Geelong Planning Scheme Amendment C395

30 Avonlea Road Bell Post Hill

Instructed by Arnold Bloch Leibler

Expert Witness Statement

Prepared by

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November 5 2019

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1 Witness Information

Mark Trengove, of

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Mark Trengove, of Mark Trengove Ecological Services, has extensive expertise in terrestrial ecology and related legislation and policies in Victoria. His qualifications and experience are summarized in Appendix 1.

This statement has been prepared following instruction from Arnold Bloch Leibler. I have no business or private relationship with the permit applicant or Arnold Bloch Leibler other than being instructed to prepare this statement.

2 Work Undertaken

Mark Trengove Ecological Services has undertaken the following investigations.

- 30 Avonlea Road Bell Post Hill Vegetation and Net Gain Assessment (February 2012)
- 30 Avonlea Road Bell Post Hill Vegetation Assessment (November 2019).

Copies of my February 2012 and November 2019 reports are attached at Attachment 1 and Attachment 2.

The purpose of this expert witness statement is to provide the Panel with evidence regarding:

- The ecological values that are present upon the subject site, and
- The appropriateness of the proposed response to those ecological values.

The above work was undertaken by Mark Trengove.

In the preparation of this report I have viewed and reviewed the following items:

- Greater Geelong City Council. C395 Planning Scheme Amendment. Section B Reports.
- Ecology and Heritage Partners Pty Ltd. Flora and Fauna Technical Report. Western Geelong Growth Area. August 2017.

3 February 2012 Report

The purpose of the February 2012 report was to:

- Describe the flora values of the land.
- Evaluate the conservation significance of the land.
- Assess any potential impacts of the proposed development.
- Discuss the implications of the proposal for any relevant government policy and legislation.

The findings are summarized as follows:

Results

Ecological Vegetation Class
The pre-1750 EVC mapping of the study area undertaken by DSE indicates that the study area was comprised of EVC 132: Plains Grassland. EVC 132: Plains Grassland is currently listed as 'Endangered' in the Victorian Volcanic Plain bioregion (DSE website ii- EVC Benchmarks -Victorian Volcanic Plains Bioregion). The current study finds no vegetation that accords with this EVC as defined by the Victorian Naive Vegetation Management Framework.

Native Flora
A total of nil indigenous plant species were recorded from the study area.

Rare or Threatened Species
No Rare or Threatened species were recorded from the study area

Vegetation Condition
The vegetation of the vast majority of the study area is comprised of exotic vegetation and bare earth with little or no indigenous vegetation or habitat value. These areas appear to have been subjected to significant disturbance including improved pasture and grazing.

Victorian Native Vegetation Permitted Clearing Regulations

DSE mapping assesses that proposed impact areas are within 'Location A'.

No 'patch' or 'scattered tree' vegetation was recorded area that is proposed to be impacted upon. Consequently, there are no implications of the current proposal under the Regulations.

4 November 2019 Report

The purpose of the November 2019 report was to:

- Describe and evaluate the flora values of the land.
- Discuss the implications of government policy and legislation.
- Discuss the implications of Geelong Planning Scheme Amendment C395.

The findings are summarized as follows:

Ecological Vegetation Class
Areas of riparian native vegetation that occur within Cowies Creek are potentially indicative of either EVC 56 Floodplain Riparian Woodland or EVC 654 Creekline Tussock Grassland. EVC 56 Floodplain Riparian Woodland and EVC 654 Creekline Tussock Grassland are both endangered within the VVP bioregion.

The current study records no areas of native vegetation that accords with EVC 132 Plains Grassland within the study area.

Native Flora
Two recorded native plant species were recorded that are of local conservation significance.

Rare or Threatened Species
No native plant species of National, State or Regional Conservation Significance were recorded during the survey.

Vegetation Condition
30 Avonlea Road, Bell Post Hill, the subject of this report contains vegetation that is overwhelmingly exotic and degraded.

Apart from within the Cowies Creek riparian zone, no indigenous plant species (native vegetation) were located. With the exception of Cowies Creek, ecological values are negligible for the site, including the drainage line area.

Environment Protection and Biodiversity Conservation (EPBC) Act
Due to the degraded nature of the vegetation of the study area, it is assessed that there are no implications for the draft sub-division plan under the EPBC Act for the Natural Temperate Grassland of the Victorian Volcanic Plain ecological community.

