ecology & heritage partners

Final Report

Aboriginal Cultural Heritage Impact Assessment: Devon Meadows and Casey Fields South (Employment) Precinct Structure Plan

REDACTED Version

Victorian Planning Authority

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Ecology and Heritage Partners Pty Ltd

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- Victorian Planning Authority for project and site information.
- Bunurong Land Council Aboriginal Corporation.
- Heritage Victoria.
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Cover Photo: Image of the study area facing west from Rawlins Road, Devon Meadows

(Photo by Ecology and Heritage Partners Pty Ltd)

Warning

Aboriginal and Torres Strait Islander readers are warned that the following report may contain the names and/or images of deceased persons.

Protocols for Handling Sensitive Information

This version of the report has been redacted at the request of the Bunurong Land Council Aboriginal Corporation in order to protect the location of Aboriginal Heritage Places.

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EXECUTIVE SUMMARY

Introduction

Ecology and Heritage Partners was commissioned by the Victorian Planning Authority (VPA) to prepare this Aboriginal Cultural Heritage Impact Assessment (ACHIA) for the proposed development of the Devon Meadows and Casey Fields South (Employment) Precinct Structure Plan (PSP). The purpose of the ACHIA is to assist the Victorian Planning Authority in the preparation of the Precinct Structure Plan for these areas.

Methodology

The information gathered for this report was collected by means of a desktop assessment and consultation with the Registered Aboriginal Party (RAP) with oversight of cultural heritage matters for the study area, namely, the Bunurong Land Council Aboriginal Corporation (BLCAC).

Assessment and Results

The assessment undertaken as part of this Aboriginal Cultural Heritage Impact Assessment was a desktop assessment, a brief field inspection and consultation with the Bunurong Land Council Aboriginal Corporation (BLCAC). The field inspection was not considered an archaeological survey but was designed identify landforms and Aboriginal cultural heritage likelihood. During the desktop assessment, 12 Aboriginal Places were noted to be present within the study area (Table 1).

Table 1: Aboriginal Places in the Activity area

Place Name	Place Type	Place Identified during
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED

Summary of Recommendations

The following management recommendations were made with the sponsor, in consultation with the Bunurong Land Council Aboriginal Council (BLCAC)

Recommendation 1

Cultural Values Assessments (CVA) are an integral component in identifying the values of the Traditional Owners within the PSP areas. A CVA, led by BLCAC, should be undertaken to identify and record the traditional cultural heritage values contained within the study area. Values and areas of significance highlighted by the CVA should be incorporated into the PSP design to afford upfront opportunities for harm avoidance, minimisation and mitigation. The PSP development should consider the following subject to the detail and recommendations of the CVA:

- The use of traditional Bunurong place names within the PSP;
- The installation of Aboriginal cultural values signage throughout the PSP;
- The conservation of areas of intangible Aboriginal cultural heritage within the PSP; and
- The incorporation of the Aboriginal story of Country in public spaces.

Recommendation 2

Cultural Heritage Management Plans (CHMPs) must be prepared in accordance with PSP development staging and Sponsors. Each CHMP should be undertaken as required (see Appendix 2 for a list of High Impact Activities) for activities relating to PSP development and should provide management recommendations which interface with those of associated CHMPs. Additionally, where development impacts absolutely cannot avoid impact to Aboriginal cultural heritage, salvage methodologies should be prepared with BLCAC-guided research questions and incorporate, where possible, optically stimulated luminescence dating, radiocarbon dating, artefact use-wear analysis, pollen analysis, plant macrofossil analysis, soil micromorphology and particle size analysis of the sediments.

Recommendation 3

Aboriginal Places and areas of archaeological potential within the study area should be included in areas of public open space where possible. This measure is intended to minimise harm to Aboriginal Places. Open spaces should be managed considering preserving the natural and cultural heritage values. Construction and installation of infrastructure or other facilities within the open spaces should be designed in a manner to minimise impacts to the landscape and enhance public access. Public appreciation should also be encouraged through the installation of interpretation, signage, indigenous revegetation, and development of cultural programs in close consultation with the BLCAC and informed by the CVA outlined in Recommendation 1.

Map 12 should be used as a starting point for designating open spaces. However, Map 12 provides indicative and likely locations for Aboriginal cultural heritage and should be ground-truthed with a formal archaeological survey prior to incorporation in PSP development planning.

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1 INTRODUCTION

1.1 Preamble

Ecology and Heritage Partners was commissioned by the Victorian Planning Authority (VPA) to prepare this Aboriginal Cultural Heritage Impact Assessment (ACHIA) for the proposed development of the Devon Meadows and Casey Fields South (Employment) Precinct Structure Plan in Cranbourne East, Victoria (City of Casey) (Map 1). The purpose of the Impact Assessment Plan is to assist the Victorian Planning Authority in the preparation of the Precinct Structure Plan for these areas as well as to identify confirmed and/or potential sites of heritage significance and value and provide recommendations regarding how they may be preserved and celebrated.

1.2 The Study Area

The study area is comprised of two adjacent Precinct Structure Plan (PSP) areas: the Casey Fields South (Employment) PSP and the Devon Meadows PSP (Map 1). The Casey Fields South (Employment) and Devon Meadows PSP are located approximately 50 km southeast of Melbourne's CBD. It is located at the edge of Melbourne's Urban Growth Boundary, within the Casey City Council area and the Parish of Sherwood and sharing the South Gippsland Highway as a boundary (VPA 2023). The Casey Fields South (Employment) PSP covers an area of approximately 275 hectares and is generally bounded by the South Gippsland Highway to the southeast, Clyde-Fiveways Road to the east and Ballart Road to the north. The Devon Meadows Precinct covers an area of approximately 261 hectares and is generally bounded by the South Gippsland Highway to the north and east, Worthing Road to the south and Craig Road to the west (VPA 2023).

1.3 The Activity

The Victorian Planning Authority (VPA) is in the process of planning the Casey Fields South Employment precinct and Devon Meadows precinct (Map 1). The VPA is intending on progressing the planning for these precincts together, resulting in one Precinct Structure Plan.

The Casey Fields South Employment precinct is designated as "regionally significant industrial precinct (RSIP), under the Melbourne Industrial and Commercial Land Use Plan (MICLUP)" (VPA 2023). The MICLUP serves to identify state, regionally and locally significant industrial and commercial precincts across Greater Melbourne. This precinct is intended to provide industrial and employment opportunities. The Devon Meadows precinct has been identified as 'urban – land use to be determined'; as such the PSP is likely to provide residential and commercial opportunities to complement existing and future surrounding development. Together, the proposed Casey Fields South (Employment) and Devon Meadows Precinct Structure Plan supports State Government policy, delivering an employment precinct and a residential precinct (VPA 2023).

1.4 Details of Authors

1.4.1 Ecology and Heritage Partners Pty Ltd Cultural Heritage Division

Ecology and Heritage Partners is a professional cultural heritage and ecological consultancy providing high quality technical services in the field of Aboriginal and historical cultural heritage assessment, Cultural Heritage Management Plans (CHMPs), ecological assessment, research and management. The business provides effective and innovative cultural and natural heritage advice to a range of state and local government authorities/agencies, corporate and private clients.

Ecology and Heritage Partners has an established heritage team of ten people led by Oona Nicolson (Director and Principal Heritage Advisor). The team comprises qualified Heritage Advisors, specialising in Australian archaeology (including Aboriginal, Historical and Maritime).

This report was authored by Dr Meredith Filihia (Senior Heritage Advisor/Archaeologist), Tom Lally and Maria Daikos (Heritage Advisors/Archaeologists). The quality assurance review was undertaken by Dr Meredith Filihia (Associate Heritage Advisor).

1.4.2 Authors

Dr Meredith Filihia

Meredith is an Associate Archaeologist and Heritage Advisor with ten years' experience in consulting archaeology in Victoria. As a student Meredith participated in excavations on historical and Aboriginal archaeological sites in Victoria and at Lake Mungo. Since qualifying to work in the cultural heritage industry, Meredith has undertaken fieldwork throughout Victoria from Mildura to Lake Tyers and has also participated in a number of historical excavations in the Melbourne CBD. Meredith has skills in historical research and Aboriginal artefact analysis, and she is particularly interested in refitting flaked artefacts. She regularly presents papers at conferences and colloquia and is a full member of the Australian Association of Consulting Archaeologists Inc. (AACAI).

Her formal qualifications include:

- Member, AACAI.
- Bachelor of Arts (Hons) History, La Trobe University;
- Master of Arts (History), La Trobe University;
- Doctor of Philosophy (History), La Trobe University; and
- Graduate Diploma (Archaeology).

Tom Lally

Tom is a qualified Archaeologist and Heritage Advisor at Ecology and Heritage Partners. He has been working in the Australian cultural heritage industry for 4 years in Queensland, South Australia, Western Australian and Victoria, with an additional four years of experience in the UK and Canada prior to that (2013 – 2017). Tom completed his Bachelor of Archaeology in 2011 and his Graduate Diploma in Archaeology in 2013, both of which were undertaken at Flinders University, South Australia.

