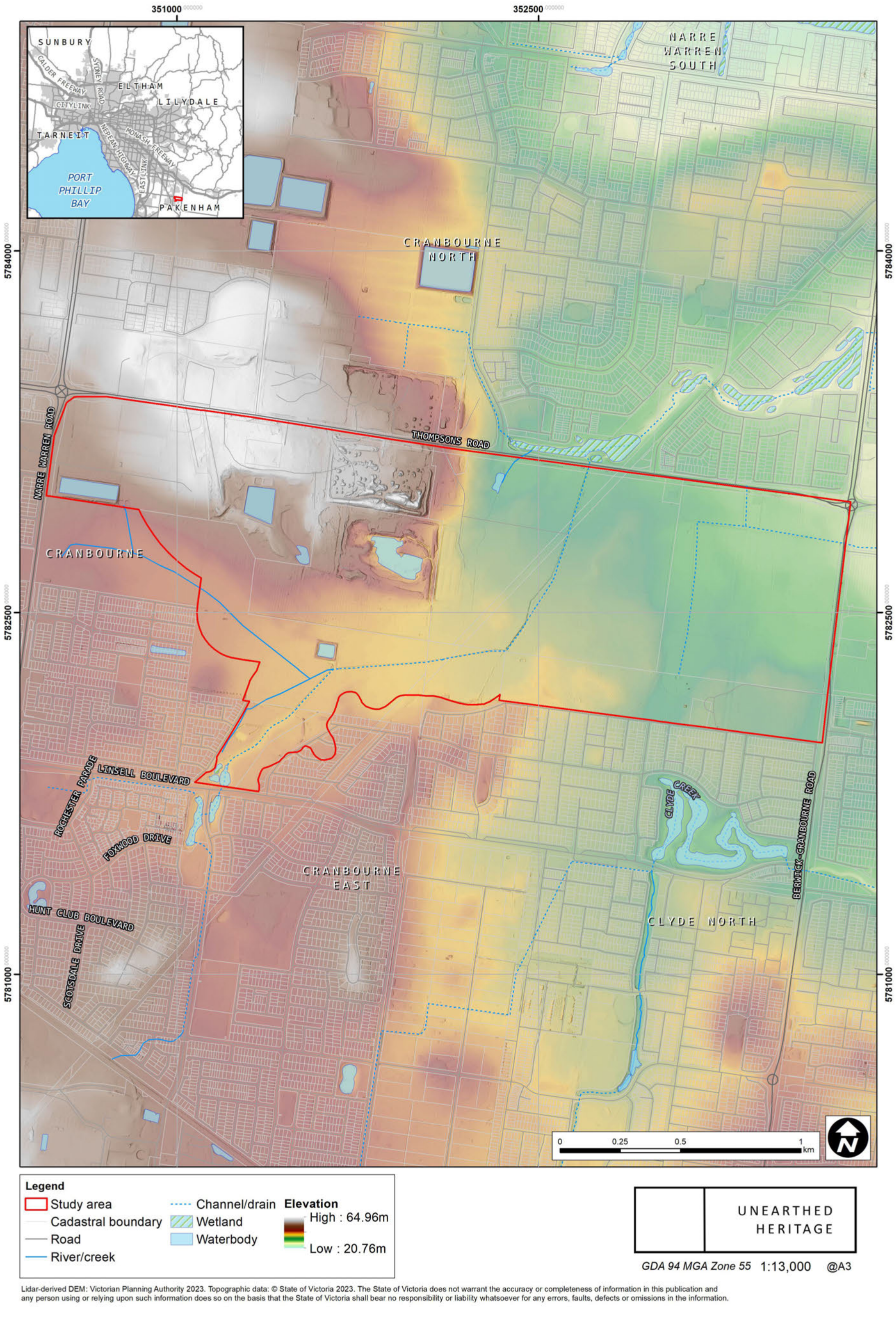


Figure 4-4 Lidar Digital Elevation Model (DEM) of the Study Area

4.3.2 Flora and Fauna

Prior to European colonialism and land-use, both the geographic region and the study area would have been dominated by Plains Grassland and Chenopod Shrublands (Ecological Vegetation Class (EVC) 897), with small areas of Heathy Woodlands (EVC 48), and within the geographic region, smaller quantities of Riparian Scrubs or Swampy Scrubs and Woodlands (EVC 53) and Wetlands (EVC 125) dotted throughout (Figure 4-5, Table 4-7, Table 4-8).

There is no information available for the Plains Grasslands and Chenopod Shrublands (EVC 897), which was likely primarily treeless and dominated by grass, shrub and herb species.

Heathy Woodlands vegetation (EVC 48) is generally associated with nutrient poor soils such as deep uniform sands and Tertiary sand/clay. The vegetation consists of eucalypt dominated low woodland to 10 m that lacks a secondary tree layer and can support a diverse array of shrubs.

Riparian Scrubs or Swampy Scrubs and Woodlands vegetation (EVC 53) comprised closed scrub to 8 m tall at low elevations on alluvial deposits along streams or on poorly drained areas containing high nutrient availability. This EVC is dominated by Swamp Paperbark (*Melaleuca ericfolia*) and sometimes Woolly Tea-tree (*Leptospermum lanigerum*) (DELWP 2022).

Wetland environments were usually treeless, with some sparse River Red Gums (*Eucalyptus camaldulensis*) or Swamp Gum (*Eucalyptus ovata*) present, along with a sparse shrub component(EVC 125, DELWP 2022).

The broad range of vegetation in the region historically provided Bunurong people in the area access to a range of plant and animal food resources, including swamp wallabies, eastern grey kangaroos, bandicoots, quolls, echidnas, amphibians and reptiles which would have populated the area (Bioregional Assessments 2022). Waterways and swamp areas would have provided further food sources, such as eels, fish, birds and eggs (see Section 4.5.4, where animals in Bunurong Country are considered using available ethnographic evidence). The vegetation itself would have also provided many resources to Bunurong people, such as wood and bark for tools, plant material for medicinal purposes, and fibres for netting and bags (Section 4.5.3).

Table 4-7: EVC units within the geographic region (DELWP 2022)

EVC Code	Group Name	EVC Name	Sub-group	Area (ha)	Area (%)
0048	Heathy Woodlands	Heathy Woodland	Dry and/or better drained	66.55	8.14%
0053	Riparian Scrubs or Swampy Scrubs and Woodlands	Swamp Scrub		13.53	1.66%
0125	Wetlands	Plains Grassy Wetland	Freshwater	7.95	0.97%
0897	Plains Grasslands and Chenopod Shrublands	Plains Grassland/Plains Grassy Woodland Mosaic	Clay soils	729.52	89.23%
Total				**817.55**	**100.00%**

Table 4-8: EVC units within the Study Area (DELWP 2022)

EVC Code	Group Name	EVC Name	Sub-group	Area (ha)	Area (%)
0048	Heathy Woodlands	Heathy Woodland	Dry and/or better drained	22.92	7.19%
0897	Plains Grasslands and Chenopod Shrublands	Plains Grassland/Plains Grassy Woodland Mosaic	Clay soils	295.64	92.81%

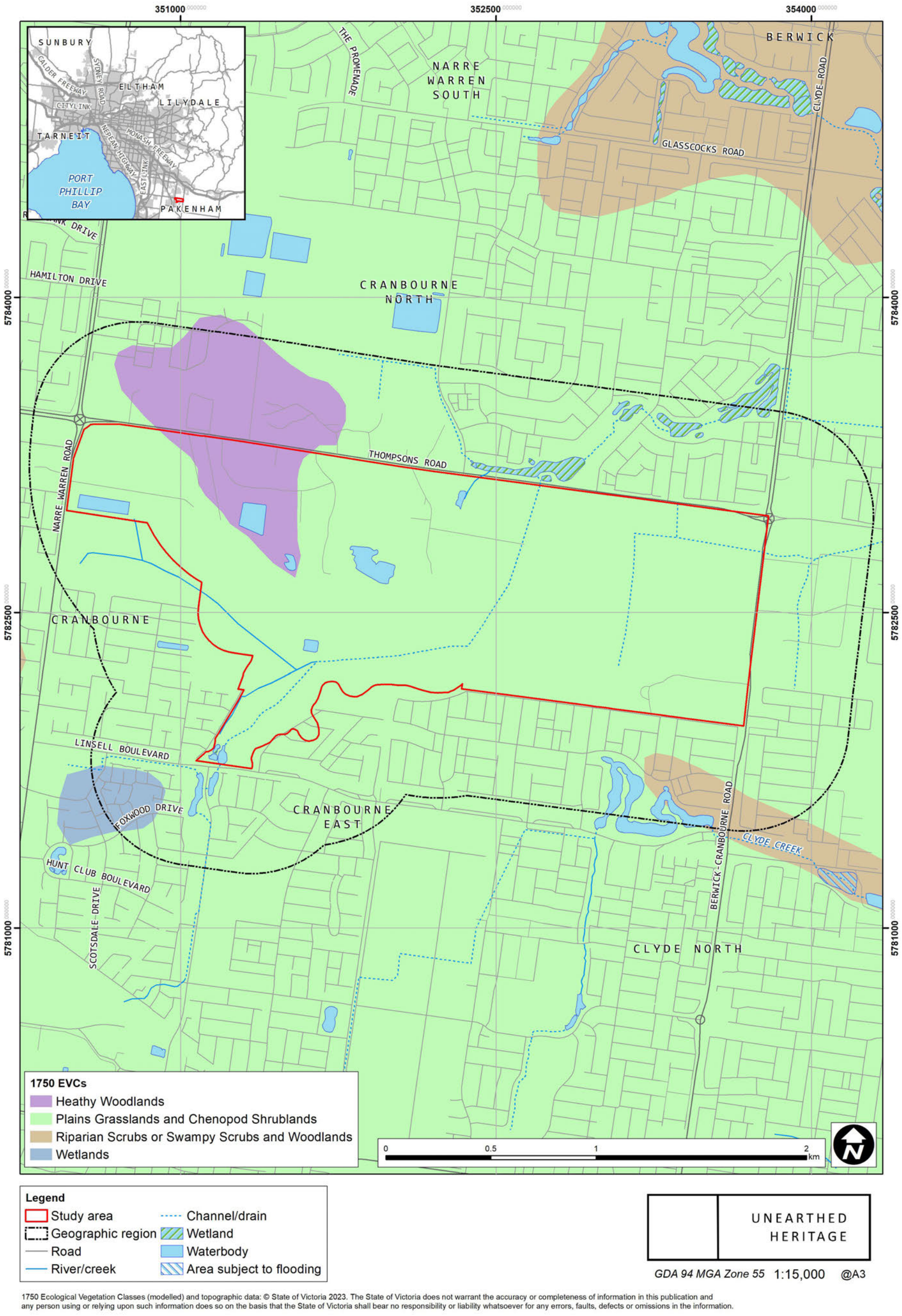
EVC Code	Group Name	EVC Name	Sub-group	Area (ha)	Area (%)
Total				**318.56**	**100.00%**

4.3.3 Climate

In the study region, summer average maximum and minimum temperatures are *c*. 25.7° and 14.0° Celsius, respectively, while in winter the average maximum and minimum are 13.4° and 6.2° Celsius, respectively (BOM 2020). The average annual rainfall is *c*.811.1 mm, with September being the wettest month (BOM 2020).

While these climatic conditions would have placed no strictures on Bunurong occupation, they would have clearly led to differential seasonal occupation across different parts of the landscape. Additionally, during the long period of Bunurong and Kulin Nation residency of the broader region (at least *c*.37,000 years BP), climatic conditions have varied significantly, including colder and drier conditions that would have seen the drying up of Nerm / Port Phillip Bay, and warmer and wetter periods that would have provided different challenges and opportunities for occupation (Mulvaney and Kamminga 1999).

The current coastline of Nerm / Port Phillip Bay *c*. 6 kya after the sea settled to its current level (rising above current level then falling 1-2 m to contemporary level). During the Pleistocene ice age, low sea levels allowed a land mass to extent across what is now Nerm / Port Phillip Bay. Between *c*.18-6 kya as the climate warmed, this land mass was submerged and the current bay formed (Bird 2011: 4).



1750 Ecological Vegetation Classes (modelled) and topographic data: © State of Victoria 2023. The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

Figure 4-5 Modelled 1750s EVCs of the study area and the geographic region

4.4 Cultural Context

The following review of Bunurong culture, history, and lifeways is relatively limited insofar as it is based only on desktop sources and has not incorporated oral history information or contributions from Bunurong People. Please note that special attention is paid here to the Bun wurrung language group of the Kulin Nation, although some references have also been made to neighbouring language groups.

4.4.1 Introduction

The discovery of the region around Nerm/Port Phillip Bay and Warn Marin/Western Port occurred at least 40,000 years ago—by Aboriginal people. The climate, landscape, vegetation, and fauna would have been different from today, with fluctuations between temperate and colder and drier conditions. Very cold conditions, from about 26,000 to 16,000 years ago (peaking from 23,000 to 19,000 years ago) involved temperatures up to 5ºC cooler than today and drier, even arid, conditions. At that time sea levels were much lower (beginning about 30,000 years ago Tasmania was joined to continental Australia). The ancestors of the Kulin Nation Peoples who moved into the Nerm/Port Phillip Bay area would have seen a very different landscape from that of today. Instead of a broad, shallow bay with seawater there would have been a gently rolling land basin intersected by an ancestral Birrarung Marr/Yarra River and its tributaries. The climate generally would have been cooler and drier than that of today. In good times, climatically speaking, the Nerm/Port Phillip Bay area would have been grassland, perhaps lightly wooded in some areas, with an extensive sand dune belt covering the present entrance to the Nerm/Port Phillip Bay. The Bay's grassland basin would have been a hunter's paradise, with a variety of animals—including now-extinct megafauna, along with many types of plant food and readily available fresh water. In harsher times the Aboriginal population would have concentrated around scarcer water and food resources, for example along the coast. Any coastal sites from those times are now underwater, since there has been a sea level rise of up to 120 meters from the lowest ‘Glacial Maximum’ sea levels of around 20,000 years ago.

There are Aboriginal stories remembering Nerm/Port Phillip Bay when sea levels were lower and it was dry land. William Hull, who had a run, ‘Holcombe’, near Daylesford, gave evidence before the 1858-1859 Select Committee of the Victorian Legislative Council on the Aborigines, in which he related a story about Nerm/Port Phillip Bay (he calls it ‘Hobson’s Bay’):

> With regard to traditions, I may say it is not generally known that the blacks,— Cunningham, Murray, and Old Bembo, say that their grandfather, "My uncle," as they call him—they do not know the word grandfather, my uncle is the term they use for all progenitors—recollected when Hobson's Bay was a kangaroo ground; they say, "Plenty catch kangaroo, and plenty catch opossum there;" and Murray assured me that the passage up the bay, through which the ships came, is the River Yarra, and that the river once went out at the heads, but that the sea broke in, and that Hobson's Bay, which was once hunting ground, became what it is. *(William Hull, testimony to Select Committee . . . 1859: 12).*

A similar story was recounted by the artist Georgina McCrae, who lived at Wonga/Arthur’s Seat in Bunurong Country from 1845 to 1851:

> Mr Robert Russell says that Mr Cobb talks to the blacks in their own language, and that the following is an account, given by them, of the formation of Port Phillip Bay: “Plenty long ago . . . *gago*, *gego*, *gugo* . . . alonga Corio, men could cross, dry-foot, from our side of the bay to Geelong.” They described a hurricane—trees bending to and fro—then the earth sank, and the sea rushed in through the Heads, till the void places became broad and deep, as they are today *(McCrae, ed. 1966 [1934]: 204).*

Some 1600 generations or more after Aboriginal people settled the Nerm/Port Phillip Bay region, it was 'discovered' by invading Europeans. The impact on the lifeways, languages, and traditional knowledge of the Aboriginal people in the region – and on the people themselves – was immediate and devastating.

4.4.2 Ethnohistorical Background

The current study area is in the Country of the Bunurong People, which at the time of the European invasion, comprised the land stretching from the northern and eastern shores of Nerm/Port Phillip Bay and their hinterlands and Warn Marin/Western Port and inland from it. Ian Clark (1990: 364) reconstructs the western boundary of Bunurong Country as Werribi Yulluk/Werribee River. From there, Bunurong Country stretched as a narrow coastal strip across the southern suburbs of Melbourne, to the southern slopes of Cor-han-warabul (the Dandenong Ranges). From there, Clark reconstructs the eastern boundary of Bunurong Country southeast to near Port Franklin, and encompassing the area from Tarwin/Tarwin River and Wamoon/Wilson's Promontory. Under the *Aboriginal Heritage Act 2006* (Vic), the current Bunurong RAP map is similar to these boundaries with the exception of the country east of the Tarwin/Tarwin River, which is currently disputed by the Bunurong and Gunai Kurnai Peoples.

Boundaries between Aboriginal language groups appear largely to be determined by features of the landscape. While boundaries would not have been fixed immutably over time, Aboriginal Peoples have always had an extremely strong connection to their Country, as frequent European references from colonial times attest:

> every tribe has its district the boundaries of which must not be passed without permission from the tribe to which it belongs *(Lancelot Edward Threlkeld to William Alers Hankey, 29 Aug 1825, cited in Mitchell [2011: 89]).*
>
> . . . each Tribe has its own district the extent and boundaries of which are well known to themselves, and they speak of their country to a stranger with emotions of pride. . . [territories] were amongst themselves well understood and sacredly recognised from one generation to another *(James Dredge to D. Harding, 12 September 1840, 6 June 1842, cited in Mitchell [2011: 87]).*

In the following sections, ethno-historical and historical information relating to the Bunurong People in general, and in particular those people living in the Cranbourne area, is briefly reviewed. This information will assist in understanding Aboriginal subsistence and occupation patterns across the region. It also helps inform the documented archaeological record of the region and assists in the interpretation of archaeological sites in the wider area, as well as helping to predict the potential location of archaeological site types within the study area. Some of our information comes from early European travellers and settlers in the region, as well as government officials, and so must be viewed through a filter of bias and misunderstanding that these writers often had. On the European side there were problems due to the lack of understanding of Aboriginal languages, customs, and social systems. On the Aboriginal side was an extremely rapid loss of much of their traditional culture in the face of loss of lands, disease, and societal breakdown. The removal of Aboriginal groups to reserves and mission stations added to problems associated with early European accounts of the Aboriginal people of Victoria (Barwick 1984: 103). As the anthropologist Dianne Barwick pointed out, ". . . their [nineteenth century European writers'] jealousies, ambitions, loyalties and roles in colonial society shaped their inquiries and the content of their publications" (Barwick 1984: 103). These nineteenth century authors were writing from an Anglo-centric and gender-biased viewpoint for a colonial audience who had a very limited and generally negative view on Aboriginal life, heritage, and culture. Despite these shortcomings, nineteenth century ethnographical accounts are a useful resource (and in some cases the only surviving resource); the information has often

been provided to the various authors by Aboriginal informants or by their first-hand observations and experience.

A major source of information regarding the Bunurong People is William Thomas, who was an Assistant Protector of Aborigines from 1837 through 1849 (see section 4.7.3). After 1849 he was appointed as Guardian of the Aborigines until shortly before his death in 1867. Thomas was a strong advocate for the Bunurong and Wurundjeri Woi wurrung Peoples and learned both their languages. He wrote extensively, and his reports and journals provide much valuable detail on the lifeways of the Bunurong People in the decades immediately following the Invasion.

4.4.2.1 Language

Bunurong Country was part of a broad area of central and northern Victoria occupied by the Kulin Nation Peoples. The Kulin Nation Peoples were divided into different but linguistically-related 'language groups'. Precisely how the groups should be categorized in linguistic terms is still a matter of some dispute. Some scholars have proposed as many as eight 'Western Kulin' languages and four 'Eastern Kulin' languages, along with the Wadawurrung language, which has been considered a less closely related Kulin language; others have proposed as few as three Kulin languages: Western Kulin (with six to ten dialects), Eastern Kulin (with three dialects), and Wadawurrung (or "Wathawurrung"; Blake 2011). Because of the debated status of various of the Kulin languages, they have often been labelled with the term 'language groups'. However it is categorized, the Bun wurrung language is most closely related to Woi wurrung and Taungurung. According to the linguist Barry Blake, Bun wurrung shares 93% of its 'common' vocabulary with Woi wurrung, and 80% with Taungurung (Blake 1991: 50); in fact Blake and Reid count Bunurong, Woi wurrung and Taungurung as a single language: “Central Victoria” (Blake & Reid 1998: 2-4).

The linguistic relationships between these three languages (or one language) and other Victorian language groups were more distant. Blake and Reid counted 46% of shared ‘common’ vocabulary between ‘Central Victoria’ and Wadawurrung, and only 27% with the ‘Gippsland’ language (Blake & Reid 1998: 4).

4.4.2.2 Social Organization

The speakers of the four Eastern Kulin language groups of central and northern Victoria formed the core of what has been called the Kulin 'nation' or 'confederacy': Bunurong, Woi wurrung (today known as the Wurundjeri Woi wurrung), Taungurung (Daung wurrung), and Ngurai-illam wurrung. Two other groups were considered 'honorary' members of the Kulin 'nation': Wadawurrung (Wathaurung) and Dja Dja wurrung (Djadja Wurrung) (Barwick 1984: 105; Presland 2010: 12-15).

At the time of contact with Europeans the Bunurong People comprised 6 clans, according to the historical geographer Ian Clark (1990: 364, 365, 366-369). Each of these clans was responsible for a particular area of land (called their 'estate' by Barwick [1984: 106] and Presland [2010]), and each shared a common identity in terms of history, genealogy and religion (Clark 1990: 366; Barwick 1984: 107-113).

Table 4-9 Boon wurrung/Bunurong clans (Clark 1990: 365, 366-369; Presland 2010: 24)

No.	Clan name	Location	Arweet (Clan-head)	Moiety
1	Bun Wurrung balug	Point Nepean and Cape Schanck	Bobinuren / Bupinnoreng / Bobbinnary / Bobbinary (ca. 1799 – 1849), a famed healer	Bundjil?
2	Mayune balug	Carrum Swamp and inland to top of Western Port Bay, and the northern Mornington Peninsula	Mortrungo / Muduringu / Moderangore / Mooderrogar / Mooderangore / Darngeerer / Budgery Tom (1797/8–1848)	Bundjil

3	Ngaruk willam	Brighton, Mordialloc, and Dandenong, to between Mount Eliza and Mount Martha	Tuolwing / Tooglooim / Tukulneen / Tukulveau / Old George the King (ca. 1770–1839); from 1839: Poleorong / Poliorong / Pole-orrong / Billy Lonsdale (ca. 1815 – 1849/50)	Bundjil
4	Yallock balug	Bass River between Western Port Bay and the Dandenongs	Worindidjolong / Warendedolong / Warrengittolong (1826/8–1848)	Bundjil
5	Yalukit willam	St. Kilda, Port Melbourne and the south side of the Yarra River, to the Werribee River	Derremart /Derrimot / Derrahmart / King Derrimut / Deremaroke (1809/14–1864); and Eurernowel / King Ningerranaro / Mingaragon / Mungarer / Old Mr. Man / Benbow (died after 1852)	Waa?
6	Yowengarra	Tarwin River watershed to Wilson's Promintory	Pur.rine, whose native place was War mum (Wilson's Promontory)	Bundjil

There are several other groups that have been mentioned by early European writers: Edeboligitoorong, 'East of the Weariby River' (possibly Wurundjeri Woi wurrung) (Croll & Wettenhall 1937: 27); Boatnarro, 'Between the Yarro Yarro and Western Port' (Croll & Wettenhall 1937: 27); Tal (Stevens 2021: 58); and Bonkoolawal ('east of Western Port') (Gaughwin & Sullivan 1984: 85-87). The status of these is unclear: some may be different names for one of the six clans above; the last may be an extinct clan.

The Mayune balug is the clan whose estate includes the current study area. Their estate extends from Carrum Swamp to the upper part of the Mornington Peninsula and east to the northern coastal strip of Western Port.

The clan was the most important social group in Aboriginal society. It was the clan that owned the land, and it was the clan with which the individual identified himself or herself (Presland 2010: 18). But all the members of a clan did not permanently live together. Smaller groups, comprising extended families made up the basic economic group. These are generally called 'bands' and would typically number fifteen to twenty individuals – usually one or two families: men, their wives, sons, unmarried daughters, and a shifting population of other relatives (Presland 2010: 18). The band is the group that is most relevant to archaeological investigations, since it is most commonly their activities (hunting, fishing, gathering, camping) that are represented in the rather ephemeral archaeological record. While band membership could be rather fluid, clan membership was established at birth. Both one's moiety and one's clan were inherited from his or her father; this inheritance was retained for life (Barwick 1984: 106). Once born, a clan member identified deeply and spiritually with his or her land. The clan members' connection to the land defined their very existence: it was theirs since the Dreaming: "Wherever one is born, that is his or her country" (William Thomas, cited in Cannon, ed. 1983: 624). And it was the land, tragically, that was taken away from the Aboriginal people: their suffering on this account cannot be overemphasized.

For most of the year, the individual bands making up the Mayune balug clan would have moved around their estates exploiting the various local resources (plant and animal) as they became available for harvesting. At various times of the year, when resources were more widely abundant, larger gatherings—often involving other clans and even other language groups—would be possible. At these times initiations, marriage contracts, trade, and other ceremonies, as well as corroborees, would be conducted.

All the Kulin nations had a patrilineal descent system (rare among Australian Aboriginal people) and an exogamous moiety system. Each clan belonged to either the *Bundjil* ('Eaglehawk', or 'Wedge-tailed Eagle') or *Waa* ('Crow') moiety; marriage had to be with someone from the other moiety. The moiety of the Yaawangi clan and of the Worinyaloke balug clan is unknown (Clark 1990: 335, 334). William Thomas, the Assistant Protector of Aborigines for the Central Protectorate District of Westernport between 1839 and 1849, said the Kulin Aboriginal peoples could marry only outside their *tribe* (Thomas, cited in Gaughwin & Sullivan 1984: 94-95). Presland says Eastern Kulin men sought "marriage partners from within the confederacy but outside of their own *clan*", and that the Wadawurrung were included in this practice (Presland 2010: 15; emphases ours). There seems to have been a preference to marry a member of a distant clan; such marriages would often involve partners from different ecological regions, which would expand the possibilities for resource exploitation. Such marriages could cement alliances between far-flung groups of the Kulin confederacy (and beyond), but they could also cause tensions and enmities.

The Bunurong People would also regularly meet with their Kulin neighbours, the Wurundjeri Woi wurrung and Wadawurrung, to renew family ties, as well as for trade and ceremonial purposes. William Thomas noted in 1840 that:

> By what I can learn, long ere the settlement was formed the spot where Melbourne now stands and the flat on which we are now camped [on the banks of the Birrarung Marr/ Yarra River] was the regular rendezvous for the tribes known as *Warorongs* [Woi wurrung], *Boonurongs* [Bunurong], *Barrabools* [a name for the Watha wurrung balug clan of the Wadawurrung, but in this context for the Wadawurrung more generally], *Nilunguons*, *Goulbourns* [Taungurung] twice a year or as often as circumstances and emergences required to settle their grievances, revenge, deaths etc (Thomas, quoted in Gaughwin & Sullivan 1984: 96).

Thomas also noted that:

> When they [clans] go in large bodies, two or three seniors direct their movements from encampment to encampment, giving instructions overnight or early in the morning the directions each is to take, and where to encamp the coming night *(Thomas, quoted in Cannon, ed. 1983: 624).*

Some of these senior men achieved the status of *Arweet*, clan-head or 'chief' (Barwick 1984: 107). The position of *Arweet* was not hereditary nor elected, but rather was recognition of a man's achievements and authority; it required endorsement from the group and even clan-heads from other Kulin clans (Barwick 1984: 107-108; Presland 2010: 18). In the years following the Invasion the head of the Mayune balug clan was Mortrungo/Muduringu/Moderangore/Mooderrogar/Mooderangore/Darngeerer/Budgery Tom (1797/8–1848). Mortrungo's heir was Buggup/Bagup/Buckup (1820/3–1848) (Barwick 1984: 117; Clark 1990: 367; Presland 2010: 24).

Early reports indicate that the Bunurong were on good terms with the Wurundjeri Woi wurrung and Wadawurrung (William Thomas, for example, stated that "the Bunurong had closer relationships with the Wathaurung of both [Bunjil and Waa] clans than with other groups [Gaughwin & Sullivan 1984: 96]).

The periodic gatherings between various nations or tribes, as was said above, involved a variety of purposes: renewing family ties, trade, dance and song and story-telling, and initiation and ritual and ceremony, as well as the settling of disputes through fighting. Corroborees were a feature of these

meetings, which occurred in many different places across the Aboriginal landscape. There was a formality to the meetings: different groups would camp in separate spaces determined by tradition near the corroboree ground. Some of the Kulin confederacy corroboree grounds, for example, were in what is now inner Naarm/Melbourne: near the present-day Botanical Gardens, Parliament Hill, and Royal Park. The Bunurong had campsites in what are now the Botanical Gardens. The Woi wurrung would camp in places where the Melbourne Cricket Ground and Richmond Oval are now, and the Taungurung camped in today's Clifton Hill. The Wadawurrung camped in what was first the Old Melbourne Cemetery, later paved over as a car park for the Queen Victoria Market (Presland 1980). Other corroborees, such as ones described by Buckley, could involve different groups from within the same tribe or language group.

While the Kulin nations to the north and west of the Bunurong People were friends and allies, the Gunai Kurnai groups to the east, in what is now called Gippsland, were deadly enemies. Numerous violent encounters are on record, including the virtual extinction of the Yowengarra clan by Gunai Kurnai people prior to 1844 (Gaughwin & Sullivan 1984: 84-85).

4.4.2.3 Belief Systems

Spirituality and Beliefs

The Bunurong People have a deep spiritual connection to the land, and believe that the world and all things in it were created by their great ancestor spirit Bundjil (or Bunjil), along with Waa, 'Crow', and a number of other ancestral sprit beings. The Bunurong and other Kulin nations honour Bundjil and Waa by dividing their clans into either Bundjil or Waa moieties:

> *Bunjil* taught the Kulin the arts of life, and one legend states that in that time the Kulin married without any regard for kinship. Two medicine-men (*Wirrarap*) went up to him in the *Tharangalk-bek*, and he said in reply to their request that the Kulin should divide themselves into two parts—"*Bunjil* on this side and *Waang* [*Waa*] on that side, and *Bunjil* should marry *Waang*, and *Waang* marry *Bunjil*" (Howitt 2001 [1904]: 491).

Another Kulin creator being, Lohan , was said to have travelled from the Yarra Flats near Naarm/Melbourne to Wamoon/Wilson's Promontory (specifically Mount Oberon), where he still lives:

> Barak explained that any newcomer to the marine-bek [Bunurong Country] had to obey various ritual prohibitions and 'must also learn the Bunwurung language which is spoken there and which is the language of Lohan who lives at Wilson's Promontory and who made this custom' (Thomas, cited in Barwick 1984: 115).

Bundjil also lived sometimes at Wamoon (Mount Oberon at Wilson's Promontory), which was considered extremely powerful spiritually: it could not be looked upon with the naked eye, and could only be viewed through a screen of branches and leaves (Cotter 2006: 5).

Creation and Other Stories

The Bunurong People, and Aboriginal Peoples generally, believe that the land and its physical features, and the sea and bays such as Nerm/Port Phillip Bay, and the animals and plants that are found on land and in the waters are all the result of the creative actions of ancestral beings, as was said in the previous section.

Bundjil is centrally important in the belief systems of the Kulin Nation Peoples and of some of the people beyond, such as the Gunai Kurnai of Gippsland. He is believed to have used a large knife to carve the earth's surface into mountains and valleys, and rivers and creeks (Smyth 1878, I: 423). Bundjil was believed to live in a mountain called Warmum northeast of Western Port, between the Birrarung Marr/Yarra and La Trobe Rivers: “big one Punjil once sit on that mountain” (Thomas [1854], in Bride, ed. 1898: 91). Another story says that Bundjil rested after finishing his creation journey at sacred sites around Western Port (Howitt, cited in Barwick 1984: 115).

Ceremonies

There is not very much surviving information on the ceremonies conducted by the Bunurong People, and none at all for the Mayune balug clan. There would have been innumerable ceremonies and rituals in Aboriginal society before the Invasion, but they would have been severely disrupted in the years immediately following 1835, and Europeans would only very rarely have been permitted to view them or be told about them. Many ceremonies, and the locations in which they were held, would have been carefully held secret from outsiders by Aboriginal people. The Bunurong People would no doubt have had a large number of ceremonies similar to those of their Kulin neighbours.

One such ceremony was *tanderrum*, a freedom of passage ceremony, an 1845 example of which was described by William Thomas, referring to the Bunurong and/or the Wurundjeri Woi wurrung People:

> There is not, perhaps, a more pleasing sight in a native encampment than when strange blacks arrive who have never been in the country before. Each comes with fire in hand (always bark), which is supposed to purify the air—the women and children in one direction, and the men and youths in another. They are ushered in generally by some of an intermediate tribe, who are friends of both parties, and have been engaged in forming an alliance or friendship between the tribes; the aged are brought forward and introduced. The ceremony of Tanderrum is commenced; the tribe visited may be seen lopping boughs from one tree and another, as varied as possible of each tree with leaves; each family has a separate seat, raised about 8 or 10 inches from the ground, on which in the centre sits the male and around him his male children, and the female and her sex of children have another seat.
>
> Two fires are made, one for the males and the other for the females. The visitors are attended on the first day by those whose country they are come to visit, and not allowed to do anything for themselves; water is brought them which is carefully stirred by the attendant with a reed, and then given them to drink (males attend males and females females); victuals are then brought and laid before them, consisting of as great a variety as the bush in the new country affords, if come-at-able; during this ceremony the greatest silence prevails, both by attendants and attended. You may sometimes perceive an aged man seated, the tear of gratitude stealing down his murky, wrinkled face. At night their mia-mias are made for them; conversation, &c., ensue. The meaning of this is a hearty welcome. As the boughs on which they sit are from various trees, so they are welcome to every tree in the forest. The water stirred with a reed means that no weapon shall ever be raised against them. On Saturday, the 22nd March 1845, at an encampment east of Melbourne, near 200 strangers arrived. The sight was imposing and affecting, especially their attendance upon that old chief Kuller Kullup, the oldest man I have ever seen among the blacks; he must have been near 80 years (Thomas [1854], in Bride, ed. 1898: 97-98).

Mortuary practices

The Kulin people had several forms of mortuary practice. William Thomas commented that:

> Wherever one is born, that is considered his or her country. They have no regular burial places; their bones lie scattered through the bush. Over the men, according to their importance, an oration is delivered, the purport of which is that they, his survivors, will avenge his death, and begging the defunct to lie still till they do so. Over the women and children no ceremony is performed. After the body is interred, the encampment breaks up, leaving a fire at the east of the grave. Orphans are taken great care of. It is considered a great honour to have an orphan added to the family (Thomas [1854], in Bride, ed. 1898: 66).

The most common form of mortuary practice, apparently, was burial, usually in fairly soft ground, for practical purposes (dune ridges were common burial locations). The dead would usually be placed in the ground on their side, flexed, and bound in their possum skin cloaks. The presence of sandy rises in and adjacent to the current study area raises the question as to whether there could be burials in undisturbed sandy rises, but the heavy agricultural and other land-clearing work done in the post-Invasion period means that it is relatively unlikely that any burial places have survived.

Another type of Kulin mortuary practice was to place the deceased in in the hollows or crooks of trees. They would also be tied in their cloaks, and usually at some time later the remains would be cremated.

There are no recorded burial sites within or near the current study area. There are historical references to Aboriginal burial sites near Lang Lang River (on the eastern side of Warn Marin/Western Port, seen by William Thomas in 1840 [Gunson 1968: 10]), San Remo (Murphy et al. 2008: 19), Keysborough to the northwest of the current study area, Tooradin to the southeast, and along the coast of Nerm/Port Phillip Bay and Warn Marin/Western Port (TerraCulture 2000; Murphy et al. 2008: 19).

4.5 Lifestyle, Environment and Resources

4.5.1 Introduction

The general picture of Bunurong subsistence is one of small extended family groups (of fifteen to twenty individuals) – generally called bands – moving about their land on a seasonal basis to exploit the changing availability of plant and animal resources. A typical mobile Bunurong encampment was described by William Thomas, while travelling between Nerm/Port Phillip Bay and Warn Marin/Western Port in 1854:

> It seems that while travelling the people were busy but the day was not long: all are employed; the children in getting gum, knocking down birds etc; women in digging up roots, killing bandicoots, getting grubs etc; the men in hunting kangaroos, etc, scaling trees for opossums etc. They mostly are at the encampment about an hour before sundown – the women first, who get fire and water, etc. by the time their spouses arrive . . . In warm weather, while on tramp, they seldom make a miam – they use merely a few boughs to keep off the wind, in wet weather a few sheets of bark make a comfortable house. In one half hour I have seen a neat village begun and finished" (Thomas, quoted in Gaughwin & Sullivan 1984: 93-4).

The Bunurong People have six seasons throughout the year, based on the animals and plants that come to fruition for harvesting (Gott, cited in Vanderhorn [2023]).

Table 4-10 Bunurong seasons

Season	Calendar Dates	Events and Features
Late summer	February through mid-March	Autumn rains begin; days become cooler. Careful burning of overly thick scrub and tussock grass, supervised by elders. This fertilized the soil and enabled tuberous food plants to grow. Banksia, Honeysuckle, Long-leaf Box, and Silver-leaf Stringybark blossom, providing nectar and attracting birds. Eels become more plentiful in March – a major food source.
Early winter	Mid-March through May	Kangaroos and wallabies attracted to the new vegetation. Fungi grow with the increased moisture and remaining warmth.
Deep winter	June through mid-July	Cold and wet; creeks can flood, so bands move to sheltered upland camps; bark shelters and fires, and wearing possum-skin rugs. Hunting possums, wombats, koalas; grubs in trees. Plant food from small tuberous plants and water plant roots.
Early Spring	Mid-July through August	Silver Wattle and Yellow Box provide nectar. Murnong budding by late August. Clans move down from higher ground as weather warms; birds snared, and eggs collected.
True spring	September, October	A time of plenty. Murnong, lily, and orchid roots eaten, and many greens. Young kangaroos leave the pouch; snakes and lizards become active.
High Summer	November, December, January	Black Wattle flowers in November; grasses flower, fruits ripen: Currant Bush, Apple Berry, Kangaroo Apples. Manna (*Laap*) collected from Manna Gums. Small tuberous roots still available. Eels start to swim down-river; fish numerous – fishtraps set. As the warmer weather develops water, bands move to reliable water sources. Kangaroos and emus can be easily hunted as they come to drink.Snakes and lizards active. Shellfish and fish, and Pigface and Coastal Beard-heath widely available along the coast. A time of plenty, and clans and language groups would get together for trade and festivals.

4.5.2 Fresh Water

Fresh water was not in general a major issue for the Bunurong People. There were numerous rivers and creeks in Bunurong Country. Some flow year-round, but even in those that are not perennial waterholes are usually present. Waterholes were also widespread throughout Bunurong Country, such as the six near Mallum Mallum/Red Bluff, Sandringham (Gunson 1968: 10). In and around the current study area were extensive wetlands (now mostly drained), with good access to water throughout the year.

4.5.3 Plant Resources

The current study area (and virtually all of Bunurong Country) lies within the Gippsland Plain bioregion (DEECA 2022). The current study area and geographic region had a somewhat restricted range of vegetation types, according to mapping of modelled 1750 EVCs (see Section 4.3.2).

Nevertheless, the current study area had good food resources for the Mayune balug clan whose estate they are part of. It should be noted that the native, pre-Invasion vegetation in this region has almost completely disappeared after almost 200 years of European land clearing, grazing, farming, and draining of wetlands and waterways. Prior to the 1840s, only four vegetation types occurred across the current study area and geographic region, and of these one was dominant:

Table 4-11 1750s modelled EVCs as percentage of study area and geographic region

Ecological Vegetation Class (EVC) Name	EVC Number	Percentage of study area	Percentage of geographic region
Plains Grasslands and Chenopod Shrublands	EVC 897	92.81%	89.23%
Heathy Woodlands	EVC 48	7.19%	8.14%
Riparian Scrubs or Swampy Scrubs and Woodlands	EVC 53	0.00%	1.66%
Wetlands	EVC 125	0.00%	0.97%

On the DSE website there is no formal description of EVC 897. Rather, it is described as a mosaic of EVC 55 and EVC 132_61, Plains Grassy Woodland and LaTrobe Valley Plains Grassland, respectively. These vegetation types are characterised generally by open woodlands (up to 15 m high) on undulating plains that often are poorly drained and seasonal (2 to 6 months) swamps. The River Red Gum (*Eucalyptus camaldulensis*) dominates the tree canopy cover, below which is a ground layer characterized by grassland and low shrubs including Kangaroo Grass (*Themeda triandra*) and Common Wallaby Grass (*Austrodanthonia caespitosa*), Supple Spear-grass (*Austrostipa mollis*), and Golden Wattle (*Acacia pycnantha*) and Silver Wattle (*Acacia dealbata*) (DSE 2007).

Murnong was a major plant resource of the Bunurong People (and other southeast Australian Aboriginal Peoples). This plant grew abundantly along stream and riverbanks, as well as in grassland plains and forests and woodlands. Aboriginal people would eat the murnong tuber raw or roasted. A form of plant husbandry practiced, in which women would turn over the soil with digging sticks to get the tubers, and in the process aerate the soil. In open grasslands and woodlands fire would also be used: after burning, the women would dig out the tubers and in the process mix ash into the soil, producing a higher yield the following year; yields would gradually decline until the process was repeated, after three or four years (Presland 2010: 71-72). The firing also promoted a new growth of grasses, which attracted game animals to the area. Murnong

provided a major part of the Aboriginal diet until its ecosystem was largely destroyed by European grazing animals very soon after the European Invasion (Pascoe 2018 [2014]: 18-27).

Most of the Plains Grassland cover of the current study area would have consisted largely of graminoid (grass-like) species, such as Kangaroo Grass (*Themeda triandra*) and various species of Wallaby Grass (*Austrodanthonia caespitosa*) (DSE 2007). As these names imply, they would have provided good grazing food for kangaroos and wallabies, which abounded in the region around the current study area.

Numerous plants available in and around the current study area were utilized by the Bunurong People. The bark from River Red Gum (*Eucalyptus camaldulensis*) trees was used for shields and bowls and other utilitarian functions. Golden Wattle (*Acacia pycnantha*)produces an edible gum. It was harvested, especially in the summer, and softened by soaking in water; it was considered both a food and a tonic. The gum was also used as a glue in the fashioning of artefacts (Cahir et al. 2018: 63-64). James Dawson, an early squatter and student of Aboriginal customs, was probably talking of the Silver Wattle (*Acacia dealbata*) when he wrote:

The gum of the acacia, or common wattle tree, is largely consumed as food, as well as for cement [for tools and weapons]; and each man has an exclusive right to a certain number of trees for the use of himself and his family. As soon as the summer heat is over, notches are cut in the bark to allow the gum to exude. It is then gathered in large lumps, and stored for use (Dawson 1881: 21).

Another plant that was of importance to the Bunurong People, but which also became of economic importance to the European invaders, was the Black Wattle (*Acacia mearnsii*). This grew widely in Bunurong Country, and was a major resource for them for food, fibre, and medicine. By the 1830s Europeans discovered its uses for the tanning industry, and in the spring and summer months would strip the bark from trees when their sap was flowing. The Western Port area became a major focus of the wattle bark industry, and grew quickly as the region's other main resource for Europeans – seals – were largely wiped out by the late 1830s. In the process of essentially ringbarking the trees, the Black Wattle forests were decimated.

In all, almost 300 plants were utilized by the Aboriginal peoples of Victoria (Gott and Conran 1991; Gott 1991, 2001, 2008; Zola and Gott 1992; Presland 2010: 71; Cahir et al. 2018).

4.5.4 Animal Resources

4.5.4.1 Mammals

The plains surrounding the current study area had a wide variety of native animal resources before European colonialism. Early European settlers and visitors in the plains and woodlands stretching between Melbourne and Western Port described the local native fauna as plentiful; the region would have been a rich one for the Bunurong clans whose estates they are, and especially abundant in the vicinity of water sources. In the years following the Invasion many native animal species quickly became extinct from the area.

There were over 40 mammals endemic to the plains (ALA n.d.). Of these, seven were large animals (over 10 kg), and twelve were medium-sized (1 – 10 kg).

Table 4-12 Mammal species native to Bunurong Country prior to European Invasion (ALA n.d.)

Large Mammals (10 kg +)

Common Name	Scientific Name	Max. Weight	Habitat
Eastern Grey Kangaroo	*Macropus giganteus*	90.0 kg	Grassland, Forest

Bare-nosed Wombat, Common Wombat	*Vombatus ursinus*	35.0 kg	Forest, Grassland
Swamp Wallaby	*Wallabia bicolor*	20.5 kg	Heath, Forest
Dingo	*Canis familiaris dingo*	20.0 kg	Grassland, Forest
Red-necked Wallaby	*Macropus rufogriseus*	18.6 kg	Forest, Heath
Tasmanian Pademelon	*Thylogale billardierii*	12.0 kg	Forest
Koala	*Phascolarctos cinereus*	11.8 kg	Forest

Medium-size Mammals (1 – 10 kg)

Common Name	Scientific Name	Max. Weight	
Short-beaked Echidna	*Tachyglossus aculeatus*	7.0 kg	Forests, Scrubland
Common Brushtail Possum	*Trichosurus vulpecula*	4.5 kg	Arboreal
Rufous Bettong	*Aepyprymnus rufescens*	3.5 kg	Forest
Bindjulang, Spotted-tail Quoll	*Dasyurus maculatus*	3.5 kg	Forest
Platypus	*Ornithorhynchus anatinus*	2.5 kg	Rivers, Lakes
Eastern Barred Bandicoot	*Perameles gunnii*	2.0 kg	Grassland
Long-nosed Potoroo	*Potorous tridactylus*	1.8 kg	Forest
Luaner, Eastern Quoll	*Dasyurus viverrinus*	1.4 kg	Grassland, Forest
Southern Brown Bandicoot	*Isoodon obesulus*	1.4 kg	Scrub with firing
Long-nosed Bandicoot	*Parameles nasuta*	1.1 kg	Woodland
Common Ringtail Possum	*Pseudocheirus peregrinus*	1.0 kg	Forest
Grey-headed Flying Fox	*Pteropus poliocephalus*	1.0 kg	Forest

The other 24 mammals in the region were all smaller than 1 kg in maximum weight, and thus would have been of less focus as resources for food or body parts.

The main animal food species within and around the current study area would have been Eastern Grey Kangaroo, Swamp Wallaby, Dingo, Rufous Bettong, Eastern Barred Bandicoot, Luaner or Eastern Quoll, and the Bare-nosed Wombat.

William Thomas recorded that the favourite food of the Bunurong People was kangaroo and possum, and that women caught many smaller creatures such as bandicoots. Thomas also said that the Bunurong People sometimes cured meat by drying (Thomas cited in Sullivan 1981: 23–25; Stevens 2021: 59).

There were cultural restrictions on some foods – for example what young people could and could not eat – and the Arweet of each clan would ensure that his clan's resources would not be over-exploited. For example, Bunurong females were not allowed to eat young possums, echidnas, emus, or Brush Turkeys (Cotter 2006: 5).

4.5.4.2 Birds

A large number of species of birds (both land and water) were native to Bunurong Country, and many species of birds were exploited by Aboriginal Peoples.