Native Vegetation Permitted Clearing Regulations
The draft sub-division plan requires the removal of no ‘patch’ or ‘scattered tree’ native vegetation. Consequently, there would be no implications for the removal of native vegetation under the Native Vegetation Permitted Clearing Regulations.

Discussion
The area of 'Modelled Native Vegetation (in areas not surveyed)' as mapped by Ecology Heritage Partners for the study area is not confirmed by this study. This survey finds these areas to be degraded and comprised of exotic plant species. This finding has implications for the size of the proposed reserved area.

There are no significant ecological values located beyond the proposed municipal reserve area that warrant protection. Consequently, the area of municipal reserve, as proposed by the draft sub-division plan, is broadly supported by the findings of this report as being as an adequate and appropriate response to the local ecological conditions.

5 Conclusions

It is the opinion of this author that:

- The current proposal, as presented in Figure 2 of the November 2019 report, displays due regard for the native vegetation in the study area.
- Ecological impacts of the current proposal are acceptable.
- There are no significant ecological values located beyond the proposed municipal reserve area, as proposed by the draft sub-division plan, that warrant protection.
- The larger ecological reserve area, as proposed by the C395 Planning Amendment is unlikely to provide any significantly improved outcomes for ecological values compared with that as proposed by the draft sub-division plan

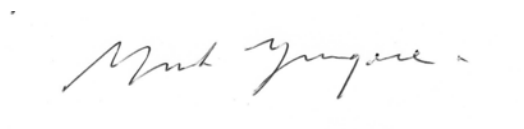
6 Declaration

Provisional Opinions
None.

Inaccuracies and Additional Matters
To my knowledge, there are no inaccuracies in this report or matters related to ecological assessment, other than those stated within the Limitations section of Attachment 1, which fall outside my expertise.

I have made all inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have, to my knowledge, been withheld from the Tribunal.

Signed:



Mark Trengove
Director
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5th of November 2019.

Appendix 1 Abbreviated Curriculum Vitae

Mark Trengove

Mark Trengove Ecological Consultant and Director of
Mark Trengove Ecological Services

2200 Geelong-Ballan Road
Anakie, Victoria

Professional Summary

- Comprehensive knowledge of the flora of south-east Australia.
- Extensive experience with the identification and management of the indigenous flora of the Geelong Region and Victoria.
- Experience in fauna habitat assessment.
- Extensive experience working with landholders, community groups and government.
- Experience in environmental education, communication and public speaking.
- Photographic experience and comprehensive image library.
- Experience with GPS data collection and GIS mapping.
- Experience and DSE Certificate of Competency (#**HH120)** in 'Net Gain' Vegetation Quality Assessments.
- Proprietor of the Geelong Indigenous Nursery from 1987 to 2003.
- Advanced Certificate in Resource Management (Gordon Technical College).
- Board Member Corangamite Catchment Management Authority from 2000 to 2006.

Summary of Work Undertaken

Ecological Reports

- Dog Rocks (Batesford) Flora and Fauna Sanctuary Ecological Assessment and Vegetation Management Plan. Batesford Landcare 2011.
- Waubra, Smythesdale, Beaufort, Blackwood and Gordon Small Towns Sewerage Scheme Vegetation Net Gain assessments – Water Infrastructure Group 2010/2011.
- Toolern Vale Biodiversity Action Plan- DSE, 2006.
- Toolern Vale Merriang & Macclesfield Bush Tender Project- DSE, 2007
- Shell Geelong Refinery Sustainable Land Management Plan, 2006.
- Barwon Heads Bluff Management Plan Review- Barwon Coast CoM, 2006.
- Anglesea Vegetation Study- Surfcoast Shire, 2003.
- Torquay-Jan Juc Vegetation Study- SCS, 2003.
- Aireys Inlet Vegetation Study- SCS, 2004.
- Deans Marsh-Pennyroyal Valley Vegetation Study, SCS, 2005.
- Winchelsea Vegetation Study- SCS, 2006.
- Skenes Creek to Apollo Bay Sewer Scheme Vegetation and Habitat Report, Maunsell P/L for Barwon Water, 2003.
- Otway Gas Project Vegetation Assessment (Port Campbell), Maunsell P/L for Woodside Energy Ltd, 2003.