Tom has extensive field experience, having worked as a Project Officer and Field Supervisor on historic and cultural heritage research excavations both nationally and internationally, and has also conducted artefact analysis whilst in these positions. Since moving into consultancy, Tom has gained experience in providing preliminary cultural and historical heritage advice to stakeholders, writing Cultural Heritage Management Plans, including both desktop, standard and complex assessments, salvage reports, technical survey reports, and cultural heritage assessments, cultural and historical excavation methodologies, artefact analysis, Traditional Owner liaison and reporting. Tom's formal qualifications include:

- Bachelor of Archaeology (2011), Flinders University.
- Graduate Diploma in Archaeology (2013), Flinders University.

Maria Daikos

Maria Daikos is a fully qualified Archaeologist and Heritage Advisor and completed a Bachelor of Arts from La Trobe University in 2019, majoring in Archaeology and History. She is currently a Technical Officer and a Heritage Advisor with Ecology and Heritage Partners, having had a total of 1 and a half years' experience in Australian cultural heritage.

As a student she interned in at the Museo Egizio (Egyptian Museum) in Turin, Italy where she assisted with the recording and analysis of Egyptian artefacts and gained valuable knowledge about the conservation of ancient Egyptian material culture, including wooden artefacts, textiles, and pottery.

She has assisted in both historical and Aboriginal cultural heritage-based fieldwork, report writing, post-excavation and review in Victoria, including desktop, standard and complex CHMPs.

Her formal qualifications include:

- Bachelor of Arts (Archaeology & History), La Trobe University.
- Graduate Diploma of Professional Archaeology, La Trobe University.

Ian Ostericher

Ian Ostericher is a Senior Heritage Advisor and Geoarchaeologist with three years' experience in consulting archaeology in Victoria and over ten years' experience as a geoarchaeology consultant working in Africa, Asia, Europe and North America. Since joining the Victorian cultural heritage industry, Ian has undertaken fieldwork throughout Victoria, NSW and Queensland, and has led projects in the Victorian Alps, southern coastal Victoria and the Victorian volcanic plains. He has successfully prepared Cultural Heritage Management Plans, predictive and sensitivity models, Aboriginal cultural heritage surveys, salvage reports and Due Diligence Assessments, and maintains excellent working relationships with Registered Aboriginal Parties and Traditional Owner groups in Victoria and NSW. Ian's expertise as a geoarchaeology specialist lends a crucial understanding of site-formation and post-depositional processes to Aboriginal cultural heritage projects. His qualifications include:

- Bachelor of Arts in Anthropology (University of Washington – 2012)
- Master of Arts in Archaeology (University College Dublin - 2014),
- Master of Philosophy in Archaeological Research (University of Cambridge - 2015).

1.5 Project Methods

The following tasks were undertaken as part of the development of the Interpretation Plan:

1. A review of available literature was undertaken using resources such as the First Peoples – State Relations (FP – SR) and the Ecology and Heritage Partners library of reports and knowledge of the area. A desktop study was produced, this includes research into information relating to Aboriginal cultural heritage in or associated with the study area incorporating the search results and review of all relevant and up to date cultural heritage databases, literature and mapping programs including:
    - the Victorian Aboriginal Heritage Register (VAHR);
    - the Victorian Heritage Register (VHR);
    - the Victorian Heritage Inventory (VHI);
    - the Heritage Overlay of the Hume Planning Scheme;
    - the National Trust (Victoria) Register;
    - National, Commonwealth and International Heritage Lists; and
    - relevant Commonwealth and State legislation and policies.
2. Provide a brief review of land use for the study area;
3. Consult with the Research Unit of the Registered Aboriginal Party (RAP) for the study area, Bunurong Land Council Aboriginal Corporation (BLCAC);
4. Conduct a site inspection of the subject site by a qualified Heritage Advisor in consultation with the Elders and Anthropologist of the RAP Research Unit;
5. Provide information in relation to any implications of Commonwealth and State environmental legislation and Government policy associated with the proposed development;
6. Discuss any opportunities and constraints associated with the study area; and
7. Presentation of the results in this Interpretation Plan.

2 ENVIRONMENTAL CONTEXT

2.1 Geographic Region

The geographic region defined for this project is defined as a 2 km radius around the study area in order to inform the background review. This geographic region reflects the specific vegetation history and resource availability in the Gippsland Plain region and exhibits environmental characteristics that likely influenced Aboriginal occupation. Clyde Creek is located 1.6 km north-east of the study area, addresses the specific environmental context of Holocene resources available from the activity area. These waterways would have influenced the movement of groups across the landscape. Thus, the geographic region relates specifically to the tangible and intangible values of the landscape and is highly relevant to any Aboriginal cultural heritage that may be present within the activity area.

More generally, the region (and the study area itself) forms part of the Gippsland Plain Bioregion (GipP) (Map 4), which extends along the southeast coast of Victoria. It is generally characterised as flat low-lying coastal and alluvial plains with a gently undulating terrain dominated by barrier dunes and floodplains and swampy flats and coastline that includes sandy beaches backed by dunes and cliffs, and shallow inlets with extensive mud and sand flats (DELWP 2022a).

2.2 Geology, Geomorphology and Soils

The study area is largely dominated by two geological units (Map 5): Red Bluff Sandstone (Nbr) in the northern and eastern portion and Inland dune deposits (Qd1) in the southern and western portion. Smaller portions of the southwestern corner and eastern side of study area sit on Murrindindi Supergroup (Sm) and Alluvium and colluvium (Qb) geological units, respectively.

A summary of each geological unit (Geoscience Australia 2022) within the study area is presented in Table 2 below:

Table 2: Description of Geological Units within the study area

Geological Unit	Description and location
Inland dune deposits (Qd1)	Quaternary (Pleistocene) age sedimentary Aeolian dene deposits comprised of sand, clay and calcareous sand.
Alluvium and colluvium (Qb)	Alluvial is detrital material which is transported by a river and usually deposited along the river's pathway, either in the riverbed itself or on its floodplain. Colluvial is described as weathered material transported by gravity action such as on scree slopes
Red Bluff Sandstone (Nbr)	Neogene (Miocene) to Neogene (Pliocene) age sedimentary sandstone, conglomerate: pale yellow and brown; fine to coarse-grained, massive to well bedded; cross-bedded; local ironstone.
Murrindindi Supergroup (Sm)	Palaeozoic (Devonian) to Palaeozoic (Silurian) age sedimentary marine mudstone comprised of mudstone and sandstone.

Map 5 shows that the southern half and far north-eastern corner of the study area is located on geomorphological unit (GMU) 3.3.1 – Plateau (Bellarine Peninsula, Cape Liptrap, Moorooduc Plains; including Mt. Martha and Mt. Eliza), with most of the northern portion of the study area within GMU 3.3.3 – Basaltic residuals (Phillip Island) (Map 5).

3.3.1 Plateau (Bellarine Peninsula, Cape Liptrap, Moorooduc Plains; including Mt. Martha and Mt. Eliza): Most of the northern Mornington Peninsula is a weakly dissected undulating plain of low elevation, mostly less than 100 m. However, on the western side there are two prominent granite hills, Mt Martha and Mt Eliza, both about 150 m high. Apart from these small areas of Palaeozoic granite, Palaeozoic sediments occur over the whole area, but Neogene sediments mostly overlie these. Often the Palaeozoic sediments are exposed by the stream incisions but elsewhere they occur above the level of the plain, e.g., east of Langwarrin and west of Balcombe. Between Somerville and Devon Meadows there are sand sheets of Late Neogene age that partly cover the underlying sediments, often the lower parts of the landscape.

Apart from the soils on the sands, most of the soils on sediments are mottled yellow and brown texture contrast soils, occasionally sodic (Chromosols and Sodosols). The sandy soils are strongly acid with bleached sandy 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) (DJPR 2022a).

3.3.3 Basaltic residuals (Phillip Island): Located within the centre to the north of the activity area, this GMU is comprised of older basalt (Palaeogene), with drainage lines consisting of late Neogene alluvium. The landform is characterised by its low rounded crests with broad spaced flats and depressions, which can be extensive (up to 1 km across). Salinity affects the low lying areas as these areas are close to the sea. Soils in this landform are composed of mottled yellow and brown texture contrast soils, often sodic Chromosols and Sodosols) and similarly coloured gradational soils (Dermosols), with few red friable red gradational soils present in the low lying areas (DJPR 2022). Waterlogging is common in the soils along the drainage lines which are comprised of grey clays (Vertosols) or grey gradational soils (Dermosols, Hydrosols) (DJPR 2022a).