Table 4-13 Bird species native to Bunurong Country prior to European Invasion (ALA n.d.)

Bird	Scientific Name	Max. Wt	Habitat
Emu	*Dromaius novaehollandiae*	60.0 kg	Plains, scrublands, open woodlands
Australian Bustard	*Ardeotis australis*	14.5 kg	Grasslands, plains, open woodlands
Australian Pelican	*Pelecanus conspicillatus*	13.0 kg	Inland freshwater wetlands, coastal bays and inlets
Black Swan	*Cygnus atratus*	9.5 kg	Lakes, wetlands, coastal bays
Brolga	*Grus rubicunda*	8.7 kg	Freshwater wetlands and swamps
Wedge-tailed Eagle	*Aquila audax*	5.8 kg	Most areas
Musk Duck	*Biziura lobata*	3.1 kg	Open lakes with dense vegetation
Australian Brush-Turkey	*Alectura lathami*	3.0 kg	Wet sclerophyll forests, scrublands
Australian White Ibis	*Threskiornis molucca*	2.5 kg	Freshwater wetlands, swamps, and grasslands
Australian Shelduck	*Tadorna tadornoides*	1.5 kg	Freshwater swamps, lakes, grasslands, open woodlands
Bush Stone-Curlew	*Burhinus grallarius*	1.2 kg	Grassy woodlands and open forests
Superb Lyrebird	*Menura novaehollandiae*	1.1 kg	Wet eucalypt forests
Pacific Black Duck	*Anas superciliosa*	1.1 kg	Freshwater and saltwater wetlands, rivers
Nankeen Night-Heron	*Nycticorax caledonicus*	1.0 kg	Freshwater wetlands and swamps
Australian Wood Duck	*Chenonetta jubata*	1.0 kg	Freshwater wetlands, grasslands, lightly wooded areas
Black Falcon	*Falco subniger*	950 g	Woodland, shrubland and grassland – especially wooded waterways
Sulphur-crested Cockatoo	*Cacatua galerita*	950 g	Wooded areas near water
Red-tailed Black Cockatoo	*Calyptorhynchus banksii*	920 g	Open forests and woodlands, grasslands
Yellow-tailed Black Cockatoo	*Calyptorhynchus funereus*	900 g	Wet forests and woodlands
Chestnut Teal	*Anas castanea*	816 g	Freshwater and saltwater wetlands
Grey Teal	*Anas gracilis*	670 g	Freshwater and saltwater wetlands
White-faced Heron	*Egretta novaehollandiae*	600 g	Wetlands, swamps, coastal bays and inlets
Glossy Black-Cockatoo	*Calyptorhynchus lathami*	500 g	Woodlands and open forests
Galah	*Eolophus roseicapilla*	430 g	Most areas except forested mountain areas

Masked Lapwing	*Vanellus miles*	412 g	Wetlands
Kookaburra	*Dacelo novaeguineae*	380 g	Open woodlands and forests
Australian Magpie	*Gymnorhina tibicen*	360 g	Open woodlands, grasslands near trees
Australasian Grebe	*Tachybaptus novaehollandiae*	240 g	Freshwater wetlands
Japanese Snipe	*Gallinago hardwickii*	230 g	Shallow freshwater wetlands, grasslands
Brown Quail	*Coturnix ypsilophora*	140 g	Wetlands and grasslands
Australian Painted Snipe	*Rostratula australis*	130 g	Shallow freshwater wetlands, grasslands with thick cover
Stubble Quail	*Coturnix pectoralis*	125 g	Grasslands and shrublands with dense ground vegetation
Buff-banded Rail	*Hypotaenidia philippensis*	52 g	Open lakes with dense vegetation
King Quail	*Excalfactoria chinensis*	48 g	Low, dense vegetation, heathland

Of these birds easily the most important was the emu, which lived in the current study area. It was hunted for its meat and its eggs, and its feathers were used for ornamentation. Other birds hunted by Aboriginal people include swans, geese, ducks, plovers, dotterels, ibis, spoonbills, herons and oyster catchers. Ducks, swans, and geese were especially plentiful in the marshes and swamps in Bunurong Country. Bush Stone-curlews would have inhabited the grasslands and forested areas.

In the winter, Bunurong bands would move to sheltered, upland camps, where among other things they would hunt lyrebirds. On the Bass Strait coast penguins and mutton birds would be a prized food source.

William Thomas related that birds could be hunted by throwing sticks or traps (Thomas cited in Sullivan 1981: 23–25; Stevens 2021: 59).

Conservation was practiced in egg-gathering. Boys and girls, for example, were taught to leave at least one egg in the nest when gathering, in order to ensure that bird numbers would be maintained (Kunz & Lane 1994, cited in Dearnaley 2019: 55).

4.5.4.3 Reptiles Amphibians, and Insects

A variety of snakes, lizards, and amphibians would have lived in the current study area. Eastern Brown Snakes, Tiger Snakes, and Copperheads would have been the main snake species (and still are), and the Blue-tongue Lizard would have been the main large lizard. A variety of frogs would have inhabited the wetlands of the current study area. The diet of the Bunurong People also included grubs, worms, caterpillars and locusts, and also the Bogong moth when in season.

4.5.4.4 Freshwater fish, mollusks, and crustaceans

There were excellent freshwater species available for food in Bunurong Country and around the current study area. Two freshwater fish in particular were an important part of the subsistence economy: the River Blackfish (*Gadopsis marmoratus*), which reaches 60 cm in length and 5 kg in weight, and the Tupong, or Congolli (*Pseudaphritis urvillii*), which grows to a maximum of 36 cm. The Tupong migrates to coastal estuaries between late April and August to breed. Smaller fish include species of the *Galaxias* genus (generally 6-12 cm), which were at the peak of their migration from late January to late March.

The Balonne Freshwater Mussel (*Velesunio ambiguus*) was also available at various locations around the current study area. This mollusc was an important food source for Aboriginal people and was widespread in rivers and streams throughout Victoria.

Apart from fish and shellfish, an important source of freshwater food was the Yabby (*Cherax destructor*) which was also widely available around the current study area. Yabbies grow up to 25 cm long, and like mussels can survive in dry conditions, by digging burrows into the creek bank and hiding in them until water returns to the creek.

4.5.4.5 Eels

Eels were a major Aboriginal source of food in Victoria south of the Great Dividing Range. Two species occur: the Southern Shortfin Eel (*Anguilla australis*) and the Longfin Eel (*Anguilla reinhardtii*). The Southern Shortfin Eel was the more numerous, and was widespread in all the rivers and streams of southern Victoria. There were several major eeling localities across Aboriginal Victoria, at which large numbers of people would gather to harvest eels during their mass migrations in the late summer (late January to late March). At this time the eels reached their highest meat-to-weight ratio (Sullivan 1981:5). The eeling season was a time of great celebration, when large groups (multi-clan and even various language groups) could get together for eeling as well as for important ceremonial purposes, such as at the Bolin wetlands on the Yarra River in Melbourne's north.

Eels were a delicacy far and wide across Victoria. They could be kept for long periods by keeping them in ponds, and they could also be smoked, which was done in hollow trees (Wettenhall 2010: 21). The smoking preserved them, and they were an important item of trade for the clans who had widespread access to them.

William Thomas reported that the Bunurong People would gather at swamps (such as Carrum Swamp and Koo-Wee-Rup Swamp to catch eels. The numbers of eels meant that the eelers could remain in one location for an extended period (Gaughwin & Sullivan 1984: 89-90). At Tooradin at low tide, Bunurong eelers would wade into the muddy creek and feel for the eels with their hands. Once caught, the eels would be bitten on the back of the head to kill them and then throw them on the bank (Brett 1920: 382).

4.5.5 Stone Resources

There are no stone resources in the current study area, the surface geology of which is dominated by the 'Cranbourne Sands' – windblown deposits formed into low ridges and hummocks during a time of lower sea level and drier climate about 20,000–15,000 years ago (Murphy et al. 2008: 14). As a result, any stone artefacts found in and around the current study area would be of material brought in from elsewhere. The most common raw materials for stone artefacts are quartz, quartzite, silcrete, and chert/flint, and all of these were available from elsewhere in Bunurong Country in general and the Mayune balug clan's estate more specifically.

Quartz is readily available in creeks throughout the region, and flint sources occur on the coast of Nerm/Port Phillip Bay. The nearest recorded silcrete quarry is on the Mornington Peninsula to the southwest of the current study area. In addition to these major lithic materials, basalt was available from outcrops at Berwick to the north of the current study area, and ironstone was available from outcrops throughout the region (Murphy et al. 2008: 14).

Stone artefact clusters have been found in numerous locations in and around the current study. Many are on local rises, which would have been good camping sites – in pre-Invasion times these rises would have been surrounded by small seasonal wetlands collecting above the clays of the poorly-draining Red Bluff Sandstone formation. And of course not too far away were more major wetlands with their rich resources: the Carrum Swamp to the west and the Koo-Wee-Rup Swamp to the east and south.

4.5.6 Aboriginal tools and toolkits

4.5.6.1 Men's Toolkits

William Thomas has described a Port Phillip Aboriginal man's wooden toolkit as follows: five spears (two of which were barbed), a waddy [club], a bludgeon, a throwing stick for fighting or hunting birds, a boomerang, two shields (one for close and one for more distant combat), and an axe (Thomas, cited in Sullivan 1981: 26). Elsewhere Thomas described how bark shields were curved due to fire treatment. Tools often had several purposes. The boomerang, for example, could be used for hunting, or its sharp, hardwood edge could be used as a knife. It could also be used as a hammer or a club, as well as a digging stick. Finally, it could be used as a percussive musical instrument, and even as a firestick. Stone tools are under-reported in early accounts of Aboriginal people, but they included blades for skinning and sharpening wooden tools, and spear points. Bones were used as barbed tips for fishing spears. Mussel shells were also used for shaving, cutting and for sharpening wood.

4.5.6.2 Women's Toolkits

Aboriginal women also had a wooden toolkit. The main item was a digging stick about two meters long, and about as thick as a man's wrist, with a sharp point, usually hardened by fire. Women also had a variety of wood and bark containers, and bags woven with string from reeds and rushes or from Messmate (*Eucalyptus oblique*) bark (Presland 2010: 55).

4.5.7 Fire

Fire was of course a major resource for the Aboriginal Peoples of Victoria. Fire was needed for daily life, but it was also used to manage the landscape and for 'firestick farming', as it has been called (Jones 1969; Bliege Bird et al. 2008). This effectively involved 'controlled burns'. The repeated burning, likely over thousands of years, has altered the vegetation cover to encourage fire resistant (and fire-dependent) plants such as eucalypts and wattles, which came to dominate wide areas and all but the wettest ecological zones. The burning was aimed at favouring plant species that were of importance for them as food, such as yam daisies, lilies, native orchids, Austral grass-trees and small perennial herbs. Burning areas where tuberous plants (yam daisies, lilies) were present would remove plant competitors while the tubers would be safe below the surface. They would then have better access to sunlight, and ash from the burning would provide fertilization. The burning would typically take place in late summer or autumn.

4.5.8 Trade and Exchange

There was an active trade among Aboriginal groups throughout Victoria, both among clans and between different language groups. One group would have access to stone for axes, another the gum used for hafting and binding, and so on. William Thomas said:

> Most tribes have intercourse or hold a kind of alliance with three or four neighbouring ones, with whom they barter for lubras, &c. They generally once a year at least unitedly assemble. There are many disputes, imaginary or real, to settle which cannot be done without some fighting. When all is settled they will corrobboree night after night till they separate. All the tribes beyond the district of their friends are termed wild blackfellows, and when found within the district are immediately killed (Thomas [1854], in Bride [ed.] 1898: 68).

One of the items that the Bunurong People would have acquired through trade was the greenstone axe. The 'best' greenstone quarry was at Mount William, in the Country of the Wurundjeri Woi wurrung People, their neighbours, allies, and kinsfolk.

4.5.9 Travel routes

William Thomas has written about Bunurong travel routes and camping locations:

> when shifting from Melbourne their regular route was natural, shifting gradually along the coast to the nine-mile beach (Mordialloc), Mt Eliza (Berringwallin), Mt Martha (Nungallin), Arthur's Seat (Wongho), Point Nepean (Mon Mare), Cape Schank (Tunnahan), Sandy Point (Yellodunwho) then to the inlets and returning inland by Mahoon (Western Port plains) to Dandenong, the whole circuitous route of their country (Thomas in Sullivan 1981: 29).

Between 1839 and 1841, Thomas also prepared a map of Bunurong Country with place names (some Bunurong, some English) and several tracks, one of which precedes the route of the South Gippsland highway.

4.6 History of Colonialism

This overview describes the advent of colonialism in Bunurong Country in terms of an invasion by European peoples which broadly transpired in three related phases:

1. Incursions by European sealers and whalers and early European exploration;
2. British penal and military settlements; and
3. Post-1835 European land acquisition and pastoral invasion.

4.6.1 Invasion of Bunurong Country, Phase 1: European Sealers and Whalers and Early European Exploration

The first Europeans to encounter the Bunurong People were sealers and whalers. Between about 1790 and the 1830s Bass Strait and the surrounding shores of Victoria were very rich hunting grounds. The sealers and whalers also kidnapped Aboriginal women to be their concubines and skivvies. This would have had a major effect on Bunurong demography.

Not long after the sealers and whalers began their raids on Bunurong Country, a number of European explorers visited, mapped, and described southern Victoria, beginning with George Bass (1798), James Grant (1801), and John Murray (1802).

Grant explored Warn Marin/Western Port and recovered part of a canoe and two paddles from the mouth of Bass River:

> this canoe differed from any before seen, as it was framed with timber, and instead of being tied together at the ends was open, the space being afterwards filled with grass worked up with strong clay (Grant, cited in Stevens 2021: 55).

Grant also noted that, in several areas, the land had been fired by the Bunurong People.

Murray's *Lady Nelson* was the first European ship to enter Nerm/Port Phillip Bay, and Murray's expedition was the first to have a fatal encounter with the Bunurong People, who attacked Murray's shore party near Sullivan Bay. Murray's party fired on the Bunurong group and almost certainly killed one, possibly two, of them. In 1839 one of the Bunurong men involved in the battle, Bunja Logan, showed William Thomas the gunshot scars from the wounds he received in the encounter (Cotter 2001:72). On 8 March 1802 Murray 'took possession' of the Bay and surrounding lands in the name of King George III, and on 11 March the *Lady Nelson* left Nerm/Port Phillip Bay bound for Sydney, which he reached on 24 March. Matthew Flinders charted Nerm/Port Phillip Bay later in 1802.

In November 1802 Charles Grimes, the Acting Surveyor-General of New South Wales, was sent to survey King Island in Bass Strait and Nerm/Port Phillip Bay. He sailed in the *Cumberland*, commanded by Charles Robbins. A convict gardener, James Flemming, was included in the expedition: he was sent to report on the soils and vegetation of Port Phillip, and he kept a journal of the journey. On 20 January 1803 the *Cumberland* entered Nerm/Port Phillip Bay. On 22 January Grimes and Flemming, accompanied by several others, began a series of daily surveys around the bay. Flemming climbed Wonga/Arthur's Seat and got a good view of Warn Marin/Western Port.

Meanwhile French expeditions were also exploring southern Australia. Most notable for our purposes here were Nicolas Baudin and Jacques Hamelin; the latter surveyed Warn Marin/Western Port in April 1802.

4.6.2 Invasion of Bunurong Country, Phase 2: British Penal/Military Settlements

By early 1803 the authorities in England were discussing the possibility of a settlement in Nerm/Port Phillip Bay (Cotter 2001: 11). Some have argued that the reason for a settlement was to thwart French colonization (which Governor King of New South Wales himself believed was likely), but the main reason for a settlement seems to have been simply to create another convict colony.

In the end, two penal settlements were founded in Bunurong Country, at Sullivan Bay near Sorrento and at Corinella on the eastern shore of Warn Marin/Western Port. Both were short-lived: Sullivan Bay lasted from 1803 to 1804 and Corinella from 1824 to 1826.

One of the members of the Corinella settlement was William Hovell, who had reported most favourably to Darling concerning the lands around Port Phillip Bay that he and Hamilton Hume had seen just over a year before. Hovell and Hume had travelled to what they thought was Warn Marin/Western Port (initially surveyed by George Bass in 1798) but in fact they ended their overland journey on the shores of Nerm/Port Phillip Bay. (The land around Warn Marin/Western Port was not so favourable for European settlement as that around Nerm/Port Phillip Bay, and in January 1828, just over a year after its founding, the Western Port colony was abandoned [Anonymous n.d.a]).

4.6.3 Continued European resource extraction – early 1830s

The 'permanent' settlements may have been abandoned, but European visits to Bunurong Country continued in the form of sealers and whalers. An example of the early exploitation of resources from the southeastern coast of Australia, including Warn Marin/Western Port in Bunurong Country, is provided by the early nineteenth century sea captain John Hart, who wrote to Governor La Trobe in 1854 of his experiences during the 1830s. In 1831 Hart (then aged 22) obtained close to 400 seal skins from Portland Bay. In Guichen Bay, near Robe, South Australia, his party killed another 30 seals. At Kangaroo Island they bought 150 seal skins and 12,000 wallaby skins, and from a salt lagoon they got 5 tons of salt. On Thistle Island, near Port Lincoln, he acquired 7,000 wallaby skins ("very small, fine-furred, and beautifully mottled in colour. I sold these in Sydney for the China market"). The native wallabies of Thistle Island appear to have become extinct shortly afterwards.

In November 1834, after several other voyages, Hart set sail for Warn Marin/Western Port with "a team of bullocks, a dray, and some twenty men besides the crew". This time he was after Black Wattle bark. He landed the men and team at Corinella:

> Stood up the harbour; surprised to find the deep-water channel marked with beacons on each side. Anchored abreast of the ruins of another settlement; landed the men and team. Here were the remains of houses and gardens—grass very abundant, and the wattle trees the largest I had ever seen. Employed for a fortnight collecting bark; saw the traces of numerous cattle; shot a large white bull.

> Finding the bark so abundant, I loaded the schooner and proceeded to Sydney, leaving the shore party behind; sold my cargo to a ship bound to London, and chartered the ship *Andromeda* to load bark in Western Port for London. Put on board Mr. Thorn (my mate) as pilot and supercargo. She arrived there in April 1835 . . . I brought vast numbers of black swans, which we had pulled down while moulting; the waters of Western Port were covered with these birds. (John Hart, in Bride, ed. 1898: 304-305).

After pillaging land and sea for commodities that would make them rich—whales, seals, wallabies, salt, bark, swans—there was only one other major resource to seize: the land itself. After his return from Sydney following his 1834 voyage, John Hart waxed lyrical about the land around Warn Marin/Western Port to a packed audience in the billiard room of the Cornwall Hotel, Launceston. In the crowd were John Pascoe Fawkner and John Batman.

4.6.4 Invasion of Bunurong Country, Phase 3: Post-1835 European Land Acquisition and Pastoral Invasion

It was not long before Batman, with his famous 'treaty', and Fawkner and others, began moving sheep and cattle into the southern part of what is now Victoria. The initial focus was on land around Melbourne and Geelong, but Warn Marin/Western Port was also an early focus, and the land between there and Melbourne soon attracted squatters. Among the first to settle were the five Ruffy brothers, who took up the 'Tomaque' run around 1836 and the adjacent 'Mayune' run in the early 1840s (the 32,000 acre 'Mayune' run encompasses the current study area) (Murphy et al. 2008: 20).

Squatting runs changed hands frequently in the early years after the Invasion. 'Mayune' was held collectively by the Ruffy brothers until 1845, when the license was transferred solely to Frederick Ruffy. In 1850 it was sold to John Crewe, and in 1851 to Alexander Cameron (Spreadborough & Anderson 1983: 274). During these years the wetlands in and around the current study area were being drained, and at first the main produce was cattle, but gradually crops began to be grown as well.

These were terrible times for the Aboriginal Peoples of Victoria. The Bunurong People were quickly dispossessed of their land, to which they had such a strong spiritual connection, and their traditional food sources and way of life. In many parts of Victoria massacres began to take place as the competition for land gathered apace. In many cases the killings of Aboriginal people were argued to be in reprisal for the killing of squatters or their servants, or theft of animals or food supplies. There were dozens of massacres and killings of Aboriginal people In Victoria (Clark 1995). Some truly were massacres involving a hundred or more people; in other cases 'only' one Aboriginal person was killed; in most cases the number of deaths is not certain. Certainly the total of Aboriginal murder victims was in the thousands. In contrast, by 1851 there had been 59 Europeans 'murdered' (Nance 1981, cited in Barwick 1984: 108-109).

By 1851 there were 77,345 Europeans, 6,590,000 sheep, and 391,000 cattle in Victoria. By 1861, after a decade of gold rushes, there were over 540,000 Europeans and fewer than 2,000 Aboriginal survivors (Barwick 1984: 108, 109).

Even though their 'runs' were continually changing hands, the squatters rapidly became a dominant force in the Port Phillip District, as Victoria was called prior to 1851. Various attempts were made to curb the squatters' power through legislation, ultimately culminating in the Land Act of 1862, which made about 20% of Victoria's land available to "selectors".

4.6.5 Depasturing

Even by the late 1830s and early 1840s there were two problems developing for the British Crown in the newly named Port Phillip District of New South Wales: illegal White settlers—the squatters—and the rapid

decline of the Aboriginal inhabitants. The New South Wales government attempted to deal with the first of these through a succession of legislative bills, and the second through the establishment of an Aboriginal Protectorate.

As early as September 1836 the New South Wales government had announced that (White) occupation would be allowed under the grazing ("depasturing") rights in operation in New South Wales around Sydney: grazing rights would be granted in return for a £10 annual license. William Lonsdale was appointed the first Police Magistrate of the Port Phillip District. Depasturing licenses were not, in fact, issued until 1838, and by 1839 a new act added payments per sheep, cattle and horses – which had the effect of encouraging squatters to seek land further away from the settlements – and authority. This process was continued when in 1847 all land in New South Wales was divided into three categories: settled, intermediate, and unsettled. An unspoken agreement was that homesteads would be separated by at least three miles.

4.6.6 Gold

On 1 July 1851, after much petitioning by the Port Phillip setters, a separate colony—Victoria—was established by the Crown, and Charles La Trobe was appointed its first Lieutenant-Governor. By this time about 23,000 people lived in Naarm/Melbourne.

Meanwhile, just a few days earlier, at the end of June 1851, gold was found at Warrandyte, and finds all across the colony soon followed. During the goldrush, Victoria witnessed a huge population influx: by 1854 the non-indigenous population of Naarm/Melbourne had risen to 123,000 and by 1861 there were over 500,000 non-indigenous people in Victoria.

4.7 The Bunurong since invasion

4.7.1 Diseases

The Aboriginal people of Victoria are likely to have been severely impacted by Europeans long before they actually saw any of them. In April 1789 an outbreak of smallpox broke out in Sydney, and killed probably thousands of Aboriginal people in the Sydney region; it did not affect the White invaders. There has been much debate over many of the issues surrounding the Sydney outbreak. Was it actually smallpox? Was it introduced by the First Fleet, or by an earlier French expedition or by Macassan traders in northern Australia? Was it deliberately or accidentally introduced into the Aboriginal population by officials of the First Fleet (bottles of smallpox were carried by the First Fleet)? In 1829 a second epidemic of smallpox broke out in central New South Wales, in Wiradjuri and Kamilaroi Country, as European pastoralists were beginning their invasion there (Cary and Roberts 2002: 822). A military surgeon who investigated the outbreak, John Muir, reported that Aboriginal people who already had marks from a previous smallpox infection were immune from the disease (Warren 2014). In other words, it is very likely that both outbreaks were indeed smallpox.

The earlier epidemic appears to have travelled via the communication and exchange routes in Aboriginal Australia as far as southern Victoria. In 1803 Charles Grimes, the Acting Surveyor-General of New South Wales was on board the *Cumberland*, exploring Nerm/Port Phillip Bay. On 18 February his exploring party on the Bella-wein/Bellarine Peninsula met a group of 11 Aboriginal people, almost certainly Wadawurrung of the Bengalat balug clan. His journalist, James Flemming, reported that two of them "appeared to be marked with the smallpox" (Flemming 1802-1803, Journal entry for 18 February 1803). The smallpox scars observed by Flemming and Grimes could have been the result of infection by early sealers, but much more likely they were the result of chains of contact from the 1789 Sydney epidemic.

A second smallpox epidemic appears to have swept through Victoria around 1830. James Dawson records:

> The aborigines have been visited on several occasions by epidemics, which were very fatal. The first occasion which the natives remember was about the year 1830, and the last in 1847. The very small remnant of old aborigines now alive who escaped the first of these epidemics describe it as an irruptive fever resembling small-pox. They called it Meen warann—'chopped root.' They have still a very vivid recollection of its ravages, and of the great numbers cut off by it in the Western District. In remembrance of it they still chant a wail called Mallae mallaeae, which was composed in New South Wales, where the disease first broke out, and is known to all the tribes between Sydney, Melbourne, and Adelaide. The malady spread with rapidity from tribe to tribe, in consequence of the infection being carried by the messengers who were sent forward to communicate the sad news of its ravages (Dawson 1881: 60).

The later epidemic referred to by Dawson was influenza, which hit again in 1876. Measles, whooping cough, and tuberculosis also devastated the Aboriginal population, and in the years after the Invasion venereal diseases and alcohol added to the misery.

Venereal diseases were particularly cruel. Many Aboriginal women who were kidnapped and raped by White sealers, whalers, and settlers contracted gonorrhoea and syphilis, and they infected their Aboriginal families in turn:

> . . . there was hardly a shepherd without disease. Large families of natives—husband, wife, boys, and girls—were eaten up with venereal disease. The disorder was an introduction from V. D. Land, and I am of opinion that two-thirds of the natives of Port Phillip have died from this infection (Foster Fyans, in Bride, ed. 1898: 115).

Apart from the mortality rate, the Aboriginal birth rate was seriously affected. Most Aboriginal groups suffered massive declines in the birth of children – largely due to venereal disease, but also to despair.

4.7.2 The Early Years of the Invasion

The early 1830s had been a period of "liberalism" in England, with the Reform Act of 1832 and the Slavery Abolition Act of 1833. In England there were several prominent people who agitated for better treatment of the Aboriginal population of Victoria. In March 1837 Port Phillip's capital was named after Britain's reform-minded prime minister of the day, Lord Melbourne. In the same year, 1837, the Aborigines' Protection Society was founded in London, to lobby the British government for the rights and well-being of indigenous people subjected to colonial powers. Also in 1837 a British Parliamentary Select Committee on Aboriginal Tribes published its report. One of the Committee's recommendations was the establishment of an Aboriginal Protectorate in the Port Phillip District of New South Wales. The report was sent to Governor Gipps in Sydney in January 1838, and Gipps appointed George Augustus Robinson as the Chief Protector of Aborigines. Robinson took up his position as Chief Protector in March 1839, with four Assistant Protectors (see below, Section 4.7.3).

This was a period when the expansion of the squatters was at its peak, and there were still relatively large numbers of Aboriginal people still in competition with them over their traditional and unceded lands. The killing of Aboriginal people by squatters and their employees was common, as was related above. There were several major massacres: the Waterloo Creek massacre of 26 January 1838 (in which 40 or more Aboriginal people were killed), the Slaughterhouse Creek massacre of 1 May 1838 (300 Aboriginal dead), and the Myall Creek massacre of 10 June 1838 (28 Aboriginal dead) – all in what is now northern New South Wales, where the killings already had a 40-year history. In the Port Phillip District also, the massacres had already started.

For the white murderers the consequences were mostly negligible. In some cases they left the district for a time or for good; in other cases inquiries were opened but nothing came of them for want of witnesses willing to testify. Only the Myall Creek massacre was followed up in any serious way. Governor Gipps ordered an investigation, and eleven of the twelve murderers were arrested (the twelfth was the only free man of the group, and the leader of the premeditated attack). The trial began in November 1838, and the eleven accused were represented by prominent barristers and supported by wealthy landowners. It ended in their acquittal; one of the jurors reportedly said afterwards:

> the sooner they [Aboriginal people] are exterminated from the face of the earth, the better. I knew the men were guilty of murder but I would never see a white man hanged for killing a black (*The Australian*, 8 December 1838).

A second trial, of only seven of the original eleven accused, resulted in guilty verdicts, and the seven were hanged on 7 December 1838. The hangings resulted in a huge uproar in New South Wales, mostly in favour of the murderers. Governor Gipps stopped encouraging prosecutions for other massacres, and a code of silence quickly developed among squatters throughout New South Wales, including the Port Phillip District.

4.7.3 The Aboriginal Protectorate

It was in this atmosphere that the Aboriginal Protectorate of the Port Phillip District was created. It came about in large part due to lobbying from the Aborigines Protection Society that had formed in 1837 in London, and in June 1837 a House of Commons Select Committee recommended that a Protectorate be established, as was recounted above: it was created by the Colonial Office in January 1838 (Clark 1995: 3), and the Protectorate became operational in 1839.

The first objective of the Protectorate was to shield Aboriginal people from the encroachment on their lands (we have seen that the seizing of Bunurong land was well under way by 1839). Specifically, the Protectors were to attach themselves to the Aboriginal groups in their district, guard the interests and rights of the Aboriginal people, try to get them to settle in a particular location, instruct them in Christianity, teach them such things as agriculture and carpentry, educate the children, learn the language(s) in their district, and conduct a census of the Aboriginal people in their district: name, gender, and age (Clark and Cahir, eds. 2016: 1). In order to be able to assert their authority, the Protectors were also appointed magistrates (Clark 1995: 3).

George Augustus Robinson, who had gained a certain notoriety for his role in the 'conciliation' of the Van Diemen's Land Aborigines between 1829 and 1838, was appointed Chief Protector. The four assistant protectors were William Thomas, Charles Wightman Sievwright, Edward Stone Parker, and James Dredge. Parker and Dredge were Methodist preachers, Thomas a Methodist educator, and Sievwright a former British Army Officer. In March 1839, Robinson allocated regions of the Port Phillip District to his assistants: Thomas was given the Central Protectorate District of Western Port, Sievwright the Western District (which included Geelong and stretched west to Portland), Parker was given the Loddon and Northwest District, and Dredge the Goulburn District.

Bunurong Country was part of the Central Protectorate District of Western Port, administered by William Thomas. Between 1839 and 1841 Thomas' base was a hut near Wonga/Arthur's Seat (Clark and Heydon 1998: 28). The Aboriginal people living in the region sought refuge at various stations set up by Thomas between 1839 and 1843 around Nerm/Port Phillip Bay and Warn Marin/Western Port (Barwick 1998: 31).

In many ways the Protectorate was doomed from the start: the Protectors were unable to offer much assistance to Aboriginal people, neither with supplies nor protection from squatters. The squatters in turn considered the Protectorate an obstacle to the running of their enterprises, and most of the squatters

actively opposed and undermined the Protectors, whose work was increasingly difficult. The Aboriginal population continued to decline rapidly, and reserves and missions became more prominent in Aboriginal life.

4.7.4 Missions and Reserves

In 1849 the Protectorate was abolished, and a period of government inaction and neglect of Aboriginal people followed. Forced off their land and away from their campsites (many of which had been co-opted by the early European squatters for their homesteads, on account of nearby waterholes), many of the surviving Aboriginal people gravitated to the towns that were beginning to develop and grow. The situation was exacerbated when gold was found throughout much of Victoria, which marginalized the Aboriginal people even more. They survived as best they could. Some became workers on the pastoral stations; others eked out a living selling possum-skin capes and blankets to the freezing goldminers.

In 1852 William Thomas, still advocating for the Bunurong and Wurundjeri Woi wurrung Peoples, secured 832 acres of land at Moody Yallok/Mordialloc for the remaining Bunurong people. Moody Yallok/Mordialloc was a favourite camping area for the Bunurong, and they lived largely a traditional lifeway for some years, exploiting the local coastline and wetland area. But this situation lasted only a few years: in 1863 the Mordialloc Reserve was revoked and the land sold (Clark and Heydon 1998: 32; Stevens 2021: 59).

By the late 1860s the Bunurong people were being encouraged to move to the newly established Coranderrk reserve, in Wurundjeri Woi wurrung country near Healesville. In 1863 Simon Wonga and William Barak (Wurundjeri Woi wurrung elders) had led about forty Aboriginal people – Wurundjeri Woi wurrung, Bunurong and Taungurung – to a traditional camping ground place near Healesville, where they camped and petitioned for ownership of the land. In June 1863 land totaling 9.6 km² was granted to them as a temporary reserve; the settlement was called Coranderrk. By 1866, most of the surviving Bunurong people had moved to Coranderrk, although a few refused to leave and remained in the Moody Yallok/Mordialloc and Cranbourne region, where they continued as much of a traditional camping life as they could (Stevens 2021: 59).

At first Coranderrk, survived and even flourished, and by 1875 Coranderrk was virtually self-sufficient. Its produce won first prize at the Melbourne International Exhibition of 1880-1881.

Meanwhile, in 1869, the Aboriginal Protection Act 1869 was passed in the Victorian Parliament. It gave the Governor of Victoria power to dictate where Aboriginal people could reside, and what activities they could undertake on and off reserves; it also gave the authority to take charge of Aboriginal children. The Act also established the Central Board for the Protection of Aborigines, which lasted from 1869 to 1900. From what we have already seen as to how Colonial governments (and later, Australian governments) have treated Aboriginal people under the guise of 'protection', it should be no surprise that from 1874 the Board began to undermine the settlement at Coranderrk. By this time white neighbours were beginning to eye the settlement's land, and for the next dozen years the Coranderrk residents were continually fighting to keep their reserve (Barwick 1998: 1). They sent deputations to the Colonial government, while the government for its part held a Royal Commission (1877) and a Parliamentary Inquiry (1881) on the Aboriginal 'problem'. Bravely, the Aboriginal people of Coranderrk hung on.

In 1886 another Act was passed – the Aborigines' Protection Act 1886 – as an amendment to the 1869 Act. Under this Act, 'half-castes' (another appalling term) were forbidden to live on reserves. The brutality waged against Aboriginal people in consequence of this new Act can only be considered to be deliberate and pre-meditated. Yet again, Aboriginal families were to be broken up.

At Coranderrk, all 'half-castes under the age of 35' were ordered to leave—again, presumably, it was thought that with most of the younger residents gone, the rest would soon follow. About sixty Coranderrk 'half-castes' were evicted, and the settlement never really recovered. Only fifteen able-bodied men were

left. But still the surviving Aboriginal people of Coranderrk resisted: in 1886, William Barak (who had already led two protest marches to Parliament House) and others petitioned the government:

> "Could we get our freedom to go away Shearing and Harvesting and to come home when we wish and also to go for the good of our Health when we need it . . . We should be free like the White Population there is only few Blacks now rem[a]ining in Victoria, we are all dying away now and we Blacks of Aboriginal Blood, wish to have now freedom for all our life time . . . Why does the Board seek in these latter days more stronger authority over us Aborigines than it has yet been?" (Anonymous n.d.)

In 1893 almost half the remaining Coranderrk land was reclaimed by the government, and the reserve was formally closed in 1924. Most of the surviving residents, including a few Bunurong people, were forcibly moved to Lake Tyers in Gippsland, in Gunai Kurnai territory. A few elderly residents refused to leave; the last Aboriginal woman at Coranderrk, Elizabeth Davis, died at the age of 104 in 1957. In a final act of spite by the Victorian government, permission was refused for her to be buried alongside her husband and siblings at Coranderrk.

The last of the 'full blood' Bunurong Aboriginal people are considered to be Jimmy Dunbar, Yam-mer-book, and his wife Nancy, who lived and worked at 'Harewood', just east of Tooradin. Jimmy regarded himself and Nancy, as the traditional owners of Moody Yallok/Mordialloc; they camped on the Blind Creek at Mordialloc in the early 1870, and Nancy died there in their mia-mia in April 1877. Jimmy died six days later in Melbourne (Gamble, n.d.).

Five years earlier, in June 1872, the so-called 'Local Guardian of Aborigines' at Mordialloc, J. W. Randell, reported:

> The number of Aborigines at Mordialloc under my charge, and who receive aid from me, is four—Jimmy and Nancy [Dunbar], Peter and Eliza. Eliza was married to the king of the Mordialloc tribe; he is dead, and she is married again. As to the condition and conduct of these Aborigines, I can only say that they are neither interesting nor industrious. I have repeatedly tried to persuade them to make baskets—which they could if they liked—but in vain. I have offered to teach them to work, but without avail, as work they detest. Jimmy does nothing, Peter hunts, and, I believe, converts the proceeds of anything that he may chance to catch or kill into drink. I have repeatedly cautioned them against the latter, but they are cautious and too sly ever to drink when I am near. If they quarrel among themselves, or commit any little irregularity, a simple threat to get them sent up to one of the stations is sufficient to restore them to order and contrition. Their greatest happiness is perfect liberty to roam free and unconstrained. There are some good traits in their character, for instance, they are perfectly harmless, and thoroughly trustworthy and honest. I believe, in spite of this, that any attempt to administer religious instruction to them would be a perfect waste of power. As the Mordialloc Aborigines now only number four, and as one of the women (Eliza) is far from strong, I do not think that the Board will be put to any great cost before the tribe becomes extinct. I have carried out my instructions by supplying the rations as economically as possible, and regularly once a week (J.W. Randell, in Board for the Protection of the Aborigines . . . 1872: 24).

Shortly before he died in 1864, Derrimut, the Arweet of the Yalukit willam clan of the Bunurong People, grabbed the arm of a European, pointed to his Country and said:

> You see . . . all this mine, all along here . . . once; no matter now, me soon tumble down. Why me have lubra? Why me have picaninny? You have all this place, no good have children, no good have lubra, me tumble down and die very soon now (Cotter 2006: 54).

But the Aboriginal people of Victoria, including the Bunurong, did manage, remarkably and heroically, to survive – although only just. In the 1921 census the count of Aboriginal people in the state was only 586 (though likely many Aboriginal people were hiding their heritage at that time). Even as late as 1961 the count was less than 2,000. By the 2001 census, however, the count was almost 30,000.

Despite the tragedy of colonialism for all Aboriginal peoples, including the theft of their lands and concerted efforts to destroy their language and culture, many Aboriginal groups, including the Bunurong People, have survived.

4.8 Bunurong Ethnohistory Summary

The following review of Bunurong culture, history, and lifeways is relatively limited insofar as it is based only on desktop sources and has not incorporated oral history information or contributions from Bunurong People. Please note that special attention is paid here to the Bun wurrung language group of the Kulin Nation, although some references have also been made to neighbouring language groups.

- The ancestors of Bunurong People arrived in what is now Victoria at least 40,000 years ago.
- The Bunurong People with their neighbours to the north and west are part of a larger group, the Kulin Nation.
- Bunurong Country, is in south-central Victoria: its western boundary is the Werribi Yulluk/Werribee River, and its northern Country boundary is the Birrarung Marr/Yarra River, extending over the southern slopes of the Cor-han-warabul/Dandenong Ranges as far east as Latrobe SF and Labertouche SF. Bunurong Country's eastern border runs from there to Warragul and the Tarwin River West Branch and, downstream, the Tarwin River to its mouth. The southern boundary of Bunurong Country extends from the Tarwin River mouth west along the coast of Bass Strait and Nerm/Port Phillip Bay as far west as the Werribi Yulluk/Werribee River.
- Evidence of the Bunurong People exists on their Country in the form of thousands of archaeological sites. These sites include rock shelters, quarries, hearths, mounds, burials, fish and eel traps, shell middens, rock wells, scar trees, artefact scatters, and isolated artefacts.
- At least six clans of the Bunurong People can be reconstructed. These clans have varying degrees of surviving documentation.
- Bunurong Country is naturally resource-rich, with a wide variety of ecozones, including the coast, temperate rain forest, lakes and marshes, volcanic plains, heathlands and hill country, and open woodlands. The rich waterways and wide variety of native vegetation have provided for the Bunurong People in return for their caring for Country.
- For thousands of years the Bunurong People and their ancestors developed practices such as the use of fire in their management of the land that sustained them.
- Throughout the six Bunurong seasons of the year a wide variety of resources were harvested and exploited. Two of the most important resources were murnong (Yam Daisy) and eels.
- Bunurong People participated in wider relationships with neighbouring Aboriginal Peoples, with whom they intermarried and shared in trade and ceremonies.
- These lifeways had existed for thousands of years when, around 1790, foreigners (European sealers and whalers) began to make contact with the coastal clans of the Bunurong People, stealing their resources and kidnapping Bunurong women and those of neighbouring Peoples. Thus the first phase of invasion of Bunurong lands began with sealers and whalers.

- The second phase of invasion took place in the form of two British settlements, the first on Nerm/Port Phillip Bay, and the second in Warn Marin/Western Port. Both were short-lived: Sullivan Bay, a penal settlement at Sullivan Bay lasted from 1803 to 1804 and Corinella, a military settlement, from 1826 to 1828.
- The third phase of invasion had its beginnings after 1835, when European invaders began European settlements on the south coast of Victoria and in Nerm/Port Phillip Bay, having seized the lands of the Bunurong People and their neighbours.
- The years that followed saw huge inroads onto Bunurong lands by Europeans. By the early 1840s the land around the current study area had been taken up by European squatters, and by the late 1840s all Bunurong land had been stolen.
- The Bunurong People resisted the invasion and theft of their Country, their food and water, their language and culture, leading to killing and forced removal of their people and the ushering in of an extended period of racism, marginalization, and discrimination.
- The declining numbers of Bunurong People were concentrated into 'reserves' and missions and moved around Victoria—often they were removed off Bunurong Country onto land traditionally owned by other First Peoples.
- The Bunurong Land Council Aboriginal Corporation states the following concerning the contemporary Bunurong People:

> As to who represents the Traditional Owners for Bunurong Country, it is the Bunurong Land Council Aboriginal Corporation (BLCAC). BLCAC is the Registered Aboriginal Party (RAP) for and on behalf of Bunurong People. We have overcome many obstacles on the way, but Bunurong People are now recognised as the Traditional Owners of their lands and waters across greater Melbourne, Mornington Peninsula, and the Bass Coast (Bunurong Land Council Aboriginal Corporation n.d.).

4.9 Land-use History

The first European colonists arrived in the Cranbourne region in the 1830s and 1840s, attracted by the woodlands and grassy plains of the area. An 1847 survey map of the area between Toomuc Creek and the 'Great Swamp' (Koo-wee-Rup Swamp) noted that the region was heavily timbered with white gum, box and native hop, with open grassy land and good grassy land timbered with box, mimosa and acacia (City of Casey Heritage Study 1998: 11). From 1837 to 1846, grazing licences were taken up in the Port Phillip District, and squatting licences cost 10 pounds a year and were issued for any pastoral run. In 1847 new rules were gazetted which allowed squatters to purchase pre-emptive rights for their homestead blocks, and pastoral run holders who previously held grazing leases were able to purchase up to 260 hectares of their runs before any land in the locality was made available for purchase to the general public (City of Casey Heritage Study 1998: 13).

The study area was located within the Mayune pastoral run (Spreadborough & Anderson 1983: 274). Mayune was an area of 8 square miles, and in 1840, the run was held by the Ruffy Bros. In 1845, Frederick Ruffy held the run, and on September 16, 1850, the run passed to John Crewe, with Eliza Crewe holding the run in 1851. On March 27, 1851, Alexander Cameron held the Mayune Run, farming the pre-emptive rights section of the run as "Mayfield" (City of Casey Heritage Study 1998: 13).

In 1852, H.B. Foot the government surveyor, surveyed the Cranbourne district, and created a new township reserve of Cranbourne from the pastoral runs of Mayune, Towbeet and Barker's Heifer Station. The first land sales of the township blocks took place on 18 March 1852 (City of Casey Heritage Study 1998: 15). By 1854, there were large portions of land being sold south of Cardinia Creek and to the east of Cranbourne, with land

between Cranbourne and Western Port Bay offered for sale in 1856. From the 1850s, the predominance of grazing in the Cranbourne region waned, with smaller pastoral properties concentrating on dairying and cultivation (City of Casey Heritage Study 1998: 17). Orcharding was also a large industry from the 1890s, and into the twentieth century. In the 1870s, the Gippsland railway line was extended to the Berwick area, and in the 1880s, the Great Southern Line was extended to Cranbourne and Tooradin areas, increasing the development of these areas, encouraging tourism to the area and promoting the marketing of produce (City of Casey Heritage Study 1998: 46).

After both World Wars, further land subdivisions took place in the region under the Soldier and Closer Settlers schemes, with dairying and mixed farming often carried out (City of Casey Heritage Study 1998: 20). Market gardening was also engaged in (City of Casey Heritage Study 1998: 23). Stone and sand quarrying were also undertaken in the region, mostly for the use in road works and building that took place after the advent of the motor car (City of Casey Heritage Study 1998: 27).

In 1861, the township of Cranbourne was gazetted. In 1860, Scots Presbyterian Church opened , with a Presbyterian school open in 1856. There was also a blacksmith who worked in the area and taught at the school (City of Casey Heritage Study 1998: 31). The town continued to grow throughout the twentieth century. During the 1970s, many of those employed in the factory areas of Dandenong began to move to residential areas at Cranbourne, which led to increased commercial development of the area, such as the Cranbourne Park Shopping Centre which opened in 1878 (City of Casey Heritage Study 1998: 34). The Cranbourne area continued to grow and develop with large housing estates and new suburbs established in the 2000s.

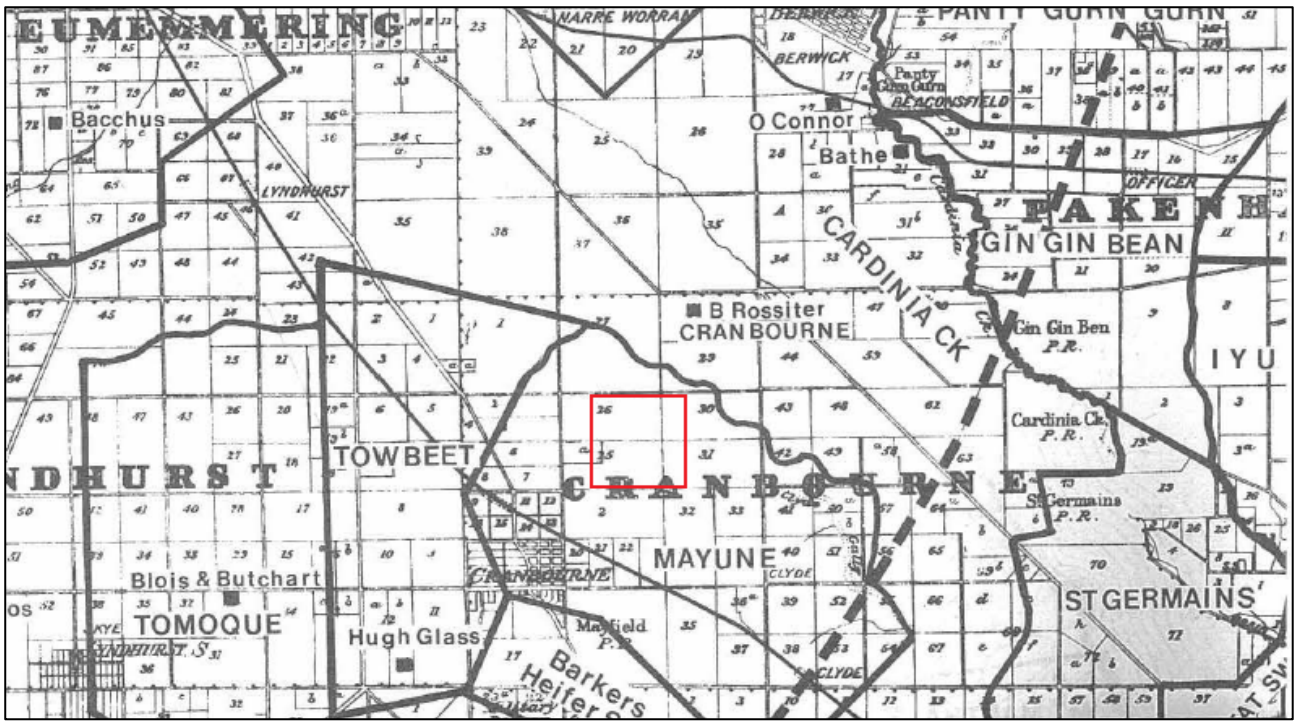


Figure 4-6 The Mayune pastoral run with the indicative location of the study area shown in red (Source: Spreadborough and Anderson 1983)

The study area contains a sand quarry and concrete batching plant which is located across the western portion of the area. Sand quarrying activities have taken place at this location, and were underway by 1939 as shown in a 1939 aerial photograph (Figure 4-7). The remainder of the study area is largely undeveloped, vacant land that has been cleared of most vegetation and utilised for agricultural purposes including grazing

and likely ploughing. A drainage channel traverses the mid-point of the study area, running north to south, which may have been based on a natural drainage system. There is a services easement that runs roughly northeast-southwest through the study area and is indicated in a 1939 aerial as a pipe. Powerlines run east-west through the middle of the study area. An east-west trench approximately 16 metres wide was excavated through the middle of the study area during 2010 for the installation of underground power for the water desalination plant in Wonthaggi. This trench is located immediately north of the overhead power transmission lines, and can be seen in an aerial photograph from 2012 (Figure 4-8). There are several existing dwellings and structures located within the study area, mostly relating to the areas agricultural land uses. The aerial images from 2009, 2014, 2017 and the present show the previous and current land uses of the study area (Figure 4-9, Figure 4-10, Figure 4-11, Figure 4-12), with agricultural uses prevalent.