- Bendigo East Structure Plan Environment Assessment, Maunsell P/L for City of Greater Bendigo,2005.
- Grassy Ecosystem Mapping Project- Shire of Melton, 2002.
- Grassy Ecosystem Mapping Project- Shire of Moorabool, 2002.
- Heathdale Glenorden Wetland Vegetation Assessment, City of Wyndham, 2003.
- Ford You Yangs Proving Ground Vegetation Survey, Ford Australia P/L, 2004.
- Queenscliff Narrows Vegetation Management Plan- DNRE, Queenscliff Community Association, 2001.
- Blue Waters Lake, Ocean Grove Vegetation Management Plan- CoGG, 2000.
- Ocean Grove (Ingamells) Park Vegetation Management Plan, 1998.
- The Management of the Coastal Remnants of the Borough of Queenscliffe, 1992.
- Remnant Roadside Vegetation of the Surfcoast Shire (with Peter Moulton), 1997.
- Remnant Roadside Vegetation of the Golden Plains Shire (with Tim Barlow), 1995.
- The Vegetation of "Ballara", Point Lonsdale- Trust for Nature, 1992.
- The Vegetation of the Bannockburn Recreation Reserve -Friends of Bannockburn Bush,1996.
- Vegetation Management Guidelines for Pt Edwards Flora and Fauna Reserve- Friends of Pt Edwards, 1999.
- Management Guidelines for the Remnant Vegetation of Seaview Park (Belmont Escarpment) Geelong- City of Greater Geelong, 1998.
- Vegetation of the Shell Geelong Refinery- Shell Australia, 1998.
- Vegetation Management Guidelines for Citizens Park, Queenscliff- Borough of Queenscliffe, 1998.
- Vegetation of South West Natural Gas Pipeline- Gas Transmission Corporation, 1998.
- Vegetation of Golden Woods Development Site, Pt Impossible- Golden Wood Pty Ltd, 1998.
- Vegetation Assessment -Live Bomb Range Reserve, City of Wyndham, 1999.

Ecological Input Into Reports

- Melbourne Geelong Water Interconnector Project (KBR Consulting) - Barwon Water, 2007.
- Tullamarine Airport Vegetation Assessment (Phillips Agribusiness), 2005/2006.
- Pt Richards Fauna Reserve Management Plan (Thompson Berrill Landscape Design)- GoGG, 2005.
- Geelong Ring Road Stage 1 Biodiversity Assessment (PPK Consulting), 2005.
- Pt Nepean Ecological Assessment (PPK Consulting)- Department of Defence, 2003.
- City of Greater Geelong Biodiversity Management Plan (Ecology Australia)- CoGG, 2002.
- Environment Management Systems, Biodiversity in Agriculture (Western Ecological Services)- DNRE, 2002.
- Ford Lara Proving Ground Biodiversity Management Plan (Earth Tech P/L)- Ford Australia, 2002.
- Geelong Ring Road Strategic Study (Greening Australia Victoria)- Vicroads, 2002.
- Magyar Barracks Vegetation Assessment (Brett Lane & Associates)- DoD 2001.
- Somerton RAN Barracks Vegetation Assessment (Brett Lane & Associates)- Do D, 2001.
- Pt Lonsdale Lighthouse Coastal Plan (DNRE), 2000.
- Limeburners Bay Management Strategy (TBLD)- CoGG, 1999.
- Swan Island Weed Management Strategy (Egis Consulting)- DoD, 1999.
- Torquay Foreshore Management Plan (TBLD)- Torquay Public Reserves Committee, 1999.
- Breamlea Foreshore Management Plan (TBLD)- CoGG, 1999.
- Carrum Lowlands Water Activity Plan (TBLD)- Parks Victoria, 1998.
- Corio Bay Foreshore Management Plan (Egis Consulting)-CoGG, 1994.

Hearings

- Pt Lillias Hazardous Chemicals Storage Complex- Independent Panel Hearing, Geelong, 1995.
- Ocean Grove Park (Ingamells)- Independent Panel Hearing, Ocean Grove, 1996.
- Barwon Sewer Aqueduct- Independent Panel Hearing, Geelong, 1996.
- Corio Landfill Amendment RL 184- Independent Panel Hearing, Geelong, July 1997.
- Reilly's Woodland Ocean Grove- Independent Panel Hearing, Geelong, February 2000.
- Ord St Saint Leonards- Independent Panel Hearing, Geelong, March 2003.