The study area is also situated on GMU 7.1.1 – Coastal plains with ridges and dunefields (Brighton, Cranbourne), in the north-eastern corner, while a very small sliver of GMU 7.1.2 – Alluvial plains (Nar Nar Goon, Caldermeade, Bass River Plain) is also present along the eastern boundary of the study area. Descriptions of these two GMUs are summarised below:

7.1.1 Coastal plains with ridges and dunefields (Brighton, Cranbourne): 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) (DJPR 2022a).

7.1.2 Alluvial plains (Nar Nar Goon, Caldermeade, Bass River Plain): GMU 7.1.2 is charactered by alluvial plains with drains that confine the flows of the rivers and streams in this landform. Vegetation would have original comprised of swamp shrubs and swampy grasslands and grasslands. Rainfall in the area is generally well distributed annually with a sub-humid climate. Texture contrast soils (mostly Kurosols) are present in the alluvial plains which some small areas of grey clays (Vertosols) (DJPR 2022a).

2.3 Landforms and Hydrology

The landform of the geographic region and study area have been affected greatly by rising sea levels and prehistoric volcanic activity. The PSPs are in close proximity to the Port Phillip coastline, the geographic region compromises low lying coastal and alluvial plains, fertile floodplains and swampy flats. There are geological and geomorphological sites of significance to the eastern side of the Port Phillip and Westernport Catchments, the Cranbourne Sands and the Arcuate Ridge, Cardinia located approximately 9 km to the east of the study area. This ridge amidst coastal plains typifies those ridges and dunes which are predominant in the Brighton, Cranbourne, and Tyabb areas (GMU 7.1.1) (DJPR 2022a). The western portion of the study area is located on the plateau (Bellarine Peninsula, Cape Liptrap, Moorooduc Plains; including Mt Martha and Mt Eliza) landform, which forms part of the low relief Southern Uplands region (DJPR 2022a). Searches of records indicate that beaches, dunes, headlands, estuaries and waters of coastal areas are significant to Aboriginal culture, as they are known to be meeting spaces as well as burial places.

Geological evidence suggests that the Port Phillip and Western Port areas were unlikely to have been submerged prior to 10,000 years ago, and Port Phillip likely began to fill at some point 9,000 years ago, with Western Port following soon after and becoming submerged approximately 8,000 years ago. During this time, glacial and interglacial sea level changes resulted in the formation of swamps and other landforms. According to Holdgate et al. (2011), evidence shows that Port Phillip likely experienced a drying event at some point between 2,800 to 1,000 years ago, which resulted in the sea levels being lower than they are currently; probable causes of this, according to Holdgate et al. (2011), include a sand bar that blocked the sea entrance, combined with drought and high evaporation rates. This is supported by an Aboriginal oral tradition, which described the area as formerly being a kangaroo ground until the “sea broke in” (Sullivan 1981:4).

Evidence suggests that the hydrology in the study area is likely to have been heavily modified by urbanisation with ephemeral creeks and drainage lines more likely to be present than formal waterways, such as Clyde Creek 1.6 km to the north-east.

2.4 Vegetation

According to the Department of Environment, Land, Water and Planning’s (DELWP) mapping of vegetation prior to European colonisation (Pre-1750 EVCs; Map 7), the study area would have primarily contained vegetation classified as Heathy Woodland (EVC 48) and Plains Grassland/Plains Grassy Woodland Mosaic (EVC 897), and include smaller portions of Swampy Riparian Woodland (EVC 83) along the minor watercourse through the southwest corner of the study area and Grassy Woodland (EVC 175), also within the southwestern corner of the study area (DELWP 2022b).

EVC48 Heathy Woodland: This EVC is located within the centre to the south of the activity area and occurs on low hills and rises, plains and slopes in areas of low to moderate rainfall, generally associated with deep, uniform textured nutrient-poor sands. This EVC type would have consisted of trees such as Messmate Stringybark (*Eucalyptus obliqua*), Narrow-leaf Peppermint (*E. radiata s.l.*), Rough-barked Manna Gum (*E. viminalis ssp. pryoriana*), shrubs such as Prickly Tea-tree (*Leptospermum continentale*), Common Heath (*Epacris impressa*), Small Grass-tree (*Xanthorrhoea minor ssp. lutea*) and Common Beard-heath (*Leucopogon virgatus*) (DELWP 2022b).

EVC83 Swampy Riparian Woodland: This EVC is located within a small area in the south west of the activity area and occurs on low energy streams on foothills and plains. This EVC type would have consisted of woodland trees generally 15 m tall with species such as Swamp Gum (*Eucalyptus ovata*) and Narrow-leaf Peppermint (*Eucalyptus radiata s.l.).* Large and medium shrub species would have dominated the lower strata along the stream levees with most common species consisting of Blackwood (*Acacia melanoxylon*), Swamp Paperbark (*Melaleuca ericifolia*) and Woolly Tea-tree (*Leptospermum lanigerum*), Prickly Tea-tree (*Leptospermum continentale),* Prickly Currant-bush (*Coprosma quadrifida*) and Sweet Bursaria (*Bursaria spinosa*). (DSE 2022b). Large tussock grasses and sedges would have dominated the ground layer, with most common species consisting of Tall Sedge (*Carex appressa*), Leafy Flat-sedge (*Cyperus lucidus*), Tall Sword-sedge (*Lepidosperma elatius*) and Tall Rush (*Juncus procerus*) (DELWP 2022b).

EVC175 Grassy Woodland: This vegetation class is located within the south west corner of the activity area and would have consisted of a variable open eucalypt woodland to 15 m tall or occasionally Sheoak/Acacia Woodland over a diverse ground layer of grasses and herbs. Dominant trees occurring on ridges include Narrow-leaf Peppermint (*Eucalyptus radiata s.l.),* Swamp Gum (*E. ovata*) and Manna Gum (*E. viminalis*), with a lower canopy layer of Drooping Sheoak (*Allocasuarina verticillata*), Black Wattle (*Acacia mearnsii*) and Lightwood (*A. implexa*). The understorey is characterised by a medium shrub layer of moderate diversity that typically includes such species as Drooping Cassinia (*Cassinia arcuanta*), Tree Violet (*Hymenanthera dentata*), Sweet Bursaria (*Bursaria spinosa*), Drooping Sheoak (*Allocasuarina verticillata*) and Common Rice-flower (*Pimelea humilis*). Ground layer species include herbs and grasses such as Common Wallaby-grass (*Austrodanthonia caespitosa*), Kidney-weed (*Dichondra repens*), Wattle Mat-rush (*Lomandra filiformis*) and Black-anther Flax-lily (*Dianella revoluta s.l.*) (DELWP 2022b).

EVC897 Plains Grassland/Plains Grassy Woodland Mosaic: Two vegetation classes are combined for this EVC. This vegetation class is located within centre and north to north east of the activity area and would have consisted of open woodland up to 15 m tall consisting of Gippsland Red-gum (*Eucalyptus tereticornis ssp. Mediana*) and River Red-gum (*Eucalyptus camaldulensis*) found on poorly drained, fertile soils on gently undulating or flat plains. Sparse shrubs would have been found in the understory with species rich grasses on the ground layer (DELWP 2022b).

These types of vegetation would have been utilised by Aboriginal people in the area and would have supported a range of game that could be hunted for food. Kangaroo Grass seeds ripen in summer and can be ground into a flour for the preparation of damper. Riceflower bark could be made into string and nets (Nash 2004). Blackwood (*Acacia melanoxylon*), common in the riparian zone is a very hard wood, used for spear-throwers and shields, and according to Gott and Conran (1991: 50) the bark was heated and infused in water to bathe rheumatic joints.

Other plants and fungi were also valuable food and medicine; however, the ethnobotanical records of their use are limited. Eucalypt and tea tree leaves were crushed and soaked in water to prepare medicinal ointments. Bowls and dishes were made from the bark and gnarled growths, for food and water transportation. Canoes were also made from the bark of gum trees. The removal of bark characteristically results in visible modification of the trees that make them identifiable as scarred or culturally modified trees. Other items such as spears, boomerangs and spears were made from the timber of Eucalypts (Nash 2004).

2.4.1 Remnant Vegetation Investigation

The history of land use in Victoria post-European colonisation has resulted in the significant loss of native vegetation. An investigation of historic aerial photography and maps of the study area evidences whether undisturbed pre-contact vegetation remains within the study area.

An aerial photograph taken in 1957 (Figure 1) illustrates that prior to significant development the study area contained dense vegetation with limited clearance for agriculture.