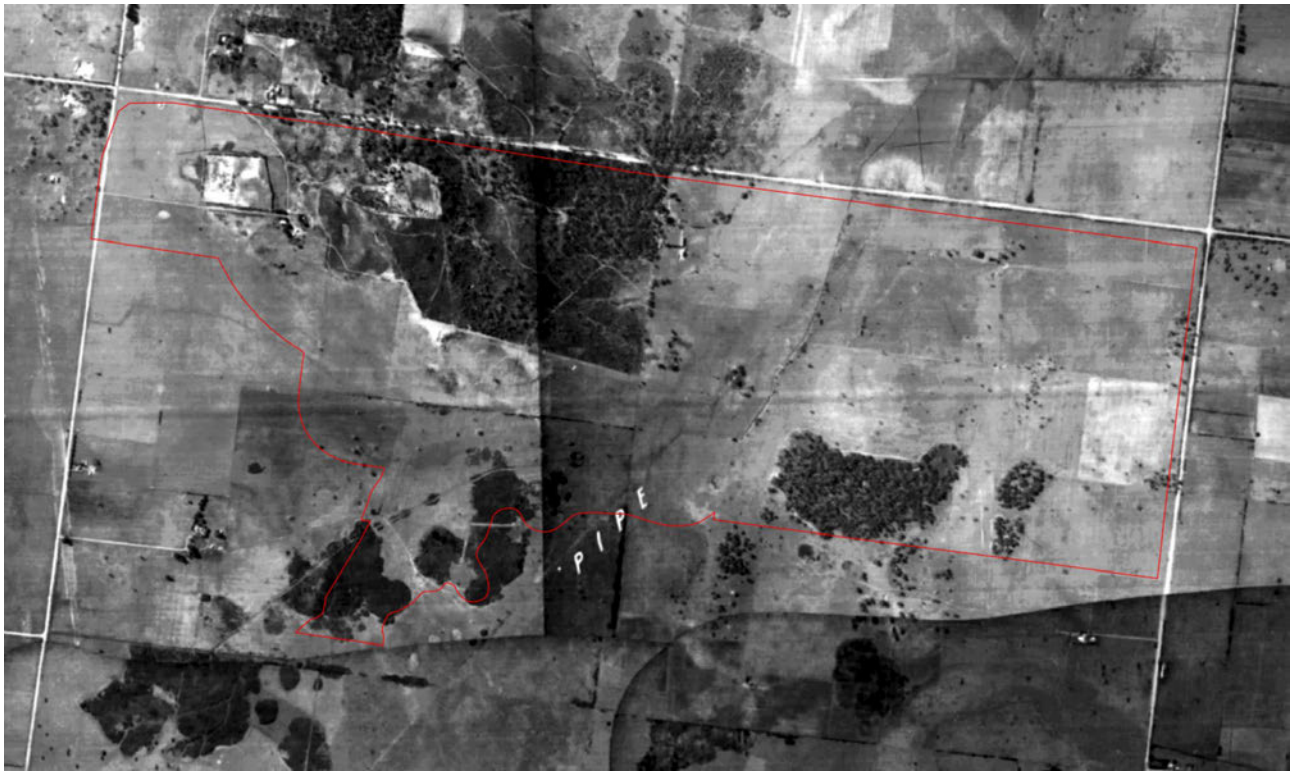


Figure 4-7 Study area in 1939, with approximate location of study area indicated in red (RAAF 1939)

Figure 4-8 Study area in 2012, showing high level disturbance from east-west trenching for desalination plant power cable (Nearmap 2012)

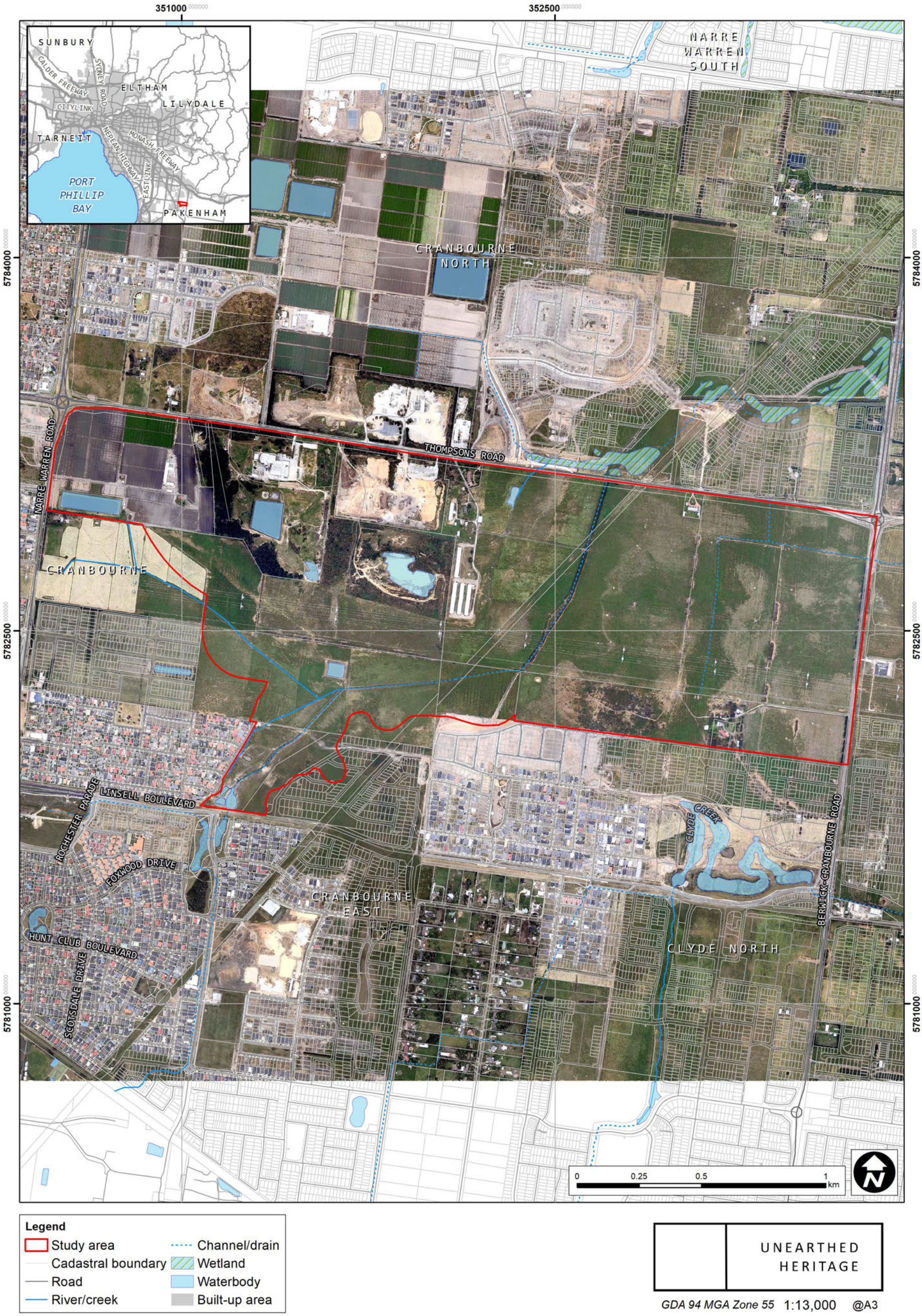


Figure 4-9 2009 aerial image of the study area (source: Google Earth Pro)

Aerial photo 2014: Nearmap 2022. Topographic data: © State of Victoria 2023. The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

Figure 4-10 2014 aerial image of the study area (source: Google Earth Pro)

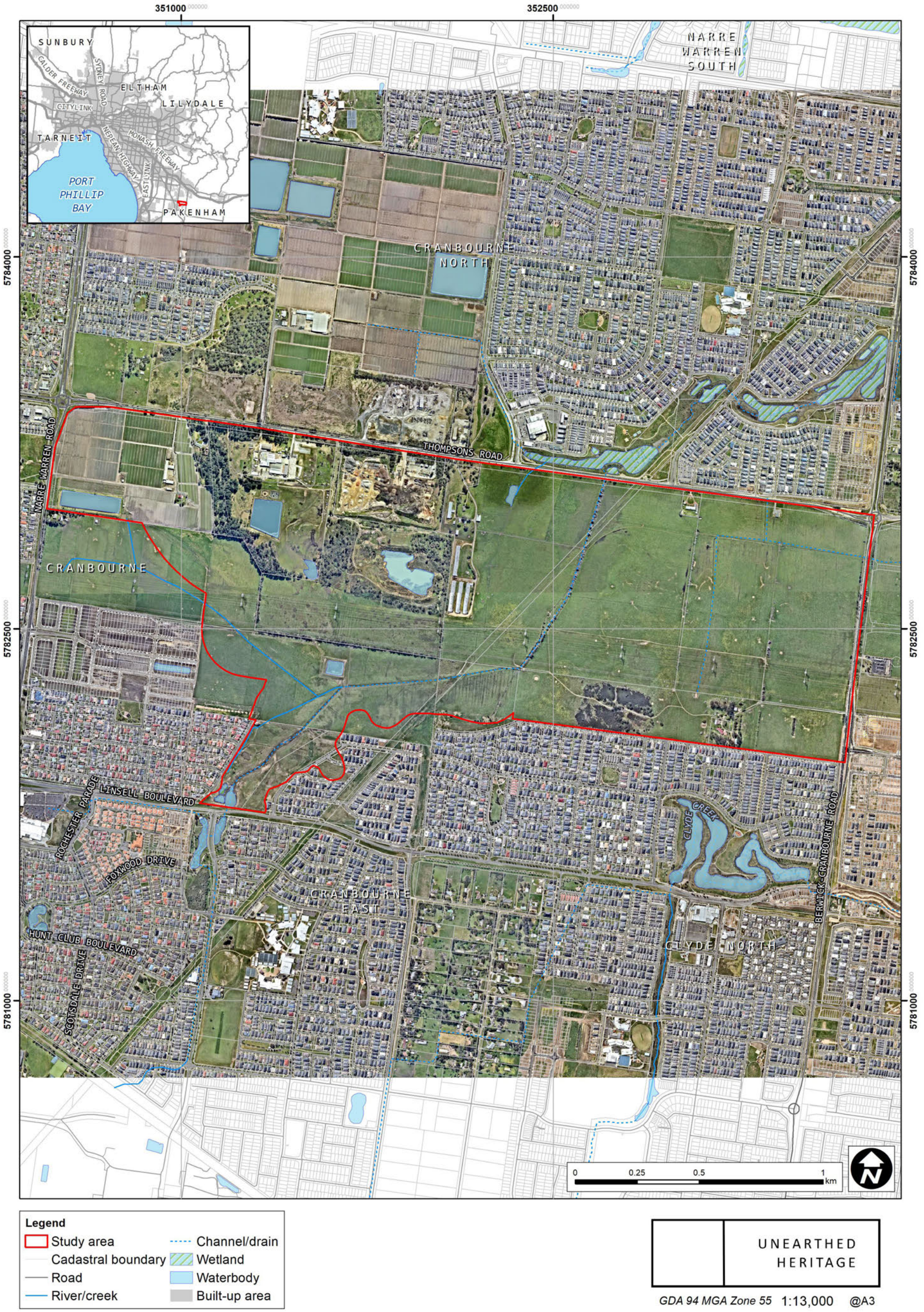


Figure 4-11 2017 aerial image of the study area (source: Google Earth Pro)

Aerial photo 2022: Nearmap 2022. Topographic data: © State of Victoria 2023. The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

Figure 4-12 2022 aerial image of the study showing existing conditions (source: Nearmap)

4.10 Archaeological Background

The findings of previous cultural heritage assessments in the geographic region can help inform the current study by improving our understanding of the distribution of Bunurong places in the region and the factors that have led others to their discovery. Therefore, a review of previous assessments in the study area region is pertinent.

Given the size of the study area and the extra *c*. 498.99 ha associated with the geographic region, there are numerous previous assessments associated with this area. A total of 9 previous assessments have included parts of the study area (see Table 4-14and Table 4-15 for reports reviewed). As such, a more detailed review of selected reports was undertaken within the study area boundary and a selection of relevant reports from the geographic region with similar landforms and geology as those present within the study area, and also those with similar previous land uses, with a focus on more recent CHMPs (see Table 4-15) as they provide more detailed levels of investigation and have been undertaken within the last 14 years, providing relatively up-to-date information.

Table 4-14 Review of reports about Aboriginal cultural heritage – regional studies

Report Name	Report Number
An Archaeological Survey of the Melbourne Metropolitan Area (Presland 1983)	20
Berwick-Pakenham Corridor (Smith 1991)	439
Melbourne 2030 Casey-Cardinia Growth Area (Feldman and Long 2006)	3883

Table 4-15 Review of reports about Aboriginal cultural heritage – local-scale assessments

Report Name	Report Number
260 Narre Warren – Cranbourne Road, Cranbourne (Murphy 2001)	Report 1965
Stage 1 and 2 cultural heritage survey of Clyde Five Ways Road, Pound Road to Ballarto Road, Victoria (Muir 2003)	Report 2674
Eastern Irrigation Scheme (Long, Schell and Howell-Meurs 2004)	Report 2910
Victorian desalination Project: Desalination Plant, Wonthaggi (Ford et al. 2009; Kayandel 2010)	CHMP 10881, Salvage Report 4336
St. Germaine Mixed-use Development, Clyde North (Hislop 2014)	CHMP 13239
Thompsons Road Duplication, Cranbourne North to Clyde North (St George and Spry 2016)	CHMP 13651
Berwick-Cranbourne Road, Clyde North, Road Duplication (Stevens 2017a)	CHMP 15116
Thompsons Road Duplication, Cranbourne East: Site compound & drainage works (Kapteinis, 2018)	CHMP 15351
Cranbourne to Clyde North Recycled Water Main, Pipeline (Stevens 2021)	CHMP 17209
An archaeological survey of a proposed landfill site. Thompsons Road Cranbourne (Weaver 1992)	Report 529
An archaeological investigation of the Dunscombe Property, Thompsons Road Cranbourne (Chamberlain et al. 2003; TerraCulture 2003)	Report 2287, Report 2571
Cranbourne East cultural heritage assessment (Murphy 2003)	Report 2438

Report Name	Report Number
An Archaeological Survey at 1435 Thompsons Road, Cranbourne East (Lawler and Fiddian 2007)	Report 3909
1435 Thompsons Road, Cranbourne (Vines 2007; Vines 2008)	CHMP 10022, CHMP 10168
Salvage Excavations at 1435 Thompsons Road, Cranbourne (Vines and Orr 2010)	Report 4387
Cranbourne North Service Business Precinct (Orr 2007)	Report 4096
Brookford Estate 545 Berwick-Cranbourne Road Clyde North, subsurface testing investigation (Murphy and Rymer 2007; Green, Murphy and Rymer 2011; Murphy and Rymer 2011)	Report 4012, Salvage Report 4375, Salvage Report 4394
Thompsons Road Duplication, Carrum Downs (Murphy and Dugay-Grist 2007)	Report 4011
Thompsons Road Duplication, Carrum Downs: subsurface testing (Murphy and Dugay-Grist 2008)	Report 4120
Hunt Club Residential housing estate 202S Cameron Street, Cranbourne East (Murphy and Rymer 2009a)	CHMP 10659
Hunt Club Residential Subdivision Mayfield Precinct, Mayfield Road, Cranbourne East (Murphy and Rymer 2009b)	CHMP 10865
Crown Allotment 29, Thompsons Road Cranbourne North Residential Subdivision (Murphy and Dugay-Grist 2009	CHMP 10531
PSP No. 16 – Cranbourne North (Stage 2) – Cnr Thompsons & Clyde Road (Day 2010	CHMP 11051
Proposed Industrial Sub-division at 1455 Thompsons Road, Cranbourne North (Lawler, Berelov and Cavanagh 2012)	CHMP 11156
Clyde Creek (PSP 54) and Thompsons Road (PSP 53) Precinct Structure Plans (Kennedy et al. 2012)	Report 4505
1790 Thompsons Road, Clyde North. Retail warehouse premises and car park development (Patton 2015)	CHMP 13811
Stage 1, Clyde North Business Park (Stevens 2017b)	CHMP 14958
Stages 2-3, Element Park Clyde North (Stevens 2018)	CHMP 15170
1585 Thompsons Road, Cranbourne North (Murphy and Thomson 2018)	CHMP 15008
1435 Thompsons Road Cranbourne North Retirement Village (Reich and Liousas 2020)	CHMP 16944

4.10.1 Regional assessments

Metropolitan Melbourne Archaeological Survey (Presland 1983, Report 20)

Presland prepared a regional archaeological study including a survey of the Melbourne Metropolitan area (Presland 1983. Presland divided the study area into five sections comprising the following landscape units: flat plains, undulating plain, low hills, hills, and the coastal margin. The majority of the current geographic region and study area is located within the flat plains landscape unit. The survey included all landscape units aside from the coastal plain. There were a total of 40 Aboriginal places identified during the survey, consisting of 27 stone artefact occurrences (artefact scatters and isolated artefacts), 12 scarred trees, and one shell midden. Most of the Aboriginal places were found on the flat and undulating plains unit, with only two scarred trees identified in the low hills landscape unit. There were no Aboriginal places identified in the hills landscape unit. Presland concluded that the results reflect the general land use of the landscape units by Aboriginal people. He noted that due to limited survey coverage and lack of literature and data on specific aspects of Aboriginal life it was not possible to define any clear patterns of subsistence behaviour and Aboriginal occupation (Presland 1983, 69-74).

Aboriginal cultural heritage study of Berwick-Pakenham residential growth corridor – AV report 439 (Smith 1991, Report 439)

Smith (1991) completed an archaeological assessment and survey of the Berwick-Pakenham corridor, extending on either side of the Princes Highway between Dandenong and Bunyip (Smith, 1991). The corridor comprises four landscape units being undulating hills, lowland plains, floodplains, and Cranbourne Sands (Smith 1991). Of the four landscape units, the current study area is likely located within the Cranbourne Sands landscape unit and possibly also the floodplain unit. The field survey used a sampling methodology for each landscape unit, and due to the large size of the area and the limited surface visibility, approximately 0.26% of the corridor was effectively surveyed. The Cranbourne Sands landscape unit comprises low undulating sand hills that contain a number of small soaks and swamps. This sand supports only a low scrub or heath, and the unit contains no stone resources although food resources would have been plentiful around the swamps and wetlands. The floodplain unit comprises the floodplains of the Port Phillip catchment and was once covered in river red gum forest with relatively abundant food resources present. During the survey, a total of 62 Aboriginal places were identified comprising 32 stone artefact scatters, 15 isolated stone artefacts and 15 Aboriginal scarred trees. Smith concluded that the undulating hills and lowland plains contained a relatively high proportion of stone artefact occurrences (such as artefact scatters and isolated artefacts) with limited numbers of scarred trees. Stone artefact occurrences were identified across a range of landforms aside from the floodplains located in the lowland plains and floodplain landscape units. Scarred trees were identified on creek banks and floodplains. Smith found that the results of the survey generally reflected the distribution and abundance of water and food resources in the area. The water source, Cardinia Creek was a focus of activity and may also have been used as a travel route between the coast and the Berwick-Pakenham corridor, traversing the area through Koo-Wee-Rup Swamp. The results also indicated that Aboriginal places reflected spatially restricted activities, with some differences in the stone artefact assemblages noted suggesting that Aboriginal places in the southwest section of the corridor maybe associated with the manufacture and use of wooden implements, whereas Aboriginal places in the eastern section included the manufacture of blades. Smith also noted evidence for the trade of stone raw materials between the coast and the Berwick-Pakenham corridor (Smith, 1991, 57-8). Smith developed a predictive model for the Cranbourne Sands landscape unit. The model indicated that within this zone, artefact scatters will be the most common Aboriginal place type and occur at the highest densities in the corridor. The Cranbourne Sands zone may have provided dry camping locations where adjacent resources could have been exploited. For the floodplain unit, scarred trees were the most likely site type to occur wherever mature river red gums remain.

Melbourne 2030 Casey-Cardinia Growth Area (Feldman and Long 2006, Report 3883)

Feldman and Long (2006) completed an archaeological desktop study for the Casey-Cardinia growth area. The results indicated that the growth area contained a complex pattern of Aboriginal place distribution likely due to differences in local landscapes. There were six landscape zones assessed within the study area. Zone 1 comprised Major drainage corridors including the foothills and plains that are drained by Cardinia and Toomuc Creeks, Deep/Pakenham Creek and Ararat/Back Creek. The creek margins contain a number of higher density artefact scatters and scarred trees. Zone 2 was the Intermediate Plains which included the slightly elevated band of flat and undulating land bordering the northern foothills and Koo-Wee-Rup Swamp. This area is dominated by agricultural and urban development. Stone artefact scatters occur on the alluvial flats and outwash fans within this zone that are associated with the creeks that drain the foothills. Subsurface archaeological deposits may occur at depths of approximately 800 mm. Scarred trees may occur within stands of remnant mature native vegetation. Zone 3 consists of urban areas including areas around Hallam, Narre Warren, Berwick, Officer, Pakenham and Cranbourne. Archaeological places may occur within open spaces with less disturbance present, with limited scope for identifying higher density *in situ*

sites. Zone 4 includes Koo-Wee-Rup Swamp and reclaimed low-lying swampland. Aboriginal stone artefact scatters may occur as subsurface deposits associated with former drainage channels or as shallow surface deposits on raised alluvial landforms, or along the margins of the depression. Zone 5 is the Northern Foothills, comprising the steep dissected foothills of the Great Dividing Range. This zone is characterised by agricultural land and regrowth forests. The archaeological values of this zone are uncertain as the area is largely unassessed. Surface artefact scatters may occur on ridgelines, terraces, in minor creek valleys, and scarred trees may also occur in areas of remnant mature native vegetation. Zone 6 is the Cranbourne massif and surrounding plains. This is an area of undulating plains that is centered on an elevated ridge of volcanic and sedimentary rock and is characterised by widespread sand drifts (known as the Cranbourne Sands). The archaeology of this zone consists of localised dense scatters of Aboriginal stone artefacts that area associated with landforms including sand drifts, ridgelines and drainage lines, and diffuse scatters of isolated Aboriginal stone artefacts that occur widely across the landscape. Burials may also occur in the sand deposits. The current study area is located within Zone 3 (Urban Areas). According to Feldman and Long's findings (2006) it is possible that Aboriginal cultural heritage material may be present within this open area, depending upon the previous disturbances present.

4.10.2 Local-scale assessments

Reports within the study area

260 Narre Warren – Cranbourne Road, Cranbourne (Murphy 2001, Report 1965)

Murphy (2001) completed a preliminary cultural heritage assessment for the proposed rezoning of the area at 260 Narre Warren-Cranbourne Road, Cranbourne. The study area for Report 1965 includes parts of the current study area. A survey was undertaken, and a single isolated artefact was identified, VAHR 7921-0400. This artefact was located on the eastern bank of a large dam and comprises a chert core that was collected by the Bunurong Land Council. A historic site was also located, the remains of a former farmhouse situated in the north western corner. The location of this historic site is within an area proposed for open space with no significant earthworks to take place. A former house was located here and there are two rows of cypress trees, an oak and Robina tree. The results of the survey indicated that the study area was of low to moderate potential for Aboriginal cultural material, with potential limited to a sandy rise in the northwest corner of the study area. The proposed design plan of the residential development for Report 1965 will retain the sandy rise location. Murphy recommended that monitoring of any works in the open space area be undertaken, and a permit to disturb VAHR 7921-0400 be sought.

Stage 1 and 2 cultural heritage survey of Clyde Five Ways Road, Pound Road to Ballarto Road, Victoria (Muir 2003, Report 2674).

Muir (2003, Report 2674) completed cultural heritage investigations of the Berwick-Cranbourne Road/Clyde Five-Ways Road between Pound Road and Ballarto Road, which takes in part of the current study area adjacent to Berwick-Cranbourne Road. The ground surface visibility at the time of the survey was poor to extremely poor. Muir noted that much of the study area was located within floodplain and wetlands areas that were boggy and would not have made ideal camping grounds, although they may have been used as resource areas. Muir stated that the wetlands and water sources of Clyde Creek would have been useful resource areas but the land surrounding these water sources was prone to flooding and dampness, and the area would have been densely vegetated due to the moist conditions. A thin band of Cranbourne sands was also identified immediately south of Thompsons Road, extending east-west, and this includes the current study area. Muir states that this band of sands may be archaeologically sensitive. A total of four Aboriginal places were identified during the survey, VAHR 7921-0499, 7921-0500, 7921-0501 and 7921-0569, all assessed to be of low scientific significance. Muir recommended that Option 2 was the

preferred option due to its lower impact on registered Aboriginal places and areas of archaeological sensitivity.

Eastern Irrigation Scheme (Long, Schell and Howell-Meurs 2004, Report 2910)

Long, Schell and Howell-Meurs (2004, Report 2910), prepared an archaeological assessment for the proposed Eastern Irrigation Scheme, which includes the current study area. There were six Aboriginal places registered within 50 m of the proposed alignments, mainly in private property which was unable to be accessed during the survey. The assessment included a field survey which identified eight new Aboriginal places, VAHR 7921-0620, 7921-0621, 7921-0622, 7921-0623, 7921-0625, 7921-0626 and 7921-0656, all artefact scatters found in association with sand drifts and/or elevated points. The Aboriginal places VAHR 7921-0625, 7921-0626 and 7921-0656 will be directly impacted by the proposed works and Long *et al*. recommended that Consents to Disturb be sought, with the remaining Aboriginal places likely to be indirectly impacted, and Long et al. also recommended that Consents to Disturb be sought for these places, with one place, VAHR 7921-0624 not requiring a Consent to Disturb as it has been substantially disturbed by previous earthworks, and probably displaced. Long *et al.* concluded that the most significant sites within the Cranbourne region would occur on elevated landforms such as sand drifts around the periphery of the Cranbourne Massif which would have been a strategically located base for Aboriginal people to exploit the wetland resources of the extensive swamps in the vicinity. Scarred trees may also occur where there are pockets of remnant native vegetation. Long *et al.* 2004 noted that localised sand deposits associated with the Cranbourne Sands occur throughout the study area, and the areas of the highest archaeological sensitivity are generally restricted to this landform.

Victorian desalination Project: Desalination Plant, Wonthaggi (Ford et al. 2009, CHMP 10881; Kayandel 2010, Salvage Report 4336)

Ford et al. (2009) prepared CHMP 10881 for the Cranbourne extension of the power supply alignment for the Victorian Desalination Project. Part of the study area for CHMP 10881 is within the southern section of the current study area, and also directly adjacent to the east of the current study area. The results of the desktop assessment indicated that there were five previously recorded Aboriginal places within the study area for CHMP 10881, VAHR 7921-0533, 7921-0534, 7921-0535, 7921-0536 and 7921-0545. A standard assessment was completed, identifying a number of areas of sensitivity with several included in the current study area, located to the west of Berwick-Cranbourne Road near the existing water easement, and directly to the west of Berwick-Cranbourne Road at the south eastern corner of the current study area, and an area to the south of the existing sand quarry beneath the transmission lines. The results for the sections of the standard assessment that traverse the current study area indicate that the areas are utilised for agricultural purposes. These properties were noted to be predominately boggy with several small sandy rises present which were identified as areas of archaeological sensitivity. One Aboriginal place was identified during the field survey, VAHR 7921-1133. Several of the small rises were subject to complex assessment testing as they would be impacted by the proposed works. The sandy rises in the south east of the current study area were not subject to testing as they would not be impacted. A combination of eight 1x1m test pits and 359 shovel probe holes were excavated as part of the complex assessment. Soils from several of the test pits and trenches excavated within the current study area were positioned at the margins of a largely undisturbed working sand mine. Soils comprised dark brown silty sandy topsoil mixed with white sand to 40 mm over firm greyish brown silty sand to 930 mm and hard greyish brown coffee rock across the base at 1000 mm. There was no Aboriginal cultural heritage identified at this location. Further excavations near the existing water easement within the current study area revealed a soil profile of moist grey humic sand to 40 mm over grey sand becoming lighter to 650 mm over light grey sand with 5% of coffee rock inclusions to 850 mm with a lens of very compact and dry pale white coarse sand with 5% coffee rock from 750-800 mm. A single silcrete flake was identified at 750 mm and recorded as VAHR 7921-1131. There were also silcrete

artefacts found various depths ranging from 130 mm to 1100mm along with quartzite and quartz artefacts (total number of 81 artefacts) in a similar area on a slight sandy rise which were registered as VAHR 7921-1132. The nature, extent and significance of VAHR 7921-1133, VAHR 7921-0535 and 7921-0536 was also established. A total of 356 artefacts were identified and registered as five Aboriginal places, VAHR 7921-1132, 7921-1133, 7921-1129, VAHR 7921-1131 and VAHR 7921-1130, with artefacts also identified on a low sandy rise from the previously registered place, VAHR 7921-0536. Management recommendations for these Aboriginal places included salvage excavation for VAHR 7921-1132, 7921-1133, 7921-1129 if harm was unable to be avoided, and no specific measures for VAHR 7921-1131 or VAHR 7921-1130. The previously registered Aboriginal places, VAHR 7921-0533, 7921-0534 and 7921-0545 were outside of the construction alignment and impacts would likely be avoided, with these places to be fenced off during proposed works.

In 2010 Kayandel completed subsurface archaeological salvage (Report 4336) at Aboriginal places along the Cranbourne extension of the power supply alignment for the Victorian Desalination Project (Cranbourne extension). The three places that were salvaged included VAHR 7921-1133, 7921-1132 and 7921-1129. For the Aboriginal place, VAHR 7921-1133 a total of 24 trenches (1x1 m salvage pits) were excavated with a total of 913 Aboriginal stone artefacts identified, with most artefacts found at a depth range of 200 to 450 mm. There were five charcoal samples taken, with one charcoal sample from 550-600 mm providing a modern date indicating that there had been some contamination of the sample. The dating results showed that the initial use of the site occurred more than 5,000 years ago, with a low density scatter of artefacts, and the most intensive use occurred around 1,000 to 2,000 years ago where silcrete and quartz was intensively flaked. The Aboriginal place, VAHR 7921-1132 was subject to 16 trenches comprised of 1x1m salvage pits, and 319 Aboriginal stone artefacts were identified. Most of the artefacts were found at depths of 600 to 800 mm and the assemblage was dominated by silcrete and also included backed blades. Dates were provided of between 4,830 and 4,410 calBP at spit 16 (800 mm). There were small numbers of artefacts found below 800 mm and these were predominately quartz. The Aboriginal place, VAHR 7921-1129 was subject to 16 salvage trenches comprised of 1x1m salvage pits, with 27 artefacts identified mostly of silcrete with a few quartz and fine grained siliceous also found.

St. Germaine Mixed-use Development, Clyde North (Hislop 2014, CHMP 13239)

Hislop (2014) prepared CHMP 13239 for proposed installation of utilities and construction of road surfaces along Thompsons Road in Clyde North. The study area includes parts of the current study area. There were three areas of potential archaeological sensitivity identified, including a prominent rise located to the west of the intersection of Thompsons Road and Pound Road, also unnamed alluvium at the eastern end of the study area with the possibility of small rises in this area, and thirdly the presence of sand dunes in the western region of the study area, with a possibility for deep sands to be present which are likely to contain Aboriginal cultural heritage.

A standard assessment was undertaken, with low ground surface visibility noted due to thick grass, leaf matter and dispersed gravel and soils. There were areas of extensive disturbance identified such as the desalination pipeline on the eastern side of the Pound Road intersection, a high pressure gas pipeline at the Pound Road intersection and in the western road reserve of Pound Road, the deeply excavated eastern road reserve of Pound Road and the western section of Thompsons Road after the Berwick-Cranbourne intersection. A complex assessment took place, with three test pits and 47 shovel test pits excavated. Soils comprised dark brown disturbed silty clay loam to c. 100 mm over dark brown disturbed silty clay loam with sandstone fill to c. 500 mm over very dark grey clay loam to 420 mm over grey silty and buckshot to c. 500 mm over dark greyish brown clay. One low-density artefact scatter was recorded, VAHR 7921-1531 represented by one surface artefact and the three subsurface artefacts found at a depth range of 0-200mm in a disturbed context near the edge of a manmade pit, with artefacts not being *in situ*. The road reserves

were noted to predominately have extensive modern disturbance through the upper soils, with only a few of the shovel test pits excavated in the road reserve being minimally disturbed. The consultants concluded that the road reserve was unlikely to contain Aboriginal cultural heritage. Management conditions included the collection of the surface artefact representing VAHR 7921-1531.

Thompsons Road Duplication, Cranbourne North to Clyde North (St George and Spry 2016; CHMP 13651)

St George and Spry (2016) prepared CHMP 13651 for the proposed duplication of Thompsons Road, Cranbourne North to Clyde North, located both within and directly adjacent to the current study area. The study area includes both private property and road reserves. The results of the desktop assessment indicated that there were two previously registered Aboriginal places within the study area comprising a surface scatter of subsurface artefacts (VAHR 7921-0864) and an isolated surface stone artefact (VAHR 7921-0249). There were also five stone artefact scatters registered within 50m of the study area all associated with sandy rises landforms and were identified either on the crest or slope of a rise. A standard assessment was completed and the two previously registered places VAHR 7921-0249 and VAHR 7921-0864were reinspected. There was thick grass cover present with a high level of exposure only associated with the market garden area. A total of nine Aboriginal stone artefacts were recorded on the inland dune landform on an informal vehicle track utilised for the market garden, and it was unlikely that the artefacts were *in situ*. Raw materials comprised silcrete and quartz. There were two cores, a complete flake, three broken flakes and three angular fragments found. A complex assessment was conducted with seven 1x1 m test pits and eighteen 0.4x0.4 and 0.5x0.5m STPs excavated. There were a total of 216 stone artefacts identified on the inland dune landform and these were predominately found in association with the previously registered place, VAHR 7921-0249. The stone artefacts were generally identified at a depth range of 600-700 mm within grey, loose, moist silty sand. A total of three new Aboriginal places were registered VAHR 7921-1587 represented by six surface artefacts and 16 subsurface artefacts made on silcrete (n=11), quartz (n=10) and crystal quartz (n=1). The most common artefact types were proximal flakes (n=6), angular fragments (n=5), whole flakes (n=3), blade flakes (n=2), medial flakes (n=2), cores (n=2), distal flake (n=1) and a longitudinally split flake (n=1). The second Aboriginal place was VAHR 7921-1594 represented by three surface artefacts and fourteen subsurface artefacts made on silcrete (n=12), quartzite (n=3) and quartz (n=2). The most common artefact types were whole flakes (n=5), angular fragments (n=3), cores (n=2), distal flakes (n=3), medial flake (n=2), proximal flake (n=1) and a right split flake (n=1). The third Aboriginal place was VAHR 7921-1597 which was a subsurface scatter of stone artefacts that also incorporated the previously registered Aboriginal place VAHR 7921-0249. This Aboriginal place was represented by a total of 190 subsurface artefacts manufactured on silcrete (n=136), quartz (n=42), crystal quartz (n=8), quartzite (n=2), chert (n=1) and basalt (n=1). The most common artefact types were angular fragments (n=56), whole flakes (n=49), distal flakes (n=27), tools (n=16), medial flakes (n=14), proximal flake (n=11), blade flake (n=7), left split flake (n=3), rejuvenation flake (n=3), core (n=2) and a bipolar flake (n=1). Management conditions included harm to the part of VAHR 7921-0864 that lies within the study area, surface salvage at VAHR 7921-1587 and the depth of proposed works to be capped to 1.2 m in one location where a sterile deposit was not reached; surface salvage and salvage excavation at VAHR 7921-1594 and the depth of proposed works to be capped to 800 mm at one location where a sterile deposit was not reached; surface salvage and salvage excavation at VAHR 7921-1597 and temporary fencing.

Berwick-Cranbourne Road, Clyde North, Road Duplication (Stevens 2017a, CHMP 15116)

Stevens (2017a) prepared CHMP 15116 for the Berwick-Cranbourne Road duplication, part of which include the current study area. The study area included the current road reserve and existing roadway of Berwick-Cranbourne Road. A standard assessment was conducted, with no sandy rises or sand profiles identified within any soil exposures present. The landform was identified as floodplain. Extensive grass cover was

present at the time of the survey and a complex assessment was then undertaken. A total of two 1x1m test pits and thirty one 0.5x0.5 m shovel test pits were excavated. Soils comprised loam clay over strong gravel clays beyond approximately 400 mm depth. Deeper excavations included a water logged profile similar to that described above. Introduced inclusions such as road building material were also identified. Evidence of infilling was noted with plasticine clays and mottling of sediments. No Aboriginal cultural heritage was identified, and no Cranbourne Sands were identified. The landform of the study area is low lying plain with no elevated features of archaeological sensitivity.

805 Linsell Boulevard Cranbourne: Proposed 67 Lot Residential Subdivision (Barker 2017, CHMP 15204)

Barker (2017) completed CHMP 15204 for a proposed 67 lot residential subdivision at 805 Linsell Boulevard, Cranbourne, which takes in part of the southern section of the current study area. Most of the study area for CHMP 15204 comprised undeveloped parcels of land. The results of the desktop assessment indicated that if there were undisturbed sand deposits located within the study area it was possible that Aboriginal cultural heritage may be identified, with the most likely Aboriginal place types being stone artefact deposits comprising either artefact scatters or LDADs. A standard assessment took place, and poor ground surface visibility was noted. The highest point of the study area is located in the southeast corner with the remainder consisting of flat floodplain. Several piles of fill were noted along the eastern boundary. There were no trees present and no Aboriginal cultural heritage found. A complex assessment took place with two 1x1m stratigraphic test pits excavated, along with a total of twenty 2-3 m x 1 m backhoe transects, and ten 0.5x0.5 cm shovel test pits. The soil profile of the Test Pit 1 consisted of mixed brown clay loam/greyish brown loam with plant material and building debris including brick, gravel, asbestos and concrete to c. 370-400 mm over brown clay loam to 750-820 mm over dense yellowish brown clay with brown clay inclusions at 750-820 mm. The stratigraphy of the backhoe transects and shovel test pits was consistent with the stratigraphic test pits, with mixed yellow and brown clay fill in several transects. No Aboriginal cultural heritage was identified, and the study area was assessed to be of low archaeological potential for Aboriginal cultural heritage deposits. There were no specific management conditions for the CHMP.

Thompsons Road Duplication, Cranbourne East: Site compound & drainage works (Kapteinis, 2018 CHMP 15351)

Kapteinis (2018) prepared CHMP 15351 for site compound and drainage works for the Thompsons Road Duplication. This study area for CHMP 15351 takes in part of the current study area. The study area for the site compound comprised flat land that was cleared of vegetation, with an underground services easement across the north western corner, and farm tracks present, and this area includes the current study area. The proposed drainage works for CHMP 15351 were to take place in a heavily vegetated and modified area bounded by Thompsons Road to the south and a man-made wetland to the north, west and east. A standard assessment took place, with very poor ground surface visibility noted, along with an absence of sensitive landforms. There were also six auger holes conducted, with soils generally consisting of a thin organic layer of moist firm dark brown sandy silt to 40-200 mm over firm mid grey brown sandy silt and sand which is underlain by compact mottled yellow and grey clay at 460-830 mm. Complex assessment took place with five excavation pits completed across the proposed compound area which contained natural soil horizons identified during the auger holes. There were two distinct stratigraphic profiles identified, with a thin sand sheet profile, containing a higher proportion of sand with dark greyish brown silty sand overlying A1 horizon of grey coarse sand, over A2 horizon of greyish brown coarse sand and yellowish brown clayey sand over sterile B horizon of greyish brown and brownish yellow clay at depths of 760-800 mm. Gravelly fill was identified in one excavation pit where a farm track has removed the natural A1 horizon. The sand sheet was thin and discontinuous across the study area indicating that it had likely been deflated by aeolian processes. The second profile was of the Red Bluff Sandstone and comprised dark

brown and dark greyish brown sandy silt humic, over an A1 horizon of greyish brown sandy silt grading into a bleached A2 horizon of light brownish grey sandy silt over a sterile B horizon of dark greyish brown and brownish yellow clay. There was no Aboriginal cultural heritage identified. The area was assessed to be of low archaeological potential with a lack of elevation which may have made it less favourable for Aboriginal occupation, with the more elevated dunes and sand sheets to the west and north likely to have been more of a target for Aboriginal occupation in the region.

Cranbourne to Clyde North Recycled Water Main, Pipeline (Stevens 2021, CHMP 17209)

Stevens (2021) prepared CHMP 17209 for the Cranbourne to Clyde North recycled water main pipeline which traverses the current study area from Berwick-Cranbourne Road. The proposed activity will be installed by ground surface trenching and subsurface tunnelling under drainage lines and sensitive landforms. The study area contains a mapped sand sheet, however due to the haphazard distribution pattern of the Cranbourne Sands it is unclear whether the sand occurrence is present within the study area. Previous land uses of the study area include cattle grazing, vegetation clearance, cyclical ploughing, and the construction of an artificial drainage line likely constructed to assist with drainage of surface water. The western section of the study area which includes the current study area, was described by South East Water as marshy and generally boggy underfoot and is a swampy area. A standard assessment took place and a generally low level of ground surface visibility was noted. Most of the land comprising the study area was assessed to be a low lying plain subject to seasonal flooding, with an existing swamp in the south west section. One Cranbourne Sands landform was identified on farmland north of Donohue Street. Complex assessment was conducted with ten 1x1m test pits excavated, with 8 test pits excavated within the current study area, including two on an area defined as Cranbourne Sands. Soils on the low lying plain near the broad swamp comprised plasticine clay and non-porous sediments that reflect the marshy conditions. The soil profile for many of the pits was wet and saturated, causing collapsed walls and infilling of water. Cranbourne Sands soils were identified, and there were three stratigraphic soil descriptions for the study area. The first soils description was brown humic loam with minor clays to c. 200 mm over greyish brown gritty pale sand with strong brown clay particles to c. 500 mm over yellowish brown plasticine mustard-hued clays with minor gravel at c. 500 mm. The second profile was Cranbourne Sands landform, with medium grey to dark grey sand to c. 200 mm over light grey sand to c. 1000 mm over yellowish brown plasticine mustard-hued clays with minor gravel. The third soil profile was dark brown loam/clay that was highly plasticised and dense to c. 300 mm. A total of 17 artefacts were initially identified on the Cranbourne Sands Landform, and during place extent testing an additional 49 artefacts were identified (total of 66 artefacts) , extending across the entire Cranbourne Sands landform within the study area. The Aboriginal cultural heritage was registered as VAHR 7921-1841, Donohue Street AS 1, which was assessed to be of moderate scientific significance. A total of 97% of the assemblage consists of silcrete, with quartz and quartzite also present. There were 22% complete flakes and 22% of distal flakes present within the assemblage, and three formal tool types were present including three backed blades. The Sponsor is able to minimise harm to VAHR 7921-1841 by horizontal direct drilling which will tunnel under the Cranbourne Sands landform. Management conditions for VAHR 7921-1841 included the erection of protective fencing prior to the commencement of works, and a contingency for the retrieval of the borehead in the event of breakage during the horizontal drilling.

Reports within the geographic region

An archaeological survey of a proposed landfill site. Thompsons Road Cranbourne (Weaver 1992, Report 529).

Weaver (1992, Report 529) completed an archaeological survey of a proposed landfill site at Thompsons Road, Cranbourne, located on the northern side of Thompsons Road, east of Narre Warren Cranbourne Road, and directly to the north of the current study area. The site was a sand quarry with a sand pit

comprising three extraction pits that covered about 80% of the study area with one of the pits still having sand extracted from it, along with a concrete batching plant and concrete tank manufacturer. There is also a water storage pond. The study area comprises Cranbourne Sands. A survey took place, with only the perimeter of the quarry able to be examined. A total of seven isolated stone artefact sites and one stone artefact scatter were identified, with most of the Aboriginal places found along the Thompsons Road side of the study area on eroded quarry slopes. There were also three isolated stone artefacts found along the western and northern sections which contained poor visibility. A total of 24 Aboriginal stone artefacts were recorded comprising flakes, waste flakes, blades, waste blades, cores, scrapers, utilised and non-utilised flaked fragments with half of the artefacts consisting of formal tool types such as flakes, blades, scrapers and core. There were 9 silcrete artefacts, 8 quartz and 7 chert. The Aboriginal places registered were VAHR 7921-0246, 7921-0247, 7921-0248, 7921-0249, 7921-0250, 7921-0251 and 7921-0252 represented by isolated stone artefact sites and VAHR 7921-0253 represented by an artefact scatter assessed to be of medium to low significance. Weaver recommended that if the need should arise, there was no archaeological reason to preserve the isolated artefact sites and that these could be disturbed. However Weaver recommended that the artefact scatter, VAHR 7921-0253 should not be disturbed during any further work at the sand quarry. Weaver noted that there were areas of natural Cranbourne Sands still remaining at the sand quarry site in-between Sand Pit number 1 and Sand Pit number 2 and also along Thompsons Road adjacent to Sand Pit No. 3, and that these areas needed to be examined by an archaeologist. Weaver recommended that if the sites were to be disturbed, a Consent to Disturb must be sought.