- Bendigo East Structure Plan- Independent Panel Hearing, Bendigo, 2006.
- 220 Great Ocean Road Torquay – Independent Panel Hearing March 2011.
- 124 Sunset Strip Jan Juc - Independent Panel Hearing August 2011.
- Ocean Grove North-east Precinct Amendment C203, December 2014.

Submissions

- Parliamentary Inquiry into Ecologically Sustainable Land Management, 1996.
- Environment and Natural Resources Committee Inquiry into Pest Plants in Victoria, 1996.
- Senate Inquiry into Commonwealth Environment Powers, 1997.

Flora and Fauna Guarantee Act Nominations

- Coast Tussock Grass Grasslands 1995.
- Bellarine Yellow Gum 1996.

Publications

- Indigenous Plants of the Geelong Region (CoGG), 1999.
- Indigenous Trees and Shrubs of the West Port Phillip Region (DNRE), 2000.

Attachment 1 February 2012 Report

30 Avonlea Road Bell Post Hill

Vegetation and Net Gain Assessment

A Report to
L. Bisinella Developments Pty Ltd

Prepared by

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February 6 2012

Contents

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1 INTRODUCTION

1.1 Project Background

An area of land of approximately 12.8 hectares situated 30 Avonlea Road, Bell Post Hill, is proposed to be developed for residential use. This report was commissioned by L. Bisinella Developments Pty Ltd to assess the quantity and significance of any indigenous flora and fauna habitat that might be present in the subject site.

1.2 Objectives

The objectives of this investigation are to:

- Describe the flora values of the land.
- Evaluate the conservation significance of the land.
- Assess any potential impacts of the proposed development.
- Discuss the implications of government policy and legislation, including ESO4.

1.3 Study Area

The study area is a privately owned block of approximately 12.8 ha located 30 Avonlea Road, Bell Post Hill, located within the City of Greater Geelong. The site is within the Victorian Volcanic Plains bioregion (DNRE 2002) and is located within the Corangamite Catchment Management Authority.

The site appears to have a history of pasture improvement and have been subjected to ploughing, rock removal and gross disturbance.

The location of the Study area is shown on Map 1.

1.4 Proposed Development

The proposed development is to use the site as a residential estate. It is anticipated that the proposed use will impact upon the entire site. The focus of this study is limited to the proposed road access easement.

2 METHODS

2.1 Taxonomy

Scientific names for plants follow the Census of Vascular Plants of Victoria (Walsh and Stasjic 2007). Common names for plants follow the Flora of Victoria Vols 2-4 (Walsh and Entwisle 1994-1999).

2.2 Literature and Database Review

Relevant literature and databases, including data from the Department of Sustainability and Environment (DSE website i) and the Technical Support Maps for Local Government Authorities (DSE 2003) were reviewed.

2.3 Field Survey

The site was inspected on foot on the 6th of February 2012. The entire site was traversed. Records were taken of all indigenous vascular plant species. Observations were made of the existing habitat values and dominant exotic vascular plant species.

2.4 Limitations

The assessment was conducted during summer, a time of year that is suitable for the detection of most, but not all, flora species likely to occur on site. Due to the overwhelmingly degraded nature of the study area, the site inspection is considered to be sufficient to assess the ecological values of the site. As a result there are not considered to be any significant limitations to the study.

The survey includes only vascular flora. As Net Gain assessments were not required (*refer to* 4.2.1) non-vascular flora (mosses, lichens, fungi, etc) were not recorded. Fauna surveys were not undertaken.

2.5 Defining Significance

A number of criteria are applied in order to assess the significance of flora species and vegetation communities. The definition of the criteria is detailed in Appendix 1.

3 RESULTS

3.1 Ecological Vegetation Class

Ecological Vegetation Classes (EVCs) are the primary level of classification of vegetation communities within Victoria. An EVC contains one or more plant (floristic) community, and represents a grouping of vegetation communities with broadly similar ecological attributes. Classification of EVCs in this report follows Oates and Toranto (2002).

The pre-1750 EVC mapping of the study area undertaken by DSE (DSE 2003) indicates that the study area was comprised of EVC 132: Plains Grassland. EVC 132: Plains Grassland is currently listed as 'Endangered' in the Victorian Volcanic Plain bioregion (DSE website ii-EVC Benchmarks -Victorian Volcanic Plains Bioregion). The current study finds no vegetation that accords with this EVC as defined by the Victorian Naive Vegetation Management Framework (DNRE 2002). Refer below (4.2.3) for further discussion.