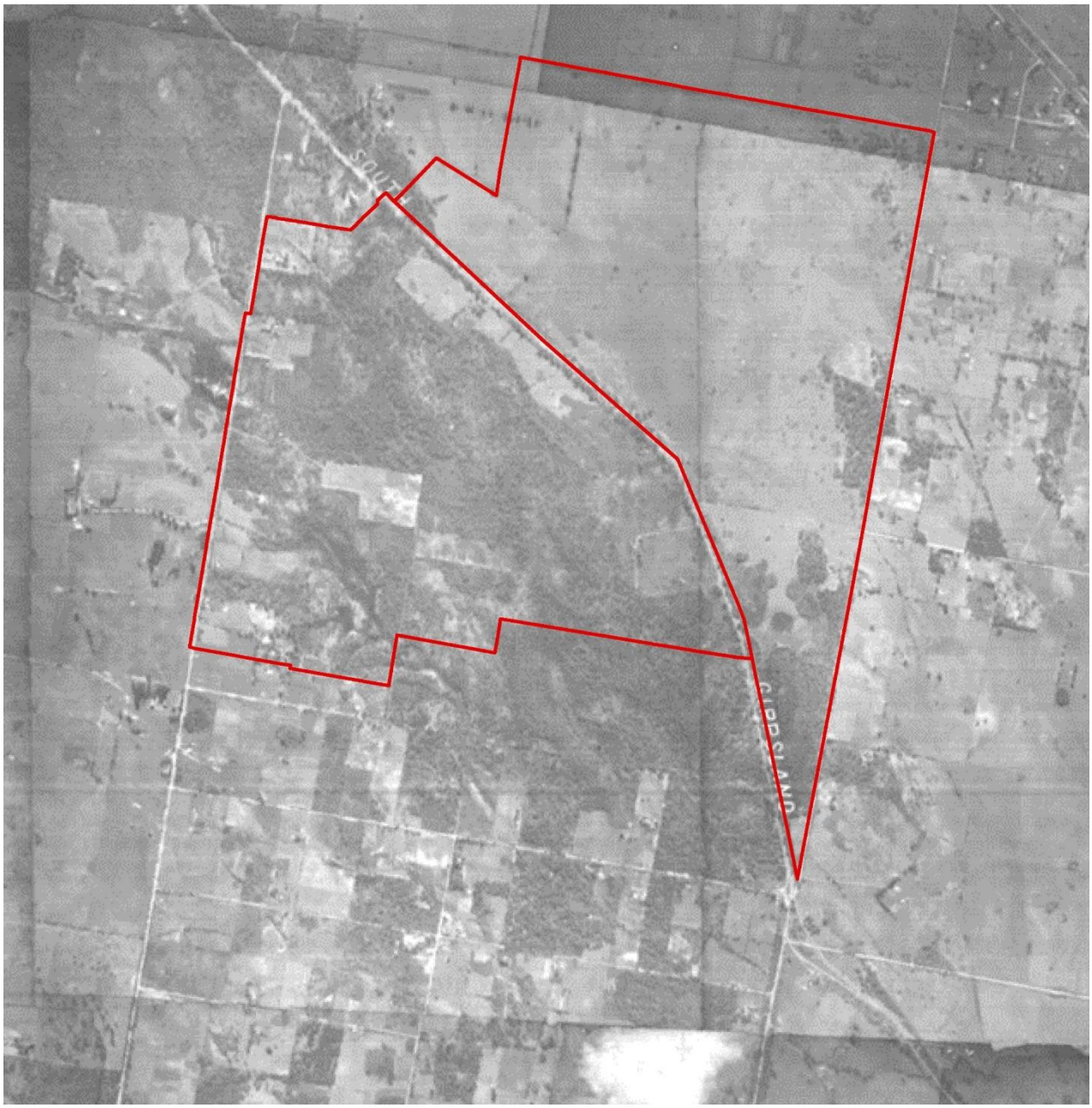

Figure 1: Aerial photograph of the study area taken in 1957 displaying the former extent of vegetation.

Later photography from 1976 demonstrates increased commercial and industrial development and agricultural industry clearing of vegetation within the formerly undisturbed extent (Figure 2). Despite these

developments, some vegetation remains undisturbed in the spaces between roads and structures. A sand

Figure 2: Aerial photograph of the part of the activity area southwest of the South Gippsland Highway taken in 1976.

mining industry has by this point developed within the study area, as can be seen by the large, open sandy areas that dominate the middle left of the aerial imagery.

Figure 2 displays residential developments occurring to the south of the 1976 photograph. There is notably less vegetation than that displayed in the 1976 photograph. Dense vegetation, however, remains within the residential areas.

Figure 3: Aerial photograph taken in 1988 evidences the encroachment on the former extent of vegetation by development.

3 UNDERSTANDING CULTURE, HERITAGE AND IDENTITY

3.1 Aboriginal Context

The section reviews the Aboriginal context of the study area and includes an examination of historical and ethnohistorical sources, previously recorded Aboriginal archaeological site types and locations in the geographic region of the study area, and previous archaeological studies undertaken in the area. Together, these sources of information can be used to formulate a predictive statement concerning what types of Places are most likely to occur in the study area, and where these are most likely to occur.

3.1.1 Ethnohistory

The activity area is located within the traditional lands of the *Bun wurrung* language group as recorded by European people after the period of contact (Clark 1990: 363-369). At the time of European recording the *Bun wurrung* were composed of six clans, each occupying a specific territory. The activity area is located within the *Mayune balug* clan territory.

The *Bun wurrung* shared a cultural and linguistic affinity with the *Ngurai-Willam-wurrung*, *Daung wurrung*, *Djadja wurrung*, *Wada wurrung* and *Woi wurrung* language groups. Collectively these groups were known as the Kulin Nation occupying the south central Victorian region. This cultural grouping shared similarities in speech, burial practices, initiation, kinship marriage ties and religious beliefs. In fact, the *Bun wurrung, Daung wurrung, Ngurai-Willam wurrung* and the *Woi wurrung* possessed 93% common vocabulary. The *Bun Wurrung* also shared 75-80% common vocabulary with the *Woi wurrung,* and 77% with the *Daung wurrung* (Clark 1990: 361). The Kulin Nation groups shared similarities in speech, burial practices, initiation, kinship marriage ties and religious beliefs including common beliefs regarding Dreaming figures such as the creation ancestors *Bunjil* (eaglehawk) and *Waa* (crow) (Presland 2010: 15). The Kulin clans believed that the living world was divided into two halves or moieties, named *Bunjil* and *Waa.* All the Kulin groups have a patrilineal descent system (Howitt 2001: 126). Marriage partners were sought from within the Kulin Nation but outside of their own clan (Presland 2010: 15). Wives were taken from the opposite moiety and membership in the moiety had religious, economic and social implications and obligations that transcended local allegiances and clans (Barwick 1984).

The *Bun wurrung* were divided into six smaller clans and each clan was responsible for a specific section of *Bun wurrung* territory. The clan responsible for the Seaford area was the *Mayune balug,* whose name in traditional language means 'Mayune people' after the locality. Historical sources place the *Mayune balug* at Carrum Swamp, Cranbourne, the upper part of the Mornington Peninsula and Mayune Station (Clark 1990: 365, 367). The *Mayune balug* belonged to the *Bunjil* Moiety.

Resources

Similar to other Australian clans, the *Bun wurrung* were hunters and gatherers. Some of the native species which still exist that may have been hunted include the Long-nosed Potoroo, the Swamp Antechinus, the White-footed Dunnart, the Broad-toothed Rat, the Feather-tailed Glider and the Eastern Pygmy-possum, as well as the more familiar kangaroos, koalas and wombats (Smyth 1876). The *Bun wurrung* probably targeted these and other terrestrial species; however, they are also known as the "saltwater people", who heavily

exploited the coastline and marine resources. The Wilsons Promontory area is known to have provided valuable food resources to the people, especially during the summer season.

Although women occasionally hunted; their primary role included gathering food and other resources. Women provided the bulk of the food (supplying as much as 80% of food requirements). They carried a collecting bag and long digging sticks which were vital in the gathering of tuberous plants; these comprised a third of the 940 plant species which have been recorded as food sources. In the Melbourne area, daisies, lilies and orchids flourished. *Murnong* or yam daisies were eaten raw in spring but cooked at other times. In the *Bun wurrung* area, the women were also in charge of collecting shellfish (Presland 2010). For vegetables they would collect a variety of bulbs, shoots and foliage like the Warrigal Spinach, and they would make a drink from the nectar of the Coastal Banksia flowers.

The primary food source for the *Bun wurrung* was undoubtedly the coastal landscape that formed much of their traditional territory. This maritime adaptation is evidenced by the numerous shell middens on cliffs and sand dunes of Port Phillip, Bass Strait and the Western Port (Massola 1959:180). Other middens can be found at one of their many coastal camps at Mordialloc, Frankston or Warneet on the Westernport Bay, and these in particular are attributed to the *Mayune balug*. Here they would have accessed many of their favourite resources such as bird eggs, fish, shellfish, eels, freshwater mussels and crayfish.