An archaeological investigation of the Dunscombe Property, Thompsons Road Cranbourne (Chamberlain et al. 2003, Report 2287; TerraCulture 2003 Report 2571)

Chamberlain et al. (2003, Report 2287) completed an archaeological investigation of the Dunscombe Property, Thompsons Road Cranbourne, located directly to the west of the current study area, on the western side of Thompsons Road. Due to the proximity to local drainage lines, the occurrence of high ground and sandy substrates within the study area, the results of the background research indicated that there was a strong likelihood for Aboriginal cultural heritage to be present. The property had been utilised as a farm, and also contained overhead transmission lines running east to west near the southern boundary. The property slopes from east to west with two areas of high ground one at the eastern end adjacent to Thompsons Road and Narre Warren Cranbourne Road and the other at the western end beneath the overhead transmission lines. The property contained a weatherboard house built around 1880, and also a later farmhouse on the north eastern corner at Narre Warren Cranbourne Road. Subsurface excavations took place using mechanical excavation, with eleven transects 25 to 100 m with an average depth of 250 mm excavated across areas of high ground. Shovel probes were also excavated. Due to the general lack of ground surface visibility, survey of the area took place across the ground in between the excavation areas. Soils comprised grey brown silty soil becoming compact to c. 400 mm over reddish gravel and rock from c. 450-700 mm. There were deeper sands located on the rise at the north eastern corner with soil comprising grey/orange sand present to considerable depth at 950 mm in one transect. There were also more shallow soils in the north centre section, with very coarse dry peaty soil over gravelly layer, which may have been the result of imported gravel and rock to keep an area around a gate dry. There were four isolated artefact sites identified, VAHR 7921-0542, 7921-0543, 7921-0544 and 7921-0545, all of silcrete. Artefact depths were 400-500 mm, and one at 700 mm in deep grey orange sand which may have been disturbed by sand borrowing in this area. All of the Aboriginal places were assessed to be of low scientific significance. Chamberlain et al. 2003 recommended that there was no requirement for further archaeological investigations prior to the works, although monitoring of works was suggested.

TerraCulture (2003, Report 2571) prepared an addendum report following two additional subsurface testing programmes that took place across the study area after a request by Bunurong Land Council to test in the vicinity of any planned public open space within the development, and also a request to test for possible deeper cultural deposits similar to Aboriginal cultural heritage that had been found on land to the south of the Dunscombe property. The excavations in the proposed public open space area revealed grey sandy soil over gravelly weathered sandstone and clay which occurred at inconsistent levels in transects. No Aboriginal cultural heritage was identified. Excavations on the floodplain on the south western side of the property and south of the main drainage line were excavated to clay with the deepest trench reaching 3.5 m. Soils comprised dark brown moist and loamy topsoil over light brown sticky clay with no naturally occurring stone. At 1400 mm the clay was light grey to yellow which may have been the decaying bedrock. No Aboriginal cultural heritage was identified. The consultants concluded that although there was a lack of Aboriginal cultural heritage found during the testing it does not indicate that Aboriginal cultural heritage was not present but rather that the density of material in these sections of the property is low.

Cranbourne East cultural heritage assessment (Murphy 2003, Report 2438)

Murphy (2003, Report 2438) prepared a cultural heritage assessment of 161 hectares of land at Cranbourne East, located directly to the east of the current study area. The study area comprised mostly vacant pastoral land which gently slopes from west to east with runoff collecting in the upper reaches of Clyde Creek. The central section of the study area is low lying with a number of earthen drains that drain what were once seasonal wetlands. This area may have been subject to extensive levelling to assist drainage. There are sandy hillslopes in the north western section and on the south eastern boundary and include Cranbourne Sands. There is an existing farm dwelling and sheds located on the property, and it appears that the property was largely utilised as a dairy farm. A field survey was undertaken, and a very low level of ground surface visibility was noted due to thick grass cover. A total of three small stone artefacts were identified and registered as VAHR 7921-0494 (represented by 9 quartzite artefacts including several flakes), VAHR 7921-0492 (3 waste flakes – 2 quartz and one silcrete), and VAHR 7921-0493 (large basalt hammerstone/grinding stone heavily weathered). Murphy concluded that it was highly probable that further Aboriginal stone artefacts would be found within the northern elevated section of the study area assessed to be of low sensitivity and on the sandy hill slope in the south east assessed to be of low to moderate sensitivity. Murphy also stated that Aboriginal ancestral remains could also be found in sandy areas of the property. Murphy recommended that monitoring of earthworks occur within the northwest section of the study area, and a programme of subsurface testing take place across the sandy hill in the southeastern section. Consents to disturb the Aboriginal places, VAHR 7921-0494, 7921-0493 and 7921-0492 should also be sought.

An Archaeological Survey at 1435 Thompsons Road, Cranbourne East (Lawler and Fiddian 2007, Report 3909)

Lawler and Fiddian (2007) completed an archaeological survey at 1435 Thompsons Road, Cranbourne East, located directly to the north of the current study area. The area was divided into two topographical zones with Zone 1 comprising an elevated sand ridge and Zone 2 being the remainder of the study area. At the time of the survey the property was covered by thick vegetation with surface exposure limited to small pockets of disturbance including animal burrows and tracks and tree roots. There were pronounced plough ridges noted in Zone 2. No Aboriginal cultural heritage was identified. The consultants assessed Zone 1 as an area of high sensitivity due to its topography and the proximity of the study area to the Cranbourne Sands. Zone 2 was assessed to be of moderate archaeological sensitivity and it was recommended that further archaeological investigation take place including subsurface testing.

1435 Thompsons Road, Cranbourne (Vines 2007, CHMP 10022; Vines 2008, CHMP 10168)

Vines (2007) prepared a CHMP for the development for Stage 1 of a residential subdivision and parkland "Sierra" Estate at 1435 Thompsons Road, Cranbourne, located to the north of the current study area. Lawler and Fiddian (2007, Report 3909) had recommended that subsurface testing occur within this area, and subsurface testing was carried out under CHMP 10022.Subsurface testing initially consisted of a series of shovel probes and backhoe scrapes with 14 test pits (1x1 m, 1x0.5 m and 0.5 m²) excavated to the sandstone bedrock. Topsoil stripping undertaken by the developer exposed additional archaeological deposits which were then recorded and monitored by Aboriginal community representatives. There were two Aboriginal places identified, VAHR 7921-0863 and VAHR 7921-0864 represented by more than 300 Aboriginal stone artefacts. The assemblage comprised mainly silcrete and quartz, with small amounts of crystal quartz, quartzite and hornfels. Few formal tools were present; the majority of artefacts were flakes and debitage. All of the Aboriginal artefacts were identified within subsurface sandy deposits, at a depth range of 100-600 mm and Vines concluded that the assemblage indicated occasional occupation of the area rather than a permanent campsite. Vines recommended that salvage excavation of a statistically valid sample of artefacts from the Aboriginal places should occur prior to any further development of the area.

For Stage 2 of the proposed development, Vines (2008) then completed another CHMP (CHMP 10168), which focused mainly on the area identified as Zone 1 by Lawler and Fiddian (2007, Report 3909). Vines completed a survey and complex assessment subsurface testing. During the survey, there were six stone artefacts identified within 20-50 m of the previously registered Aboriginal places, VAHR 7921-0863 and 7921-0864. Vines assessed three areas of archaeological potential which were based on the landforms present. The area high potential included the elevated sand hills that comprise Cranbourne Sands deposits and contain eucalypt woodland. This area may have provided good vantage points and been suitable for Aboriginal campsites. The area of moderate potential included low ridges of sandy soil that were adjacent to former swamps and also lower lying ground that was close to resource rich areas. The area of low potential contained depressions between low ridges which may have formerly been swamps but are now drained and consist of peaty waterlogged deposits. The subsurface testing included an initial series of shovel probes, backhoe trenches and a 1x1 m test pit which was then followed by multiple 1x1 m test pits, with seventeen 0.5x0.5 m and 0.25x0.25 m shovel test pits, seven 1x0.5m and 1x1m test pits and six longitudinal 1.2 m wide backhoes. Test pits were excavated to the sandstone bedrock in the areas of moderate to high archaeological potential, with backhoe excavation undertaken in the areas of low archaeological potential. Soils comprised of humic dark grey/black sand overlying lighter grey sand, overlying white/grey sand, overlying dark yellow/coffee coloured sand and coffee rock, overlying coffee rock and/or ironstone gravel. Most artefacts were recovered from depths of greater than 400-500 mm at the base of the grey humic bioturbation layer. There were a total of 153 stone artefacts identified and registered as three I Aboriginal places VAHR 7921-0861, 7921-0862 and 7921-0863. Silcrete and quartz were the most common raw materials present with small amounts of crystal quartz, quartzite and hornfels. The Aboriginal places were interpreted to be places of occasional occupation rather than permanent campsites, and they were all identified in areas of medium to high archaeological potential. Vines recommended salvage excavation of a statistically valid sample of artefacts from the Aboriginal places with mitigation to be undertaken to minimise the impact of the proposed works on the Aboriginal places in areas designated as public spaces or in areas where low impact activities were planned.

Salvage Excavations at 1435 Thompsons Road, Cranbourne (Vines and Orr 2010, Report 4387).

As part of the recommendations of CHMP 10168 (Vines 2007) a salvage program was undertaken at 1435 Thompsons Road, Cranbourne North at the three Aboriginal places VAHR 7921-0861, 7921-0862 and 7921-0863. A total of 10 trenches were mechanically excavated within the boundaries of VAHR 7921-0861, with a total of 22 trenches excavated. There were 1551 artefacts were identified during the salvage from 19 trenches excavated, containing an average density of 14.8 artefacts per m2. Artefacts were generally found

on the mid-slope landform at depths of 40 to 80 cm. Silcrete was the predominant raw material with smaller quantities of a broad range of other raw material types also present. The results indicated that the mid-slope landform was more archaeologically sensitive than the top of the rise or surrounding floodplain landforms.

Cranbourne North Service Business Precinct (Orr 2007, Report 4096)

Orr (2007) prepared a preliminary report as part of the Cranbourne North Service Business Precinct Development Plan. The study area comprised six parcels of land adjacent to Thompsons Road, east of Narre Warren – Cranbourne Road, and is situated to the north of the current study area. The results of the desktop assessment indicated that there were two previous assessments that had been undertaken in the study area: a field survey of 1545 Thompsons Road by Weaver completed in 1992 and a desktop assessment carried out by Nicholson during 2004. There were also eight Aboriginal places recorded in the study area, seven comprising isolated artefacts and one being an artefact scatter. A field survey was completed, with the six parcels of land divided into areas A – F. Poor ground surface visibility was present, and Areas A and F were not surveyed due to land access issues. No Aboriginal places were identified but several areas of archaeological potential were assessed. The sandy elevated land typical of the Cranbourne Sands landform that forms most of the study area was assessed as potentially sensitive as it may have formed part of a Bunurong route to access resources of Carrum Swamp to the northwest and south. Orr recommended that a mandatory CHMP be prepared for any part of the study area which does not fall under transitional arrangements (such as the property at 1545 Thompsons Road), and a cultural heritage permit be sought for any works in the vicinity of Aboriginal places within 1545 Thompsons Road. ‘

Brookford Estate 545 Berwick-Cranbourne Road Clyde North, subsurface testing investigation (Murphy and Rymer 2007, Report 4012; Green, Murphy and Rymer 2011 Salvage Report 4375; Murphy and Rymer 2011 Salvage Report 4394)

Murphy and Rymer (2007, Report 4012) completed subsurface testing investigation at 545 Berwick-Cranbourne Road, Clyde North, located directly to the east of the current study area. Murphy had completed a cultural heritage assessment and field survey of the area in 2003 (Report 2426), identifying three Aboriginal places, VAHR 7921-0494, 7921-0492 and 7921-0493, assessed as being of low scientific significance. During monitoring works in the southeastern section of the property, one new low density Aboriginal place was identified, VAHR 7921-0786. Mechanical test transects (n=19) were excavated, along with three 1x1 m test pits. The nature of the previously recorded Aboriginal places was clarified, and three additional Aboriginal places were identified, VAHR 7921-0832, 7921-0833 and 7921-0834. A total of 1031 Aboriginal stone artefacts were identified during the subsurface testing programme, with most artefacts representing the Aboriginal places VAHR 7921-0833 (n=488), 7921-0494 (n=177) and 7921-0834 (n=259). Complete, broken and split flakes make up 72% of the assemblage followed by angular fragments (19%), complete and broken tools (4%), complete and broken blades (3%) and core and core fragments (3%). Silcrete dominates the assemblage at 86%, followed by quartz (7%), crystal quartz (6%), basalt and quartzite. Most of the artefacts from the low density sites (VAHR 7921-0786, 7921-0492, 7921-0832 and 7921-0493) were found at depths of up to 300 mm with a small number from VAHR 7921-0492 found up to 500 mm deep, and these low density Aboriginal places were assessed to be of low scientific significance. Most of the artefacts from the medium density sites (VAHR 7921-0833, 7921-0494 and 7921-0834) were found for a depth of up to 600 mm, and these medium density Aboriginal places were assessed to be of moderate scientific significance. Management recommendations included the preservation of two of the largest Aboriginal places, VAHR 7921-0833 and VAHR 7921-0834 within the proposed development in areas of open space. Monitoring will also occur at the remaining Aboriginal places that will be impacted by the proposed works. Consents to disturb should be sought for the Aboriginal places that will be impacted.

Green et al (2011, Salvage Report 4375) undertook salvage excavations at Cascades on Clyde residential estate, Clyde North, located directly to the east of the current study area. The salvage took place as part of the Consent to Disturb conditions for VAHR 7921-0832, 7921-0833, 7921-0834, 7921-0494. A total of 172 Aboriginal stone artefacts were identified at VAHR 7921-0832, mostly of silcrete, with 3 quartz, crystal quartz and 1 basalt artefact also identified. Most of the artefacts were found at a depth of 200-400 mm, and angular fragments comprised 54% of the assemblage followed by flakes (40%), cores (7%), and indeterminate. A total of 1425 Aboriginal stone artefacts were identified at VAHR 7921-0833, with most found at a depth of 150-350 mm, and the assemblage dominated by angular fragments (53%), followed by flakes (41%), cores (5%) and indeterminate. There were 68 tools present including geometric microliths, backed blades, blades, thumbnail scrapers, scrapers, points and a hammerstone. Silcrete is predominate (69%) followed by quartz (24%) and crystal quartz (5%) with quartzite, volcanic and chert. A total of 827 Aboriginal stone artefacts were found at VAHR 7921-0834, a small sand island surrounded by swampland and floodplain of Clyde Creek. Soils comprise sandy silty and gravels. Most of the artefacts were found at a depth of 450-550 mm. The assemblage is dominated by flakes (48%), angular fragments (46%) with cores (5%) and indeterminate. There were 19 tools found, including geometric microliths, backed blades, blades, bondi point, point and a thumbnail scraper. Silcrete dominates (935) followed by quartz (5%) and crystal quartz (1%), with chert, glass and indeterminate. In total, 2400 Aboriginal stone artefacts were identified. OSL dates were taken at VAHR 7921-0834 with samples taken directly above and below the artefact horizon at 400 mm and 600 mm. The dates were 3.0±0.3 Kya and 8.0±0.7 Kya.

Additional salvage excavations occurred in 2011 (Murphy and Rymer 2011, Salvage Report 4394) after VAHR 7921-0886 was registered within the study area after the Consent to Disturb had been issued. There had also been some confusion about the salvage of the Aboriginal place VAHR 7921-0494 which had taken place in 2011 as part of Salvage Report 4375 during excavations at VAHR 7921-0833, and it was then recommended that VAHR 7921-0494 be retired as it now forms part of VAHR 7921-0833. A total of 25 test pits were excavated as part of the salvage of VAHR 7921-0886 with no artefacts identified. The initial registration comprised a single surface artefact found during the survey. Soils comprised weak mid brown silty sand to 150 mm over weak pale brown sand to 450 mm over weak light grey sand to 750 mm over strong orange clay at 750 mm+.

Thompsons Road Duplication, Carrum Downs (Murphy and Dugay-Grist 2007, Report 4011)

Murphy and Dugay-Grist (2008a) completed a cultural heritage assessment and survey (Report 4011) for the Thompsons Road Duplication at a section of Thompsons Road between the South Gippsland Highway and Narre Warren – Cranbourne Road, located to the west of the current study area. During the survey one fine grained red silcrete flake, angular flake fragment and coarse grained silcrete flake found eroding from a cutting on the south side of Thompsons Road (registered as VAHR 7921-0822). A dune landform as identified as extending across the study area, with the eastern portion containing the most obvious landform elements, and the area was assessed to be of archaeological potential for low to medium density surface and subsurface stone artefact scatters. Murphy and Dugay-Grist recommended that further archaeological investigation be undertaken across the areas of archaeological potential identified during the survey, with sections of areas containing high disturbance from residential developments and other modifications not requiring investigation.

Thompsons Road Duplication, Carrum Downs: subsurface testing (Murphy and Dugay-Grist 2008, Report 4120)

Murphy and Dugay-Grist (2008) completed subsurface testing at the study area previously surveyed during Report 4011 (Murphy and Dugay-Grist 2007). There were six 1x1m test pits excavated in the vicinity of two previously registered places, VAHR 7921-0822, 7921-0542, along with two 1x1m test pits. Soils comprised humic rich top soil to 100 mm over medium grained grey sand to 900 mm with charcoal flecks and some

root disturbance, over brown sand at 900 mm extending to 950 mm where coffee rock was exposed. Additional Aboriginal cultural heritage was identified at VAHR 7921-0822 at a depth range of 750-800 mm in grey sand deposit with no further artefacts found at VAHR 7921-0542. It was recommended that a consent to disturb be sought for VAHR 7921-0822 which will be impacted by the proposed works. The Aboriginal place, VAHR 7921-0542 was situated outside of the study area and will not be impacted by the proposed works.

Hunt Club Residential housing estate 202S Cameron Street, Cranbourne East (Murphy and Rymer 2009a, CHMP 10659)

Murphy and Rymer (2009a) prepared CHMP 10659 for a proposed residential housing estate at 202S Cameron Street, Cranbourne East, located to the south east of the southern section of the current study area. The study area comprises an elevated dune landform, with part of the area being low lying with clay/loam deposits. The area has mostly been used for pastoral purposes. A standard assessment was conducted with a single silcrete blade flake identified outside the study area to the east and registered as VAHR 7921-0664. The study area was divided into two survey units based on the landforms, with survey unit 1 comprising the low-lying landform, and survey unit 2 comprising dune landform. The dune landform was assessed to be of high likelihood for low to moderate density stone artefact scatters, and very low for burials. The low-lying landform was assessed to be of very low likelihood for small very low density stone artefacts scatters and for burials. A complex assessment then took place with three 1x1m test pits and fifty one shovel probes excavated. There were two Aboriginal places registered within the study area, VAHR 7921-1080 represented by 13 silcrete artefacts found at a maximum depth of 300mm in firm brown clayey silt, and VAHR 7921-1081 represented by 24 stone artefacts of silcrete (n=14), quartz (n=4) and crystal quartz (n=6) found at a maximum depth of 450 mm in firm brown clayey silt immediately above the basal clay. Both Aboriginal places were assessed to be of very low scientific significance. Parts of both VAHR 7921-1080 and 7921-1081 will be preserved in open space, with part of the places to be impacted. There were no further management recommendations.

Hunt Club Residential Subdivision Mayfield Precinct, Mayfield Road, Cranbourne East (Murphy and Rymer 2009b, CHMP 10865)

Murphy and Rymer (2009b) prepared CHMP 10865 for a proposed residential subdivision at Mayfield Road, Cranbourne East, located directly to the south east of the southern section of the current study area. In 2004, a field survey of the area was carried out with to landforms identified, survey unit 1 comprising elevated ridge landform and survey unit 2 comprising low-lying plains landform. Survey unit 1 as assessed to be of high sensitivity for low to moderate density stone artefact scatters, and very low for burials; survey unit 2 was assessed to be of very low sensitivity for small extremely low density stone artefact scatters. One Aboriginal place represented by a single silcrete blade flake identified and registered as VAHR 7921-0664. An initial 1x1m test pit and a series of shovel probes were excavated, with 55 stone artefacts identified, resulting in the registration of two Aboriginal places VAHR 7921-0664, found on the ridgeline in sandy sediments and 7921-1119 found on the lower slopes and floodplain. The 54 artefacts recorded as VAHR 7921-0664 were found at depths of 200-300 mm, 350-450 mm, 400-500 mm and 350-550 mm, 500-550 mm, 550-600 mm, and 700-950 mm and the one artefact from VAHR 7921-1119 was found at depth of 250-300 mm. Flakes dominate the assemblage followed by angular fragments, tools and cores. Raw materials are dominated by silcrete (n=40) followed by crystal quartz (n=10) and basalt (n=5). The artefact scatter VAHR 7921-0664 was assessed to be of very low scientific significance, and VAHR 7921-1119 was assessed to be of extremely low scientific significance. Both Aboriginal places will be impacted by the proposed works. There were no specific management recommendations made for either place.

Crown Allotment 29, Thompsons Road Cranbourne North Residential Subdivision (Murphy and Dugay-Grist 2009, CHMP 10531)

Murphy and Dugay-Grist (2009) completed CHMP 10531 for a proposed residential subdivision located on the northern side of Thompsons Road, directly to the north of the current study area. The land was utilised for agricultural purposes such as cattle grazing and comprises a large sand sheet with the south-eastern section of the land being low-lying and subject to inundation. The low lying area contains several drainage channels. A standard assessment took place with low levels of ground surface visibility present. The study area was divided into two survey units based on the landforms, with survey unit 1 comprising the Cranbourne Sands situated in the north west of the study area, and the low-lying landscape comprising survey unit 2. Murphy and Dugay-Grist concluded that Aboriginal artefacts may be located on the Cranbourne Sands landform and that subsurface testing was required, with the low-lying area assessed as being unlikely to contain significant archaeological deposits. During Phase 1 of the complex assessment, a total of five 1x1 m test pits were hand excavated across the Cranbourne Sands landform, excavated to depths of 750 mm to 1050 mm. There were four subsurface artefact sites located and registered as VAHR 7921-0986 (n=4), 7921-0987 (n=39), 7921-0988 (n=49) and 7921-0993 (n=16). Phase 2 of the complex assessment included the excavation of additional 1x1m test pits (total of 21), and shovel test pits (n=80) along with a series of 1x2 m transects (n=23) excavated by machine and by hand. Additional Aboriginal cultural heritage was identified, with a total of 9 Aboriginal places recorded including VAHR 7921-0989 (n=44), 7921-0990 (n=5), 7921-0991 (n=1), 7921-0992 (n=1) and 7921-0994 (n=27). Subsurface testing primarily focused on the dune landform, with some minimal testing occurring on the low-lying area. Previous disturbance was generally confined to the upper 300 mm with evidence of ploughing and grazing. The lower lying areas comprised sandy silt over shallower clay, with the Cranbourne Sands area consisting of sandy and deep deposits over clay. There were a total of 185 artefacts identified at various depths including 340-450 mm, 800-1100mm, 300-800mm, 300-500 mm. Silcrete dominates the assemblage (44%), with quartz comprising 24%, basalt 16%, crystal quartz 6%, quartzite 4%. Part of VAHR 7921-0992 may be located in open space affording partial avoidance. There were no specific management recommendations for VAHR 7921-0991 and 7921-0992, 7921-0990, 7921-0993, 7921-0994, 7921-0991. Salvage excavation was proposed at VAHR 7921-0987, 7921-0988, with harm avoidance to VAHR 7921-0989 through project redesign, and protective fencing to be installed prior to the commencement of works.

PSP No. 16 – Cranbourne North (Stage 2) – Cnr Thompsons & Clyde Road (Day 2010, CHMP 11051)

Day (2010) prepared CHMP 11051 for the Cranbourne North Stage 2 PSP at the corner of Thompsons and Clyde Road located directly north of the current study area near the intersection of Thompsons Road and Berwick Cranbourne Road. One previously registered Aboriginal place was situated within the study area, VAHR 7921-0989 recorded during CHMP 10531. Land forms within the study area include Cranbourne Sands which were assessed to be of low potential, gentle sedimentary slopes comprising dark grey medium to heavy clay soils assessed to be of low potential, gentle lower slopes south of hillcrest comprising Baxter Sandstones with silty soils to 500 mm over mottled reddish brown medium clay assessed to be of moderate archaeological potential, and alluvial terrain of heavy dark grey clay assessed to be of low archaeological potential. A standard assessment took place with poor surface visibility noted. Complex assessment was conducted which included the excavation of test pits and 106 shovel test pits and 12 auger holes within each land unit/landform present according to their archaeological potential. One Aboriginal place was identified, VAHR 7921-1158 within the gentle lower slopes south of hillcrest land unit, represented by two quartz artefacts at a depth of 470 mm in fine silty clay interface with underlying buckshot. The soils of the artefact bearing test pit consisted of grey/brown fine silty clay loam to c. 250 mm over light brown fine silty clay to c. 410 mm over silty clay with dense iron buckshot to c. 490 mm. The area mapped as Cranbourne Sands across the southern section of the study area was found to be inaccurately mapped, with sand deposits only occupying small patches of land while heavy clay soils are predominate across this area. Management recommendations included maintaining the existing protective fencing around VAHR 7921-0989, and no specific recommendations for VAHR 7921-1158.

Proposed Industrial Sub-division at 1455 Thompsons Road, Cranbourne North (Lawler, Berelov and Cavanagh 2012, CHMP 11156).

Lawler et al (2012) prepared CHMP 11156 for a proposed industrial subdivision at 1455 Thompsons Road, Cranbourne North, located directly north of the current study area. The results of the desktop assessment indicated that the study area contained no registered Aboriginal places however there was one registered place (VAHR 7921-0861) located within 70 m on a similar sandy-rise landform than that present within the study area. A standard assessment was conducted with much of the area heavily vegetated. A white quartz flake was identified on a prominent sandy rise landform and registered as part of VAHR 7921-1396. Aboriginal cultural heritage (57 artefacts) was also identified in an area of heavy disturbance with dumped demolition debris evidenced and registered as VAHR 7921-1229. Complex assessment then took place in two stages. Additional artefacts were identified as part of VAHR 7931-1396. The Aboriginal place VAHR 7921-1369 is an extensive artefact distribution that was identified on a rise of Baxter Sandstone, with 707 artefacts identified within a sandy soil profile containing indurated sand (or Coffee Rock) at depths of 1050 mm and basal sandy clay deposits at depths of 1350-1400 mm. The artefacts were identified within four general horizons, three of the horizons were contained within the upper 1050 mm, and one horizon with low artefact densities was identified at a depth range of 1000- 1300 mm. The densest artefact concentrations were identified between 500 mm and 800 mm. The extent of the Aboriginal cultural heritage place was defined as the summit and mid to upper slopes of the level, sand capped ridge landform that is flanked by low-lying ground to the north-east and south-west. Silcrete was the dominant raw material, particularly in the upper soil horizons to 800 mm. Quartz was more common in the lower deposits below 800 mm. A broad range of tool types were also present, including backed artefacts, geometric microliths, scrapers, blades, grindstones, notched artefacts, and piercers. The Aboriginal place VAHR 7921-1396 was assessed to be of high scientific significance. The proposed development was designed to minimise impacts to the Aboriginal places. Management conditions included surface artefact collection at VAHR 7921-1229. OSL dating would be undertaken for VAHR 7921-1396, and fill will cover the most significant of the subsurface deposits to avoid harm to the Aboriginal place.

Clyde Creek (PSP 54) and Thompsons Road (PSP 53) Precinct Structure Plans (Kennedy et al. 2012, Report 4505)

Kennedy et al. 2012 (Report 4505) completed an Aboriginal cultural heritage assessment for the Clyde Creek (PSP 54) and Thompsons Road (PSP 53) Precinct Structure Plans located directly to the east of the current study area. There were a number of previously registered Aboriginal places located within the study area, comprised of isolated artefacts such as VAHR 7921-0416 and 7921-0499 and stone artefact scatters such as VAHR 7921-1129 and 7921-1120, along with 8 Aboriginal places that at the time of the report did not have a VAHR number. Most of these Aboriginal places had been identified on elevated landforms such as hillslopes, sandy rises and hills, or on landforms associated with water sources such as the floodplain, banks, and terrace of water courses. The key landform features within the study area were the two creeks, Clyde Creek and an unnamed former stream channel in the north east corner which has been heavily modified by dam construction. There are a series of discrete sandy rises and levees also present, and a prominent Aeolian dune crest across the northern part of the study area from the north west corner which forms part of the Cranbourne Sands. The remainder is flat and gently undulating land with several small isolated crests that are probably discrete Aeolian dunes associated with the Cranbourne Sands. Kennedy et al. 2012 concluded that Aboriginal stone artefact deposits are likely to be found at varying densities across most of the landforms within the study area, with higher density artefact scatters and subsurface deposits likely to be found on crest landforms and the Cranbourne Sands, as well as in areas adjacent to creeks and wetlands. The density and complexity of artefact scatters and subsurface deposits is likely to decrease with distance from water sources and wetlands. Stable Aeolian and alluvial landforms will likely have deeper soil

profiles and possibly greater archaeological integrity. Scarred trees may be present in areas containing mature remnant native trees. Isolated finds may be found anywhere across the study area. A standard assessment took place to sample the landforms. Most of the properties were under pasture and would have been ploughed at some point. Ground surface visibility was very low with isolated patches of visibility present under trees, along tracks and areas where there was stock trampling and other disturbance. A large part of the study area is utilised for market gardening, including deep ploughing, extensive underground irrigation systems and dam construction. There was little native vegetation present and no culturally scarred trees identified. A total of five Aboriginal places were identified along a short section of the unnamed former watercourse and registered as VAHR 7921-1410, 7921-1411, 7921-1412, 7921-1415 and 7921-1415, mostly represented by isolated artefacts. There was also an attempt made to relocate the 11 previously registered Aboriginal places, with two reidentified along the former stream and the physical location of another place where subsurface testing had occurred. Kennedy et al. made several recommendations, stating that subdivision or development projects such as would be proposed within the study area would require mandatory CHMPs to be prepared if ground disturbance were proposed The consultants divided the study area into sensitivity zones ranging from null sensitivity to very high sensitivity. Areas of very high sensitivity included land around and adjacent to Clyde Creek, with high sensitivity assigned to the Cranbourne Sands landforms.

1790 Thompsons Road, Clyde North. Retail warehouse premises and car park development (Patton 2015, CHMP 13811)

Patton (2015) prepared CHMP 13811 for a proposed retail warehouse and car park development at 1790 Thompsons Road, located directly to the east of the current study area. A standard assessment was conducted with no ground surface visibility present due to dense pasture grasses. A complex assessment then took place, with a 1x1m test pit excavated on a rise in the southern part of the study area, and one 1x1m test pit excavated on lower land in the northern section. There were also twenty shovel probes excavated. Soils on the rise comprised brown sandy silt to 200 mm over dark brown sandy silt to 400 mm over dark brown sandy silt with coffee rock to 600 mm over dark brown sandy silt, plasticene clay with ironstone fragments and orange clay at 700 mm over orange mottled compact clay at 840 mm. Soils on the lower lying landform comprised brown silt with clay content to 100 mm over very compact brown silt with high clay content at 200 mm over very compact hard clay and ironstone at the base at 400 mm. No Aboriginal cultural heritage was identified. Patton concluded that the lower lying landform was likely subject to inundation, and the rise may not have been conducive to occupation by Aboriginal people. No further archaeological assessment was deemed necessary and there were no specific management recommendations made.

Stage 1, Clyde North Business Park (Stevens 2017b, CHMP 14958)

Stevens (2017b) prepared CHMP 14958 for a proposed subdivision and development of land for the Stage 1 Clyde North Business Park, situated directly to the east of the current study area. A standard assessment took place, and the area was assessed to be unlikely to contain Cranbourne Sands landforms, with a floodplain area identified in the north. A complex assessment took place with two 1x1m test pits, and a 2x1 m test pit excavated, along with a programme of shove test pits. Some mechanical testing also took place, and the results indicated that extremely consolidated loam/clays are present across most of the study area. There was no Aboriginal cultural heritage identified. There were no specific management recommendations made.

Stages 2-3, Element Park Clyde North (Stevens 2018, CHMP 15170)

Stevens (2018) prepared CHMP 15170 for a proposed subdivision and development of land for the Stages 2-3, Element Park Clyde North, situated to the east of the current study area, east of Berwick-Cranbourne

Road. The results of the desktop assessment indicated that it was unlikely for sandy landforms to be present in the study area, and that outside of a low lying hill in the south, it was unlikely that Aboriginal cultural heritage will be present. A standard assessment took place, with relatively flat floodplain in the north and central sections of the property and a low lying hill in the south east. Very low ground surface visibility was present. Two rises were identified and targeted for subsurface testing during the complex assessment. A total of two 1x1m test pits, eighty three 0.5x0.5 m shovel test pits and sixteen 6x1 m mechanical transects were excavated. Soils comprised mucky loam clays on the low lying area, and similar clay loams on the hill which were shallower and more mottled across the base with mustard hues. There were 9 Aboriginal stone artefacts identified at a depth of 150-220mm and registered as the LDAD VAHR 7921-1713. Extent testing did not reveal any additional Aboriginal cultural heritage. Harm will occur to VAHR 7921-1713 and no specific management conditions were made.

1585 Thompsons Road, Cranbourne North (Murphy and Thomson 2018, CHMP 15008)

Murphy and Thomson (2018) prepared CHMP 15008 at 1585 Thompsons Road, Cranbourne North situated directly to the north of the current study area on the northern side of Thompsons Road. There was one previously registered Aboriginal place located in the study area, VAHR 7921-0986, and the area was divided into three landforms of sandy rise/dune, assessed to be of high archaeological potential for stone artefacts, a low lying area assessed to be of low archaeological potential for stone artefacts, and the entire study area assessed as unlikely to contain earth features, human remains, scarred trees, quarries, rock art, shell middens and stone features. A standard assessment took place, with very poor ground surface visibility noted. The location of VAHR 7921-0986 was inspected but no evidence was found of the Aboriginal place. Complex assessment took place, with five Aboriginal stone artefacts found in the Cranbourne Sands dune landform and registered as the LDAD VAHR 7921-1680 assessed to be of low scientific significance. The artefacts include a silcrete medial flake, a silcrete proximal flake, a quartz complete flake, a quartzite complete flake and a quartzite proximal flake. The artefacts were found at a depth range of 300-600 mm in silty sand and sand in areas that had been subject to vegetation clearance, fill deposition, repeated ploughing, grazing and market gardening. The area had also been subject to the construction of former buildings and a hardstand area, road construction and access tracks. Management recommendations included archaeological salvage for VAHR 7921-0986, and no specific conditions for VAHR 7921-1680 which will be impacted by the proposed works.

1435 Thompsons Road Cranbourne North Retirement Village (Reich and Liousas 2020, CHMP 16944)

Reich and Liousas (2020) prepared CHMP 16944 for a proposed retirement village at 1435 Thompsons Road Cranbourne North, located directly to the north of the current study area, near the intersection of Thompsons Road and Narre Warren Road. There was one previously registered Aboriginal place within the study area, VAHR 7921-1557, an LDAD. The study area was located in the Cranbourne Sands. A standard assessment took place and the study area was divided into three investigation areas based on landform, with IA 1 comprising a gentle hill slope with a house and structures assessed to be of moderate archaeological potential, IA 2 comprising a low lying sandy landform utilised for agriculture assessed to be of moderate high archaeological potential, and IA 3 comprising a low lying sandy landform sloping upwards assessed to be of high archaeological potential. A complex assessment took place with sixteen 2x1m mechanical trenches excavated to a maximum depth of 2.3 m. Soils comprised grey silty sand to 900 mm over brown firm clayey sand with coffee rock to 1200 mm over black friable fine to medium sand with coffee rock at 1400 mm, consistent with that of the Cranbourne sands. A total of 121 Aboriginal stone artefacts of silcrete (n=88), quartz (n=22) and quartzite (n=11) identified in 12 of the pits, registered as four new Aboriginal places, VAHR 7921-1825, 7921-1823 (formerly VAHR 7921-0861, -0868 and -0889), VAHR 7921-1824 (formerly VAHR 7921-0863 and -0864), VAHR 7921-1826 and a registry update to VAHR 7921-1369. Many of the artefacts were found at a depth range of 300-1100 mm, with artefacts also found at

depths of 1800 mm. Further extent testing would take place as part of a subsequent salvage programme. The proposed works would not impact on VAHR 7921-1823, 7921-1369, with the remaining Aboriginal places to be impacted. Management conditions included salvage at VAHR 7921-1825.

4.10.3 Registered Aboriginal Cultural Heritage Places

The Victorian Aboriginal Heritage Register (VAHR) was accessed by David Mathews on 6 June 2022 for previous archaeological reports and sources, and the locations and details of Aboriginal places within the geographic region. There are a total of 38 Aboriginal places registered within the geographic region, with seven[7] registered within the study area itself (Table 4-16, Table 4-17, Table 4-18, Figure 4-13). This calculation considers each low density artefact distribution (LDAD) registration as a single place, when in fact the geographic region has 38 individual components associated with LDADs.

Given the high number of places registered in the geographic region, a summary of geographic region place types and details of places registered in the study area are provided in Table 4-17, and the full list of places in the geographic region is provided in Table 4-18.

All of the registered places in the geographic region and study area are stone artefact occurrences, with 31 registered as 'artefact scatters' and the remaining seven as LDADs. Note that many of the currently registered 'artefact scatters' in the geographic region would likely fall within the recording parameters of LDADs if registered now. Of the 7 LDADs registered, these total 38 components (Table 4-16).

Mapping of Bunurong places within the geographic region (Figure 4-13) correlates with a mapping of areas subject to previous investigation. However, a broad view of the geographic region indicates the sensitivity of the margins of swamps and waterways, where artefact occurrences are registered in higher frequencies. The broader undulating plain is associated with low density or isolated stone artefact occurrences.

It is important to note that the recorded frequency of Bunurong places in the geographic region very much reflects investigation location and effort, rather than reflecting the past intensity of Bunurong occupation and archaeological deposition in the region and to be aware artefact scatter registrations that predate LDAD registrations may actually represent low density or isolated stone artefact occurrences. The places registered in, and within 200 m of, the study area are described in detail below and all places in the study area and geographic region are listed in Table 4-17.

Table 4-16 Aboriginal place types registered within the combined geographic region sorted by site type

Place Type	Geo Region & Study Area combined		Study Area	
	N	%	N	%
Artefact scatter	31	82.0%	5	71.0%
LDAD	7	18.0%	2	29.0%
TOTAL	**38**	**100%**	**7**[7]	**100%**

[7] As of rev 0.4 to this ACHIA, six Aboriginal places are registered within the study area, reflecting the merger of registered Artefact Scatters VAHR 7921-0880 and VAHR 7921-1841 into the Artefact Scatter VAHR 7921-1989 (Donohue Street Dune AS) – see Section 6.

Table 4-17 Description of Aboriginal places registered in, and within 200 m of, the Study Area

VAHR ID	Place Name	Place Type	Description	Distance from Study Area (m)
7921-0880[8]	CRANBOURNE EAST 1	Artefact Scatter	This place is an artefact scatter that was registered by Barker in 2007 and was found on a sandy rise covered in tea tree scrub with several eucalypts present. The areas of exposed sand revealed white/grey coarse grained sand about 1-2 m deep. The artefacts representing this place were found on areas of exposed sand and on the tracks. Barker recommended that the site be retained and preserved intact within the proposed parkland reserve. The artefacts comprise 3 silcrete flaked pieces, two quartz flaked pieces and 1 quartzite flake with 1 quartzite flaked piece.	In SA
7921-1131[8]	LYDAL ISOLATED ARTEFACT	Artefact Scatter	This place is currently undergoing a record edit on ACHRIS. The place is registered as an artefact scatter identified by Ford in 2009 as part of CHMP 10881 and is represented by a red whole silcrete flake. The artefact was located on a small sandy rise in open pasture, [redacted]. The artefact was found in a subsurface context at a depth of 750 mm in sandy/sandy clay with radial excavations not identifying any additional Aboriginal cultural heritage.	In SA
7921-1132	LYDAL AS	Artefact Scatter	This place is currently undergoing a record edit on ACHRIS. The place is registered as an artefact scatter identified by Ford in 2009 as part of CHMP 10881 and is represented by 81 stone artefacts of predominately silcrete, with quartz, crystal quartz, and quartzite artefacts also recorded. The Aboriginal place is located on a small sandy rise [redacted] in open pasture. The place is a subsurface artefact scatter spread across an area c.75m east to west and c. 100m north to south. The highest artefact density was 54 artefacts per m2 in the north west of the place. Radial test pits around the Aboriginal place did not identify any further Aboriginal cultural heritage. Soils comprised sand, clayey sand and sandy loam. Artefacts were found at depths of 100 -1230 mm, with most artefacts coming from a depth range of 400-750 mm.	In SA[8]
7921-1594	[redacted]	Artefact Scatter	This place is an artefact scatter that was registered by St George in 2015 as part of CHMP 13651. The place is located on the upper slope of a dune landform. The condition was assessed to be good to fair and the area was assessed to be eroding with wind and vehicular deflation as well as agricultural activities. The artefact scatter was subject to salvage excavation, and an additional 199 artefacts were identified as part of the salvage programme. 17 artefacts were initially recorded during CHMP 13651, mainly silcrete with smaller numbers of quartzite and quartz also present. Three of these artefacts were identified on the surface and 14 artefacts were found in subsurface contexts in silty sand, sand and sandy silt. The artefacts found during the salvage programme comprised silcrete, quartz, crystal quartz and quartzite, and were found at depths ranging from surface artefact to depth ranges of 100-900 mm.	In SA

[8] Now subsumed by the Artefact Scatter VAHR 7921-1989 (Donohue Street Dune AS) – see Section 6.