3.2 FLORA

3.2.1 Indigenous Species

A total of nil indigenous plant species were recorded from the study area.

3.2 Vegetation Condition

The study area consists of exotic vegetation and planted non-indigenous native species only. The study area appears to have been de-rocked and disturbed at some time in the past and is currently fallow. The vegetation is in very poor condition. Due to the de-rocking and the absence of indigenous vegetation, faunal habitat values are considered to be to be low. The non- indigenous native plantation species are comprised of Giant Honey-myrtle (*Melaleuca armillaris*) and Eucalypt sp (*Eucalyptus* sp). Refer to Table 1 for a list of the dominant exotic species.

Table 1 Dominant Exotic Plant Species

Botanical Name	Common Name
Avena sp	Wild Oat
Bromus sp	Brome Grass
Galenia pubescens	Blanket Weed
Lycium ferrocisimum	Boxthorn
Phalaris aquatica	Toowoomba Canary-grass
Plantago lanceolata	Ribwort

3.3 Significant Flora

No indigenous plant species of National, State, Regional or Local Conservation Significance were recorded during the survey.

3.4 Ecological Significance

On the basis of the available information the study area is of **negligible** significance for biodiversity conservation. The vegetation is highly unlikely to make a contribution to the biodiversity of the Victorian Volcanic Plains bioregion as it:

- Is highly degraded with a high cover of bare earth and exotic plant species.
- Has no indigenous plant species.
- Is unlikely to have significant habitat values.

However the area of drainage line that is the proposed municipal reserve is of note as it contains some indigenous plant species (Rush [*Juncus* spp], Cumbungi [*Typha* sp]), is potential habitat for fauna species and is part of the Cowies creek drainage system. This area would be considered to be of **Local** conservation significance.

3.5 Listed Significant Species

The DSE database (DSE Website i) lists one significant plant species and two significant fauna species as occurring within the immediate vicinity of the study area (i.e. within 5 kilometres).

Due to the highly degraded and fragmented nature of the study area none of these three species are considered likely to occur within the study area. Consequently the study area is not within the best 50% habitat for any of the 3 listed significant species.

Refer to Table 2 for the listed significant species including a discussion of preferred habitat, likelihood of occurrence and response to the Framework criteria.

Table 2 Listed Significant Flora and Fauna Species and Likelihood of Occurrence

Scientific Name	Common Name	Record this survey	Status	Steps	Best 50%	Preferred Habitat	Likelihood of occurrence
Tripogon lolliformis	Rye Beetle-grass	No	r	A-D-No	Remaining	grasslands (historical record from nearby railway reserve)	Highly modified habitat – Unlikely to occur
Perameles gunnii	Eastern Barred Bandicoot	No*	E, c e, L	A-D-No	Remaining	grasslands	Highly modified habitat – Unlikely to occur
Sminthopsis crassicaudata	Fat-tailed Dunnart	No*	n	A-D-No	Remaining	grasslands	Highly modified habitat – Unlikely to occur

r – rare (Victoria)
n – near threatened (Victoria)
c e – critically endangered (Victoria)
E – endangered (Australia)
L – Flora and Fauna Guarantee Act listed
* Fauna survey not undertaken

4 LEGISLATION AND GOVERNMENT POLICY

4.1 Commonwealth

4.1.1 Environment Protection and Biodiversity Conservation Act (1999)

The Environment Protection and Biodiversity Conservation (EPBC) Act (1999) was **e**stablished to 'promote the conservation of biodiversity by providing strong protection for listed species and communities in the Commonwealth and for protected areas, Ramsar sites, Commonwealth Reserves, conservation zones and World Heritage sites, etc'.

Natural Temperate Grassland of the Victorian Volcanic Plain is an ecological community that is listed as 'Critically Endangered' under the EPBC Act (EPBC Website i). The study area once carried vegetation that would have been considered part of this community.

4.1.2 Implications

Due to the degraded nature of the study area (i.e. less than 50% cover value) there are no implications for the current proposal under the EPBC Act.