Conflict

Before conflicts with European people arose, the *Bun wurrung* had several enemies, including the *Braiakolung* and the *Brataoulung,* the most westerly clans of the *Kurnai* or *Gunai* tribes from the Gippsland region. They would raid the *Bun wurrung* camps, kill every man and take younger women. These conflicts continued until the mid-1840s (Massola 1959:181). As Ellender (2002) demonstrates, the area of Southern Gippsland around Wilsons Promontory appears to have undergone a change in ownership from *Bun wurrung* peoples to *Brataulung* around 1844. This change was likely the culmination of a long-standing feud between the two groups, and as a consequence there rose a depopulated buffer zone between the *Bun wurrung* and the *Gunai* (*Kurnai*) groups. As such, the whole area was susceptible to being occupied by other groups and European people.

Post European Contact

The *Bun wurrung* were one of the first Victorian clans to be contacted by European people as early as 1803 in Sorrento. In resistance, they allied with the *Woi wurrung*, forming what early writers called “the two Melbourne tribes” (Massola 1959: 180). Following French and English exploration, there was the failed settlement at Sorrento in 1803 and the settlement at Corinella in 1826.

The *Bun wurrung* had contact with whalers and sealers from the beginning of the nineteenth century (such as the *Lady Nelson* voyage). It is possible that these early encounters had an impact in the number of individuals later recounted by settlers during the Protectorate period (Presland 2010: 84). During the mid-1850s attempts to create a permanent settlement failed due to poor soils and the lack of fresh water. Nonetheless, the presence of foreign people had a devastating influence among the *Bun wurrung*, with the rapid spread of chickenpox and other diseases that had fatal results on the Aboriginal people (Presland 2010: 87).

European arrival in the region had a devastating effect on the *Bun wurrung*. A steep decline in the Aboriginal population was recorded after initial contact with European people, primarily caused by conflict with whalers

and sealers in the form of warfare and their practice of removing Aboriginal women from the area by barter or force, or the relocation of Aboriginal men to other places such as islands in Bass Strait (Gaughwin and Sullivan 1984: 82).

The introduction of new diseases also decimated the local Aboriginal population (Gaughwin and Sullivan 1984: 85). In 1840, the Assistant Protector ordered the establishment of a protectorate station near what is now Endeavour Hills (Frankston); this was called *Narre Narre Warren* and formed part of the Western Port Protectorate (Massola 1959: 183). Between 1840 and 1844, Thomas worked in vain to convert the small numbers of Aboriginal people to a sedentary life at *Narre Narre Warren*. His efforts collided with the development of a Native Police Corps for Victoria, established firstly in 1837 and then in 1842, whose headquarters were based in the same Protectorate. Most young men were interested in leaving and joining the Corps, rather than staying permanently at the protectorate. In 1841 a camping reserve was established for the *Bun wurrung* at Mordialloc, and rations were distributed by the settler Alexander McDonald, and later by Honorary Correspondents to the Board of the Protection of Aborigines.

Between the years of 1839 and 1843 William Thomas worked with the *Bun wurrung* in a variety of roles, including accompanying them on hunting expeditions, recording some of their stories, and organising the Aboriginal camping reserves in order to keep the European settlers and the original inhabitants of the area separate. This did not always work and, Thomas spent a fair amount of time visiting gaols which had incarcerated members of the *Bun wurrung* (Gaughwin and Sullivan 1984: 84-85). By 1856 many of the *Bun wurrung* had moved to the Mordialloc Station. A school for Aboriginal children was also set up on Merri Creek (Presland 1994: 100). The reserve ceased operation in 1878 and the remaining Aboriginal population were transferred to the Coranderrk Mission Station.

While many Aboriginal people lived on the missions and government stations, a significant number of people worked and lived on farms and pastoral stations. Some Aboriginal people farmed the land on smallholdings, or worked in industries such as fishing, the goldfields, and in the timber industries. People outside the reserves sometimes gathered together in camp sites on the outskirts of towns. They were also involved in sports such as cricket, football and athletics.

By the turn of the century only a small population of Aboriginal people lived on the missions and government stations, with most living and working in the same general area. The last missions and stations were phased out in the 1920s. Pressure from the government forced most of the remaining Aboriginal peoples to leave the Coranderrk Mission Station and it closed in 1924 (Presland 1994: 100). Since the 1920s, Aboriginal people have continued to live in most areas of Victoria, often with strong ties to their original clan and tribal areas.

Today the descendants of the *Mayune balug* clan of the *Bun wurrung* language group are represented by the Bunurong Land Council Aboriginal Corporation and the Boon Wurrung Foundation.

Oral History

The Bunurong Land Council Aboriginal Corporation and Boon Wurrung Land and Sea Aboriginal Corporation did not offer any oral histories relating to the activity area for inclusion in this report.

3.1.2 Archaeological Character

Archaeological evidence suggests that Aboriginal Peoples had occupied all of Australia's environmental zones by 40,000 years BP. Pleistocene archaeology of the Port Phillip Bay and Hinterland area documents human occupation dating back at least 40,000 years (Coutts et al. 1976:68). Until recently, the oldest dated archaeological site in Victoria occurs at Keilor in Melbourne. Charcoal from a hearth excavated in 1973 has been dated to 31,000 years BP (Flood 1995:286). More recently research at the Bend Road site in Melbourne's southeast has dates extending back to 30–35,000 BP (Hewitt and Allen 2010). However, the majority of the site is associated with the late-Holocene backed artefact period—the site has now yielded hundreds of asymmetric points and geometric microlith forms. The site points to more common resource orientation patterns relevant to many greater Melbourne Aboriginal Places. Notably, the site is located on an undulating sand promontory jutting out into the northern end of Carrum Swamp. Such land was likely subject to irregular inundation and periodic drying, Hewitt and Allen (2010:3) state:

> *"Aboriginal use of this resource was also likely to have been seasonal. Ethnographic accounts suggest that birds, eggs, fish, yabbies, shellfish, eels and edible swamp plants, together with the focus the swamp provided for foraging terrestrial marsupials, would have made the area an important resource for Aborigines, especially in spring".*

3.1.3 Victorian Aboriginal Heritage Register Search

The following section reviews the Aboriginal context of the activity area and includes an examination of previously recorded Aboriginal archaeological Place types and locations in the geographic region of the activity area and, archaeological studies undertaken in the area. Together, these sources of information can be used to formulate a predictive Place model concerning what types of Places are most likely to occur in the activity area, and where these are most likely to occur.

A search of the Victorian Aboriginal Heritage Register (VAHR) was conducted on 14 February 2025 for Aboriginal Places within a 2 km radius of the study area. Searching an area with this extent ensured that a relevant and representative sample of information was obtained.

The search identified a total of 136 registered Aboriginal Places within a 2 km radius of the study area. These Places consist of a total of 267 Place components comprising four Place component types (Table 4). The difference between the number of Places and number of Place components is because several Places contain two or more Place component types. 12 Aboriginal Places are located within the study area consisting of three component types exclusive of Object Collections (Table 3 and Map 12).

Places within the Study Area include the following:

- REDACTED
- REDACTED
- REDACTED
- REDACTED
- REDACTED

- REDACTED
- REDACTED
- REDACTED
- REDACTED
- REDACTED
- REDACTED
- REDACTED

Table 3: Summary of component types within the activity area

Component Type	Quantity	Percentage (%)
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED

- REDACTED

A summary of the Aboriginal archaeological Place component types appears in Table 4 and a list of all Places in the study area are shown in Table 5. A list of all Aboriginal Places within the search area can be found in Appendix 1.

Table 4: Summary of Previously Identified Aboriginal Place Component Types within 2 km

Place Component Type	Quantity	Percentage (%)
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED

Table 5: List of Previously Identified Places within the Study Area

VAHR Place Number	Component Number	Place Name	Place Component Type	Landform	Place Details
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED
			REDACTED	REDACTED	
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED	REDACTED	REDACTED

3.1.4 Previous Archaeological Reports

REDACTED

3.2 Aboriginal Archaeological Place Prediction Statement

The following Place prediction statement[1] has been formulated from the review of previous assessments. The statement presented is based on a Place type approach. (For further information on Place types see FP-SR 2023).

The review of the previously recorded Aboriginal Places and previous archaeological investigations within the search area indicates that the Places type most likely[2] to occur in the study area are artefact scatters and low-density artefact distributions (LDAD). Other Place types considered unlikely to occur in the study area are stone artefact scatters, scarred trees, shell middens, mounds, quarries, stone arrangements, and Aboriginal burials.

The results of the desktop assessment show that the study area may have been subjected to modification like other parts of the Carrum Downs where topsoils were removed. The natural soil was stripped through much of the region after the draining of the swamp from the 1860s. Native vegetation has also been removed from the immediate surroundings of the study area, therefore while the results from the search of Aboriginal Place types in the region and previous reports show that scarred trees are a likely place type, due to the land use history of the study area, the chances of recording a scarred tree within the study area is slight.