7921-1841	Donohue St, Clyde North AS	Artefact Scatter	This place is an artefact scatter that was registered by Stevens as part of CHMP 17209. The place is located on a sand dune landform [redacted]. The place extent was determined by the extent of the sand dune landform and Stevens stated that it was highly likely that additional artefacts extend across the sandy landform outside of the project area for CHMP 17209. The condition was assessed to be good and the area as stable. Stevens noted that harm measures were in place to protect the Aboriginal place with the proposed pipeline trench to tunnel beneath the place for approximately 100 m up to depths of 1.5-1.8 m. The scatter is represented by 66 stone artefacts, with 64 of silcrete and 1 of quartz and 1 quartzite. These artefacts were found in subsurface contexts in sand and clay sediments.	In SA
7921-1587	Thompsons Road East LDAD	Low Density Artefact Distribution	This place is an artefact scatter that was registered by St George in 2015 as part of CHMP 13651. [redacted] A total of 22 Aboriginal stone artefacts were recorded made on quartz and silcrete. Several of these were found on the ground surface (n=6), with the remainder found at depth ranges of 100-1500 mm.	In SA and also 0.13 and 3.60 m from the study area
7921-1649	Thompsons Road 2 LDAD	Low Density Artefact Distribution	This place is an artefact scatter that was registered by Turnbull in 2017, as part of CHMP 13651. This Aboriginal place represents stone artefacts that were found in proximity to the previously registered Aboriginal place, VAHR 7921-1587 during the salvage programme undertaken as part of CHMP 13651 management conditions. A total of 12 surface artefacts were identified, made of silcrete (n=9), quartz (n=2) and quartzite (n=1).	In SA
7921-0400	260 NW-C IA	Artefact Scatter	This place is an artefact scatter that was recorded in 2001 by Murphy for Report 1965 and is represented by a single chert core that was found on the bank of a large dam. The artefact was not in situ and was collected by Bunurong Land Council. The Aboriginal place was assessed to be of low significance with the original landform being low lying and marshy.	17.36
7921-0246	THOMPSONS RD 1	Artefact Scatter	This place is an artefact scatter that was recorded in 1992 by Weaver as part of Report 529. The place was located [redacted]. There were 3 artefacts recorded including 1 chert flaked fragment with cortex, 1 chert flaked fragment with no cortex and 1 quartz flake. [redacted]. A place inspection occurred in 2021 by Stevens with no Aboriginal cultural heritage found.	37.27
7921-0247	THOMPSONS RD 2	Artefact Scatter	This place is an artefact scatter that was recorded in 1992 by Weaver as part of Report 529. The place was located [redacted] in pale grey sand and is represented by a fine grained silcrete flake scraper, a silcrete waste flake and a silcrete point scraper. A place inspection occurred in 2021 by Stevens with no Aboriginal cultural heritage found.	37.60
7921-0886	CRANBOURNE EAST 7	Artefact Scatter	This place is an artefact scatter that was recorded in 2008 by Barker during salvage excavation undertaken at the Cascades on Clyde development (Report 4396). The landform is a gently inclined dune, and the Aboriginal place is represented by an isolated artefact found in an area of exposed soils on a gentle sandy rise. The artefact is a silcrete flaked core.	41.61

7921-1878	[redacted]	Artefact Scatter	This place is an artefact scatter that was recorded in 2021 by Stevens as part of CHMP 17823, and merges the previously registered Aboriginal places VAHR 7921-0250, 7921-0248, 7921-0253 and 7921-1597 into a new subsurface tested place extent. The landform is a crest of a dune. The place is represented by 418 flaked silcrete Aboriginal artefacts found in sand. The place extent was determined by the Cranbourne Sands landform, with the highest point being in the south west corner. The landform then descends sharply to the north east into a floodplain landform.	49.31
7921-1826	Thompsons Road Cranbourne LDAD 2	Low Density Artefact Distribution	This place is registered as an LDAD that was recorded by Liousas in 2020 as part of CHMP 16944. The LDAD is represented by 26 Aboriginal stone artefacts of silcrete (n=15), quartz (n=9) and quartzite (n=3) found at various subsurface depths ranging from 300 mm to 1800 mm in silty sands within six mechanical transects excavated across a dune formation. Most of the artefact assemblage comprises flakes (n=17) along with tools (n=6) and angular fragments (n=3). The tools consist of three backed geometric microliths and three scrapers.	Components located 52.24-204.84 m from study area
7921-1680	[redacted]	Low Density Artefact Distribution	This place is registered as an LDAD that was recorded in 2017 by Thomson as part of CHMP 15008. The LDAD is represented by five Aboriginal stone artefacts including a silcrete medial flake, a silcrete proximal flake, a quartz complete flake, a quartzite complete flake and a quartzite proximal flake. The artefacts were found on the Cranbourne Sands dune landform and was assessed to be of low scientific significance. The artefacts were found at a depth range of 300-600 mm in silty sand and sand in areas that had been subject to vegetation clearance, fill deposition, repeated ploughing, grazing and market gardening. The area had also been subject to the construction of former buildings and a hardstand area, road construction and access tracks.	Components located 69.60-296.17 m from study area
7921-0493	BROOKFORD ESTATE 6	Artefact Scatter	This is an artefact scatter that was registered in 2003 by Rymer as part of Report 2426. The scatter was initially represented by a hammerstone/grindstone of large basalt that is possibly waterworn and of pebble origin. The landform where the artefact was recorded was the hill slope. Subsurface testing revealed a low density artefact scatter with site dimensions of 90x40x25cm deep represented by 11 silcrete and quartz flakes, tools and angular fragments. The artefact scatter was assessed to be of low scientific significance and low potential for low numbers of additional Aboriginal stone artefacts to occur. There was a recommendation for a consent to disturb, including monitoring and salvage to relocate the artefacts to open space.	76.03
7921-1229	THOMPSONS RD 16	Artefact Scatter	This is an artefact scatter that was registered in 2010 by Lawler as part of CHMP 11156. The artefact scatter is a surface scatter found along a former farm track west of demolished farm buildings at 1475 Thompsons Road. There is a high plateau present, partially wooded, to the north of the property. The artefact scatter is represented by 56 artefacts found on an area overlooking a former wetland. It is possible that the artefacts were disturbed by mechanical scraping and derive from the clearance of demolition material further to the east. The artefacts comprise silcrete, quartzite, quartz and chert artefacts, including proximal flakes, whole flakes, distal flakes, medial flakes, a core, scrapers and points.	94.75

7921-0986	[redacted]	Artefact Scatter	This is an artefact scatter that was registered in 2008 as part of the CHMP 10531 undertaken by Murphy and Dugay-Grist. VAHR 7921-0986 is represented by four Aboriginal silcrete stone artefacts found at a depth of 340-450 mm on the mid to upper slope dune landform during the excavation of a test pit. Soils within the test pit comprised humic rich topsoil to 60 mm over a mix of grey coarse sand and light brown silty sand to 200 mm over damp dark brown medium grained sand from 200 mm to 850 mm. At 850 mm there was seepage in the test pit and a strong smell of sewerage and the excavation then ceased.	95.77
7921-1369	Thompsons Road 17	Artefact Scatter	This place is registered as an artefact scatter that was initially recorded by Lawler as part of CHMP 11156, and later inspected and the record updated by Liousas in 2020 as part of CHMP 16944. The artefact scatter was originally identified during a survey undertaken [redacted], with surface artefacts found at a location where a former farmyard had been situated and yards and farm buildings had been demolished. The landform was a sandy rise. Subsurface excavations took place, with the soils comprising a sand profile over hard indurated sand (coffee rock) at approximately 1050 mm, with the soil profile at the side of the rise comprising sands over sandy clay to approximately 1350-1400 mm with a succession of artefact horizons, with four general artefact horizons recognised including three in the main sand unit, with a dense artefact concentration at depths of 500 and 800 mm. The earliest horizon was a low density artefact content in yellowish brown silty sand at the base of the main sand unit overlying the basal clay at depths of 1100 and 1400 mm. OSL dating was undertaken showing that the lowest artefact horizon was deposited in the Late Glacial Maximum at 19.17±1.52 ka BP. The base of the main sand unit was dated to 11.76±0.58 ka BP, and the dense artefact concentration was dated to 5.01±0.32ka BP. A total of 764 artefacts were identified by Lawler et al, with silcrete the predominant lithic material found, along with quartz, crystal quartz, quartzite, tachylite, sandstone and basalt. As part of CHMP 16944, an additional 43 Aboriginal stone artefacts identified at depths of 200-400 mm and 500-700 mm during the excavation of a mechanical trench were added to the registration of VAHR 7921-1369.	110.25
7921-0834	BROOKFORD ESTATE 7	Artefact Scatter	This place is registered as an artefact scatter that was recorded in 2006 by Rymer on the floodplain/sandsheet drift landform. The scatter is a medium density subsurface artefact scatter with site dimensions of approx. 70x70x90 cm deep. The Aboriginal place is represented by 259 silcrete, quartz, crystal quartz flakes, blades, tools, cores, and angular fragments. The place was assessed to have moderate scientific significance and high potential for moderate numbers of additional stone artefacts. Recommendations included to incorporate high density areas into open space, apply for a consent to disturb for areas of low density and monitor and salvage, relocating the artefacts into open space. The artefact scatter was subject to subsurface salvage excavation (Cascades on Clyde Residential Estate, Report 4375) and an additional 827 artefacts were retrieved found at depths ranging from 0-50 mm to 700-750 mm. Raw materials comprised silcrete (n=772), quartz (n=39), crystal quartz (n=10), chert (n=2) and indeterminate (n=1). There were 398 flakes, 378 angular fragments, 43 cores, and 8 indeterminate including 19 flaked tools. Most of the artefacts were found at a depth of 450 to 550 mm. OSL dates were taken above and below the artefact horizon at 400 mm and 600 mm with dates of 3.0±0.3 Kya and 8.0±0.7 Kya.	114.12

7921-1825	Thompsons Road Cranbourne AS 1	Artefact Scatter	This place is registered as an artefact scatter that was recorded by Liousas in 2020 as part of CHMP 16944. The artefact scatter is represented by 41 Aboriginal stone artefacts found in two mechanical test pits on a southwest facing slope below a subtle terrace. The artefacts were identified at depths of between 300-1100mm in accreting silty sands. The artefacts comprise mainly silcrete (n=25) with smaller quantities of quartz (n=8) and quartzite (n=8). The assemblage mostly comprises flakes (n=30) with five angular fragments and five tools and a single core also present. The tools are two backed blades and three geometric microliths. This Aboriginal place was assessed to be of moderate scientific significance.	114.97
7921-0252	THOMPSONS RD 7	Artefact Scatter	This Aboriginal place was recorded in 1992 by Weaver as part of Report 529, which included a survey for a proposed landfill site. It is located on the north edge of a water storage area, on yellow orange sand and is represented by a waste flake of crystal quartz with no cortex.	119.57
7921-1557	Thompsons Road Cranbourne LDAD1	Low Density Artefact Distribution	This LDAD was originally recorded by Jones in 2015 as a result of CHMP 13487. VAHR 7921-1557 consists of 12 artefacts identified within five 40x40 cm shovel test pits. The assemblage consisted of artefacts made of quarts (n=6), silcrete (n=5) and quartzite (n=1). Radial testing was conducted in cardinal directions around original artefact-positive test pits STP2 and STP7. Aboriginal cultural heritage was identified within STP 2W, STP 2N and STP 2NW, however testing was discontinued based on the maximum density of artefacts being less than 11/m^2 (Jones 2003: 67).	Components located 122.51-162.53 from study area
7921-1424	Carlisle Park 2	Artefact Scatter	This Aboriginal place is a moderate density Artefact Scatter, originally recorded by O'Connor in 2012 as a result of CHMP 12033 (O'Connor 2012). VAHR 7921-1424 comprises 43 stone artefacts identified in a subsurface context within two test pits, one 40x40 cm STP and one 1x1m TP. Artefacts were manufactured from a variety of raw materials including silcrete (n=4),basalt (n=2) and an indeterminate volcanic rock (n=38). The Aboriginal cultural heritage was identified within a medium brown sandy deposit to a maximum depth of 950 mm below the surface. Three radial STPs were excavated around the artefact-positive STPs with no further Aboriginal cultural heritage identified (ground disturbances were documented to the south of the artefact-positive test excavations).	143.13
7921-0542	DUNSCOMBE 1	Artefact Scatter	This Aboriginal place is a low density artefact scatter recorded by Chamberlain in 2003 as a result of combined historical and Aboriginal archaeological investigations at the Dunscombe Property (Chamberlain et al. 2003). VAHR 7921-0542 consists of one isolated silcrete flake identified within a subsurface sandy loam believed to have been disturbed. Test excavations (two 1x1m TPs) were carried out on the dune landform in the vicinity of VAHR 7921-0542 during 2003 as part of investigations for CHMP 10228 (Murphy et al. 2008). No Aboriginal cultural heritage was identified in either TP.	165.65
7921-1423	Carlisle Park 1	Artefact Scatter	This Aboriginal place is a low density Artefact Scatter, originally recorded by O'Connor in 2012 as a result of CHMP 12033. VAHR 7921-1424 comprises 5 stone artefacts, identified in a subsurface context within two 40x40 cm STPs. The artefacts are made from silcrete (n=3), quartz (n=1) and quartzite (n=1), and were identified within a medium brown sandy silt deposit to a maximum depth of 600 mm below the surface. Three radial STPs were excavated around the artefact-positive STPs with no further Aboriginal cultural heritage identified.	192.36

Table 4-18 Aboriginal place types registered in the geographic region and study area

VAHR ID	Place Name	Place Type	Distance from Study Area (m)
7921-0880[9]	CRANBOURNE EAST 1	Artefact Scatter	0.00
7921-1131	LYDAL ISOLATED ARTEFACT	Artefact Scatter	0.00
7921-1132	LYDAL AS	Artefact Scatter	0.00
7921-1594	[redacted]	Artefact Scatter	0.00
7921-1841[9]	Donohue St, Clyde North AS	Artefact Scatter	0.00
7921-1587	Thompsons Road East LDAD	Low Density Artefact Distribution – 13 components within Study Area	0.00
7921-1649	Thompsons Road 2 LDAD	Low Density Artefact Distribution – 5 components within Study Area	0.00
7921-1557	Thompsons Road Cranbourne LDAD1	Low Density Artefact Distribution – 3 components	122.51-162.53
7921-0989	[redacted]	Artefact Scatter	284.72
7921-1119	HUNT CLUB 6	Artefact Scatter	290.99
7921-0251	THOMPSONS RD 6	Artefact Scatter	291.92
7921-1680	[redacted]	Low Density Artefact Distribution	69.60-296.17
7921-1713	Element Park LDAD	Low Density Artefact Distribution – 2 components	315.58-440.85
7921-1823	Thompsons Road Cranbourne AS 2	Artefact Scatter	318.00
7921-1549	Hilltop Park LDAD	Low Density Artefact Distribution – 4 components	324.07-326-83
7921-0833	BROOKFORD ESTATE 4	Artefact Scatter	335.56
7921-0492	BROOKFORD ESTATE 2	Artefact Scatter	372.91
7921-1824	Thompsons Road Cranbourne AS 3	Artefact Scatter	362.12
7921-1424	Carlisle Park 2	Artefact Scatter	143.13
7921-0542	DUNSCOMBE 1	Artefact Scatter	165.65
7921-0494	BROOKFORD ESTATE 5	Artefact Scatter	464.57
7921-0990	[redacted]	Artefact Scatter	473.26
7921-1423	Carlisle Park 1	Artefact Scatter	192.36
7921-0975	[redacted]	Artefact Scatter	491.85

[9] Now subsumed by the Artefact Scatter VAHR 7921-1989 (Donohue Street Dune AS) – see Section 6.

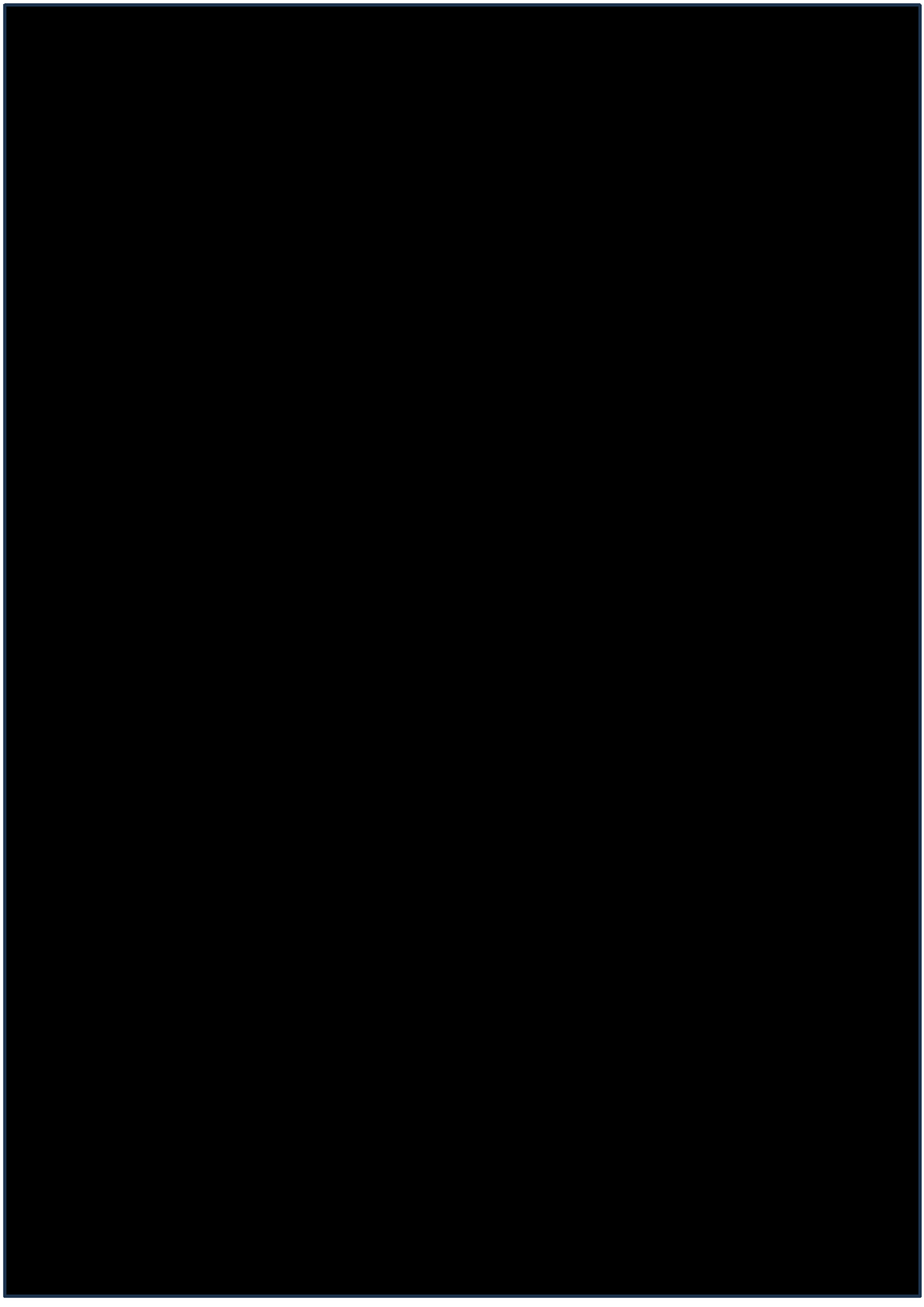


Figure 4-13 Aboriginal places within the geographic region sorted by site type

4.11 Desktop Assessment summary of results

Within the study area there have been a number of previous archaeological assessments undertaken, including those with a desktop based report and a field survey such as Murphy 2001, Muir 2003 and Long et al. 2004. There have also been several CHMPs undertaken within the study area which have involved subsurface testing, including CHMP 10881 (Ford et al. 2009), which included salvage excavation within the study area at VAHR 7921-1132 (Kayandel 2010), CHMPs undertaken for road construction and installation of utilities and drainage works such as CHMP 13239 (Hislop 2014), CHMP 13651 (St George and Spry 2016), CHMP 15116 (Stevens 2017), CHMP 15351 (Kapteinis 2018), as well as CHMP 15204 for a proposed residential subdivision (Barker 2017), and CHMP 17209 (Stevens 2021) for a proposed recycled water main pipeline.

There have also been numerous reports for previous archaeological assessments in the geographic region, situated in areas directly adjacent to and in the vicinity of the study area. Many of these assessments are for proposed subdivisions and residential, industrial and commercial areas, as well as infrastructure such as road duplication, and several PSPs (Precinct Structure Plans). The following information relates to the previous archaeological reports summarised above, and the results and implications of the desktop assessment:

- The study area is located on *Bun wurrung* Country within the clan boundaries of the *Mayune balug*;
- At the time of desktop assessment, there were a total of 38 Aboriginal places registered within the geographic region, with seven[10] registered within the study area itself;
- Registered (i.e. known) Aboriginal cultural material is exclusively represented by stone artefacts (artefact scatters, LDADs, isolated artefact occurrences);
- A general pattern of artefact distribution exists, with a general background of isolated and low density occurrences across the floodplain plain/alluvial plains landform with higher frequency and density associated with elevated land (particularly with sandy rises, dunes and sand drifts) and proximity to water sources including creeks, drainage lines and former swamps and wetlands. The presence of deep Cranbourne Sands within areas has also led to the identification of medium and higher density artefact scatters within the geographic region (Weaver 1992, Long et al. 2004, Vines 2007, Murphy and Rymer 2007, Murphy and Dugay-Grist 2008, Murphy and Dugay-Grist 2009, Murphy and Rymer 2009b, Vines 2008, Ford et al. 2009, Vines and Orr 2010, Kayandel 2010, Green et al 2011, Lawler et al. 2012 , St George and Spry 2016, Reich and Liousas 2020, Stevens 2021);
- The lower lying floodplains landforms appear to be less archaeologically sensitive than drier elevated areas, likely due to seasonal inundation (Chamberlain et al 2003, TerraCulture 2003, Murphy and Rymer 2009a, Murphy and Rymer 2009b, Murphy and Dugay-Grist 2009, Day 2010, Patton 2015, Stevens 2017a, Stevens 2017b, Barker 2017, Kapteinis 2018, Stevens 2018, Stevens 2021)
- Highly disturbed and modified areas such as road reserves and areas where deep ploughing for activities such as market gardening or quarrying has occurred are unlikely to contain *in situ* subsurface Aboriginal cultural heritage material (Hislop 2014, St George and Spry 2016, Stevens 2017a, Barker 2017, Murphy and Thomson 2018)

[10] As of rev 0.4 to this ACHIA, six Aboriginal places are registered within the study area, reflecting the merger of VAHR 7921-0880 and VAHR 7921-1841 into VAHR 7921-1989 (Donohue Street Dune AS)

- Artefacts are predominately made on silcrete, with quartz, crystal quartz, quartzite, chert, basalt found in smaller quantities.
- Where excavation has occurred, sandy deposits of the Cranbourne sands generally comprise brown/grey silty sandy topsoil over grey sand becoming lighter with depth over coarse sand and coffee rock. Archaeological deposits within the Cranbourne sands have been found at various depths from 130mm to 1800mm. Most artefacts have been found at a depth range of 200-950mm.
- Excavations on the floodplains and low-lying landforms have revealed clayey loam soils with some sand content over yellowish brown clay.
- The land within the study area has generally remained agricultural with clearing and ploughing as consistent broad impacts and minor constructions associated with residences and farming, road and access track construction and dams forming significant localised disturbance. There is a services easement situated within the study area, running northeast to southwest. A sand quarry and concrete batching plant are located in the north-western section with sand quarrying activities having taken place. Drainage channels are also located across the study area. There are overhead transmission lines in the southern section, running east-west.
- It is likely that isolated or low-density occurrences of stone artefacts will occur across the entire study area and areas of increased sensitivity (higher frequency/density stone artefact scatters) are likely to be associated with:
    - Any elevated landforms within the study area depending upon the disturbances present;
    - Sandy landforms such as sand drifts and dunes, depending upon the disturbances present.

5 Archaeological Survey

Archaeological survey was undertaken within the study area.

5.1 Aims

The aims of the archaeological field survey are to:

- Identify and record any Aboriginal places within the study area;
- Revisit previously registered Aboriginal places within the study area;
- Undertake consultation with BLCAC representatives;
- Validate desktop predictions regarding potential archaeological sensitivity, including confirming or rejecting mapped areas, identifying areas missed by the mapping and updating the extent of areas of archaeological sensitivity;
- Documenting the current ground conditions, including ground disturbance.

5.2 Timing and Personnel

The field survey was conducted over four days – 25-28 July 2022.

Table 5-1 Personnel involved in the archaeological survey fieldwork

Person	Project role	Organisation	Date(s)
Joseph Bowden O'Leary	RAP field representative	BLCAC	25 July 2022 26 July 2022
Jeff Bowden	RAP field representative	BLCAC	25 July 2022 26 July 2022
Timani Edwards	RAP field representative	BLCAC	27 July 2022 28 July 2022
Kira Edwards	RAP field representative	BLCAC	27 July 2022 28 July 2022
Maddie Steel	Supervising archaeologist	Unearthed Heritage Australia Pty Ltd	25 July 2022 26 July 2022 27 July 2022 28 July 2022
Tim Trottier	Archaeological field assistant	Unearthed Heritage Australia Pty Ltd	25 July 2022 26 July 2022 27 July 2022

5.3 Archaeological Survey Methodology

As the study area is very large, a comprehensive survey of the entire study area was beyond the scope of this strategic assessment. Therefore, a combination of pedestrian survey and inspection was used in this survey. The two survey methodologies comprised:

- Pedestrian survey (coverage depicted in Figure 5-14 below) comprised focussed pedestrian survey with a team of four participants (two archaeologists and two RAP field representatives – see Table 5-1) spaced c. 5 m apart, systematically traversing areas accessed for survey, with particular focus and scrutiny given to areas with higher visibility and/or areas displaying exposures of the subsurface, particularly those within areas of highest archaeological sensitivity. Comprehensive survey was employed where:
    - property access was permitted (19 out of 23 properties); and
    - ground surface visibility was sufficient to warrant survey.
- Inspection was employed either where properties had minimal surface visibility and/or were predicted to be of lower archaeological sensitivity. The inspection method occurred either

within the property, or from outside of the property boundary, where pedestrian and vehicular survey methods were combined as appropriate to assess the area. The aim of the inspection method was to:

- validate the predictive model (e.g. to confirm the extent of a particular landform/area of potential archaeological sensitivity);
- to attempt to identify any archaeologically sensitive landforms not identified through Desktop Assessment;
- to identify and/or verify past ground disturbances from past and current land uses of the study area; and
- to identify areas of higher surface visibility to target for comprehensive survey.

All mature native trees within comprehensive survey areas were inspected for signs of Aboriginal cultural scarring. No caves and/or rock shelters were identified during the current field survey. The proportion of the ground surface that was visible and the proportion of the subsurface that was exposed was recorded in comprehensive survey areas. Notes were also taken on the vegetation, soils, areas and types of ground disturbance, and landforms.

Specific conditions (e.g. potential archaeological sensitivity, disturbance), and features (e.g. Aboriginal cultural material) encountered were documented using a differential Global Positioning System (GPS) Unit (Trimble Catalyst DA1) with real-time kinematic (RTK) decimetre (c. 30-70 cm) accuracy.

5.4 Constraints

The following constraints were encountered while carrying out the archaeological survey of the study area:

- The VPA was not granted access to three of the properties (VPA Lot Numbers 2, 4 and 5);
- Flooding impeded physical access to some areas within the study area;
- Ground surface visibility was poor across the majority of the study area, due to coverage by grass and pooling water (Figure 5-14);
- Two properties (VPA Lot Numbers 6 and 12) were not accessed for survey based on the overt extremity of impacts from past ground disturbances;
- In one instance, a property within the study area (VPA Lot Number 7) was not accessed, based on advice that ground conditions were not safe for survey;

Given strategic objectives of current assessment, these factors are not considered to have constrained or limited the current study.

5.5 Results

5.5.1 Overview

The study area was surveyed on foot (see Section 5.4 for constraints), with 100% survey coverage within the areas accessed for pedestrian survey (Figure 5-14), and all other properties subject to some form of inspection (see Section 5.3 regarding the methodology for inspections). The extent of survey coverage is shown in Figure 5-1. Generally, pedestrian survey was focussed on areas of higher surface visibility and/or highest predicted archaeological sensitivity.

No previously unrecorded Aboriginal places were identified during the current assessment. Seven Aboriginal places were registered on the VAHR within the study area at the time of survey. All were reinspected, with no further Aboriginal cultural heritage identified at the locations – further detail on these places is presented in Section 6 below. The condition of the study area is essentially as

outlined in the Desktop Assessment, in terms of the range of landforms and variable disturbance types and levels present within the study area.

Table 5-2 presents a summary of results from the archaeological survey of the study area, organised by VPA Lot Number.

Table 5-2 Summary of results of archaeological survey, organised by VPA Lot Number

VPA Lot Number	Property Address	Date Accessed	Survey method	Current land use	Visible Disturbance	Archaeological sensitivity comment	Access restrictions	GSV	Place Inspections
0	Road reserve	25-28 July 2022	Pedestrian	Road reserve	Roadway and drainage construction High disturbance throughout	Archaeological sensitivity of road reserve areas matches archaeological sensitivity of land surfaces within adjacent lots	N/A	0.5%	
1	1450 Thompsons Road CRANBOURNE EAST VIC 3977	25 July 2022	Pedestrian	Agricultural (market gardening)	High level disturbance from dam construction. Moderate-high level disturbance from dam and shed construction. Moderate level disturbance from soil cultivation works including deep ploughing, mixing and mounding with introduced foreign materials.	Dune landform with view over lower-lying areas to south and west High for dune crest and upper slopes	N/A	Average 98%	
1	1454 Thompsons Road CRANBOURNE EAST VIC 3977	25 July 2022	Inspection	Residential dwelling and yard area	Moderate-high level disturbance from residential dwelling construction and landscaping	Dune landform with view over lower-lying areas to south and west High for dune crest and upper slopes	Residential dwelling and yard not physically accessed	2%	
2	1460 Thompsons Road CRANBOURNE EAST VIC 3977	No consent to access							
3	1468 Thompsons Road CRANBOURNE EAST VIC 3977	25 July 2022	Inspection	Undeveloped	Moderate high level ground disturbance across property from residential dwelling, shed and driveway construction, as well as landscaping	Dune landform with view over lower-lying areas to south and west High for dune crest and upper slopes	N/A	90%	
4	1500 Thompsons Road CRANBOURNE EAST VIC 3977	No consent to access							

VPA Lot Number	Property Address	Date Accessed	Survey method	Current land use	Visible Disturbance	Archaeological sensitivity comment	Access restrictions	GSV	Place Inspections
5	1500 Thompsons Road CRANBOURNE EAST VIC 3977	No consent to access							
6	1550T Thompsons Road CRANBOURNE EAST VIC 3977	Not accessed	N/A Not accessed due to extremity of past ground disturbance	Boral concrete plant	High level past ground disturbance across entire property, relating to past and current industrial land uses	High for dune crest and upper slopes Moderate-high for dune mid slopes	N/A	N/A	
7	1520 Thompsons Road CRANBOURNE EAST VIC 3977	Not accessed	N/A Access was not advised due to unsafe ground conditions	Undeveloped	High-level past ground disturbance across entire property, relating to past extractive land use (old clay pit)	High for dune crest and upper slopes Moderate-high for dune mid slopes Moderate for dune lower slopes	Vehicular access not possible due to extremely wet conditions	N/A	
8	1568 Thompsons Road CRANBOURNE EAST VIC 3977	26 July 2022	Pedestrian	Residential dwelling and yard	Moderate-high level disturbance from construction of residential dwelling, sheds and associated landscaping and driveway works	Mid slopes of inland dune landform with southerly aspect over low-lying swampy ground. Moderate-high for dune mid slopes. Moderate for dune lower slopes.	House site Disturbance	2%	
9	1580A Thompsons Road CRANBOURNE EAST VIC 3977	26 July 2022	Pedestrian	Mixed agricultural (broiler farm, pasture and dairy)	Moderate-high level disturbance from broiler farm and dairy shed construction and localised high-level disturbance associated with drainage channels running north-south down length of property. Elsewhere generally low-moderate level disturbance associated with clearing of native vegetation and past and current agricultural land uses.	Slopes of an inland dune landform are present: upper and middle slopes in northwest corner, and lower dune slopes on western side and southern end. Part of a sandy rise is present within the south of the property (this extends into VPA Lot Numbers 10 and 11). The remaining land (mostly within east and northeast) is low-lying and intersected by channelised watercourses. High for the sandy rise and upper dune slopes. Moderate-high for middle dune slopes. Moderate for lower dune slopes.	Sandy rise formation Surveyed on foot, walking from south to north Wet and boggy, vehicular access impossible	Average 5% for the majority of property. 30% around broiler farm sheds. <1% in lower swampy areas.	

VPA Lot Number	Property Address	Date Accessed	Survey method	Current land use	Visible Disturbance	Archaeological sensitivity comment	Access restrictions	GSV	Place Inspections
						Low-moderate for the low-lying plain.			
10	2l Staunton Walk CRANBOURNE EAST VIC 3977	26 July 2022	Pedestrian	Drainage infrastructure for surrounding residential developments	Generally moderate level ground disturbance from landscape flattening, with frequent localised high level ground disturbances from residential development activities and construction of drains (included mounding of rubble and redeposited soil, and channelisation of drainage lines)	Moderate for relatively higher-elevated small area in southeast of this parcel. Low-moderate for the low-lying plain.	N/A	<1%	
10	102W Linsell Boulevard CRANBOURNE EAST VIC 3977	27 July 2022	Pedestrian (see access restrictions)	Water infrastructure (drainage channel)	High level disturbance (channelisation of drainage line).	This channel intersects a sandy rise (also extending into VPA Lot Numbers 9 and 11). High for the sandy rise. Moderate for areas of relative higher elevation. Low-moderate for the low-lying plain areas.	Only select areas could be subject to pedestrian survey due to large drainage channel filled with water and drain crossing was blocked by fallen trees	Average 5%	
11	1660 Thompsons Road CRANBOURNE EAST VIC 3977	27 July 2022	Pedestrian (see access restrictions)	Agricultural (pasture)	High level disturbance for channelisation of drainage line and construction of parking area. Elsewhere generally low-moderate level disturbance associated with clearing of native vegetation and past and current agricultural land uses.	This property contains low-lying coastal plain, and also a large area that is slightly higher elevated (part of an undulation in the landform). High for the sandy rise landform in the southwest of the property Moderate for the slightly higher-elevated areas (part of a broad undulation in the landscape). Low-moderate for the low-lying coastal plain	Only select areas of the property could be accessed, with most tracks 4WD only and paddocks in an extremely waterlogged state	Average 5%	
12	1670 Thompsons Road CRANBOURNE EAST VIC 3977	Not accessed	Not accessed due to extremity of past ground disturbance		High level disturbance for residential dwelling construction and associated landscaping				

VPA Lot Number	Property Address	Date Accessed	Survey method	Current land use	Visible Disturbance	Archaeological sensitivity comment	Access restrictions	GSV	Place Inspections
13	585 Berwick-Cranbourne Road CLYDE NORTH VIC 3978	28 July 2022	Inspection Auger 1	Agricultural (pasture)	High level localised ground disturbances (drainage channel excavation, high-voltage underground power cable and footings for transmission towers). Elsewhere generally low-moderate level disturbance associated with clearing of native vegetation and past and current agricultural land uses.	Low sandy rise landforms are presented in the south of the property. Additionally, a very slightly higher-elevated rise runs approximately north-south through the middle of the property. Moderate for sandy rises in the south of the property. Low-moderate for lower-lying portions of the coastal plain.	Weather and waterlogged ground conditions permitted targeted vehicular survey along tracks. No further safe vehicular access was possible. Lower half inaccessible due to being underwater	<1%	
14	350 Narre Warren Road CRANBOURNE EAST VIC 3977	25 July 2022	Pedestrian (see access restrictions)	Agricultural (pasture)	High level localised ground disturbances (dam construction, drainage channel excavation and footings for transmission towers) Elsewhere generally low-moderate level disturbance associated with clearing of native vegetation and past and current agricultural land uses (Figure 5-8)	Slopes of an inland dune landform are present: upper and middle slopes in the northwest section, and lower dune slopes across a large areas of the land parcel. Lower-lying coastal plain is present in the south and east of the property. The southeast corner is higher-elevated (part of an undulation in the landform). High for the upper dune slopes. Moderate-high for middle dune slopes. Moderate for lower dune slopes and higher-elevated/undulating areas in the southeast. Low-moderate for the low-lying plain.	Survey team accessed first two paddocks but lower-lying areas were inundated and inaccessible for survey	Average 5%	

VPA Lot Number	Property Address	Date Accessed	Survey method	Current land use	Visible Disturbance	Archaeological sensitivity comment	Access restrictions	GSV	Place Inspections
15	2S Donohue Street CRANBOURNE EAST VIC 3977	25 July 2022	Pedestrian	Agricultural (pasture)	High level localised ground disturbances, including excavation of drainage channels around property perimeter and drainage channel running through northwest corner (Figure 5-11). Moderate level disturbance across remainder of property from grading and flattening works.	The north of this property is intersected by a drainage channel. Part of a sandy rise is present in the southeast corner, and is part of a broader undulation in the landform (extending across neighbouring VPA Lot Numbers 16 and 18). High for the portion of the sandy rise. Moderate for areas of relative higher elevation. Low-moderate for the low-lying plain currently containing drainage channel.	The relatively higher-elevated eastern section of the property was subject to pedestrian survey. Too wet for vehicle access. Drainage channel transecting property, which could not be crossed on foot.	5%	
16	Donohue St	26 July 2022	Pedestrian Auger 3 (28 July 2022)	Agricultural (pasture)	Generally low-moderate level disturbance associated with clearing of native vegetation, ploughing and stock grazing. Rabbit burrows Ballast track running east-west over low sandy rise and registered extent of 7921-0880.	Generally flat, slightly elevated coastal plain, with low relief sandy rises. The property is situated on an undulation in the otherwise generally flat coastal plain. High for sandy rises. Moderate for slightly higher-elevated portions of coastal plain.	Low scrub coverage reduced GSV to 2% on low sandy rise and surrounding the recorded location of 7921-0880	2-5%	
16	585S Berwick-Cranbourne Road CLYDE NORTH VIC 3978	28 July 2022	Pedestrian	Residential dwelling	Moderate-high level disturbance from construction of sheds and associated landscaping. Moderate for track and driveway construction. Elsewhere generally low-moderate level disturbance associated with clearing of native vegetation, ploughing and stock grazing.	This property parcel mostly comprises a sandy rise landform, with low-lying coastal plain at the property margins. Moderate for low-relief sandy rise landform. Low-moderate for the lower-lying coastal plains landform	N/A	Average 5%	
17	35 Brocker Street CLYDE NORTH VIC 3978	28 July 2022	Pedestrian	Residential dwelling	Moderate-high level disturbance throughout, from construction of residential dwelling, sheds and associated landscaping and driveway works (Figure 5-10)	Residential dwelling is on a sandy rise. Moderate for low-relief sandy rise landform.	N/A	Average 5%	

VPA Lot Number	Property Address	Date Accessed	Survey method	Current land use	Visible Disturbance	Archaeological sensitivity comment	Access restrictions	GSV	Place Inspections
18	80S Linsell Boulevard CRANBOURNE EAST VIC 3977	26 July 2022	Pedestrian	Drainage infrastructure for surrounding residential developments.	Generally moderate level ground disturbance from landscape flattening (Figure 5-9), with frequent localised high level ground disturbances from residential development activities and construction of drains (included mounding of rubble and redeposited soil, and channelisation of drainage lines)	Moderate for the slightly higher-elevated areas of coastal plain, compared to low-lying swampy ground in neighbouring VPA Lot Number 10.	N/A	<1%	
19	901 Donohue Street CLYDE NORTH VIC 3978	26 July 2022	Pedestrian	Agricultural (pasture)	General low-moderate level disturbances noted, relating to past vegetation clearing, ploughing and stock grazing. Moderate level disturbance for localised driveway/track construction	Most of the property comprises low-lying, flat coastal plain but an area along the western property boundary is slightly higher-elevated (part of a undulation in the flat coastal plain landform which crosses into neighbouring VPA Lot Numbers 11 and 16). Moderate for slightly higher-elevated area along western boundary. Low-moderate for lower-lying areas of coastal plain.	N/A	Average 5%	
19	5851 BERWICK-CRANBOURNE ROAD CLYDE NORTH VIC 3978	28 July 2022	Pedestrian Auger 2	Agricultural (pasture)	General low-moderate level disturbances noted, relating to past vegetation clearing, ploughing and stock grazing. Moderate level disturbance for localised driveway/track construction	Low relief sandy rise present in the middle of the property, running north-south. Moderate for low-relief sandy rise. Low-moderate for lower-lying areas of coastal plain.	N/A	Average 5%	

5.5.2 Visibility

The study area covers a total of approximately 318.56 ha. The ability to detect archaeological material during survey is influenced by surface visibility (which varies depending on factors such as vegetation cover, natural erosion and anthropogenic disturbance) and the background effect (such as presence of natural stone and other material that hinders the identification of surface archaeological material – Witter 1990).

Ground surface visibility (GSV) variable across the study area, ranging from 0-98%, dependent on vegetation coverage and density, as well as surface disturbance and erosion. Exposures were generally linked to disturbances and to current land uses within the study area, with unmade vehicle tracks, wheel tracks, stock trampling, rabbit burrows, areas of erosion and areas ploughed/cultivated for agriculture and market gardening providing the main surface visibility within the areas subject to pedestrian survey. Figures Figure 5-1, Figure 5-2 and Figure 5-3 are photographic examples of ground exposures which afforded higher GSV during the field survey. Very low GSV was encountered throughout the majority of the study area subject to pedestrian survey and inspection, with the reduced visibility owing chiefly to cover by thick grass (Figure 5-4 and Figure 5-5), and pooling water or waterlogged soils further obscuring GSV in many areas (Figure 5-6 and Figure 5-7). Surface visibility was variable (0-98%) for areas subject to pedestrian survey and inspection, with a GSV mean value of 20.8% and median and mode GSV values at 5% (Figure 5-14 and Table 5-3).

Effective survey coverage is quantified to account for the limitations to survey coverage described above (visibility and background effect) and gives an estimate of the proportion of the study area investigated, accounting for these limitations. Effective survey coverage is calculated by multiplying survey coverage (the proportion of the land walked), by ground surface visibility, by background effect. Variable but overall low visibility conditions within surveyed areas and nil background effect resulted in a low (9.14%) effective survey coverage for the areas subject to survey and inspection for surface or intrusive Aboriginal place types (such as the most likely place type, stone artefacts). The presence of more extrusive places, such as scarred trees and stone arrangements, was fully assessed within the surveyed areas. The effective coverage as a portion of the entire study area was calculated at 29.11 ha or 9.14%.

Table 5-3 Survey coverage and effective survey coverage of the study area

ArchSensitivity	Disturbance	ArchPotential	GSV	Area_ha	SurveyCoverage_ha	SurveyCoverage_%
High	High	Moderate	0.0%	16.40	0.00	
High	High	Moderate	0.5%	2.98	0.01	
High	High	Moderate	1.0%	11.38	0.11	
High	High	Moderate	5.0%	0.53	0.03	
High	High	Moderate	98.0%	0.41	0.40	
High	Low-moderate	High	0.0%	9.70	0.00	
High	Low-moderate	High	2.0%	2.22	0.04	
High	Low-moderate	High	5.0%	7.35	0.37	
High	Moderate	Moderate-high	0.0%	0.70	0.00	
High	Moderate	Moderate-high	5.0%	0.10	0.01	
High	Moderate	Moderate-high	98.0%	15.04	14.74	
High	Moderate-high	Moderate	2.0%	0.50	0.01	
High	Moderate-high	Moderate	90.0%	1.15	1.04	
High	Moderate-high	Moderate	98.0%	1.28	1.26	

ArchSensitivity	Disturbance	ArchPotential	GSV	Area_ha	SurveyCoverage_ha	SurveyCoverage_%
Low-moderate	High	Very low	0.0%	7.05	0.00	
Low-moderate	High	Very low	0.5%	11.37	0.06	
Low-moderate	High	Very low	5.0%	0.37	0.02	
Low-moderate	High	Very low	30.0%	0.09	0.03	
Low-moderate	High	Very low	98.0%	0.98	0.96	
Low-moderate	Low-moderate	Low-moderate	0.0%	40.45	0.00	
Low-moderate	Low-moderate	Low-moderate	0.5%	50.18	0.25	
Low-moderate	Low-moderate	Low-moderate	5.0%	11.13	0.56	
Low-moderate	Moderate	Low	0.0%	0.73	0.00	
Low-moderate	Moderate	Low	0.5%	3.13	0.02	
Low-moderate	Moderate	Low	5.0%	0.04	0.00	
Low-moderate	Moderate	Low	98.0%	0.78	0.76	
Low-moderate	Moderate-high	Very low	5.0%	0.09	0.00	
Low-moderate	Moderate-high	Very low	30.0%	0.21	0.06	
Moderate	High	Low	0.0%	7.03	0.00	
Moderate	High	Low	0.5%	1.43	0.01	
Moderate	High	Low	5.0%	1.60	0.08	
Moderate	High	Low	30.0%	0.08	0.02	
Moderate	High	Low	98.0%	0.84	0.82	
Moderate	Low-moderate	Moderate	0.0%	27.32	0.00	
Moderate	Low-moderate	Moderate	0.5%	2.05	0.01	
Moderate	Low-moderate	Moderate	2.0%	3.85	0.08	
Moderate	Low-moderate	Moderate	5.0%	22.43	1.12	
Moderate	Moderate	Low-moderate	0.0%	14.64	0.00	
Moderate	Moderate	Low-moderate	0.5%	3.44	0.02	
Moderate	Moderate	Low-moderate	5.0%	4.45	0.22	
Moderate	Moderate	Low-moderate	98.0%	2.40	2.35	
Moderate	Moderate-high	Low	2.0%	0.02	0.00	
Moderate	Moderate-high	Low	5.0%	3.10	0.15	
Moderate	Moderate-high	Low	30.0%	2.83	0.85	
Moderate-high	High	Low-moderate	0.0%	10.18	0.00	
Moderate-high	High	Low-moderate	0.5%	0.28	0.00	
Moderate-high	High	Low-moderate	1.0%	0.80	0.01	
Moderate-high	High	Low-moderate	5.0%	0.17	0.01	
Moderate-high	High	Low-moderate	98.0%	0.86	0.84	
Moderate-high	Low-moderate	Moderate-high	0.0%	0.30	0.00	
Moderate-high	Low-moderate	Moderate-high	2.0%	0.31	0.01	
Moderate-high	Low-moderate	Moderate-high	5.0%	3.64	0.18	
Moderate-high	Moderate	Moderate	0.0%	4.11	0.00	
Moderate-high	Moderate	Moderate	5.0%	1.57	0.08	
Moderate-high	Moderate	Moderate	98.0%	1.51	1.48	
Moderate-high	Moderate-high	Low-moderate	2.0%	0.16	0.00	
Moderate-high	Moderate-high	Low-moderate	5.0%	0.87	0.04	
Grand Total				**318.56**	**29.11**	**9.14%**

Figure 5-1 Example of small, localised exposure around rabbit burrow in VPA Lot Number 11 (GSV averaging 5%)_MSteel_27July2022

Figure 5-2 Example of higher GSV linked to stock trampling in VPA Lot Number 14 (GSV averaging 5%)_MSteel_25July2022

Figure 5-3 Example of exposure from ploughing and agricultural soil cultivation in VPA Lot Number 1 (averaging 98% GSV)_MSteel_25July2022

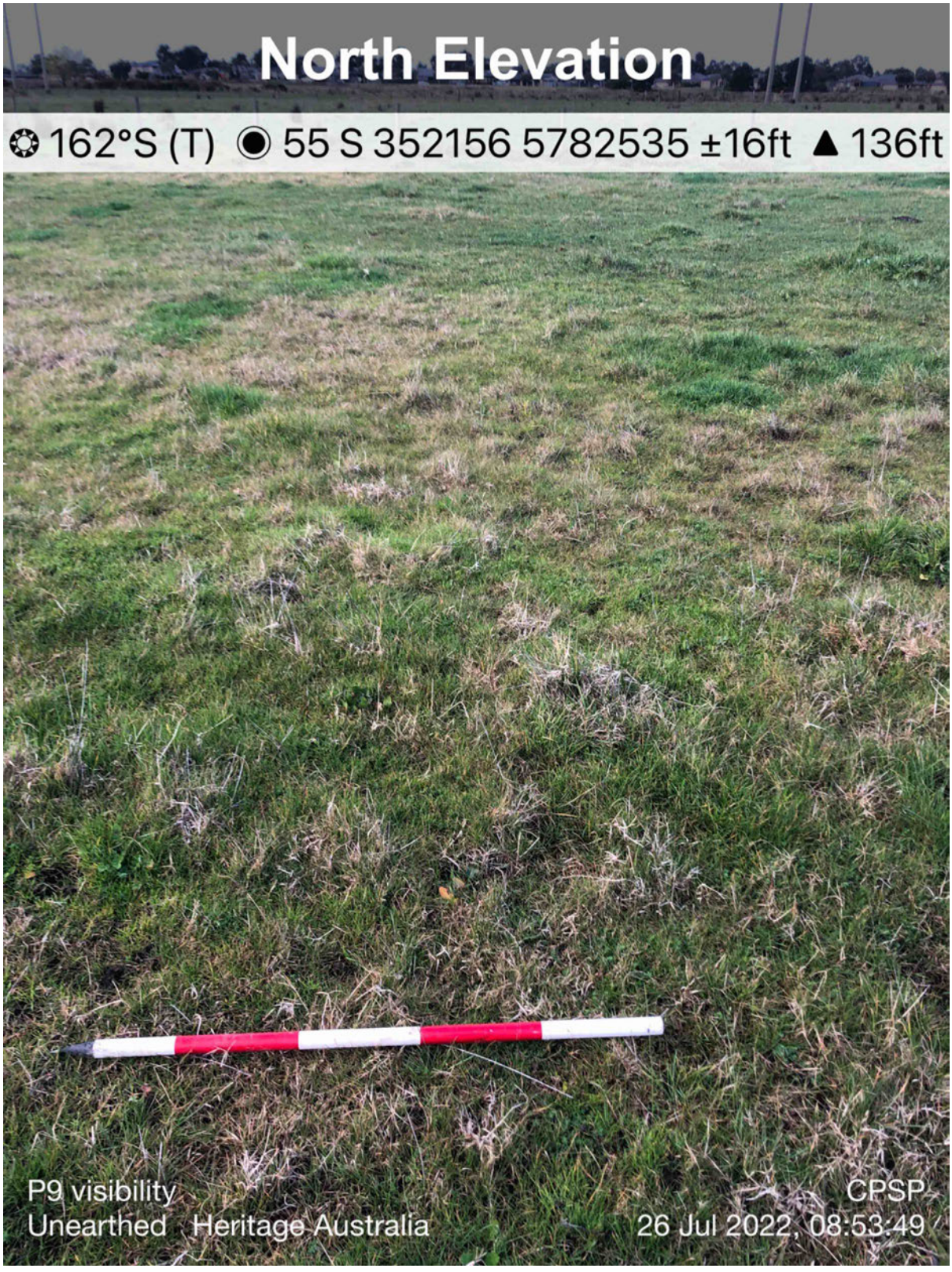


Figure 5-4 Example of 5% average GSV encountered in VPA Lot Number 9_MSteel_26July2022

Figure 5-5 Example of 5% average GSV encountered on low relief sandy rise in VPA Lot Number 19_MSteel_28July2022

Figure 5-6 Example of 5% average GSV with waterlogged soil in VPA Lot Number 15_MSteel_25July2022

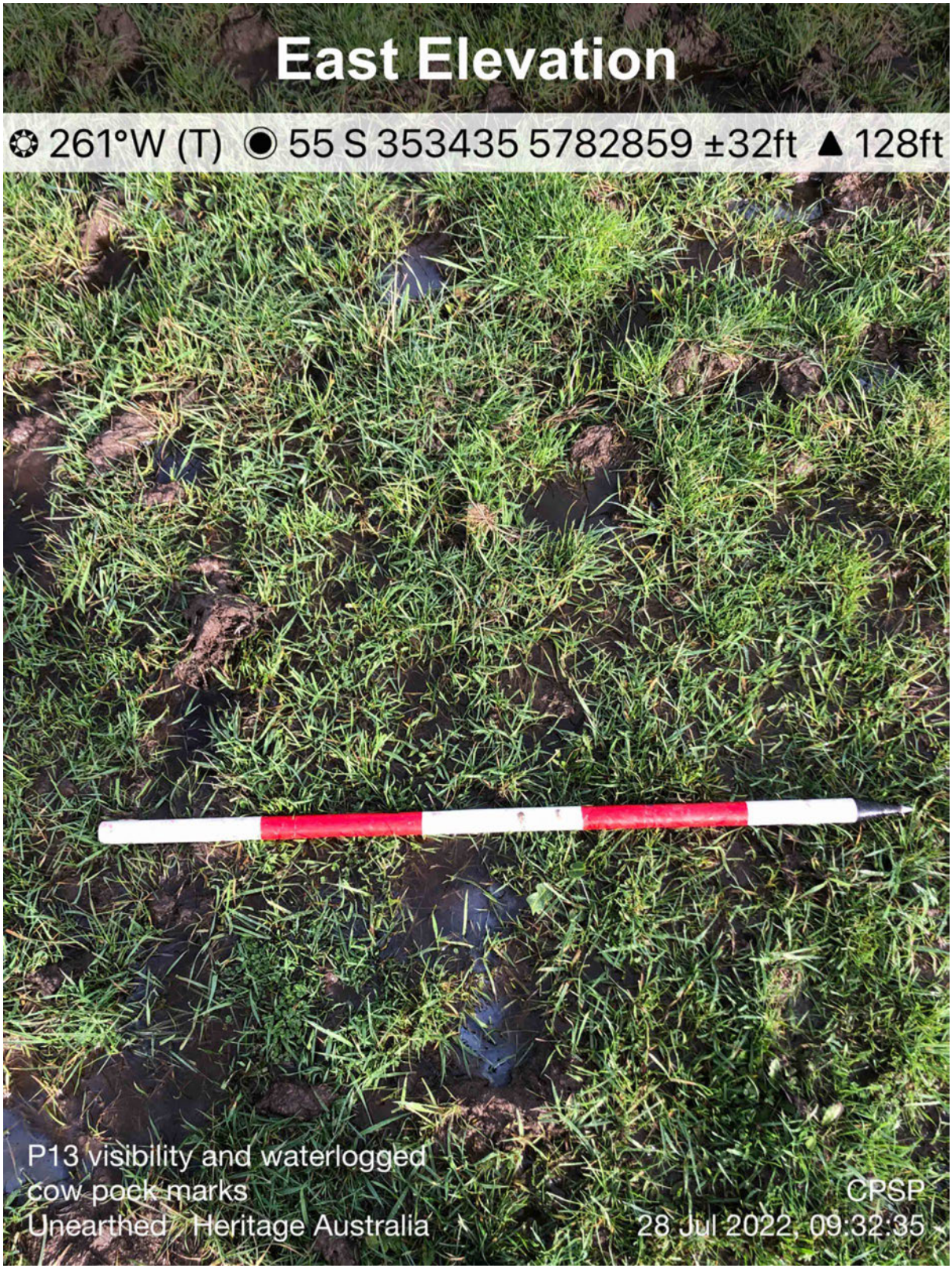


Figure 5-7 Example of 5% average GSV with waterlogged and pock-marked soil in VPA Lot Number 13_MSteel_28July2022

5.5.3 Disturbance

Consistent with the results of the desktop assessment, a variety of forms of ground disturbance were noted, with all of these forms of disturbance having the potential to impact the likelihood of Aboriginal cultural heritage being present within the study area and the potential for *in situ* deposits.