4.2 Native Vegetation Management Framework

4.2.1 Net Gain

Net Gain is the Victorian Government's framework for achieving native vegetation 'gains' across the state. The framework is defined in the document 'Victorian Native Vegetation Management - A Framework for Action' (DNRE 2002) and is achieved in conjunction with the Native Vegetation Plan for the Port Phillip and Westernport Region (Port Phillip and Western Port Native Draft Vegetation Plan -Port Phillip and Westernport Catchment Management Authority 2006). Net Gain is described as 'the outcome for native vegetation and habitat where overall gains are greater than overall losses and where individual losses are avoided where possible. Losses and gains are determined by a combined quality/quantity measure and over a specified period of time. Gains may be either required offsets for permitted clearing actions or as a result of land holder and Government assisted efforts that are not associated with clearing' (DNRE 2002).

The stated goal of the framework is to achieve:

> *A reversal, across the whole landscape, of the long-term decline in the extent and quality of native vegetation, leading to a Net Gain* (DNRE 2002).

The three-step approach to net gain is to:

- avoid adverse impacts, particularly through vegetation clearance
- if impacts cannot be avoided, minimize impacts through appropriate consideration in the planning process
- identify appropriate offset options.

4.2.2 Defining and Assessing Native Vegetation

Native vegetation in Victoria has been defined by DSE as belonging to three categories. These are:

Remnant Patch
Remnant patches of remnant native vegetation are composed of indigenous plant species considered [art of a clearly definable EVC. Such vegetation includes understorey species of greater than 25% total understorey cover (excluding bare ground), and/or indigenous canopy trees with at least 20% projected foliage canopy cover. Assessment of remnant patch vegetation utilized the Habitat Hectare method (*see below*).

Scattered Trees
Scattered trees comprise indigenous trees with projected foliage canopy cover of less than 20% and a total cover of indigenous species (excluding bare ground) of less than 25%. Scattered trees are counted and their diameter at breast height (1.3m DBH). The class size of scattered trees (based on DBH) is determined by comparison to the relevant DSE EVC bioregional benchmark.

Degraded Treeless Vegetation
Degraded treeless vegetation comprises all other vegetation. This category includes treeless vegetation with less than 25% total cover of indigenous species, or treeless vegetation that has greater than 25% total cover of indigenous species (excluding bare ground) but is dominated by a small number of opportunistic native species which were unlikely to have been dominant prior to a disturbance event (e.g. cropping).

4.2.3 Habitat Hectares

Habitat Hectares is an accounting method for measuring habitat quality and quantity that has been developed by DSE for Net Gain Assessment. The habitat hectares approach is site based. Each site, or patch, consists of one EVC and one vegetation condition class. It is therefore uniform within limits.

Each site has a *habitat score* of between 0 and 100, with extensive intact vegetation having a theoretical score of 100. The habitat score has ten components: large trees, tree canopy cover, understorey, weediness, recruitment, organic litter, logs, patch size, neighborhood context and distance to core area.

Each site has a *habitat hectare value,* where the habitat score is multiplied by the area in hectares. For example, 6 ha of vegetation with a habitat score of 50 equals 3 habitat hectares.

4.2.4 Implications

As the results show that the current vegetation condition is less than 25% of the benchmark cover value for indigenous species there are not considered to be any implications for the current proposal under the Framework.

4.3 Planning Scheme ESO4

The purpose of the Planning Scheme is:

- To provide a clear and consistent framework within which decisions about the use and development of land can be made.
- To express state, regional, local and community expectations for areas and land uses.
- To provide for the implementation of State, regional and local policies affecting land use and development.

ESO4 has been established to protect environmentally significant values, specifically being native grassland values, within the area that it covers (DSE website iii).

4.3.1 Implications

The results show that the current vegetation of the site that is proposed to be impacted upon consists of degraded treeless vegetation with no cover of indigenous species. Therefore there are no implications for the current proposal under ESO4.

5 CONCLUSIONS

The approximately 12.8 hectare site at 30 Avonlea Road, Bell Post Hill, that is the subject of this report contains vegetation that is overwhelmingly exotic and degraded. No indigenous plant species were located. Habitat values are nil for the majority of the site and local for the area of drainage line (proposed municipal reserve). Consequently the site is rated as having at best local significance for biodiversity conservation.

The site is not considered to represent the best 50% remaining habitat for any of the three species listed as occurring within the vicinity of the study area.