Stone Artefact Scatters are considered likely to occur within the study area. Stone artefact scatters are one of the most prevalent Place types that have been identified in the geographic region, most of these occur within the inland sand dune landforms, six of which there are located within the study area.

Stone tools were made by hitting one piece of stone, called a core, with another called a 'hammerstone', often a pebble. This would remove a sharp fragment of stone called a flake. Both cores and flakes could be used as tools. New flakes were very sharp, but quickly became blunt during use and had to be sharpened again by further flaking, a process called 'retouch'. A tool that was retouched has a row of small flake scars along one or more edges. Retouch was also used to shape a tool.

Not all types of stone could be used for making tools. The best types of stone are rich in silica, hard and brittle. These include quartzite, chert, flint, silcrete and quartz. Aboriginal people quarried such stone from outcrops of bedrock or collected it as pebbles from stream beds and beaches. Many flaked stone artefacts found on Aboriginal Places are made from stone types that do not occur naturally in the area. This means they must have been carried over long distances.

Stone tools are the most common evidence of past Aboriginal activities in Australia. They occur in many Places and are often found with other remains from Aboriginal occupation, such as shell middens and cooking

[1] The term 'site prediction statement' is sometimes referred to as 'site prediction model'. Ecology and Heritage Partners Pty Ltd prefers the term 'statement' as it is more accurate; 'statistical modelling' is a rigorous and comprehensive process using empirical data.

[2] Likely is an assessment of site types with a 50% or more likelihood of occurring; Unlikely is an assessment of site types with less than 50% likelihood of occurring.

hearths. They are most common near rivers and creeks. It is easier to find them where there is limited vegetation or where the ground surface has been disturbed, for example by erosion.

Artefact scatters are the material remains of past Aboriginal people's activities. Scatter Places usually contain stone artefacts, but other material such as charcoal, animal bone, shell and ochre may also be present. No two scatters are the same.

Artefact scatters can be found wherever Aboriginal occupation has occurred in the past. Aboriginal campsites were most frequently located near a reliable source of fresh water, so surface scatters are often found near rivers or streams where erosion or disturbance has exposed an older land surface.

Low Density Artefact Distributions are considered **likely** to occur in the study area. LDADs are one of the most common Place type in the geographic region, some of which have been identified within the inland sand dune landform.

Low density artefact distributions are stone artefact Places that comprise up to 10 artefacts in a 10 x 10 m area and where artefact clusters are all contained within a single 1:100,000 scale map sheet. LDADs can occur singly and may occur anywhere in the landscape. Surface artefacts may be indicative of further subsurface archaeological deposits. This Place type can be found anywhere within the landscape; however, they are more likely to occur within contexts with the same favourable characteristics for stone artefact scatter Places.

Scarred Trees are considered **unlikely** to occur in the study area due to the clearing of native vegetation within the study area. Although one scarred tree has been recorded in the geographic region examination of aerial photography shows limited mature vegetation in the study area which may include remnant native vegetation.

Shell Middens are considered **unlikely** to occur in the study area. None have been recorded close to the study area.

Earth Features are considered **moderately likely** to occur in the study area. One earth feature has been previously recorded in the study are, but these are generally rare and have only been identified within sand sheet landforms, and the previous disturbance and clearing of the study area means that they are unlikely to be present except within intact or partially deflated sandy rise (source bordering dune) landforms.

Quarries are considered **unlikely** to occur in the study area. The geomorphology of the area shows an absence of rock outcrops suitable for quarrying.

Stone Arrangements are considered **unlikely** to occur in the study area as none have been recorded in the geographic region.

Stony Rises are considered **unlikely** to occur in the study area. The area is a former swamp with alluvial soils deposited from the flow of water. Stony Rises do not occur in this geological formation.

Aboriginal Burials are considered **unlikely** to occur in the study area. None have been recorded in the geographic region.

3.3 Summary of the Results and Conclusions

The geographic region encompasses as a 2 km radius around the study area and is located within the Gippsland Plain bioregion. The geographic region reflects the specific vegetation history and resource availability in the area and exhibits environmental characteristics that likely influenced Aboriginal occupation. This includes Clyde Creek which is located 1.6 km north-east of the study area, addresses the specific environmental context of Holocene resources available from the study area. The environmental context demonstrates that the study area is located within a sand sheet namely, the inland dune deposits (Qd1) which is an area of cultural heritage sensitivity.

REDACTED

The Gippsland Plain is known to possess intermittent unmapped sandy rise deposits, which are source-bordering dunes, and which are known areas of archaeological likelihood. There is potential for these sandy deposits to be present and provisional locations have been identified through analysis of 1-5 m and 10 m digital elevation models (see Map 10). If any sandy deposits are confirmed within the study area, the potential for Aboriginal cultural heritage will be high. Based on these findings it is considered highly likely that Aboriginal cultural heritage will be present in the study area.

4 FIELD INSPECTION

A brief field inspection (Map 11) of the study area was conducted to confirm the results of the desktop assessment and to identify areas of archaeological likelihood for Aboriginal cultural heritage and areas of significant ground disturbance. The inspection was not considered to constitute an archaeological survey to find Aboriginal cultural heritage.

The field inspection was carried out on 31st January 2023 by Lexie Branda-Pawlaczyk (Archaeologist/Heritage Advisor) and Sotiria McDonald (Archaeologist/Technical Officer) with the participation of Sonia Weston and Danika Corcoran, both Cultural Heritage Officers from the Bunurong Land Council Aboriginal Corporation.

4.1 Aims and Objectives

The aim of the field inspection was to:

- To identify any areas of Aboriginal archaeological likelihood in areas that will be impacted by the proposed development;
- Identify landforms with the potential for subsurface Aboriginal cultural heritage material; and
- To verify the results of the background review.

4.2 Landforms

The activity area is known to have sand dunes, watercourses and sandy rise landforms (source-bordering dunes) across the landscape (Map 6 and Map 10).

The inspection of the activity area involved identifying and confirming the landforms that are known to contain Aboriginal cultural heritage material within the activity area and geographic region. As noted in the Environmental Context, these landforms include areas of elevation (e.g. sand dunes, low rises, sandy rises, sand sheets and hills), and areas in proximity to water sources.

The ground disturbance from sand mining, agricultural and horticultural activity has likely impacted the upper soil profiles of the activity area; however, the deeper deposits are likely mostly intact. A high level of ground disturbance has occurred in a portion of the activity area as a result of the sand extraction.

Minor waterways, water arterials, dams, unmodified drainage lines and modified drainage lines, and standing water were identified from visual inspection and aerial maps.

Mature indigenous trees and native plants as well as non-native trees and plants were present in the activity area.

An abundance of rabbits was noted during the site inspection, with warrens and tunnels found across the activity area. Rubbish dumps and spoil piles were present on many of the properties with the activity area.

4.3 Previous Ground Disturbance

A site inspection was conducted in the study area and concluded that the activity area has been subject to a variety of ground disturbance activities since European colonisation. Despite these activities, areas of archaeological potential were identified. These were areas representing intact natural landforms and known VAHR sites.

Casey Fields South

Development in Casey Fields South included (but not limited to) the following:

- Urban to semi-rural residential properties and associated outbuildings (Plate 1);
- Commercial properties (Plate 2);
- Horticultural activity (Plates 3 and 4), including market gardens;
- Agricultural activity (Plates 5 and 6);
- Schools and colleges (Plate 7);
- Cow paddocks (Plate 8);
- Service station (Plate 9);
- Public Areas (Plate 10)

REDACTED

Plate 1: Study area facing west showing residential property (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 2: Study area facing west showing commercial property (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 3: Study area facing east showing horticultural activity (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 4: Study area facing east showing horticultural activity (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 5: Study area facing east showing agricultural activity (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 6: Study area facing east showing agricultural activity (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 7: Study area facing east showing school building (Photograph taken by SM on 31/01/2023)

Plate 8: Study area facing east showing a cow paddock (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 9: Study area facing west showing entrance to service station (Photograph taken by SM on 31/01/2023

REDACTED

Plate 10: Study area facing west showing public area (Photograph taken by SM on 31/01/2023)

Devon Meadows PSP

Development in Devon Meadows PSP included (but not limited to) the following:

- Urban to semi-rural residential properties and associated outbuildings (Plate 11);
- Industrial activities (Plate 12);
- Horticultural activity (Plates 13 and 14), including market gardens;
- Sand mining and quarries (Plates 15 and 16);
- Car wrecker (Plate 17),
- Religious centre (Plate 18),

Exposed areas showed silty sand sub-surface, confirming the presence of sand dunes (Plates 19 and 20).