Sources of ground disturbance include:

- Land clearance
- Ploughing
- Cropping
- Quarrying
- Channel and drain construction, including channelisation of waterways
- Residential and agricultural construction
- Roads and driveways
- Utilities

Levels of past disturbance varied from low-moderate to high throughout the study area (see Figure 5-15 for an overview map). Low-moderate level disturbances included the impacts from ploughing, cropping, vegetation clearing and use of the study area for pasture (Figure 5-8). Areas that had been subject to past flattening, grading or other landscaping works (including deeper ploughing and soil mixing) were assessed as being at least moderately disturbed (see Figure 5-9 and Figure 5-3). Moderate-high level disturbances were determined to have occurred in areas subject to more extensive grading and landscaping or associated with the construction of dwellings, sheds or farm structures (Figure 5-10). The field survey identified many linear high level disturbances related to the impacts from channel excavation and small watercourse excavation to direct water flow (Figure 5-11). The impacts of roadway construction constituted high level disturbance around the most of the study area's perimeter (Figure 5-12). The footprint of electricity pylons was determined to be localised high level disturbance (Figure 5-13).

Low-moderate disturbances were identified throughout approximately 180.91 ha (or 56.79%) of the study area; moderate disturbances were observed within c. 52.62 ha (or 16.52%); moderate-high disturbances identified throughout c. 10.21 ha (or 3.21%), and high level disturbances were identified throughout c. 74.82 ha (23.49%) of the study area (see Table 5-3).

High levels of ground disturbance in the study area will have detrimentally affected the potential for retention of archaeological deposits, however Aboriginal cultural heritage has the potential to be present even in areas of extensive historical ground disturbance, due largely to the depth of Aboriginal archaeological deposits in the coastal plains and dune sediments.

Figure 5-8 Low level ground disturbance from agriculture and use of the study area for pasture – VPA Lot Number 14, facing northwest_MSteel_25July2022

Figure 5-9 Moderate level disturbance from landscape flattening (spoil mound in middle left) - VPA Lot Number 18, facing north_MSteel_26July2022

Figure 5-10 Moderate-high level disturbance from construction of residential dwelling, sheds and driveways - VPA Lot Number 17, facing southwest_MSteel_28July2022

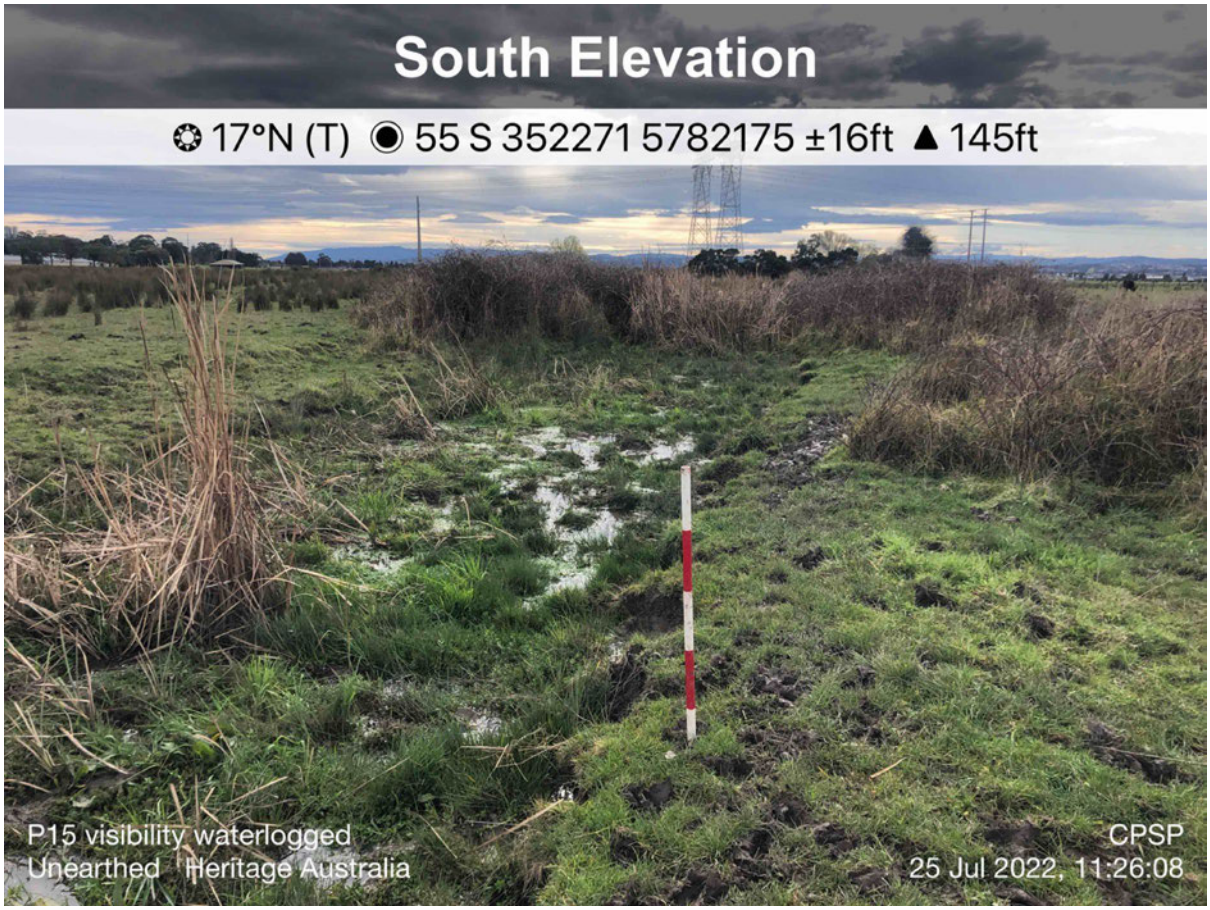


Figure 5-11 Linear high level disturbance from excavation of drainage channel - VPA Lot Number 15, facing north_MSteel_25July2022

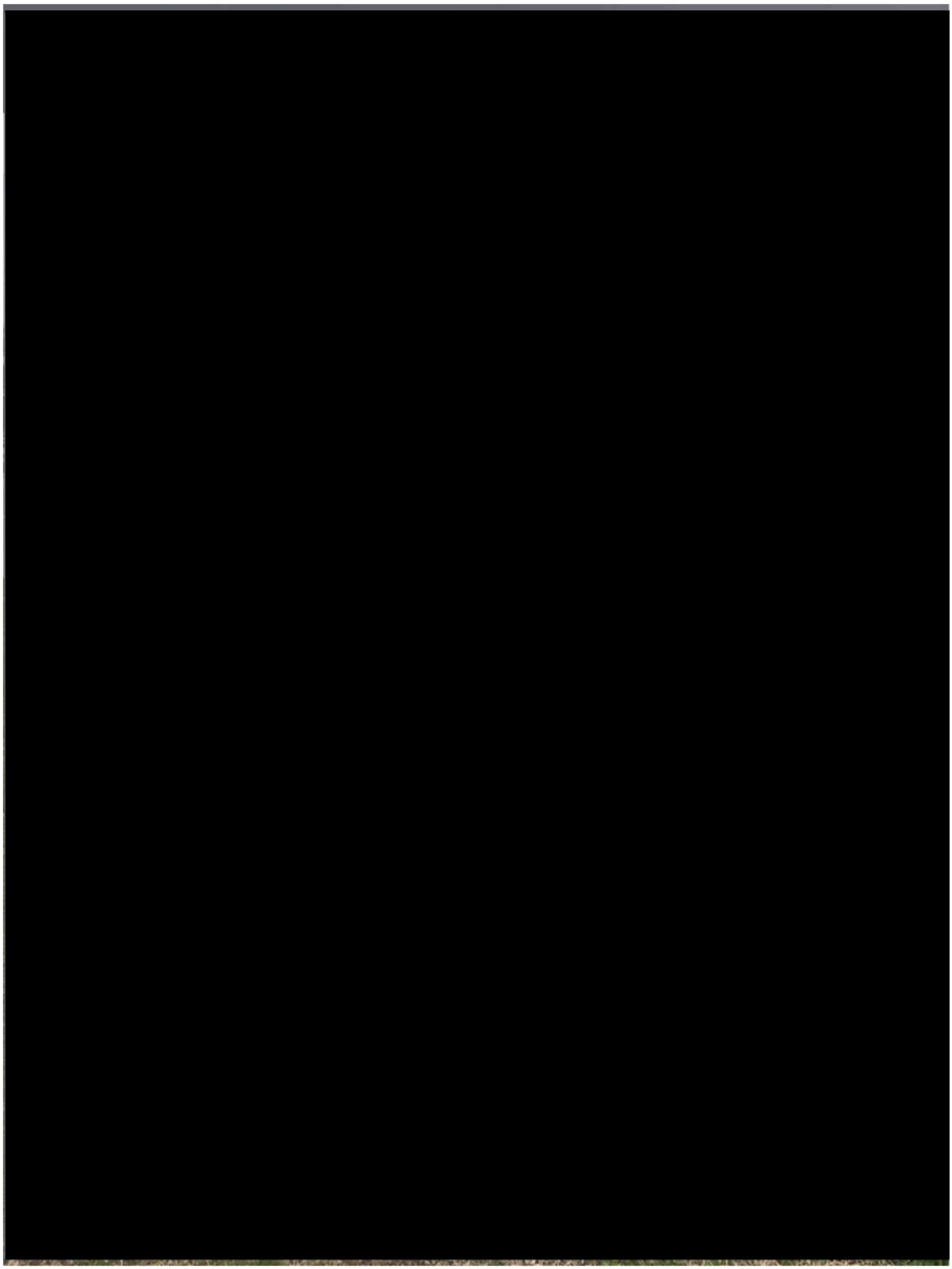


Figure 5-12 High disturbance from Thompsons Road construction, facing east_MSteel_26July2022

Figure 5-13 High level disturbance from electrical pylon installation, facing southwest_MSteel_26July2022

5.6 Aboriginal cultural heritage

No Aboriginal cultural heritage was identified during the field survey.

Seven previously registered Aboriginal places are registered within the study area. The recorded locations for all seven Aboriginal places were accessed and these registered places were subject to reinspection by the field survey team, comprising two RAP field representatives and two archaeologists. No Aboriginal cultural heritage materials were able to be identified.

Aboriginal places registered within the study area are discussed further in Section 6.

5.7 Archaeological sensitivity & potential

According to the predictive model developed in the desktop assessment, the study area was assessed in terms of its Aboriginal archaeological sensitivity for the presence of stone artefact scatters and isolated or low density occurrences of stone artefacts. As a result of field survey, and incorporating findings from the desktop assessment, the entirety of the study area was assigned a categorical Aboriginal archaeological sensitivity rating (from low, low-moderate, moderate, moderate-high to high) according to its sensitivity for having the above-mentioned Aboriginal places, regardless of current land uses or ground disturbances.

The study area was divided into four areas of Aboriginal archaeological sensitivity, which relate broadly to differences in landform and elevation (Figure 5-16). A low-moderate Aboriginal archaeological sensitivity rating has been applied to lower-lying areas of the undulating coastal plain landform (c. 126.59 ha or 39.74%); relatively higher-elevated areas of the coastal plain landform and lower dune slopes were deemed to have a moderate Aboriginal archaeological sensitivity (c. 97.49 ha or 30.60%); middle dune slopes were considered to have a moderate-high Aboriginal archaeological sensitivity (c. 24.75 ha or 7.77%); a high Aboriginal archaeological sensitivity rating was applied to dune crests and upper slopes and also to pronounced sandy rises on the coastal plain landform, totalling approximately 69.73 ha or 21.89% of the study area (see Table 5-3).

An overall assessment of Aboriginal archaeological potential was established for the study area, with consideration given to disturbances from past and current land uses of the study area (Sections 4.9 and 5.5.3). The study area was divided into six areas of Aboriginal archaeological potential, which included areas of very low archaeological potential (c. 20.16 ha or 6.33%), low archaeological potential (c. 21.60 ha or 6.78%), low-moderate archaeological potential (c. 139.99 ha or 43.94%), moderate archaeological potential (c. 97.47 ha or 30.60%), moderate-high archaeological potential (c. 20.08 ha or 6.30%), and areas considered to be of high archaeological potential (c. 19.26 ha or 6.05%). Figure 5-17 is an overview of the Aboriginal archaeological potential within the study area.

The Aboriginal site type most likely to be present with the study area are isolated or low-density occurrences of stone artefacts across the entire study area, and higher frequency/density stone artefacts scatters on areas of higher Aboriginal archaeological potential (undisturbed and elevated areas of coastal plain and former dune landforms).

5.8 Archaeological field survey summary of results

- Permission was granted by landowners and land managers for the VPA to access 19 of the 22 lots within the study area for field survey.
- 16 of the 22 lots were accessed for archaeological field survey over a period of four days (25-28 July 2022).
- Ground surface visibility was varied throughout the study area (0-98%) but was low in most areas, with median and mode GSV at 5% and an overall mean GSV of 20.8%. Low GSV resulted in an effective survey coverage of 9.14%.

- The recorded locations for all Aboriginal places previously registered within the study area (n=7) were accessed and these registered places were subject to reinspection by the field survey team.
- No Aboriginal cultural heritage was identified during the field survey.
- A range of past disturbances were identified throughout the study area, ranging from low-moderate to high level.
- The study area was divided into four areas of Aboriginal archaeological sensitivity: low-moderate for lower-lying areas of the undulating coastal plain landform, moderate for relatively higher-elevated areas of the coastal plain landform and lower dune slopes, moderate-high for middle dune slopes, and high for dune crests and upper slopes or pronounced sandy rises on the coastal plain landform.
- The study area was divided into six areas of Aboriginal archaeological potential, which included areas of very low archaeological potential (c. 20.16 ha or 6.33%), low archaeological potential (c. 21.60 ha or 6.78%), low-moderate archaeological potential (c. 139.99 ha or 43.94%), moderate archaeological potential (c. 97.47 ha or 30.60%), moderate-high archaeological potential (c. 20.08 ha or 6.30%), and areas considered to be of high archaeological potential (c. 19.26 ha or 6.05%).

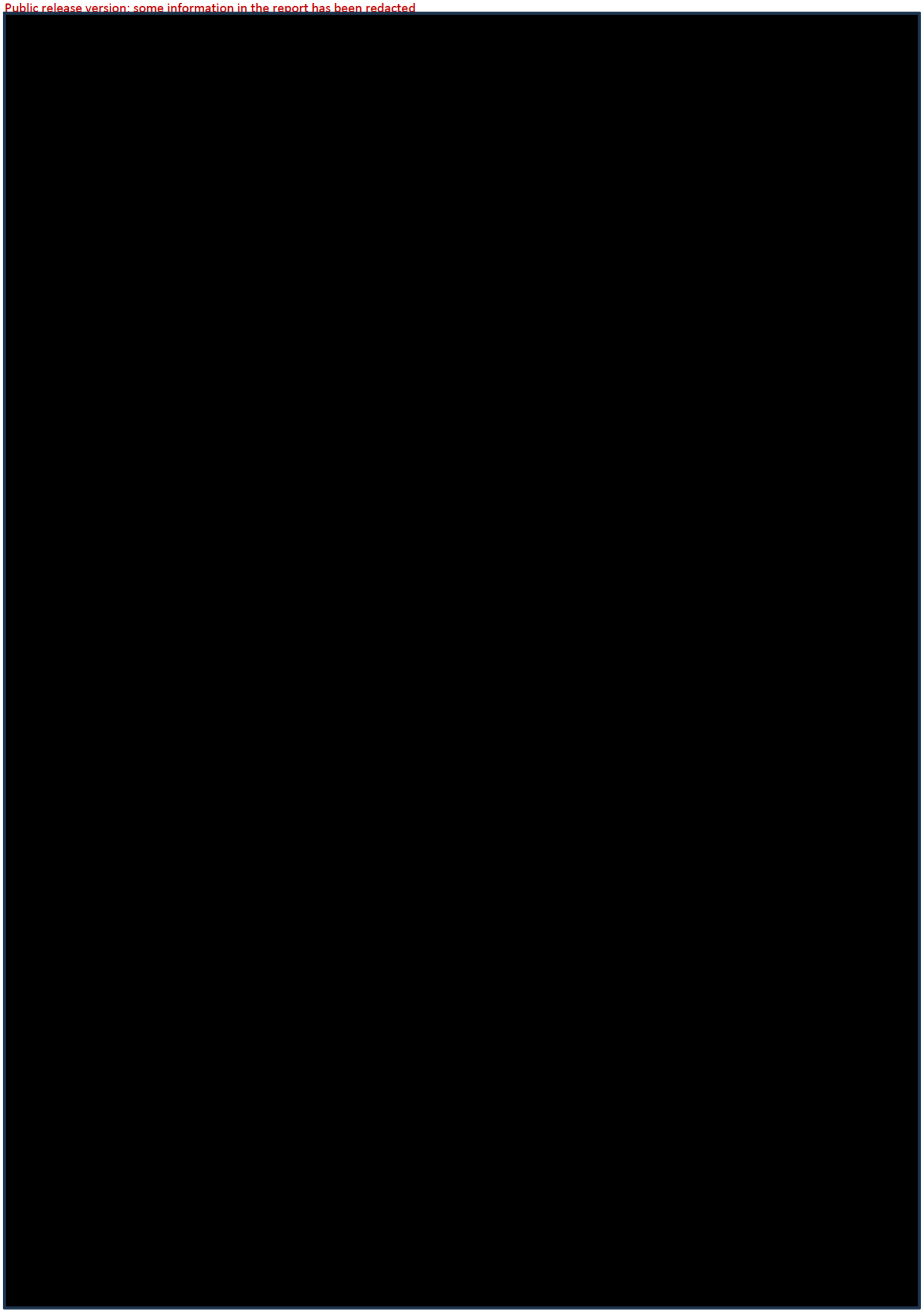


Figure 5-14 Results of field survey, including survey coverage and assessment of ground surface visibility

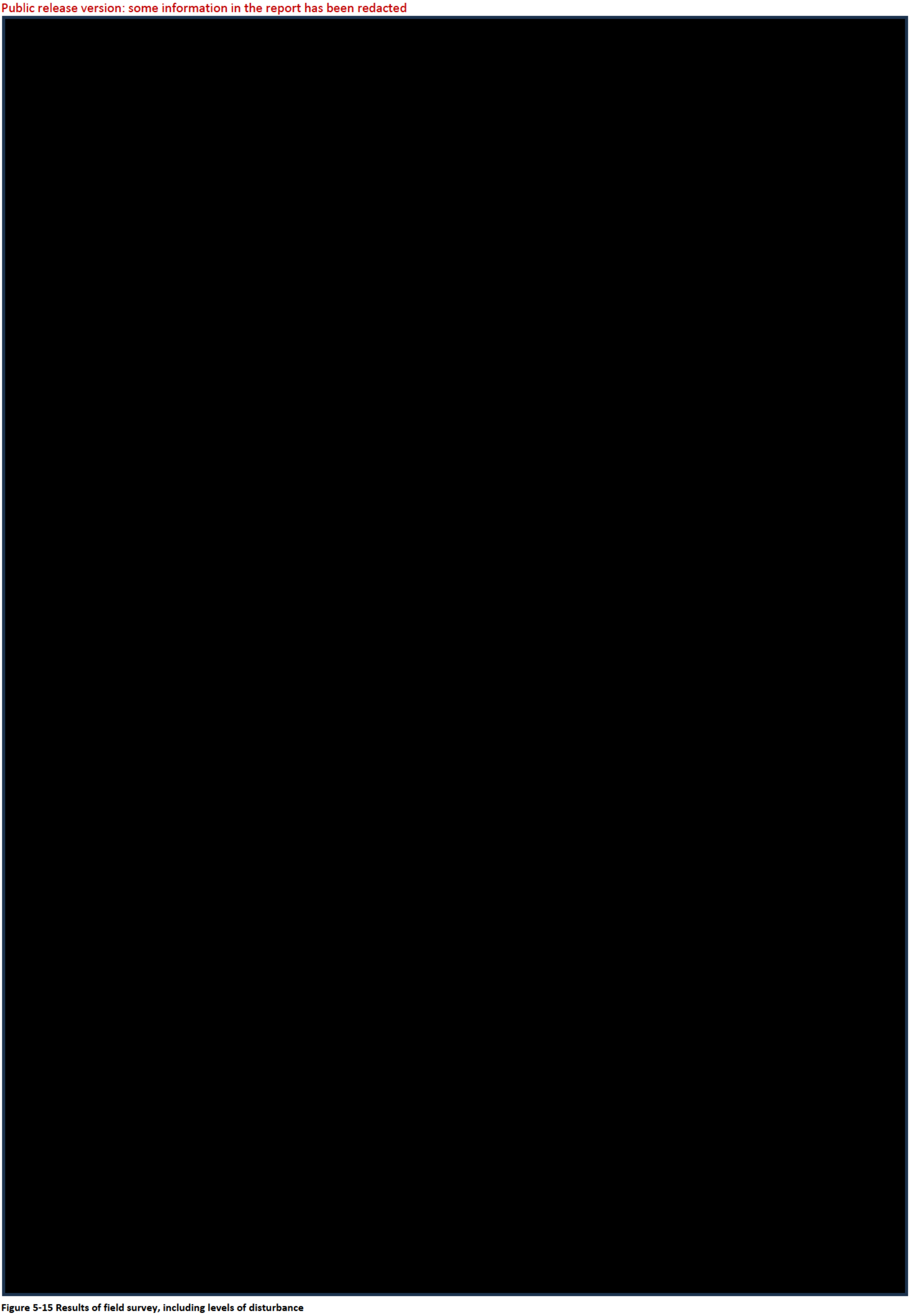


Figure 5-15 Results of field survey, including levels of disturbance

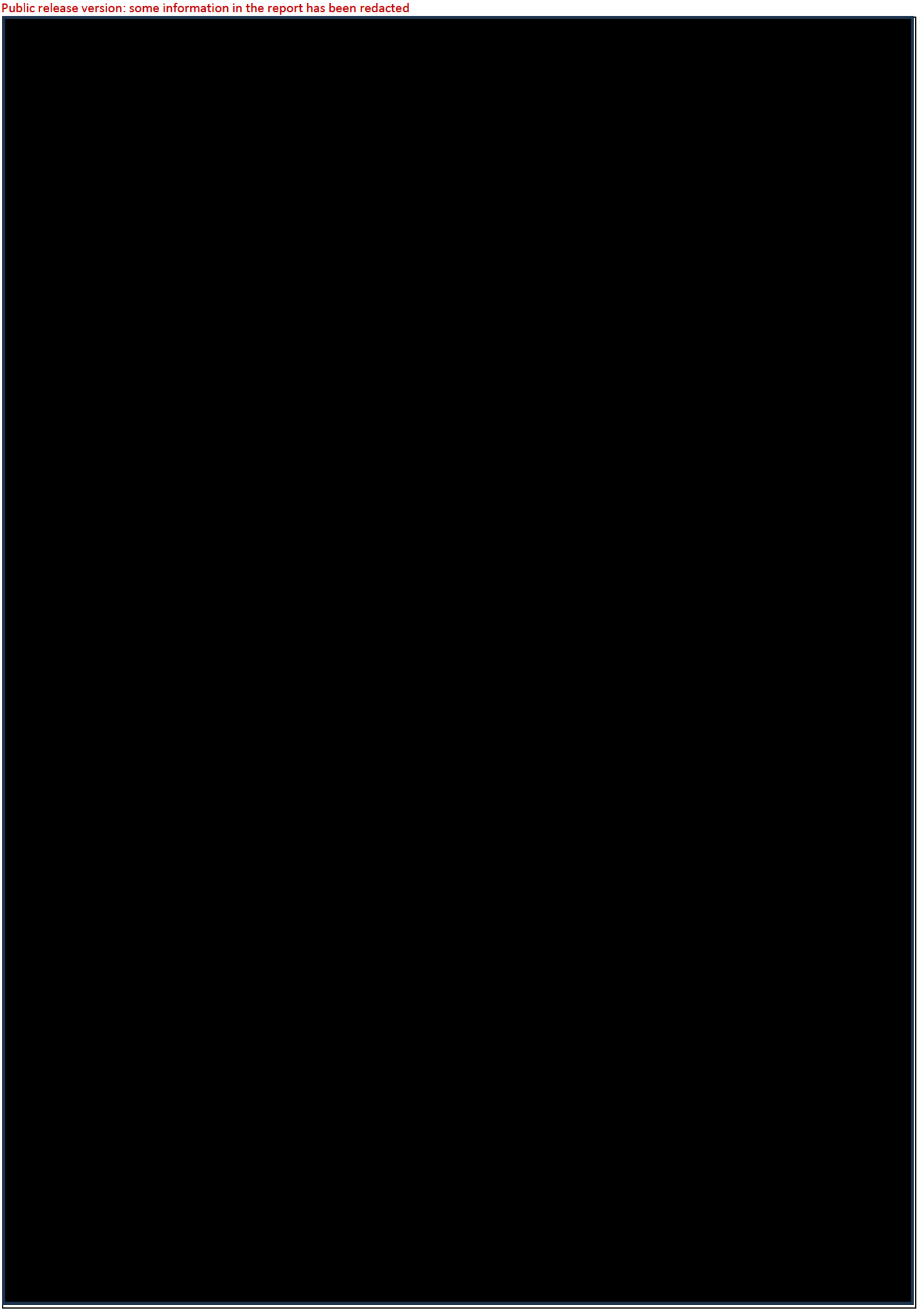


Figure 5-16 Assessment of archaeological sensitivity

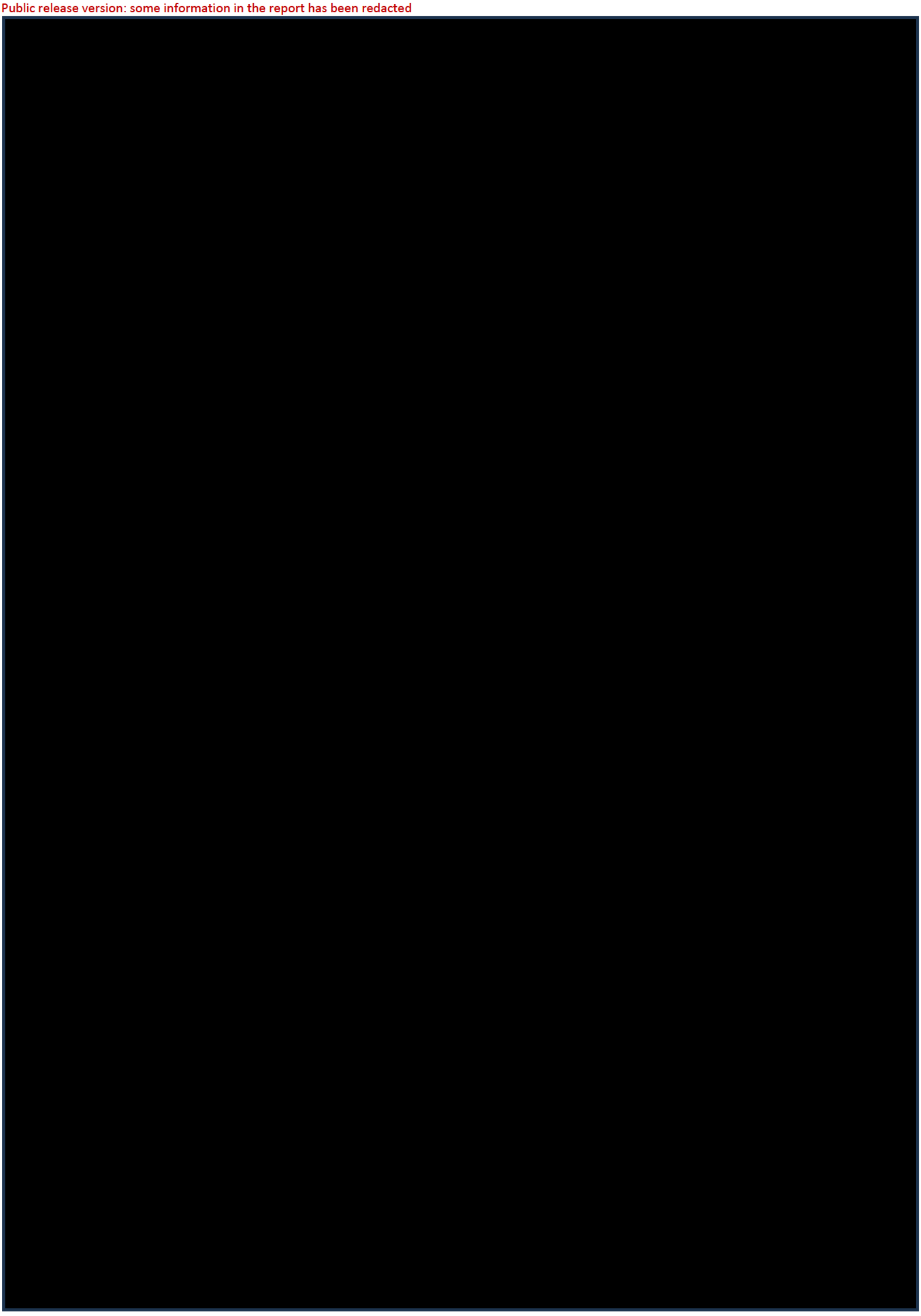


Figure 5-17 Assessment of archaeological potential

6 Aboriginal Cultural Heritage

6.1 Summary

No previously unrecorded Aboriginal cultural heritage was identified as part of the current assessment. At the time of survey, seven Aboriginal places were present within the study area and all were located and physically re-inspected during survey.

Following the survey and in consultation with the RAP, two previously existing registrations within the study area (VAHR 7921-0880 and VAHR 7921) were merged into a single new Aboriginal place registration (VAHR 7921-1989). The six Aboriginal places now registered within the study area are detailed below.

6.2 VAHR 7921-1131 (LYDAL ISOLATED ARTEFACT)

6.2.1 Location and Extent Details

Table 6-1 Location and extent details – 7921-1131 (GDA94 Zone 55)

VAHR	Place Name	Component Type	Area of Place Extent (m^2)	Easting	Northing
7921-1131	LYDAL ISOLATED ARTEFACT	Artefact Scatter	0.78		

6.2.2 Site Description

LYDAL ISOLATED ARTEFACT (VAHR 7921-1131) is currently undergoing a record edit on ACHRIS. This place is located in the eastern portion of the Croskell PSP study area. LYDAL ISOLATED ARTEFACT (VAHR 7921-1131) was originally recorded by Ford in 2009 during testing for CHMP 10881. LYDAL ISOLATED ARTEFACT (VAHR 7921-1131) comprises a single whole flake of red silcrete. The place was identified in a subsurface context while excavating the 1x1 m test pit Test Trench 5 on the crest of a small sandy rise in open pasture. The artefact was identified at a depth of approximately 750 mm in light grey sand with 5% coffee rock inclusions (Ford et al. 2009).

The place extent for LYDAL ISOLATED ARTEFACT (VAHR 7921-1131) was determined by excavating ten shovel test probes: four along cardinal points at approximately five metre spacing, with an additional transect of six shovel test probes at approximately 10 metre spacing along an archaeologically sensitive landform. No additional Aboriginal cultural heritage was identified during this extent testing.

As part of the current field survey, LYDAL ISOLATED ARTEFACT (VAHR 7921-1131) was reinspected. The location of the place was relocated. No Aboriginal cultural heritage was identified. Ground surface visibility at the time of the survey was low due to thick vegetation cover and wet, waterlogged soils. A place inspection form (PIF) was lodged with the VAHR following the field survey. The registration for CRANBOURNE EAST 1 (VAHR 7921-0880) did not include a place extent, so a 50cm buffer has been added to the primary grid coordinates point, resulting in a 1m x 1m circular extent, as per the site card measurements.

While additional Aboriginal cultural heritage associated with LYDAL ISOLATED ARTEFACT (VAHR 7921-1131) may possibly be present within undisturbed subsurface deposits on the same low sandy rise landform, the extent testing carried out as part of CHMP 10881 is considered sufficient to preclude the presence of additional Aboriginal cultural heritage in high densities.

The registration for LYDAL ISOLATED ARTEFACT (VAHR 7921-1131) has been updated to reflect that the PGC was originally captured using a DGPS with sub-metre accuracy (CHMP 10881, p. 63). The registration for LYDAL ISOLATED ARTEFACT (VAHR 7921-1131) did not include a place extent. The registration is an Artefact Scatter (pre-LDAD). In consultation with the VAHR, spatial data has been added to provide a radial buffer of 5 metres surrounding the recorded location of VAHR 7921-1131.

Figure 6-1 View towards VAHR_7921-1131_MSteel_28July2022

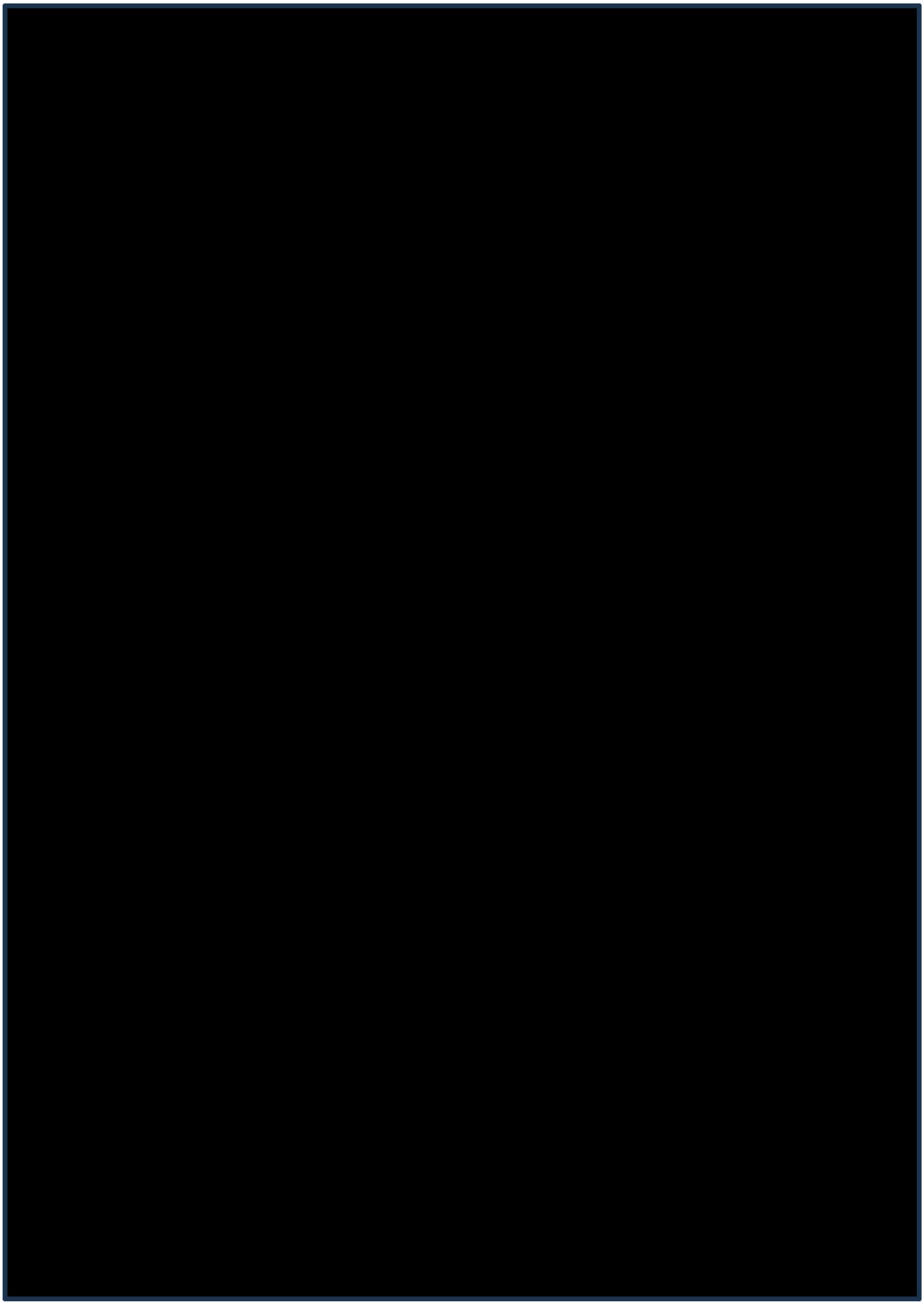


Figure 6-2 7921-1131 – Context map

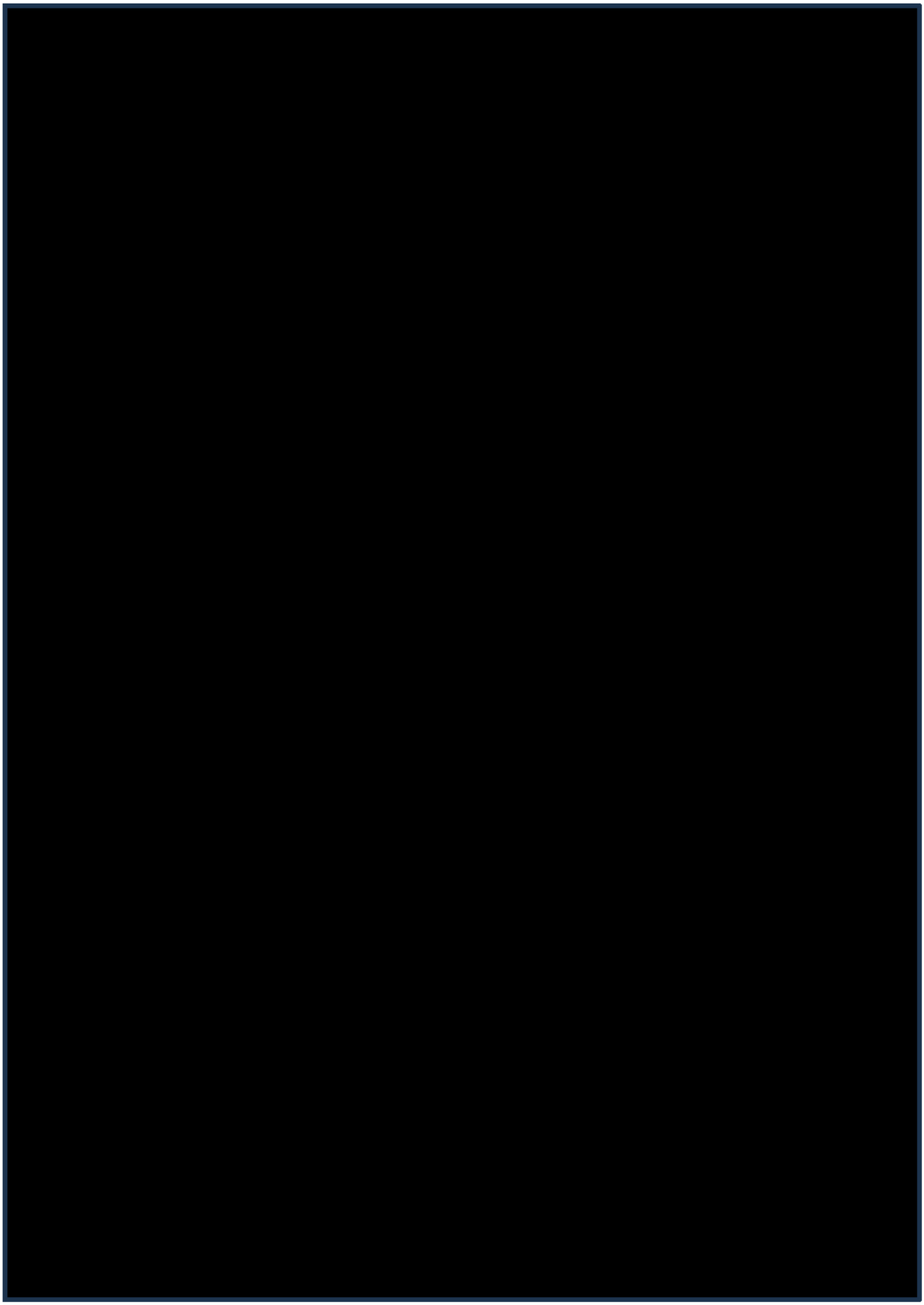


Figure 6-3 7921-1131 – Extent map

6.3 VAHR 7921-1132 (LYDAL AS)

6.3.1 Location and Extent Details

Table 6-2 Location and extent details – 7921-1132 (GDA94 Zone 55)

VAHR	Place Name	Component Type	Area of Place Extent (m^2)	Easting	Northing
7921-1132	LYDAL AS	Artefact Scatter	3957.29		

6.3.2 Site Description

LYDAL AS (VAHR 7921-1132) is currently undergoing a record edit on ACHRIS. This place is centrally located within the Croskell PSP study area. LYDAL AS (VAHR 7921-1132) is registered as an artefact scatter identified by Ford in 2009 as part of CHMP 10881. It is represented by 81 stone artefacts of predominately silcrete, with quartz, crystal quartz, and quartzite artefacts also recorded. LYDAL AS (VAHR 7921-1132) is located on a small sandy rise [redacted], in open pasture. The place is a subsurface artefact scatter spread across an area c. 75 m east to west and c. 100 m north to south, with Aboriginal cultural heritage identified in 17 shovel probes which were excavated as part of lineal transects for the complex assessment of CHMP 10881. The highest artefact density was 54 artefacts per m^2 in the northwest of the place. Soils comprised sand, clayey sand and sandy loam. Artefacts were found at depths of 100 -1230 mm, with most artefacts coming from a depth range of 400-750 mm. LYDAL AS (VAHR 7921-1132) was assessed as having moderate scientific significance (Ford et al. 2009: 132) and a salvage excavation program of 16 1x1 m trenches was a recommendation of CHMP 10881 (Ford et al. 2009: ix)

The extent for LYDAL AS (VAHR 7921-1132) was determined by excavating radial shovel probes at approximately five metre spacing, concentrating within the alignment of a proposed underground powerline easement (Ford et al. 2009: Figure 4.20). This extent testing only occurred across the portion of the low sandy rise landform that fell within the activity area for CHMP 10881. It is considered likely that additional Aboriginal cultural heritage will be present within subsurface deposits outside of the registered extent for LYDAL AS (VAHR 7921-1132), especially adjacent to the northwest corner of the place extent, where the highest density of artefacts were recorded, and where an artefact-positive shovel probe was excavated on the boundary of the activity area for CHMP 10881, with no radial extent testing possible further to the north (Ford et al. 2009: Fig. 4.20).

As part of the current field survey, LYDAL AS (VAHR 7921-1132) was reinspected on 27 July 2022. The location of the place was relocated. No Aboriginal cultural heritage was identified. Ground surface visibility at the time of the survey was low due to thick vegetation cover and wet, waterlogged soils.

A place inspection form (PIF) was lodged with the VAHR following the field survey. The registration for LYDAL AS (VAHR 7921-1132) did not include a place extent, so spatial data has been added by plotting the reference points listed in the site card (using the coordinates) and tracing them, with the exception of Pt 0 which is listed as the PGC in the reference points table on the site card, but is not quite identical to the PGC at the top of the site card and on ACHRIS. Instead, the ACHRIS PGC has been used to close the extent shape - doing so, the location of reference point 0 is also included within the extent, just not quite on the edge of it and not used to define the shape.