Although EVC 132: Plains Grassland is classed as 'Endangered' in Victoria and Natural Temperate Grassland of the Victorian Volcanic Plain is classed as "Critically Endangered' in Australia, the vegetation of the study area is not of sufficient quality to create any implications for the relevant State (i.e. Native Vegetation Management Framework) or Commonwealth (i.e. EPBC Act) legislation.

Due to the degraded nature of the vegetation of the area that is proposed to be impacted upon it is considered that there are no implications for the current proposal under ESO4.

Construction works in the vicinity of the drainage line area will require appropriate sensitivity in design and construction to ensure existing drainage line values are not adversely impacted upon. It is recommended that the production and implementation of an appropriate construction management plan be a condition of the planning permit.

There are not considered to be any significant limitations to this study.

Appendix 1 - ASSESSING CONSERVATION SIGNIFICANCE

Conservation significance is assessed at a range of scales, including global, international, national, state, regional and local. Criteria used for determining the conservation significance of flora and fauna at national to local scales are presented below for botanical and zoological conservation significance.

Botanical Significance

National botanical significance applies to an area when it supports one or more of the following attributes:

a population of at least one nationally threatened plant species listed by Briggs and Leigh (1996) or plant species listed on the schedules to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

A nationally threatened ecological community listed on the schedules of the *Environment Protection and Biodiversity Conservation Act 1999*.

State botanical significance applies to an area when it supports one or more of the following attributes:

A population of at least one plant species threatened in Victoria, as listed by Gullan et al. (1990), NRE (2000a) or more recently in the unpublished records of the Flora Information System (NRE), or on the schedules to the Victorian *Flora and Fauna Guarantee Act 1988*.

An ecological community considered threatened in Victoria through its listing on the schedules of the *Flora and Fauna Guarantee Act 1988*.

Regional botanical significance applies to an area that supports one or more of the following attributes:

Supports a population of one or more regionally depleted species defined in a valid regional assessment of biodiversity (eg. Regional Native Vegetation Plan, Environment Conservation Council Report or Comprehensive Regional Assessment documents).

An ecological vegetation class that is considered endangered or vulnerable in a particular bioregion (based on Conn 1993 and the Regional Native Vegetation Plan), in which case the area is of **High Regional** significance.

An ecological vegetation class that is considered depleted in a particular bioregion (based on Conn 1993 and the Regional Native Vegetation Plan), in which case it is of **Regional** significance.

Local botanical significance applies to all remnant native vegetation that does not meet the above criteria. In much of Victoria, and in particular in the Victorian Volcanic Plain bioregion, native vegetation has been so depleted by past clearing and disturbance that all remaining vegetation must be considered to be of at least local conservation significance.

6 REFERENCES

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Conn, B J (1993) Natural regions and vegetation of Victoria. Pp. 79-158 In Foreman, D B and Walsh, G (eds.) 'Flora of Victoria Volume 1: Introduction.' Inkata Press, Melbourne.

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DSE Website ii.
http://www.dse.vic.gov.au/dse/nrence.nsf/LinkView/A2A7B7D2CABBEE3CCA256F2B000257048062D358172E420C4A256DEA0012F71C

DSE Website iii.
http://www.dse.vic.gov.au/planningschemes/greatergeelong/maps/greatergeelong18eso.pdf

EPBC Website i. http://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=42&status=Critically%20Endangered

EPBC Website ii. http://www.environment.gov.au/epbc/publications/pubs/ecological-communities-listing-approach-factsheet.pdf