REDACTED

Plate 11: Study area facing west showing residential property (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 12: Study area facing west showing industrial activity (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 13: Study area facing west showing horticultural activity (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 14: Study area facing west showing market gardens (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 15: Study area facing west showing sand mining activity (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 16: Study area facing west showing sand mining activity (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 17: Study area facing south showing car wrecker yard (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 18: Study area facing west showing religious centre (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 19: Study area facing east showing exposed silty sand sub-surface in nature strip (Photograph taken by SM on 31/01/2023)

REDACTED

Plate 20: Study area showing exposed silty sand sub-surface (Photograph taken by SM on 31/01/2023)

4.4 Limitations of the Field Inspection

A formal archaeological survey of Casey Fields South (Employment) and Devon Meadows PSP was not conducted for this project. A visual inspection of the landforms was undertaken from publicly accessible road reserves and where access was granted.

4.5 Areas of Aboriginal Cultural Heritage Likelihood

REDACTED

4.6 Results of the Field Inspection

The inspection found that the agricultural and horticultural history of Casey Fields South (Employment) and Devon Meadows PSP is still strongly evident, despite the rapid rate of urbanisation of the area and surrounding areas. The Casey Fields South (Employment) and Devon Meadows PSP is made up of residential, commercial, and industrial properties, comprised of allotments varying in size. The roads within the study area vary in size and carrying capacity, ranging from the major carriageway of the South Gippsland Highway to the asphalted surfaces of Craig Road, Devon Road, Clyde-Five Ways Road, and Ballarto Road.

The study area has been subject to a range of ground disturbing activities since post-European occupation of the region. In addition to urban to semi-rural residential properties, large portions of land within the study area have been allotted to animal paddocks, agricultural and horticultural activity (specifically market

gardens), industrial and commercial activity, religious and education centres, and sand mining and quarrying; however, landforms, including sand dunes, low rises, sandy rises, sand sheets and hills, are still identifiable in the study area. The previous ground disturbing activities within the study area does not certainly negate the potential for the presence of Aboriginal cultural heritage, as subsurface deposits (e.g. sand sheets) are likely to be undisturbed and intact, and not impacted by the post-European land use activities undertaken on the ground surface.

5 ABORIGINAL CULTURAL HERITAGE IMPACT ASSESSMENT

5.1 Avoidance, Minimisation and Management of Harm and Contingency Planning

5.1.1 Previously Recorded Aboriginal Places within the Project Area

REDACTED

5.2 Cumulative Impacts

Table 6: Cumulative impacts on Aboriginal Heritage relating to the activity area

Report date, author, and number	Report type and distance to study area	Places Identified	Impacts Permitted
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED	REDACTED

5.3 Summary

The expanding development of Bunurong Country has had significant cumulative impacts on the entirety of Aboriginal cultural heritage within and beyond the RAP area. CHMP management conditions are designed to mitigate and minimise harm to specific Aboriginal Places and are intended to account for cumulative harmful impacts across the landscape. In recent years, archaeological salvage was considered to be an acceptable management condition. However, salvage itself is harm and for this reason is now considered a last resort management condition applied only where a development absolutely cannot avoid impact. Instead, the preferred management condition in place of salvage is the establishment of heritage parks, conservation zones or minimally landscaped passive open spaces.

Table 6 shows that when proposed activities are deemed to unavoidably impact Aboriginal cultural heritage, surface or subsurface salvage of the Aboriginal Places is the common management condition in order to salvage an understanding of the Aboriginal Place, the Place type and their context with the geographic region.

However, cumulatively, salvage of all Places in the region would effectively remove all in situ material culture from Places in the region.

Artefacts identified through salvage measures tend to be repatriated and reburied near the salvaged Place outside of further development impacts. It should be noted that the original location of Aboriginal cultural heritage is still considered a Place after salvage, destruction or other harm, and the reburial location becomes registered as an additional component (an object collection) to that Place.

The Devon Meadows and Casey Fields South (Employment) PSP regions are highly archaeologically sensitive as evidenced by hundreds of investigations in the broader region. We know that through at least the last 6,000 years, this region contained a mix of wetlands and islands of dry sandy dunes. People hunted and fished extensively for thousands of years in these now-dry wetlands and camped and lived on the dryland dunes and sandy rises scattered throughout. Conscientious development and the stewardship of this landscape is paramount for the positive protection and management of Aboriginal cultural heritage.

In considering future developments in the Devon Meadows and Casey Fields South (Employment) PSPs, care should be taken to understand the cumulative impact of further archaeological salvage. Wherever possible, and through early identification, allowances in the developments should be made to include provisions for heritage parks, conservation areas and passive open spaces which will avoid specific harm to the Places and slow the cumulative harmful impacts of development on Bunurong Country.

6 MANAGEMENT SUMMARY AND RECOMMENDATIONS

Ecology and Heritage Partners, in consultation with the Bunurong Land Council Aboriginal Council (BLCAC), require the following recommendations followed before the proposed works commence:

6.1 Recommendation 1

Cultural Values Assessments (CVA) are an integral component in identifying the values of the Traditional Owners within the PSP areas. A CVA, led by BLCAC, should be undertaken to identify and record the traditional cultural heritage values contained within the study area. Values and areas of significance highlighted by the CVA should be incorporated into the PSP design to afford upfront opportunities for harm avoidance, minimisation and mitigation. The PSP development should consider the following subject to the detail and recommendations of the CVA:

- The use of traditional Bunurong place names within the PSP;
- The installation of Aboriginal cultural values signage throughout the PSP;
- The conservation of areas of intangible and tangible Aboriginal cultural heritage within the PSP; and
- The incorporation of the Aboriginal story of Country in public spaces.

6.2 Recommendation 2

Cultural Heritage Management Plans (CHMPs) must be prepared in accordance with PSP development staging and Sponsors. Each CHMP should be undertaken as required (see Appendix 2 for a list of High Impact Activities) for activities relating to PSP development and should provide management recommendations which interface with those of associated CHMPs. Additionally, where development impacts absolutely cannot avoid impact to Aboriginal cultural heritage, salvage methodologies should be prepared with BLCAC-guided research questions and incorporate, where possible, optically stimulated luminescence dating, radiocarbon dating, artefact use-wear analysis, pollen analysis, plant macrofossil analysis, soil micromorphology and particle size analysis of the sediments.

6.3 Recommendation 3

Aboriginal Places and areas of archaeological potential within the study area should be included in areas of public open space where possible. This measure is intended to minimise harm to Aboriginal Places. Open spaces should be managed considering preserving the natural and cultural heritage values. Construction and installation of infrastructure or other facilities within the open spaces should be designed in a manner to minimise impacts to the landscape and enhance public access. Public appreciation should also be encouraged through the installation of interpretation, signage, indigenous revegetation, and development of cultural programs in close consultation with the BLCAC and informed by the CVA outlined in Recommendation 1.

Map 12 should be used as a starting point for designating open spaces. However, Map 12 provides indicative and likely locations for Aboriginal cultural heritage and should be ground-truthed with a formal archaeological survey prior to incorporation in PSP development planning.

7 MAPS

All Maps Redacted

Map 1: Location of Study Area

Map 2: Extent of Study Area and Area of Sensitivity

Map 3: Overview of Proposed Development Plan (Source: VPA 2022)

Map 4: Bioregions in the Geographic Region

Map 5: Geology in the Geographic Region

Map 6: Geomorphology in the Geographic Region

Map 7: Pre-1750 Ecological Vegetation Classes in the Geographic Region

Map 8: Previously Registered Aboriginal Places in the Geographic Region

Map 9: Previously Recorded Historical Heritage Places near the Study Area

Map 10: Aboriginal Cultural Heritage Place Prediction Plan

Map 11: Surveyed Area

Map 12: Areas of Aboriginal Cultural Heritage Likelihood

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9 APPENDICES

Appendix 1: Previously Registered Places

Table 7: Previously Registered Placed within 2 km of Study area

REDACTED

Appendix 2: High Impact Activities, Division 5, *Aboriginal Heritage Regulations 2018*

Division 5—High impact activities

45 Purpose

The purpose of this Division is to specify high impact activities.

Note

Under regulation 7, a cultural heritage management plan is required for an activity if all or part of the activity area is an area of cultural heritage sensitivity and if all or part of the activity is a high impact activity.

46 Buildings and works for specified uses

(1) The construction of a building or the construction or carrying out of works on land is a high impact activity if the construction of the building or the construction or carrying out of the works—

(a) would result in significant ground disturbance; and

(b) is for, or associated with, the use of the land for any one or more of the following purposes—

(i) aquaculture;

(ii) a camping and caravan park;

(iii) a car park;

(iv) a cemetery;

(v) a child care centre;

(vi) a corrective institution;

(vii) a crematorium;

(viii) an education centre;

(ix) an emergency services facility;

(x) a freeway service centre;

(xi) a hospital;

(xii) an industry;

(xiii) intensive animal husbandry;

(xiv) a major sports and recreation facility;

(xv) a minor sports and recreation facility;

(xvi) a motor racing track;

(xvii) an office;

(xviii) a place of assembly;

(xix) a recreational boat facility;

(xx) a research centre;

(xxi) a residential building;

(xxii) a residential village;

(xxiii) a retail premises;

(xxiv) a retirement village;

(xxv) a service station;

(xxvi) a transport terminal;

(xxvii) a utility installation, other than a telecommunications facility, if—

(A) the works are a linear project that is the construction of an overhead power line with a length exceeding one kilometre or for which more than 10 power poles are erected; or

(B) the works are a linear project that is the construction of a pipeline with a length exceeding 500 metres; or

(C) the works are a linear project with a length exceeding 100 metres (other than the construction of an overhead power line or a pipeline with a pipe diameter not exceeding 150 millimetres); or

(D) the works affect an area exceeding 25 square metres;

(xxviii) a veterinary centre;

(xxix) a warehouse;

(xxx) land used to generate electricity, including a wind energy facility.