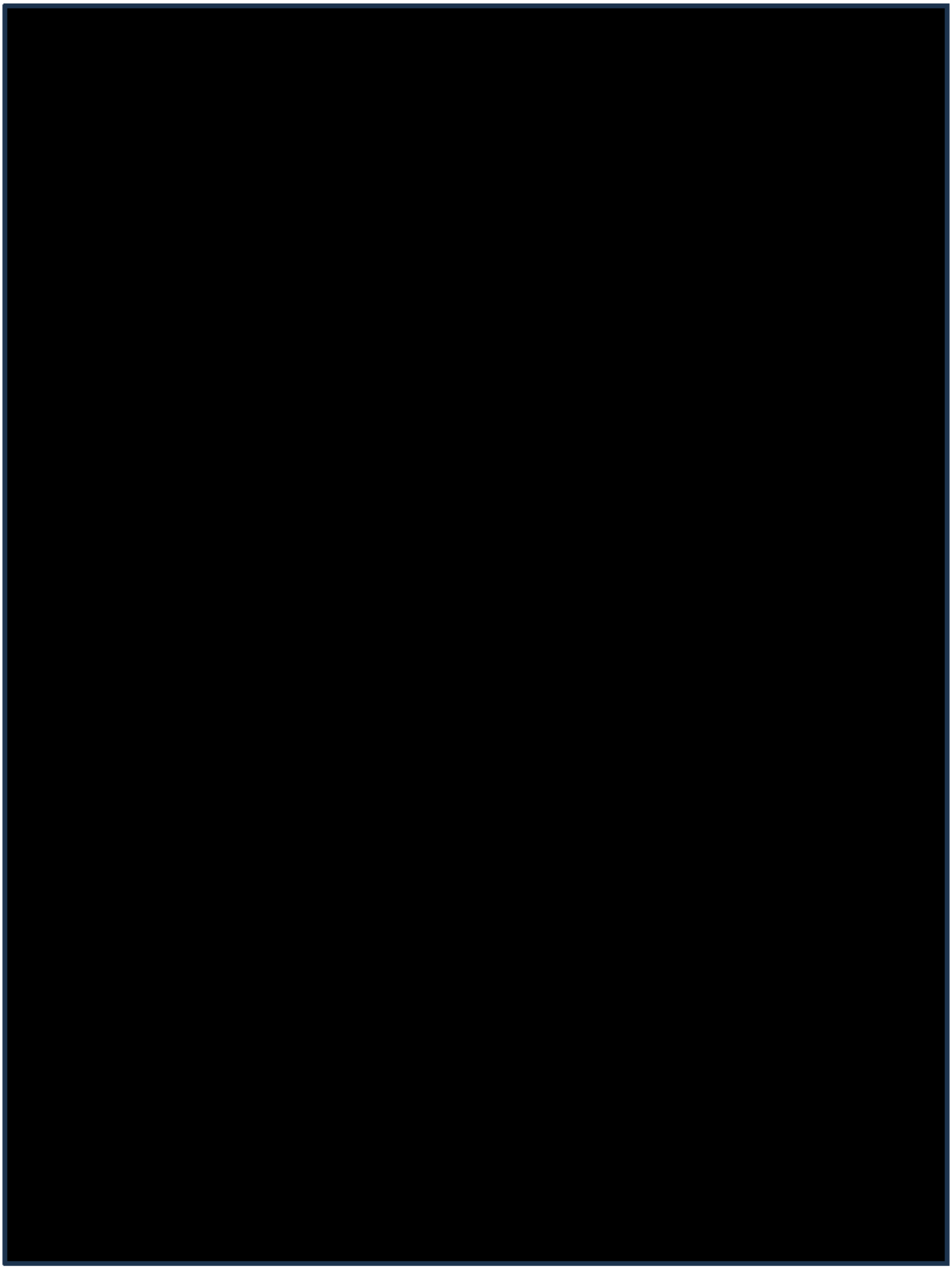


Figure 6-4 VAHR_7921-1132_PlaceInspection_Photo1_MSteel_27July2022

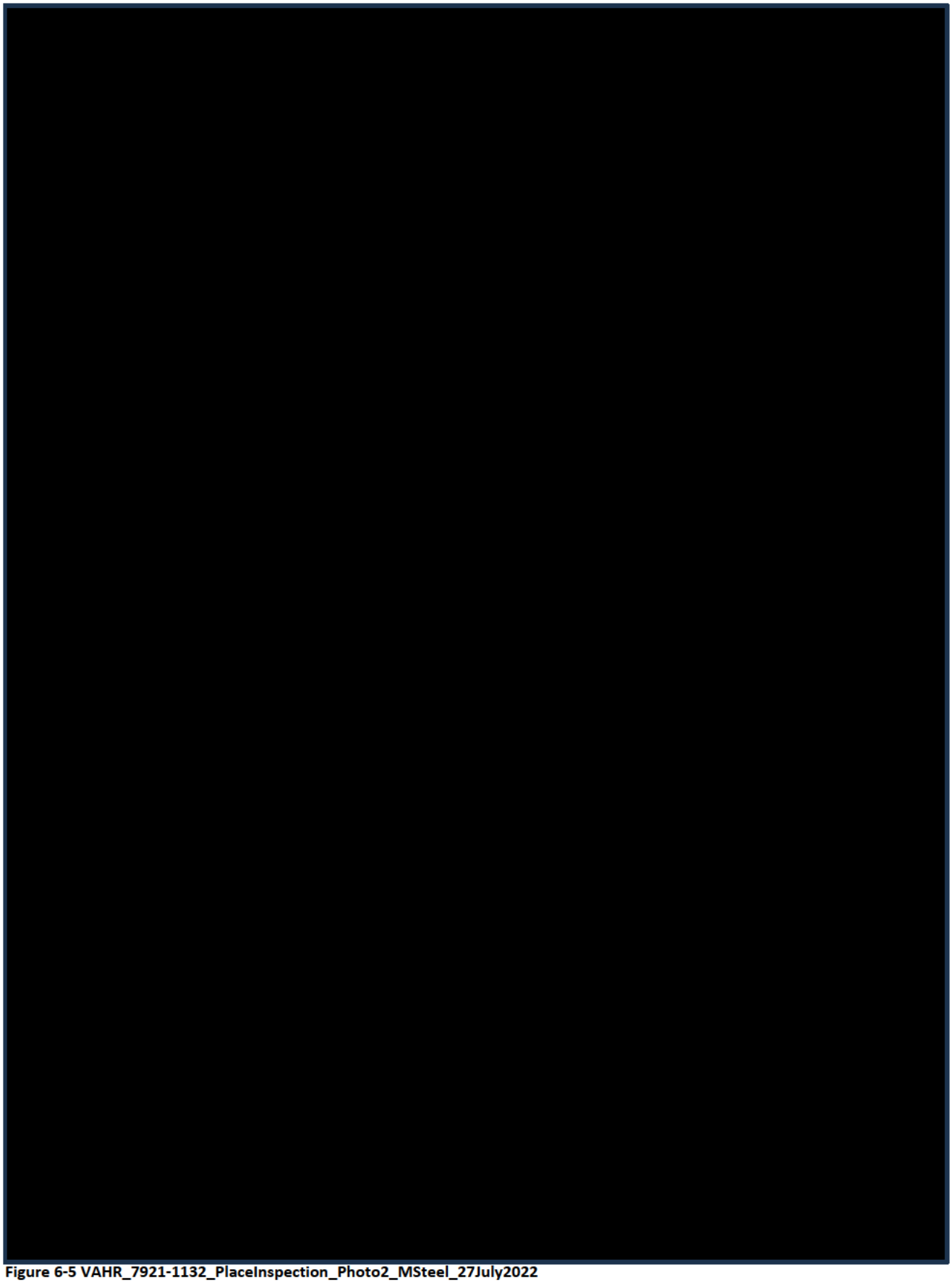


Figure 6-5 VAHR_7921-1132_PlaceInspection_Photo2_MSteel_27July2022

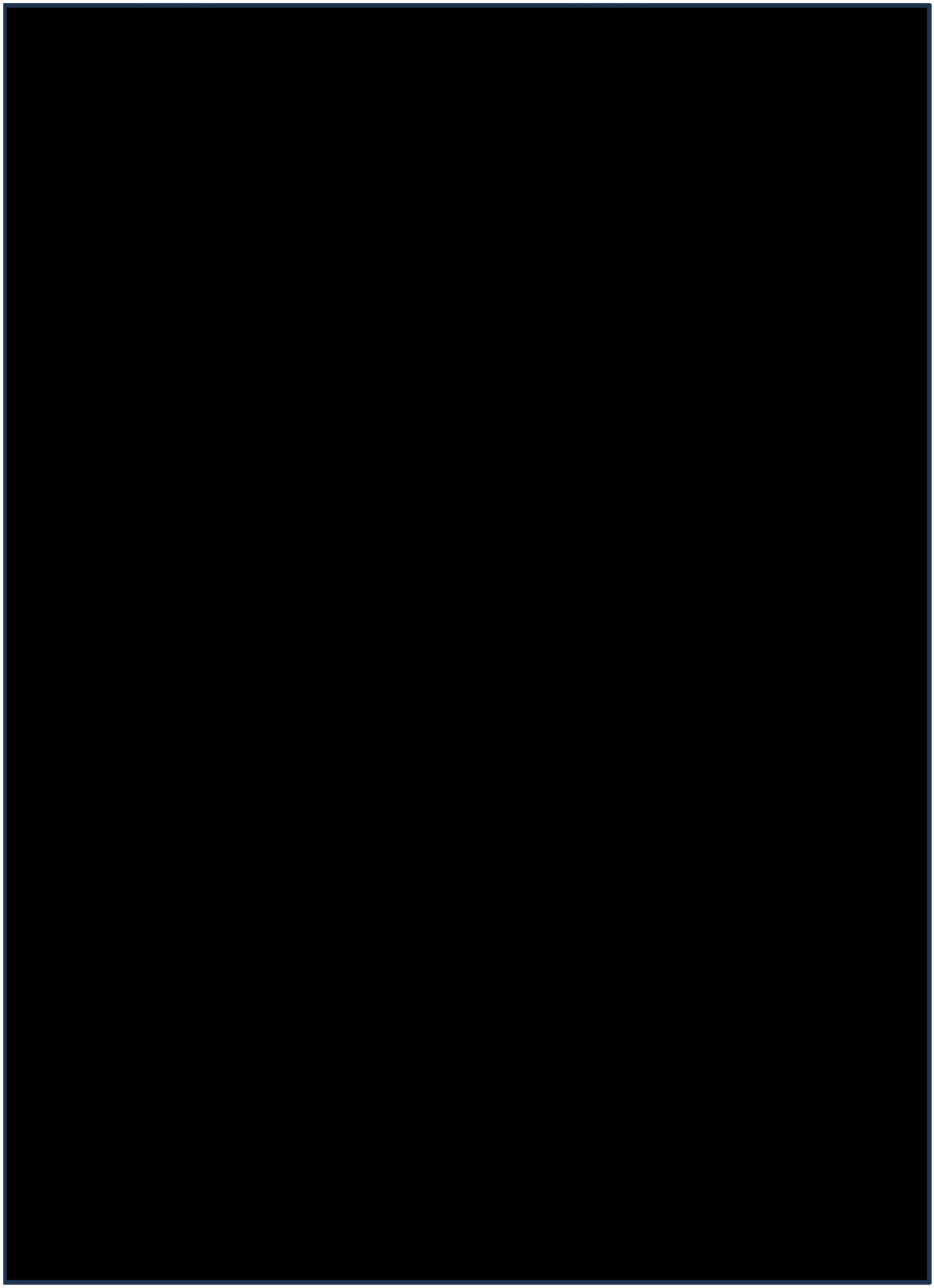


Figure 6-6 7921-1132 – Context map

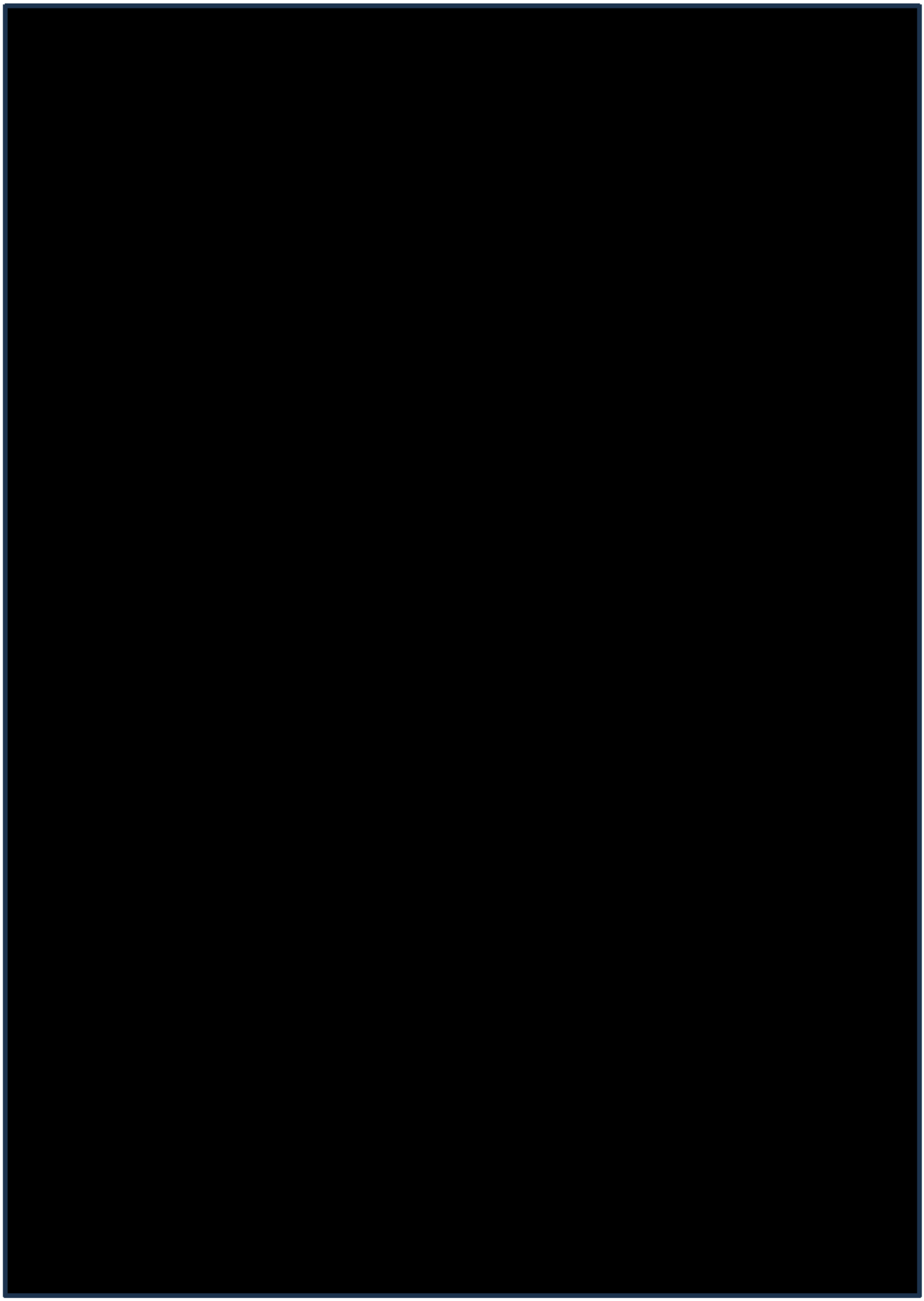


Figure 6-7 7921-1132– Extent map

6.4 VAHR 7921-1587 (Thompsons Road East LDAD)

6.4.1 Location and Extent Details

Table 6-3 Location and extent details – 7921-1587 (GDA94 Zone 55)

VAHR	Place Name	Component Type	Area of Place Extent (m^2)	Easting	Northing
7921-1587	Thompsons Road East LDAD	LDAD	N/A		

6.4.2 Site Description

Thompsons Road East LDAD (VAHR 7921-1587) is located close to the northwest boundary of the Croskell PSP study area, [redacted].

This place is an artefact scatter that was registered by St George in 2015 as part of CHMP 13651. It is located [redacted] and has been impacted by ongoing agricultural activity. A total of 22 Aboriginal stone artefacts were recorded made on quartz and silcrete. Several of these were found on the ground surface (n=6), with the remainder found at depth ranges of 100-1500 mm.

A place inspection in 2016 by Collins and representatives from BLCAC and Wurundjeri Tribe Land & Compensation Cultural Heritage (now Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation) was unable to identify any additional Aboriginal cultural heritage in the recorded location for Thompsons Road East LDAD (VAHR 7921-1587).

As part of the current field survey, LYDAL AS (VAHR 7921-1587) was reinspected. The location of the place was relocated. No Aboriginal cultural heritage was identified. This place is located within planted road reserve areas, therefore visibility at the time of survey was low due to vegetation cover. A place inspection form (PIF) was lodged with the VAHR following the field survey, which included the creation of an Object Collection component for artefacts relocated during 2015 for CHMP 13651.

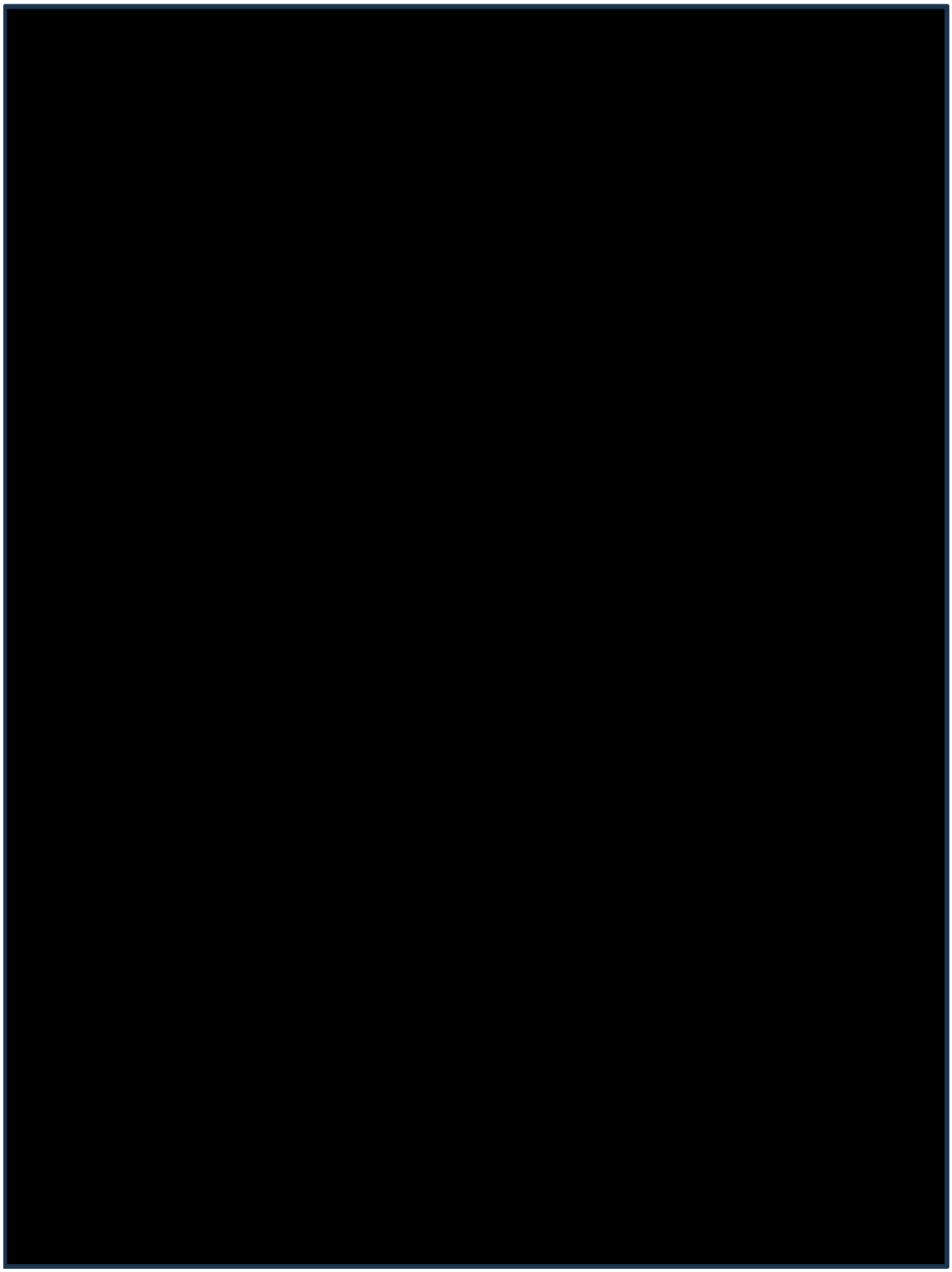


Figure 6-8 VAHR_7921_1587_PlaceInspection_facing west_MSteel_26July2022

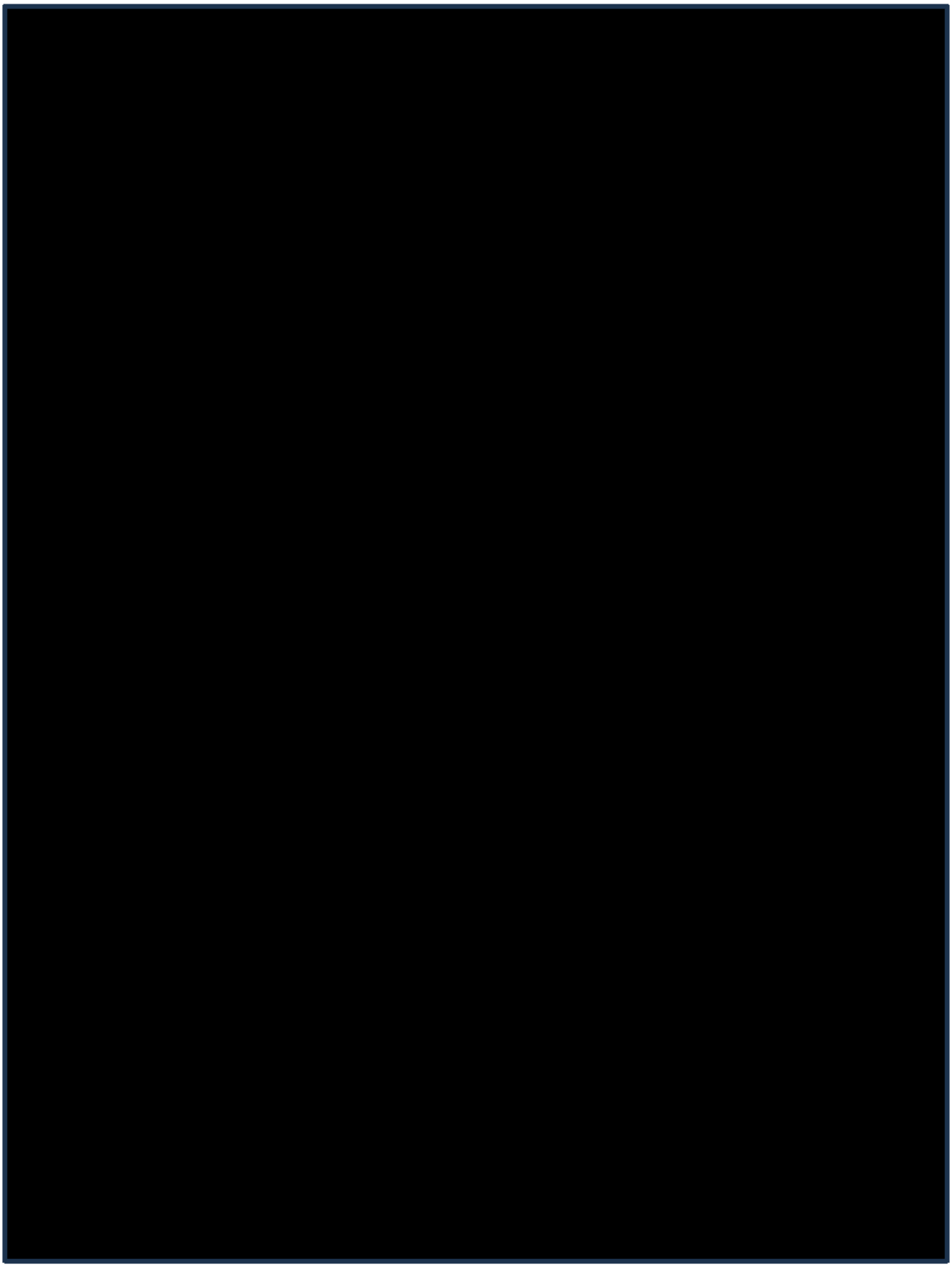


Figure 6-9 VAHR_7921_1587_PlaceInspection_facing east_MSteel_26July2022

6.5 VAHR 7921-1594 ([redacted])

6.5.1 Location and Extent Details

Table 6-4 Location and extent details – 7921-1594 (GDA94 Zone 55)

VAHR	Place Name	Component Type	Area of Place Extent (m^2)	Easting	Northing
7921-1594	[redacted]	Artefact Scatter	107		

6.5.2 Site Description

[redacted] (VAHR 7921-1594) is in the northwest corner of the Croskell PSP study area. This place is an artefact scatter that was registered by St George in 2015 as part of CHMP 13651 (St George & Spry 2016). The place is located on the upper slope of a dune landform. The condition was assessed to be good to fair and the area was assessed to be eroding with wind and vehicular deflation as well as agricultural activities. [redacted] (VAHR 7921-1594) was rated as having moderate archaeological significance owing to the presence of relatively intact subsurface deposits below 400 mm (St George & Spry 2016: 119). The artefact scatter was subject to salvage excavation, and an additional 199 artefacts were identified as part of the salvage programme. 17 artefacts were initially recorded during CHMP 13651, mainly silcrete with smaller numbers of quartzite and quartz also present. Three of these artefacts were identified on the surface and 14 artefacts were found in subsurface contexts in silty sand, sand and sandy silt. The artefacts found during the salvage programme comprised silcrete, quartz, crystal quartz and quartzite, and were found at depths ranging from surface artefact to depth ranges of 100-900 mm.

This Aboriginal place is considered a higher density component of the overarching low density artefact distribution VAHR 7921-1587 which extends westward from [redacted] (VAHR 7921-1594). The extent of this Aboriginal place was originally defined by the density of stone artefacts identified in test pits EP2 and STP8 as well as by surface artefacts recorded to the north and south. The nearby low density artefact distribution VAHR 7921-1587 defines the western boundary of this artefact scatter. Aboriginal cultural heritage was deemed unlikely to be present at a high density further to the east, where there is an inland soak.

As part of the current field survey, [redacted] (VAHR 7921-1594) was reinspected. The location of the place was relocated. No Aboriginal cultural heritage was identified. This place is located [redacted] therefore visibility at the time of survey was low due to vegetation cover. A place inspection form (PIF) was lodged with the VAHR following the field survey.

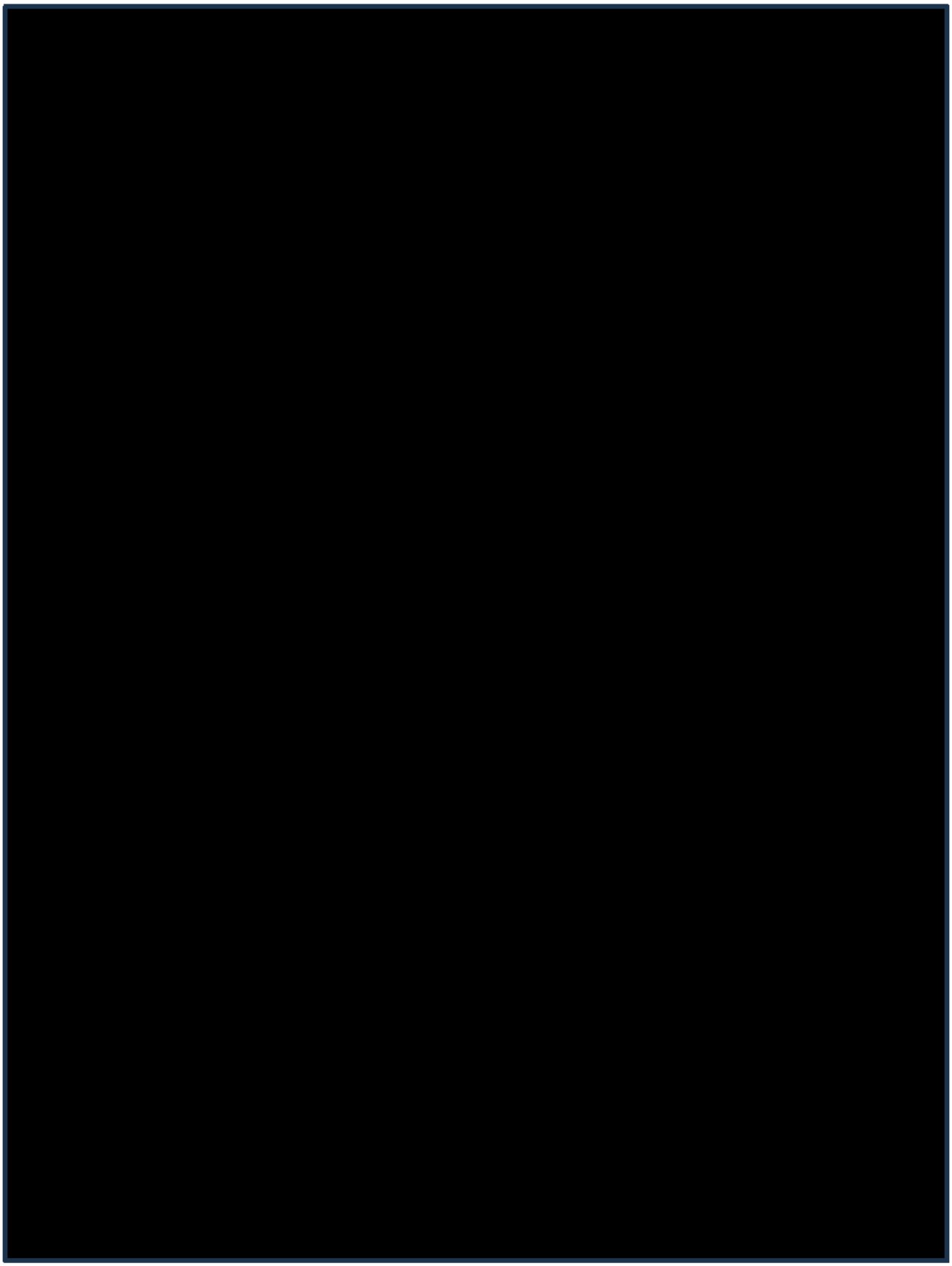


Figure 6-10 VAHR_7921_1594_PlaceInspection_MSteel_26July2022

6.6 VAHR 7921-1649 (Thompsons Road 2 LDAD)

6.6.1 Location and Extent Details

Table 6-5 Location and extent details – 7921-1649 (GDA94 Zone 55)

VAHR	Place Name	Component Type	Area of Place Extent (m^2)	Easting	Northing
7921-1649	Thompsons Road 2 LDAD	Low Density Artefact Distribution	N/A		

6.6.2 Site Description

Thompsons Road 2 LDAD (VAHR 7921-1649) is located close by the northwest boundary of the Croskell PSP study area. This place is an artefact scatter that was registered by Turnbull in 2017, as part of CHMP 13651. Thompsons Road 2 LDAD (VAHR 7921-1649) consists of artefacts that were found in proximity to the previously registered Aboriginal place, VAHR 7921-1587 during the salvage programme undertaken as part of CHMP 13651 management conditions. A total of 12 surface artefacts were identified, made of silcrete (n=9), quartz (n=2) and quartzite (n=1).

As part of the current field survey, Thompsons Road 2 LDAD (VAHR 7921-1649) was reinspected. The location of the place was relocated. No Aboriginal cultural heritage was identified. This place is located [redacted], therefore visibility at the time of survey was low due to vegetation cover. A place inspection form (PIF) was lodged with the VAHR following the field survey.

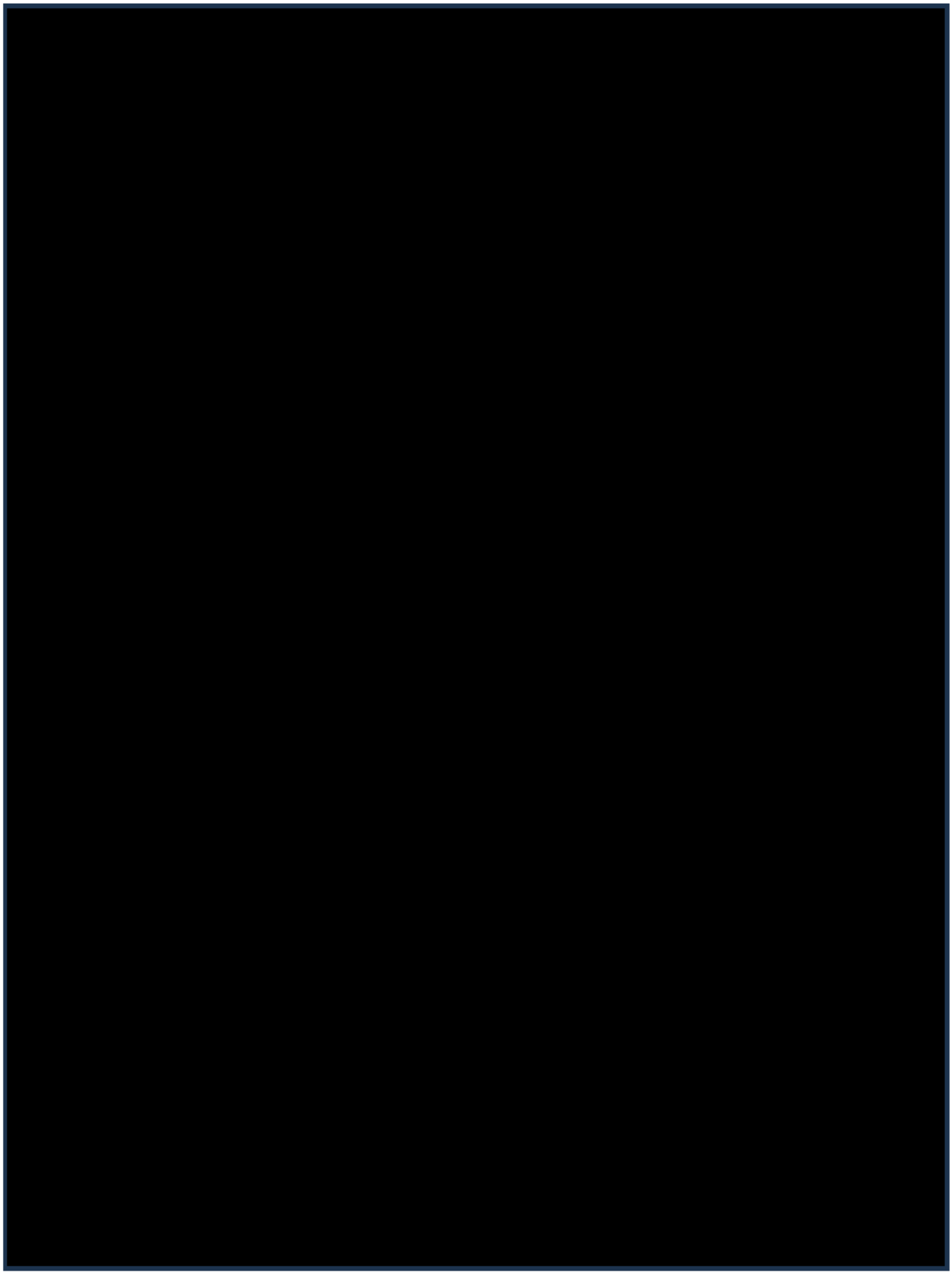


Figure 6-11 VAHR_7921_1649_PlaceInspection_MSteel_26July2022

6.7 VAHR 7921-1989 (Donohue Street Dune AS)

6.7.1 Location and Extent Details

Table 6-6 Location and extent details – 7921-1989 (GDA94 Zone 55)

VAHR	Place Name	Component Type	Area of Place Extent (ha)	Easting	Northing
7921-1989	Donohue Street Dune AS	Artefact Scatter	100540.37		

6.7.2 Site Description

Place description

Donohue Street Dune AS (VAHR 7921-1989) is an artefact scatter comprising a total of 73 Aboriginal stone artefacts identified in surface and subsurface contexts on a dune landform.

Aboriginal cultural heritage was first recorded within the place extent during August 2007 when Barker identified seven Aboriginal stone artefacts in areas of higher ground surface visibility on the surface of a landform described as a sandy rise, covered by tea tree scrub and several eucalyptus trees. Barker noted that rabbit burrows had exposed vertical soil sections revealing white/grey coarse-grained sand to a depth of at least 1-2 metres. This Aboriginal cultural heritage was registered as the artefact scatter VAHR 7921-0880 (Cranbourne East 1), which is located within the eastern portion of the place extent for Donohue Street Dune AS and is subsumed by Donohue Street Dune AS.

Additional Aboriginal cultural heritage was recorded within the place extent by Stevens in May 2020, who identified 66 Aboriginal stone artefacts on a dune landform in subsurface Cranbourne sands sediments during complex assessment for CHMP 17209. The Aboriginal stone artefacts were manufactured from silcrete (n=64), quartz (n=1) and quartzite (n=1) and were identified from 250 mm and up to 600 mm below the existing ground surface (Stevens 2021). As a result of CHMP 17209 investigations it was concluded that unconsolidated Cranbourne sands sediments were present to depths of up to one metre; outside of and underlying the dune landform soils had formed under surface water, and comprised loams and clays to 300 mm, overlaying heavier, highly-plasticised clays (Stevens 2021: 77). The results of extent testing suggested that Aboriginal cultural heritage was present across the entirety of the dune landform within the study area for CHMP 17209, with excavations on the low-lying swampy clay pan containing no Aboriginal cultural heritage (Stevens 2021: Map 10). The Aboriginal cultural heritage was registered as the artefact scatter VAHR 7921-1841 (Donohue St, Clyde North AS). The extent for VAHR 7921-1841 was defined by the known area of the dune landform due to the likelihood that Aboriginal cultural heritage would be present outside of the study area for CHMP 17209 and across the whole dune occurrence. The extent of the dune was mapped in the field by DGPS (Stevens 2021: 99) and informed by the results of complex assessment. VAHR 7921-1841 is located in the northwest portion of the place extent for Donohue Street Dune AS and is also subsumed by Donohue Street Dune AS.

Justification for new artefact scatter registration and merging VAHR 7921-0880 and VAHR 7921-1841

The creation of Donohue Street Dune AS merges previously registered places VAHR 7921-0880 and VAHR 7921-1841. Additional Aboriginal cultural heritage has not been identified at this stage, however the remainder of the dune landform that intersects both of these previous artefact scatter registrations is considered a potential archaeological deposit. It is considered most likely both that

VAHR 7921-0880 extends further to the west, and that VAHR 7921-1841 extends further east, along the dune landform.

The entirety of this Aboriginal place, including the locations of VAHR 7921-0880 and VAHR 7921-1841, was subject to archaeological field survey in July 2022 during the preparation of an Aboriginal cultural heritage impact assessment (ACHIA) for the Victorian Planning Authority (Mathews et al. in prep). No additional Aboriginal cultural heritage was able to be identified due to poor ground surface visibility (averaging 2-5% GSV). The results of the ACHIA assigned a high *Aboriginal archaeological sensitivity*, and high *Aboriginal archaeological potential*, to parts of the study area where clear upstanding sandy bodies were distinguished from the low-lying coastal plain.

The previously registered artefact scatters VAHR 7921-0880 and VAHR 7921-1841 had place extents that were defined by landform, according to mapping produced from elevation data available at the time, namely visual inspection using DGPS during field survey, also informed by the results of excavation in the case of VAHR 7921-1841. The preliminary results of the ACHIA (Mathews et al. in prep), were shared with Heritage Advisors and Traditional Owner representatives from the Bunurong Land Council Aboriginal Corporation (BLCAC), including the assessment of Aboriginal archaeological sensitivity and Aboriginal archaeological potential which was informed by archaeological field survey and interrogation of LiDAR-derived topographic data. The outcome of these discussions was an agreement to unify the previously registered artefact scatter registrations under a single artefact scatter record, reflecting the new understanding that the dune landform is a singular entity rather than two discrete sandy rises.

Determination of primary grid coordinates

The highest point of the dune crest has been used as primary grid coordinates for Donohue Street Dune AS. This point lies just above the 37 m contour line.

Determination of place extent

The Donohue Street Dune AS place extent was determined using a combination of 1) the extent of previously registered Aboriginal cultural heritage places, 2) the topographic surface in the form of contours for the dune landform, and 3) cadastral boundaries, insofar as they mirror past ground disturbances.

The previously registered artefact scatter extents for VAHR 7921-1841 and VAHR 7921-0880 have not been truncated. As discussed above, the extent for VAHR 7921-1841 was defined by the known area of the dune landform, as mapped in the field by DGPS and informed by the results of complex assessment for CHMP 17209. VAHR 7921-0880 did not include spatial data to delineate an extent, but the 2007 site card maps an approximate extent based on the area occupied by the sandy rise and the distribution of artefacts identified on its surface. During the preparation of the ACHIA (Mathews et al. in prep), spatial data was added to provide a place extent for VAHR 7921-0880, based on a combination of the reference points listed in the site card (generated from the listed coordinates, not from the plan in the site card) and the site plan elements (e. g. path, powerlines, fences and WW2 building). Note: the plan in the original VAHR 7921-0880 site card is not oriented with North up, but with West up (and North to the right). To re-orient the site card we have used a combination of the reference points listed in the site card (generated from the listed coordinates, not from the plan in the site card) and the site plan elements (path, powerlines, fences, WW2 building). This led us to believe that the plan in the site card was not oriented with North up, but with West up (and North to the right).

A 1 m LiDAR-derived digital terrain model (DTM), produced from a ground-filtered point cloud shot during November 2017 (DELWP 2019) was used to produce contour lines at 0.5 m intervals. The 34 m contour has been used to define the northern place extent boundary from the northernmost extension of the artefact scatter VAHR 7921-1841 in the west to the intersection with the artefact scatter VAHR 7921-0880 in the east. The 32.5 m contour has been used to define the place extent for Donohue Street Dune AS in the southeast corner.

The southern and western place extent boundaries for Donohue Street Dune AS were defined by cadastral boundaries. The property boundary for parcel 1\PS706792 defines the southern extent, beyond which ground disturbing impacts from the construction of Donohue Street and the urban residential development to the south of Donohue Street are considered sufficient to have vastly reduced the chance for subsurface sediments to retain Aboriginal cultural heritage associated with Donohue Street Dune AS. The property boundary for parcel 1\PS706792 has also been used to define the extent in the southwestern corner of Donohue Street Dune AS. During field surveys for the ACHIA (Mathews et al. in prep) moderate level past ground disturbances were identified in the neighbouring property P\PS623939, associated with past mechanical grading and flattening works. The history of disturbances in this property is considered to limit the likelihood that Donohue Street Dune AS continues further west into this property.

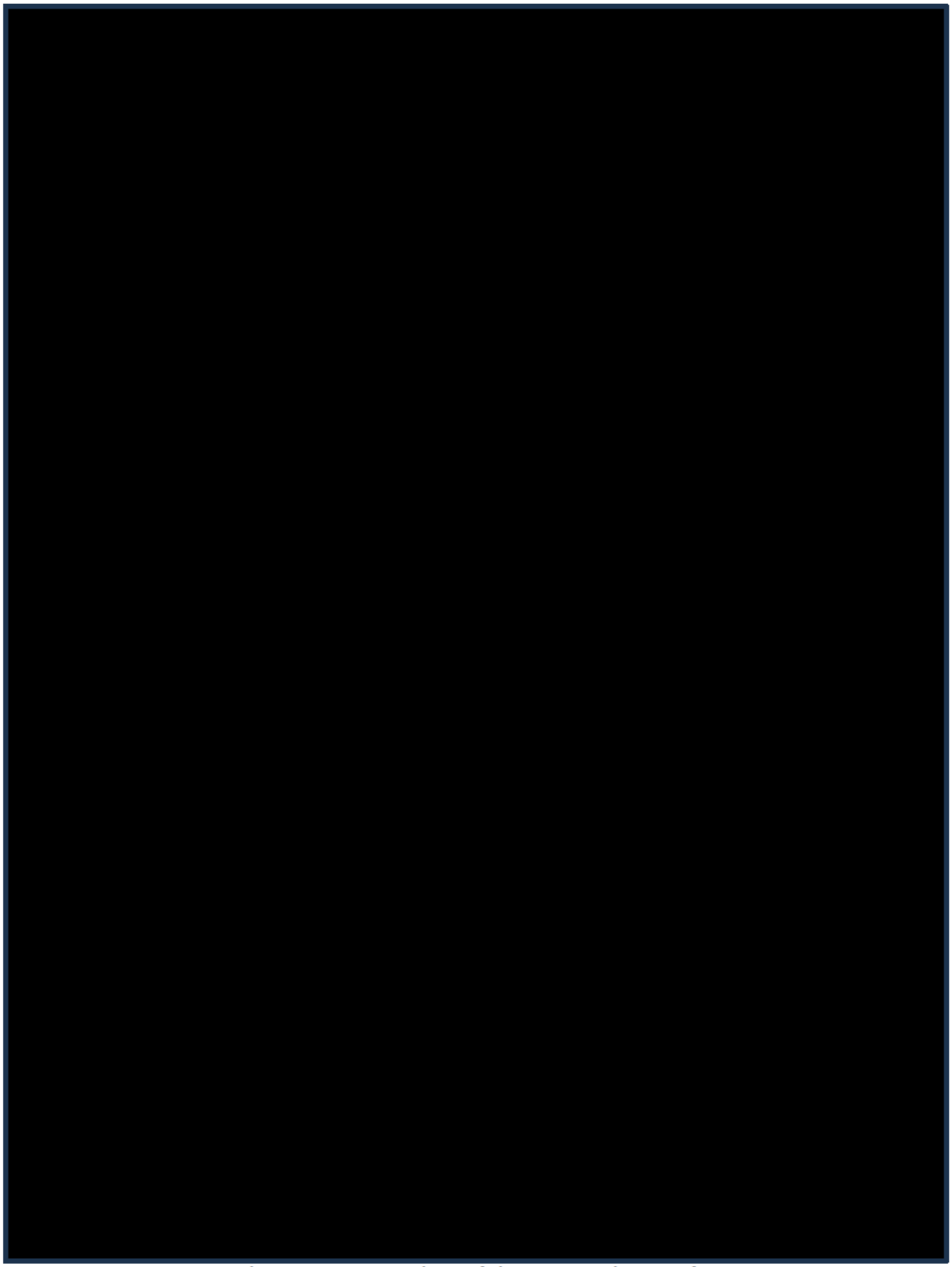


Figure 6-12 VAHR 7921-1989_Place inspection in northeast of place extent, at location of extant registration VAHR 7921-0880, facing north_MSteel_26July2022

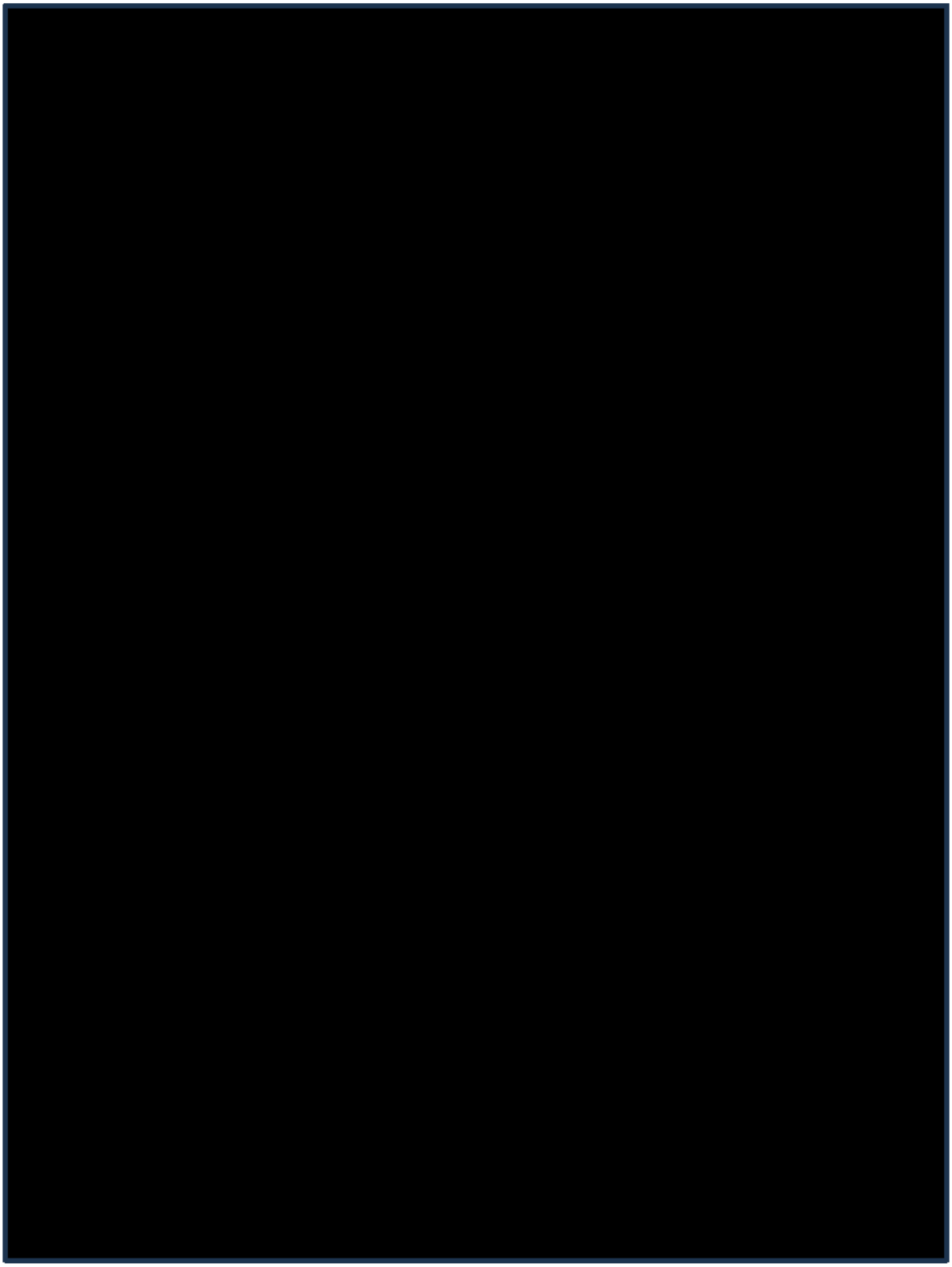


Figure 6-13 VAHR 7921-1989_Place inspection in northeast of place extent, at location of extant registration VAHR 7921-0880, facing southeast_MSteel_26July2022

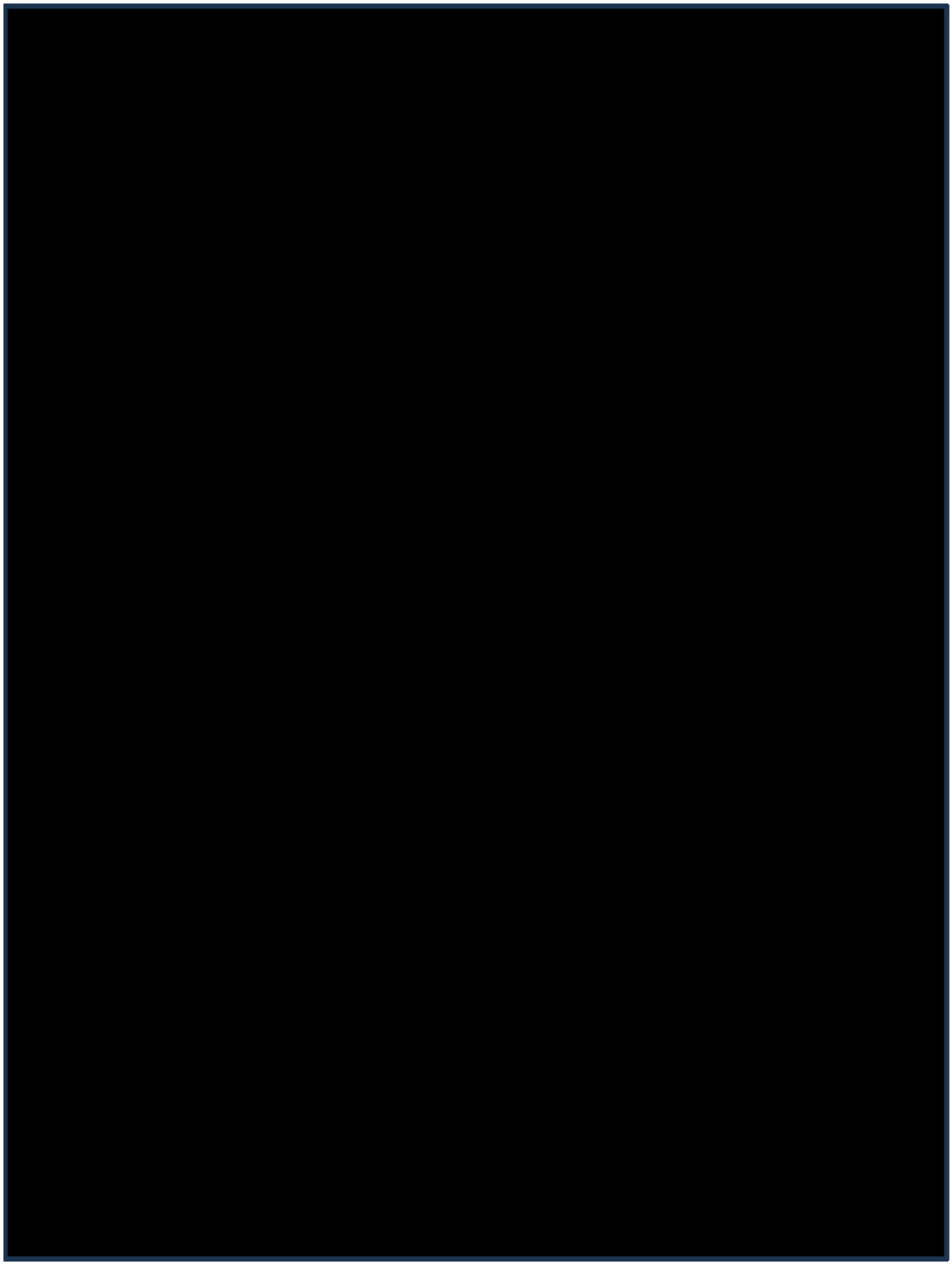


Figure 6-14 VAHR 7921-1989_Place inspection in northern section of place extent, at location of extant registration VAHR 7921-1841, facing north_MSteel_26July2022

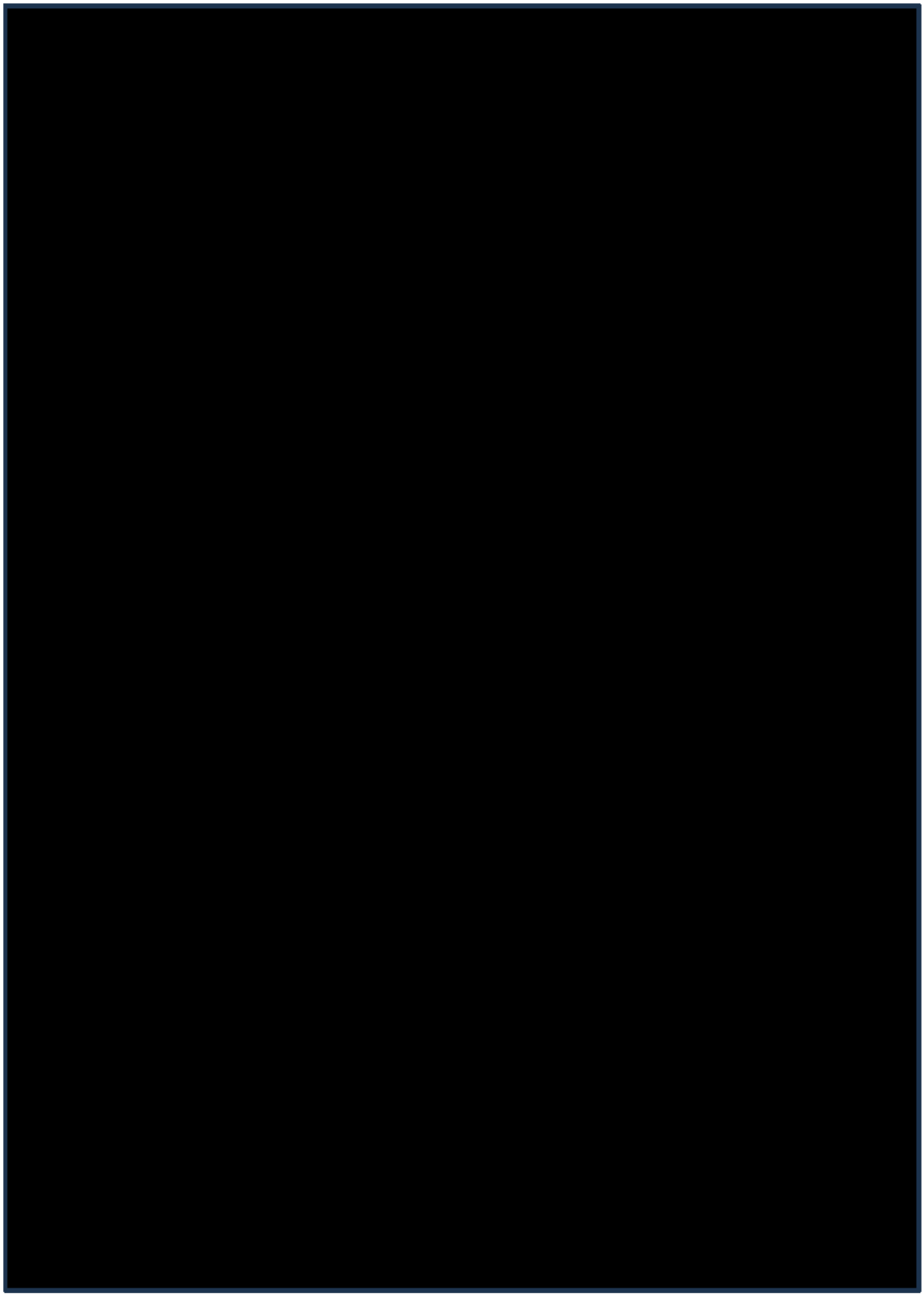


Figure 6-15 VAHR 7921-1989 (Donohue Street Dune AS) context plan

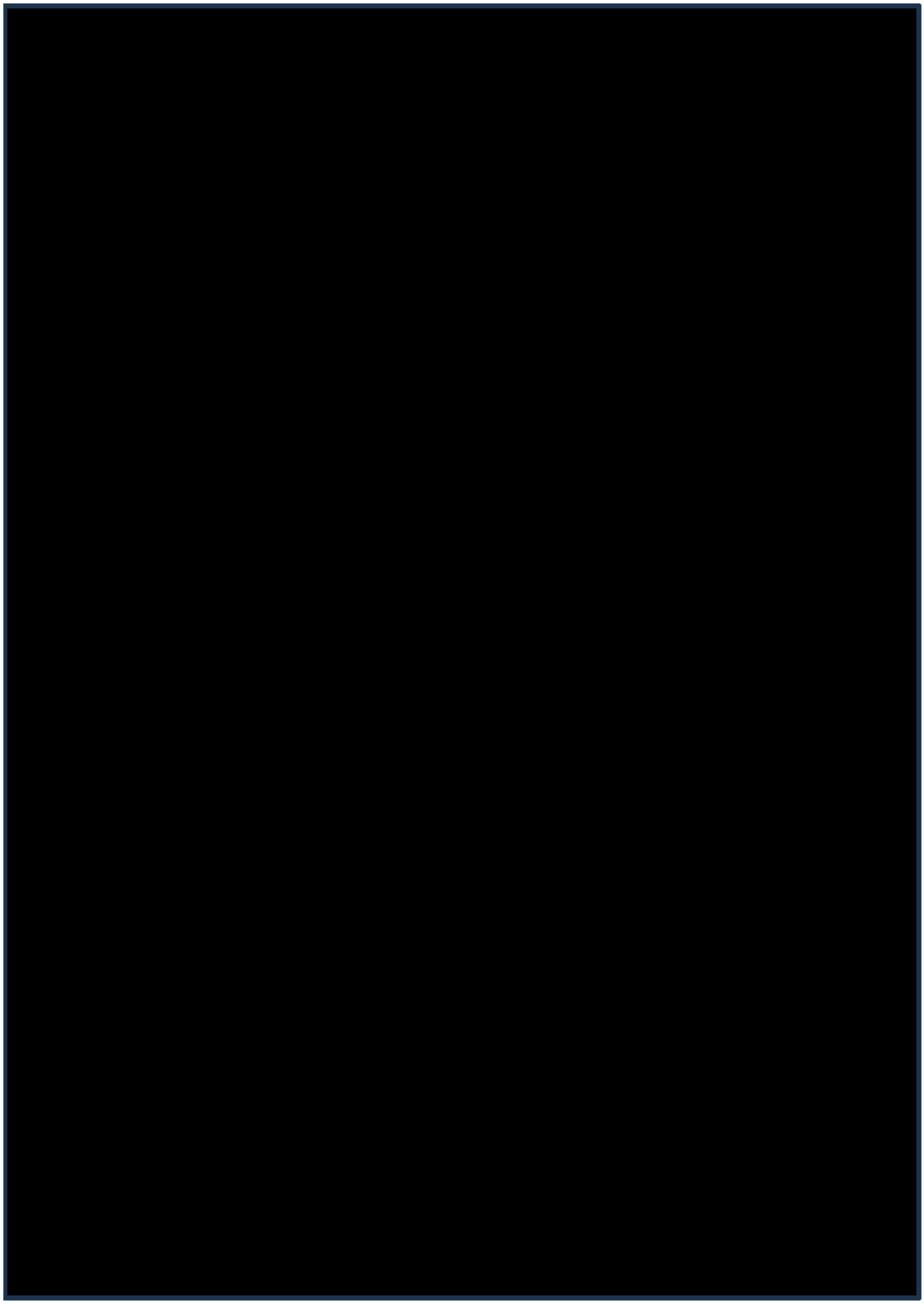


Figure 6-16 VAHR 7921-1989 (Donohue Street Dune AS) extent plan

7 Recommendations

7.1 Planning recommendations to prevent impact

The archaeological sensitivity ratings for the study area (Section 5.7 and Figure 5-16) provide a guide in gauging risk of Aboriginal cultural heritage occurring and to make informed decisions about development design. Generally, the risk of impacting on Aboriginal places is likely to increase with sensitivity, as is the risk of impacting larger, more complex and/or more significant Aboriginal cultural heritage values. As such, areas of higher archaeological sensitivity (greatest likelihood) are more valuable in terms of Aboriginal heritage, and also have higher levels of risk of development impacting Aboriginal heritage values.

Therefore, the following recommendations are provided for each archaeological sensitivity zone mapped in Figure 5-16:

High Sensitivity (Most Likely): As much as possible, these areas should be retained in their current form and, where applicable, be rehabilitated to further stabilise them (such as from erosion). This should be in the form of passive open space or other non-developable reserved land. Where lower impact works are proposed in these areas, such as pedestrian and/or bike paths, these works should be designed to minimise impacts and be placed largely on top of the surface, to avoid impacting below the ground surface.

Moderate-High Sensitivity (Moderately-Highly Likely): Wherever possible, consideration should be made to retain these areas in their current form (and/or rehabilitate) and protected from development, particularly as passive open space or similar (e.g. other reserved land), or in non-developable portions of residential parcels (e.g. outside construction envelopes). Where lower impact works are proposed in these areas, such as pedestrian and/or bike paths, these works should, where possible, be designed to be placed largely on top of the surface, to avoid impacting below the ground surface.

Moderate Sensitivity (Moderately Likely): Where there is an opportunity, development impact should be minimised, where practicable. This could be through establishing passive open space (or similar, as above) or through impact mitigation design features.

Low-Moderate Sensitivity (Low – Moderately Likely): No design or planning recommendations, though interpretative material and or *Bunurong* language/naming should be incorporated into planning/design, in consultation with the RAP.

Low Sensitivity (Least Likely): No design or planning recommendations, though interpretative material and or *Bunurong* language/naming may be incorporated into planning/design, in consultation with the RAP.

Where possible, following these recommendations will protect a greater degree of areas that contain high potential for larger archaeological deposits and significant Aboriginal places, and also reduce the scope of costly and time-consuming archaeological assessment (test excavation) and mitigation measures (e.g. salvage). It is important to note that CHMPs regularly take c. 6 months to prepare and seek approval with the RAP.

7.2 Recommendations regarding CHMPs

7.2.1 Mandatory CHMPs

A mandatory CHMP must be prepared for properties, where proposed developments are high impact activities and where these activity areas intersect with an area of CHS (consistent with the Aboriginal Heritage Regulations 2018).

The RAP (BLCAC) would be the evaluating body for all CHMPs prepared within the study area and must be consulted and involved in fieldwork as part of the preparation of all CHMPs.

A CHMP can be prepared to cover single or multiple properties. Preparing a CHMP that covers multiple properties is usually more cost-effective.

It is recommended that any CHMP prepared, be initiated at least 6 months prior to allow sufficient time for its preparation and approval – more time should be allowed for CHMPs covering larger areas.

7.2.2 Voluntary CHMPs

For the properties that do not trigger mandatory CHMPs, voluntary CHMPs may be prepared to manage the risk of impact to potential Aboriginal places from any proposed subdivision and development. While not mandatory, this option would have several benefits to developers, such as providing certainty in relation to any proposed development regarding Aboriginal heritage, providing protection against strict liability offences in the AH Act, and avoid potentially long delays should Aboriginal heritage be discovered during construction (which would then likely require the preparation of a mandatory CHMP).

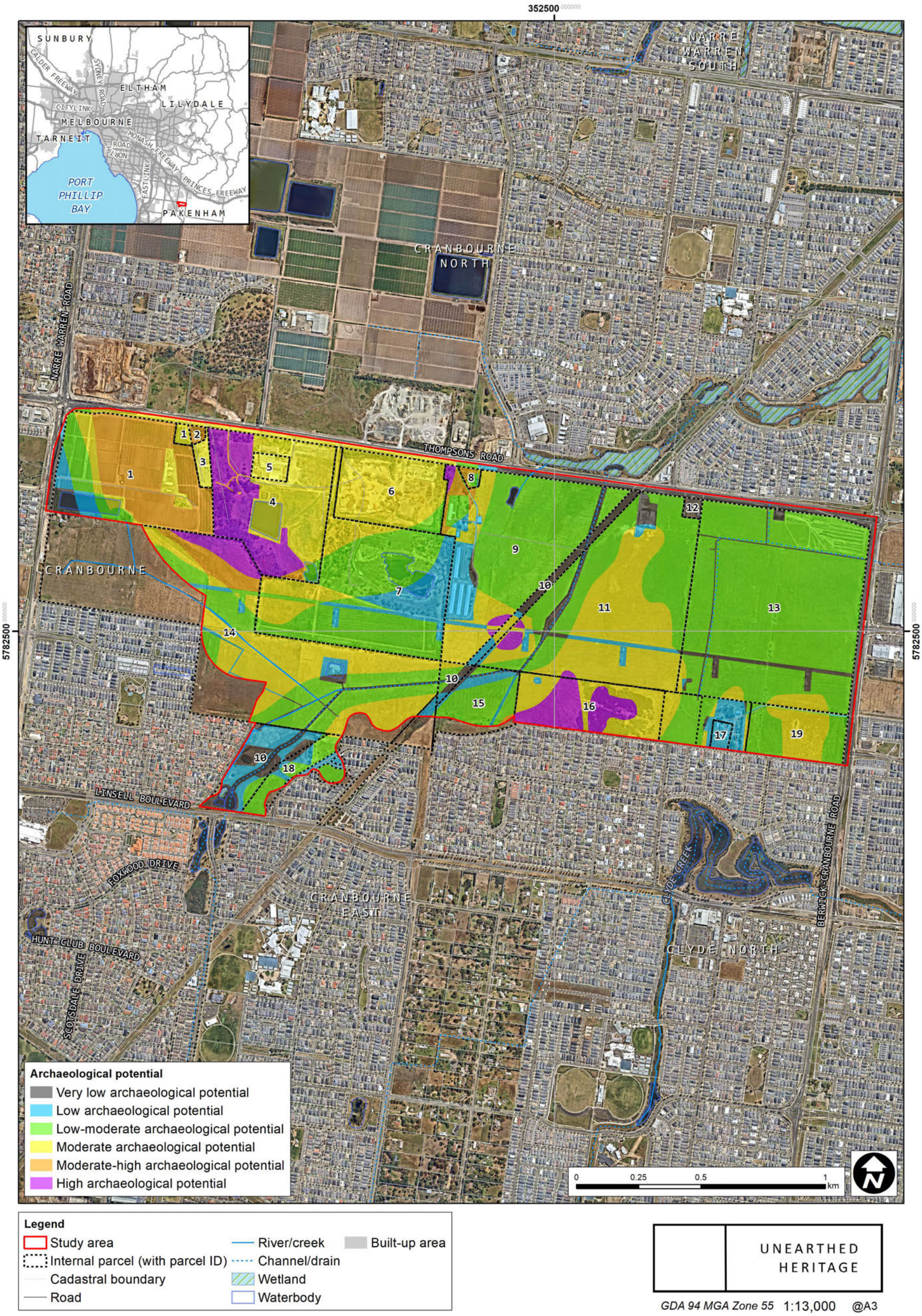
For properties that do not have areas of CHS, it is **strongly recommended** that proposed high impact developments prepare voluntary CHMPs where their activity areas intersect areas of *moderate*, *moderate-high* and *high* levels of Aboriginal archaeological potential. It is **recommended** that voluntary CHMPs be undertaken for all developments in areas of moderate, moderate-high and high levels of Aboriginal archaeological potential regardless of the activity's impact level (see Figure 7-1).

It is recommended that CHMPs be undertaken at smaller scales, such as at the level of single activities, rather than at larger scales. CHMPs that are initiated at least 6 months prior are more likely to allow sufficient time for preparation and approval – more time should be allowed for CHMPs covering larger areas.

Properties that do not contain any areas of High, Moderate-High or Moderate archaeological potential, *could* prepare voluntary CHMPs as part of risk minimisation and to achieve improved cultural heritage management outcomes. Note that although unnamed or historical waterways are not afforded the same protections as named waterways under the Act, land within 200 m of unnamed waterways is still considered an area of cultural sensitivity by BLCAC.

7.2.3 Inclusion of additional areas

An important note in the preparation of CHMPs is the inclusion of relevant adjacent areas within a project's 'CHMP activity area' to encompass activities associated with the development, such as for any required road upgrade works, site offices, material lay downs, and any areas needed for service installation and provision.



Aerial photo February 2023: Nearmap 2023. Topographic data: © State of Victoria 2024. The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

Figure 7-1 Areas of archaeological potential established through this assessment for the Croskell PSP

8 References

Anonymous. n.d. *Coranderrk Station (Victoria)*. Obituaries Australia, National Centre of Biography, Australian National University. Accessed 8 March 2023. https://oa.anu.edu.au/entity/14880/text35596.

Anonymous. n.d.a. *Western Port from 1798*. N.p.: P. I. Printery.

Atlas of Living Australia (ALA). n.d. https://www.ala.org.au/

Barker, M. 2017. 805 Linsell Boulevard Cranbourne: Proposed 67 Lot Residential Subdivision. Cultural Heritage Management Plan 15204 for MLF Construction and Development Pty Ltd.

Barwick, D. 1984. Mapping the past: an atlas of Victorian Clans 1835-1904. *Aboriginal History* 8 (2): 100-131.

Barwick, D. 1998. *Rebellion at Coranderrk*. L. E. Barwick and R. E. Barwick (eds.). Aboriginal History Monograph, Number 5. Canberra: Aboriginal History Inc.

Bliege Bird, R., D. W. Bird, B. F. Codding, C. H. Parker and J. H. Jones. 2008. The 'fire stick farming' hypothesis: Australian Aboriginal foraging strategies, biodiversity, and anthropogenic fire mosaics. *PNAS* 105 (39): 14796-14801.

Bird, E. 2011. *Changes on the coastline of Port Phillip Bay*. Office of the Environmental Monitor. East Melbourne: State of Victoria Department of Sustainability and Environment. Accessed 8 March 2023. http://pandora.nla.gov.au/pan/33516/20130211-0000/www.oem.vic.gov.au/Assets/986/1/ChangesontheCoastlineofPPBBookforWeb2011.pdf.

Blake, B. J. 1991. *Australian Aboriginal Languages: a general introduction*. Second edition. St Lucia, Queensland: University of Queensland Press.

Blake, B. J. and J. Reid. 1998. Classifying Victorian languages. In B. J. Blake (ed.): *Wathawurrung and the Colac Languages of Southern Victoria*: 1-58. Canberra: Pacific Linguistics.

Bioregional Assessments 2022. Accessed 7 June 2022. 1.1.7.1 Ecological systems | Bioregional Assessments

Board for the Protection of the Aborigines. 1872. *Eighth Report of the Board for the Protection of the Aborigines in the Colony of Victoria* (submitted by John Mackenzie, Vice-Chairman of the Board for the Protection of the Aborigines). Melbourne: John Ferres, Government Printer.

Bunurong Land Council Aboriginal Corporation. n.d. Bunurong Land Council Aboriginal Corporation: First Peoples Assembly – Treaty Negotiation Framework. Accesssed 8 March 2023. https://www.bunuronglc.org/.

Bureau of Meteorology (BOM). 2020. Cranbourne Botanical Gardens weather station. Monthly climate statistics spanning 1990 to 2020. Site number 086375. Latest available data 31 March 2020. Accessed 8 March 2023. http://www.bom.gov.au/climate/averages/tables/cw_086375.shtml.

Brett, B. 1920. *Recollections and Experiences, Land of the Lyre Bird. A Story of Early Settlement in the Great Forest of South Gippsland*. Shire of Korumburra.

Bride, T. F. (ed.). 1898: *Letters from Victorian Pioneers, Being a Series of Papers on the Early Occupation of the Colony, the Aborigines, etc*. Melbourne: Trustees of the Public Library.

Cahir, F., I. Clark & P. Clarke. 2018. *Aboriginal Biocultural Knowledge in South-eastern Australia: Perspectives of Early Colonists*. Clayton South: CSIRO Publishing.

Cannon, M. (ed.). 1983. *Historical Records of Victoria, Foundation Series, Volume 2B: Aborigines and Protectors 1838-1839*. Melbourne: Victorian Government Printing Office.

Cary, H. M. and D. Roberts. 2002. Smallpox and the Baiame Waganna of Wellington Valley, New South Wales, 1829-1840: The Earliest Nativist Movement in Aboriginal Australia. *Ethnohistory* 48(4): 821-869. Durham, North Carolina: The American Society for Ethnohistory.

Chamberlain, M., Myers, S. and Marshall, B. 2003. An archaeological investigation of the Dunscombe Property, Thompsons Road Cranbourne (Report 2287). Report for Australand Holdings.

Clark, I. 1990. *Aboriginal Languages and Clans: An Historical Atlas of Western and Central Victoria, 1800-1900*. Monash Publications in Geography, Number 37. Melbourne: Department of Geography and Environmental Science, Monash University.

Clark, I. 1995. *Scars in the Landscape: A Register of Massacre Sites in Western Victoria, 1803-1859*. Australian Institute of Aboriginal and Torres Strait Islander Studies, Report Series. Canberra: Australian Institute of Aboriginal and Torres Strait Islander Studies.

Clark, I. & F. Cahir. (eds.). 2016. *The Children of the Port Phillip Aboriginal Protectorate: An Anthology of their Reminiscences*. North Melbourne: Australian Scholarly Publishing Pty Ltd.

Clark, I. D. and T. G. Heydon. 1998. *The Confluence of the Merri Creek and Yarra River: A History of the Western Port Aboriginal Protectorate and the Merri Creek Aboriginal School.* Report to the Heritage Services Branch, Aboriginal Affairs Victoria.

Cotter, R. 2001. *No Place for a Colony: Sullivan Bay, Sorrento and the Collins Settlement*. Melbourne: Lacrimae Rerum.

Cotter, R. 2006 [2001]. *Boon Wurrung: People of the Port Phillip District*. Second edition. Red Hill South: Lavender Hill Multimedia.

Croll, R. H. and R. R. Wettenhall. 1937. *Dr. Alexander Thomson: A Pioneer of Melbourne and Founder of Geelong*. Melbourne: Robertson and Mullens.

Dawson, J. 1881. *Australian Aborigines: The Languages and Customs of Several Tribes of Aborigines in the Western District of Victoria, Australia*. Melbourne: George Robertson.

Day, C. 2010. PSP No. 16 – Cranbourne North (Stage 2) – Cnr Thompsons & Clyde Road. Cultural Heritage Management Plan 11051 for Ms Belinda Smith, Growth Areas Authority.

Dearnaley, J. 2019. *Wadawurrung Ethnobotany as Synthesised from the Research of Louis Lane*. PhD dissertation, Deakin University.

Department of Energy, Environment and Climate Action (DEECA). 2022. Bioregions and EVC benchmarks. Accessed 7 March 2023. https://www.environment.vic.gov.au/biodiversity/bioregions-and-evc-benchmarks

Department of Sustainability and Environment (DSE). 2007. *EVC/Bioregion Benchmark for Vegetation Quality Assessment: Gippsland Plain Bioregion*. Melbourne: State of Victoria Department of Sustainability and Environment. Accessed 7 March 2023.
https://www.environment.vic.gov.au/__data/assets/pdf_file/0033/48696/GipP_EVCs_combined.pdf

Ellender, I. 2002. "The Yowenjerre of South Gippsland: traditional groups, social boundaries and land succession." *The Artefact* 25(1): 9-18.

Environment, Land, Water and Planning (2022). Accessed 7 June 2022.

https://maps2.biodiversity.vic.gov.au/Html5viewer/index.html?viewer=NatureKit

Feldman, R and A, Long. 2006. Melbourne 2030 Casey-Cardinia Growth Area. Unpublished Report (Report 3883) to the built environment Group – Department of Sustainability and Environment.

Flemming, J. 1802-1803. The Voyage of His Majesty's Colonial Schooner "Cumberland", from Sydney to King Island and Port Phillip in 1802-1803. A Journal of the Explorations of Charles Grimes, Acting Surveyor-General of New South Wales. Kept by James Flemming. Accessed 8 March 2023. http://www.livingmuseum.org.au/download%20pdf/Flemings%20Journal.pdf

Ford, A., Hutchinston, M., Burch, J., and Freedman, D. 2009. Victorian desalination Project: Cranbourne extension of the power supply alignment, Cranbourne Victoria. Cultural Heritage Management Plan 10881 for Department of Sustainability and Environment.

Gaughwin, D. and H. Sullivan. 1984. Aboriginal Boundaries and Movements in Western Port, Victoria. In *Aboriginal History* 8 (1): 80-98.

Gott, B. 1991. *Victorian Koorie Plants: some plants used by Victorian Koories for food, fibre, medicines and implements*. Hamilton, Victoria: Yangennanock Women's Group, Aboriginal Keeping Place, Hamilton.

Gott, B. 2001. *Australian Plant Resource Database*. On the Aboriginal Trail Home Page, Australian Botanical Gardens. Accessed 7 March 2023. https://www.anbg.gov.au/gardens/visiting/exploring/aboriginal-trail/index.html

Gott, B. 2008. Indigenous use of plants in south-eastern Australia. *Telopea* 12 (2): 215-226.

Gott, B. and J. Conran. 1991. *Victorian Koorie Plants*. Hamilton: Aboriginal Keeping Place, Yangennanock Women's Group.

Green, B, Murphy, A., and Rymer, T. 2011. Cascades on Clyde, Clyde North salvage excavations (Report 4375). A report for GeoProperty Group Pty Ltd.

Gunson, N. 1968. *The Good Country: Cranbourne Shire*. F.W. Cheshire Publishing, Canberra.

Hislop, K. 2014. St. Germaine Mixed-use Development, Clyde North. Cultural Heritage Management Plan 13239 for St Germain Village.

Hovell, W. H. (1826-7). *Journal on the Voyage to and at Western Port, New South Wales*. Mitchell Library, Sydney.

Howitt, A. W. 2001 [1904]. *The Native Tribes of South-East Australia*. Canberra: Aboriginal Studies Press, the Australian Institute of Aboriginal and Torres Strait Islander Studies.

Jones, R. 1969. Firestick farming. *Australian Natural History* 16: 224-231.

Jones, Z. 2015. 1435 Thompsons Road, Cranbourne North Commercial Development. Cultural Heritage Management Plan 13487 for Keith Strintzos.

Kapteinis, K. 2018. Thompsons Road Duplication, Cranbourne East: Site compound & drainage works. Cultural Heritage Management Plan 15351 for VicRoads.

Kayandel. 2010. Subsurface archaeological salvage Cranbourne extension Victorian Desalination Plant (Report 4336). Report Volume 1 for Department of Sustainability and Environment.

Kennedy, S., Burrow, A., and Foley, E. 2012. Clyde Creek (PSP 54) and Thompsons Road (PSP 53) Precinct Structure Plans (Report 4505). A report for Growth Areas Authority.

Lawler, M, and Fiddian, L. 2007. An Archaeological Survey at 1435 Thompsons Road, Cranbourne East, Victoria.

Lawler, M. Berelov, I and T, Cavanagh. 2012. Proposed Industrial Sub-division at 1455 Thompsons Road, Cranbourne North, Victoria: Cultural Heritage Management Plan 11156 for Rod Gillespie, 21st Century Roads Ltd.

Long, A., Schell, P. and Howell-Meurs, J. 2004. Eastern Irrigation Scheme archaeological assessment (Report 2910). Report for Earth Tech Engineering Pty Ltd.

Massola, A. 1959. Bibliography of printed literature upon Victorian Aborigines. *Memoirs of Museum Victoria* 28: 103-156. Accessed 14 March 2023. https://doi.org/10.24199/j.mmv.1959.24.10

McCrae, H. (ed.). 1966 [1934]. *Georgiana's Journal: Melbourne 1841–1865*. Sydney: Angus and Robertson Ltd.

Mitchell, J. 2011. *In Good Faith? Governing Indigenous Australia through God, Charity and Empire, 1825-1855*. Aboriginal History Monograph 23. Canberra: ANU E Press. https://www.jstor.org/stable/j.ctt24h7xh

Muir, S. 2003. Stage 1 and 2 cultural heritage survey of Clyde Five Ways Road, Pound Road to Ballarto Road, Victoria (Report 2674). A report for VicRoads.

Mulvaney, D. & J. Kamminga. 1999. *Prehistory of Australia.* Smithsonian Institution Press, Washington D.C.

Murphy, A. 2001. 260 Narre Warren – Cranbourne Road, Cranbourne. A preliminary Cultural Heritage Assessment (Report 1965). A report to Carson Simpson Pty Ltd.

Murphy, M. 2003. Cranbourne East cultural heritage assessment (Report 2438). A report for KLM Gerner Consulting Group on behalf of Brookford Pty Ltd

Murphy, A. and Dugay-Grist, L. 2007. Thompsons Road Between South Gippsland Highway & Narre Warren-Cranbourne Road. Cultural Heritage Assessment (Report 4011) for VicRoads.

Murphy, A. and Dugay-Grist, L. 2008. Proposed Road Widening Thompsons Rd between South Gippsland Hwy and Narre Warren-Cranbourne Rd. Sub-surface Testing Report (Report 4120) for VicRoads.

Murphy, A., and Dugay-Grist, L. 2009. Crown Allotment 29, Thompsons Road Cranbourne North Residential Subdivision. Cultural Heritage Management Plan 10531 for Greenridge Properties Pty Ltd.

Murphy, A., and Thomson, S. 2018. 1585 Thompsons Road, Cranbourne North. Cultural Heritage Management Plan 15008 for Oreana Property Group Pty Ltd.

Murphy, A. and Rymer, T. 2007. Brookford Estate 545 Berwick-Cranbourne Road Clyde North, subsurface testing investigation (Report 4012). A report for MSF Diversified Group.

Murphy, A. and Rymer, T. 2009. Hunt Club Residential housing estate 202S Cameron Street, Cranbourne East. Cultural Heritage Management Plan 10659 for Hunt Club Pty Ltd.

Murphy, A., Dugay-Grist, L., Hollands, L. and Reeve, C. 2008. *Thompson Road Widening, Cranbourne*. Cultural Heritage Management Plan 10228 for VicRoads. Melbourne: Tardis Enterprises Pty Ltd.

O'Connor, A. 2012. Carlisle Park, Cranbourne North Sports and Recreation Facility. Cultural Heritage Management Plan 12033 for Ivan Heng (Casey City Council).

Orr, A. 2007. Cranbourne North Service Business Precinct. AV report 4096 prepared for the City of Casey.

Pascoe, B. 2018 [2014]. *Dark Emu: Aboriginal Australia and the Birth of Agriculture*. Second edition. Broome: Magabala Books Aboriginal Corporation.

Patton, K. 2015. 1790 Thompsons Road, Clyde North. Retain warehouse premises and car park development. Cultural Heritage Management Plan 13811 for Bunnings Group Ltd.

Presland, G. (ed.). 1980. *Journals of George Augustus Robinson, May – August 1841*. Records of the Victorian Archaeological Survey, No. 11. Melbourne: Victoria Ministry for Conservation.

Presland, G. 1983. An Archaeological Survey of the Melbourne Metropolitan Area. Occasional Reports 15 (Report 20). Victorian Archaeological Survey.

Presland, G. 2010. *First People: The Eastern Kulin of Melbourne, Port Phillip and Central Victoria*. Melbourne: Museum Victoria.

Reich, A., and Liousas, V. 2020. 1435 Thompsons Road Cranbourne North Retirement Village. Cultural Heritage Management Plan 16944 for Summerset Group Holdings Limited.

Select Committee. 1859. *Report of the Select Committee of the Legislative Council on the Aborigines* (submitted by Thos. McCombie, Chairman). Melbourne: John Ferres, Government Printer.

Smith, L. 1991. Berwick-Pakenham Corridor (Report 439). Report to the Ministry for planning and environment.

Smyth, R. B. 1878. *The Aborigines of Victoria: with Notes Relating to the Habits of the Natives of other Parts of Australia and Tasmania. Compiled from Various Sources for the Government of Victoria*. Two volumes. London: John Ferres / Melbourne: George Robertson.

Spreadborough, R. & H. Anderson. 1983. *Victorian Squatters*. Red Rooster Press, Ascot Vale.

Stevens, J. 2017a. Berwick-Cranbourne Road, Clyde North, Road Duplication. Cultural Heritage Management Plan 15116 for Clyde North Business Park Pty Ltd.

Stevens, J. 2017b. Stage 1, Clyde North Business Park. Cultural Heritage Management Plan 14958 for Clyde North Business Park Pty Ltd.

Stevens, J. 2018. Stages 2-3, Element Park Clyde North. Cultural Heritage Management Plan 15170 for Clyde North Business Park Pty Ltd.

Stevens, J. 2021. Cranbourne to Clyde North Recycled Water Main, Pipeline. Cultural Heritage Management Plan 17209 for South East Water. Melbourne: Cultural Heritage Management Group Pty Ltd.

St George, C. & Spry, C. 2016. Thompsons Road Duplication, Cranbourne North to Clyde North. CHMP 13651 for VicRoads

Sullivan, H. 1981. *An Archaeological Survey of the Mornington Peninsula, Victoria*. Victoria Archaeological Survey: Occasional Reports Series, Number 6.

TerraCulture Pty Ltd. 2000. Archaeological Survey of a Proposed Road Duplication of Hutton Road between Springvale and Perry Road, Keysborough. Report for VicRoads.

TerraCulture Pty Ltd. 2003. An archaeological Investigation of the Dunscombe Property, Thompsons Road Cranbourne (Report 2571). Addendum Report for Australand Holdings.

Thomas, W. 1854. Brief account of the aborigines of Australia Felix. In T. F. Bride (ed.). 1898: *Letters from Victorian Pioneers, Being a Series of Papers on the Early Occupation of the Colony, the Aborigines, etc*: 65-83. Melbourne: Trustees of the Public Library.

Vanderhorn, J (ed.). 2023. First Occupants of the Clyde Area: The Bunurong had Six Seasons not Four. Accessed 7 March 2023. https://www.earlyhistory4clydevic.com/html/0203bunurongseasons.html.

Vines, G. 2007. 1435 Thompsons Road, Cranbourne, Victoria. Cultural Heritage Management Plan for proposed Residential Subdivision. CHMP 10022 for Jack Hoffmann, Stockland Development Pty Ltd.

Vines, G. 2008. 1435 Thompsons Road, Cranbourne, Victoria. Cultural Heritage Management Plan for Stage 2 of a Proposed Residential Subdivision. CHMP 10168 for Jack Hoffmann, Stockland Development Pty Ltd.

Vines, G. Orr, A. 2010. Salvage excavations at 1435 Thompsons Road, Cranbourne Victoria: Subdivision Stage 2. Report relating to CHMP 10168 for Jack Hoffmann, Stockland Development Pty Ltd.

VRO (2022a). Accessed 7 June 2022.

7.1.1 Coastal plains with ridges and dunefields (Brighton, Cranbourne) | VRO | Agriculture Victoria

VRO (2022b). Accessed 7 June 2022.

3.1.1 Plateaux and broad ridges (Beech Forest, Wyelangata, Balook) | VRO | Agriculture Victoria

Warren, C. 2014. Was Sydney's smallpox outbreak of 1789 an act of biological warfare against Aboriginal tribes? *Ockham's Razor*, posted 17 April 2014, updated 18 April 2014. Australian Broadcasting Commission. https://www.abc.net.au/radionational/programs/ockhamsrazor/was-sydneys-smallpox-outbreak-an-act-of-biological-warfare/5395050

Weaver, F. 1992. An archaeological survey of a proposed landfill site. Thompsons Road Cranbourne, Victoria (Report 529). Report for Camp Scott Furphy Pty Ltd.

Wettenhall, G. 2010. T*he People of Budj Bim: Engineers of Aquaculture, Builders of Stone House Settlements and Warriors Defending Country*. Heywood: Empress Publishing.

Witter, D. 1990. Regions and resources. PhD Thesis for Research School of Pacific Studies, The Australian National University Canberra.

Zola, N. & B. Gott. 1992. *Koorie Plants Koorie People: Traditional Aboriginal Food, Fibre and Healing Plants of Victoria*. Koorie Heritage Trust, Melbourne.

Newspapers

The Australian

Aerial photography

Nearmap. 2012. Aerial map of Cranbourne East / Clyde North. 12 April 2012. Accessed 5 June 2023. https://apps.nearmap.com/maps/#/@-38.0923278,145.3137553,16.17z,0d/V/20120412

RAAF. 1939. *Cranbourne_859B3*. 1:15840 scale. Department of Energy, Environment and Climate Action. Historical Photo-Maps Index. Accessed 7 June 2023. http://spatialapps-prd-mapshare-platform-storage.s3-ap-southeast-2.amazonaws.com/WebmapMedia/HistoricPhotomap/CRANBOURNE/859B3.jpg

Appendix A Notice of Intention to carry out a survey

Notice of Intention to carry out a survey for Aboriginal cultural heritage for the purposes of the *Aboriginal Heritage Act 2006*

This form has been prepared for use by a person intending to carry out a survey for Aboriginal cultural heritage ('Survey') to complete the notification provisions pursuant to s.34A 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 – Person intending to carry out survey (applicant)

Applicant (*natural person or body corporate seeking to carry out survey*):	Unearthed Heritage Australia Pty Ltd
ABN/ACN:	68 632 149 181
Contact name:	Joseph Brooke
Postal Address:	PO Box 446 Castlemaine VIC 3450
Telephone Number	0457 777 423
Fax number:	
Mobile:	
Email Address:	joseph@unearthedheritage.com.au

SECTION 2 –Survey supervisor

Name: Joseph Brooke, David Mathews, Anna Light and Eyad Malaeb

Provide a description of the supervisor's qualifications and experience relevant to surveys for Aboriginal cultural heritage:

All are qualified heritage advisors and archaeologists, with degrees in Archaeology, and 5-20 years of experience each conducting and supervising Aboriginal heritage surveys

SECTION 3 – Description of proposed activity and Survey location

Project Name: Croskell Precinct Structure Plan

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

Clearly identify the proposed **activity** for which the survey relates (ie, cultural heritage or due diligence assessment, preliminary Aboriginal heritage test, research):

Aboriginal Cultural Heritage Impact Assessment to inform land use planning

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

See attached map

Attach a map (to scale, with a north arrow and indicating the municipal district - if any) that clearly identifies the survey area.

- Please ensure the map refers to existing roads and features, rather than proposed roads and features, and includes their names.

OFFICIAL

- Please ensure the map has the survey area outlined on it.
- 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.

SECTION 4 – Expected start and finish date for the survey

Start date 25 / 7 / 2022 *Finish date* 16 / 8 / 2022

SECTION 5 – List any relevant registered Aboriginal party (if any)

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

Bunurong

SECTION 6 – Signature of applicant

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

Signed: _____ *Date:* 12 / 07 / 2022

[applicant]

SECTION 7 – Notification checklist

☐ Ensure appropriate attachment/s are completed and attached to this notification (see section 3 of this form).

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

Director Heritage Services
Aboriginal Victoria
Department of Premier and Cabinet
GPO Box 4912
MELBOURNE VIC 3001

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

Notes:

- **Ensure that any relevant registered Aboriginal party 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 participate in the survey).**
- **In addition to notifying the Director Heritage Services and any relevant registered Aboriginal party, a Sponsor must also notify any owner and/or occupier of any land within the survey area. A copy of this notice may be used for this purpose.**
- **A copy of any documentation relevant to the survey must be given to the Secretary for recording on the Victorian Aboriginal Heritage Register within 30 days of producing the final report relating to the survey, or within 12 months of submitting this application, whichever is earlier.**
- **Relevant documentation means any site records, photographs, maps and plans relating to the survey and a copy of any final report.**
- **The applicant must notify the Secretary if the survey did not occur within 12 months of submitting this application.**

Appendix B Glossary of terms

Activity Area: The area to be used or developed for an activity (CHMP)

Alluvium: Sediment laid down by flowing water

Chert: A fine-grained stone composed of cryptocrystalline silica. It exhibits a range of textures and colours. Chert is easy to work and retain a sharp edge for an extensive period of time before re-sharpening is required. It has a low to medium fracture toughness and is hence used for flaked stone artefacts.

Devonian: A geological period spanning from about 419 million years ago to about 359 million years ago.

Exposure: Refers to the percentage of the sub-surface exposed, through actions such as erosion or in excavated areas.

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

Granite: Hard **i**gneous rock with that is granular in texture, mainly consisting of mica, feldspar and quartz.

Holocene: The Holocene epoch forms part of the late Quaternary period and extends from about 11,000 years ago to the present day.

Igneous: A rock of volcanic origin

In situ: A description of any cultural material that lies undisturbed in its original point of deposition.

Quartz: The second most abundant mineral on earth made up of a crystalline structure of SiO_4.

Scarred trees: Tree scars from Aboriginal cultural traditions are distinct from naturally occurring scars by their generally oval and/or symmetrical shape, and sometimes presence of steel or stone axe marks on the scar's surface. The size and shape of scars depends on the intended use of the bark removed. Bark was used for a variety of dishes and containers, shields, canoes, and construction of bark-slab huts.

Significant Ground Disturbance: Means disturbance of (a) the topsoil or surface rock layer of the ground; or (b) a waterway, by machinery in the course of grading, excavating, digging, dredging or deep ripping, but does not include ploughing other than deep ripping (to 60cm).

Silcrete: Soil, clay or sand sediments that have silicified under basalt through groundwater percolation. Silcrete ranges in texture from very fine grained, to quite coarse grained. At one extreme it is cryptocrystalline with very few clasts, with almost the appearance of chert. It is used for flaked stone artefact production, sometimes after heat treatment to increase the ease and predictability of its flaking.

Silurian: A geological period that spans between about 443 million years ago to 419 million years ago.

Study area: The area subject to this investigation

Visibility: Refers to the degree to which the surface of the ground can be observed. This may be influenced by natural processes such as erosion, the character of the extant vegetation, and/or by land use practices, such as ploughing or grading. It is generally expressed in terms of the percentage of the ground surface visible for an observer on foot.