(2) The terms used in subregulation (1)(b) have the same meanings as they have in the VPP.

(3) Despite subregulation (1), the construction of a building or the construction or carrying out of works on land is not a high impact activity if it is for, or associated with, a purpose listed under subregulation (1)(b) for which the land was being lawfully used immediately before 28 May 2007.

(4) In this regulation, ***linear project*** has the same meaning as in regulation 81.

47 Constructing specified items of infrastructure

(1) The construction of any one or more of the following is a high impact activity if the construction would result in significant ground disturbance—

(a) an airfield;

(b) a bicycle track with a length exceeding 500 metres;

(c) a fuel break where a permit is required to remove or destroy native vegetation;

(d) a helipad;

(e) rail infrastructure, other than—

(i) a railway track with a length of less than 100 metres; or

(ii) a railway track siding with a length of less than 100 metres; or

(iii) a cutting with a length of less than 100 metres; or

(iv) a tunnel with a length of less than 100 metres; or

(v) a bridge with a span of less than 100 metres; or

(vi) a platform with a length of less than 100 metres; or

(vii) a service road with a length of less than 100 metres;

(f) a roadway with a length exceeding 100 metres;

(g) a walking track with a length exceeding 500 metres;

(h) a telecommunications line consisting of an underground cable or duct with a length exceeding 500 metres.

(2) In this regulation, ***telecommunications line*** has the same meaning as in the VPP.

48 Dwellings

(1) The construction of 3 or more dwellings on a lot or allotment is a high impact activity.

(2) The carrying out of works for 3 or more dwellings on a lot or allotment is a high impact activity.

(3) This regulation does not apply to the construction of, or the carrying out of works, for a residential village or retirement village within the meaning of the VPP.

Example

Constructing an apartment tower containing 50 dwellings is a high impact activity. Constructing or extending only one or 2 dwellings on a lot or allotment is not a high impact activity.

Note

See regulation 9 in relation to the construction of a building, or the construction or carrying out of works, where the building or works are ancillary to an existing dwelling or the construction of one or 2 dwellings on a lot or allotment. See regulation 10 in relation to the construction of 3 or more dwellings on a small lot.

49 Subdivision of land

(1) The subdivision of land into 3 or more lots is a high impact activity if—

(a) the planning scheme that applies to the activity area in which the land to be subdivided is located provides that at least 3 of the lots may be used for a dwelling or may be used for a dwelling subject to the grant of a permit; and

(b) the area of each of at least 3 of the lots is less than 8 hectares.

(2) The subdivision of land into 2 or more lots in an industrial zone is a high impact activity.

(3) In this regulation, ***industrial zone*** has the same meaning as in the VPP.

Note

See regulation 11 in relation to small subdivisions.

50 Alpine resorts

(1) The construction of a building or the construction or carrying out of works in an alpine resort is a high impact activity if the construction of the building or the construction or carrying out of the works would result in significant ground disturbance.

(2) In this regulation, ***alpine resort*** has the same meaning as in the **Alpine Resorts Act 1983**.

51 Activities requiring earth resource authorisations

An activity is a high impact activity if it is an activity—

(a) for which an earth resource authorisation is required before the activity may be carried out; and

(b) that would result in significant ground disturbance.

52 Extraction or removal of stone

(1) The extraction or removal of stone (other than sand or sandstone) that does not require an earth resource authorisation is a high impact activity if—

(a) the primary purpose of the extraction or removal is—

(i) the sale or commercial use of the stone; or

(ii) the use of the stone in construction, building, roadway or manufacturing works; and

(b) the land from which the stone is extracted or removed is more than 2000 square metres; and

(c) the extraction or removal would result in significant ground disturbance.

(2) In this regulation, ***stone*** has the same meaning as in the **Mineral Resources (Sustainable Development) Act 1990**.

53 Extraction or removal of sand or sandstone

(1) The extraction or removal of sand or sandstone (other than extraction or removal that requires an earth resource authorisation) is a high impact activity if the extraction or removal would result in significant ground disturbance.

(2) Subregulation (1) does not apply to the extraction or removal of sand or sandstone—

(a) from land that is a farm if the sand or sandstone is intended in good faith only to be used on that farm for the purposes of a dam or other farm works and not for sale or any other commercial use; or

(b) undertaken by or on behalf of a Minister responsible for the administration of the **Conservation, Forests and Lands Act 1987** where the primary purpose of the extraction is for the footings or foundations of a building or structure, the construction of a carpark, roadway, track or other works or for any borrow pit adjacent to such an excavation; or

(c) if the extraction or removal, including dredging, constitutes works for marine navigational purposes or the establishment or renourishment of a beach; or

(d) if the extraction or removal constitutes works for the purpose of establishing a port facility, railway or tunnel; or

(e) if the primary purpose of the excavation or removal is for the construction of the footings or foundations of a building or structure.

54 Stone exploration

(1) Stone exploration is a high impact activity if it would result in significant ground disturbance.

(2) In this regulation, ***stone exploration*** has the same meaning as in the VPP.

55 Extraction or removal of loose stone on agricultural land on Victorian Volcanic Plain

(1) The extraction or removal of loose stone from the surface of land used for agriculture on the Victorian Volcanic Plain is a high impact activity if the extraction or removal—

(a) is for the primary purpose of land improvement, including pasture enhancement; and

(b) would result in significant ground disturbance.

(2) The crushing of loose stone on the surface of land used for agriculture on the Victorian Volcanic Plain is a high impact activity if the crushing is—

(a) by machinery; and

(b) for the primary purpose of land improvement, including pasture enhancement.

(3) Subregulations (1) and (2) do not apply if the land is used for crop raising or has been used for crop raising.

(4) In this regulation—

agriculture and ***crop raising*** have the same meanings respectively as they have in the VPP;

stone has the same meaning as in the **Mineral Resources (Sustainable Development) Act 1990**;

Victorian Volcanic Plain means the area comprised of the areas identified as "Ne", "Neo", "Neo1", "Neo2", "Nep1", "Nept", "Neptp", "Nes", "Nes2" and "Nes3" in the Surface Geology of Victoria 1:250 000 map book.

56 Timber production

(1) The use of an area of land greater than 40 hectares in size for timber production is a high impact activity if—

(a) a permit is required under a planning scheme to use the land for timber production; and

(b) the use of the land for timber production would result in significant ground disturbance.

(2) The construction of a building associated with timber production is a high impact activity if—

(a) a permit is required under a planning scheme to construct the building; and

(b) the construction of the building would result in significant ground disturbance.

(3) In this regulation, ***timber production*** has the same meaning as in the VPP.

Note

A permit may not be required under a planning scheme to use an activity area for timber production if the timber production is ancillary to a particular agricultural enterprise (such as agroforestry).

57 Dams

The construction or alteration of a private dam, other than on a waterway, is a high impact activity if a licence is required under section 67(1A) of the **Water Act 1989** for the construction or alteration of the private dam.

58 Use of land

(1) The use of land for a purpose specified in regulation 46(1)(b) is a high impact activity if a statutory authorisation is required to change the use of the land for that purpose.

(2) The use of land for an extractive industry is a high impact activity if a statutory authorisation is required to use the land for the extractive industry.

(3) The use of a lot or allotment for 3 or more dwellings is a high impact activity if a statutory authorisation is required to use the lot or allotment for 3 or more dwellings.

(4) Despite subregulations (1), (2) and (3), if the whole of the activity area for an activity referred to in subregulation (1), (2) or (3) has been subject to significant ground disturbance, that activity is not a high impact activity.

(5) In this regulation, ***extractive industry*** has the same meaning as in the VPP.

Example

A land owner proposes to change the use of his or her land from the grazing of animals to the storage of shipping containers. The land is flat and, in the first instance, no works are proposed, although the grass will first be cut and some non-indigenous shrubs removed. The use of the land for storing shipping containers is an industry and requires a statutory authorisation (a permit under the relevant planning scheme). The proposed use is a high impact activity. If, at a later date, the area is upgraded by works, including excavation for a concrete base on which to store the containers, the upgrade works would also be a high impact activity under regulation 46(1).