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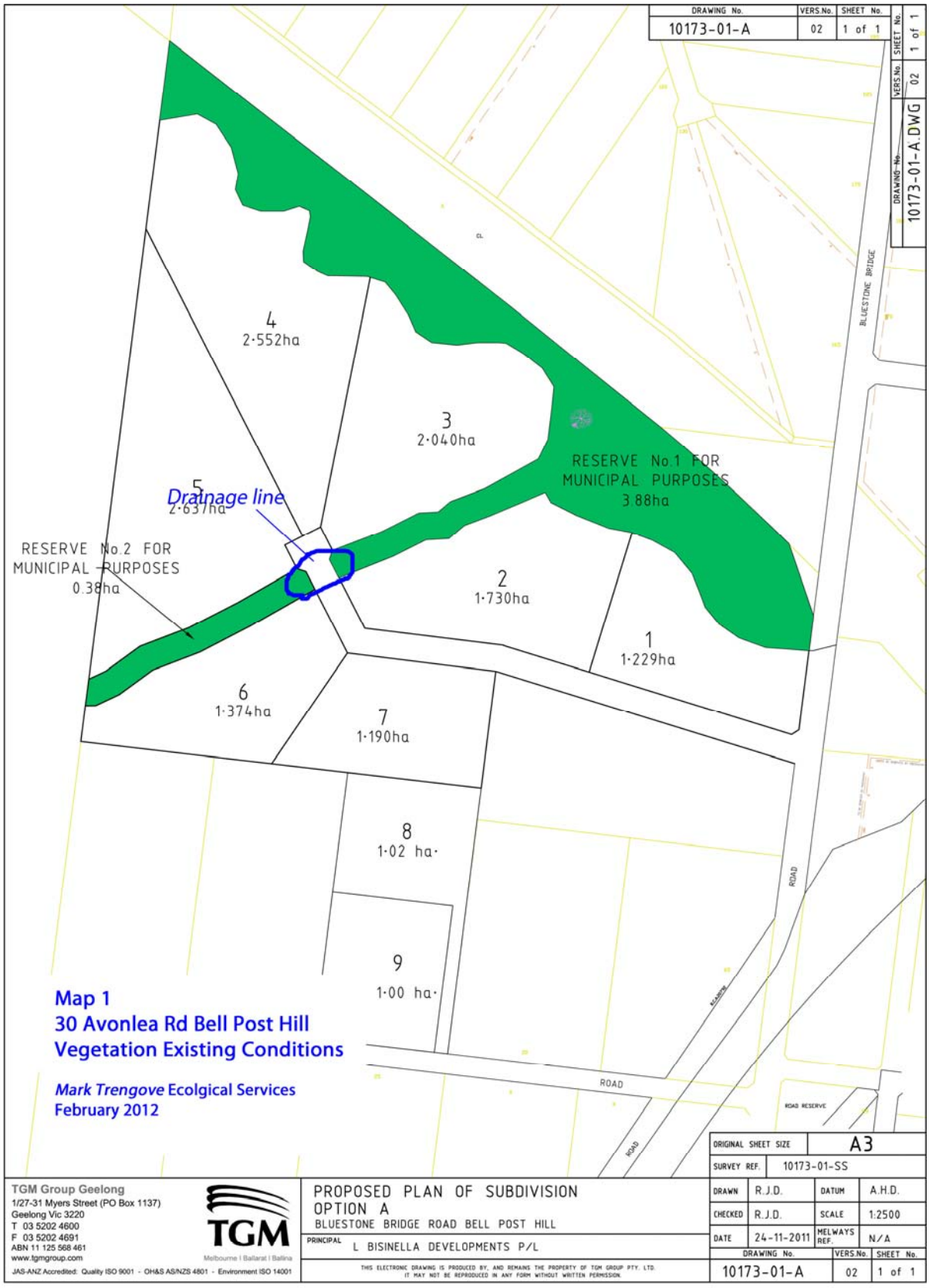
Walsh, N G & Entwisle, T (1994-1999): 'Flora of Victoria Vol 2-4' Inkata Press, Melbourne.

Map 1 Study Area location and existing conditions



Attachment 2 November 2019 Report

30 Avonlea Road Bell Post Hill

Vegetation Assessment

A Report to
L. Bisinella Developments Pty Ltd

Prepared by

***Mark Trengove* Ecological Services**

November 2019

Contents

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1 INTRODUCTION

1.1 Project Background

An area of land of approximately 12.8 hectares situated 30 Avonlea Road, Bell Post Hill, is subject to Geelong Planning Scheme Amendment C395. This report was commissioned by L. Bisinella Developments Pty Ltd to assess the quantity and significance of any indigenous flora that might be present in the subject site. This r**e**port has been prepared by Mark Trengove of 2200 Geelong-Ballan Road Anakie

1.2 Instructions

Instructions were received from Arnold Bloch Leibler on 8 October 2019.

I have been instructed to:

- Describe and evaluate the flora values of the subject land.
- Discuss the implications of government policy and legislation.
- Discuss the implications of Geelong Planning Scheme Amendment C395 – particularly whether the indicative reserve areas / waterway mapping as shown on the draft framework (contained in Figure 3) is justified and appropriate from an ecological perspective.
- Consider whether the draft 75 lot subdivision plan prepared by TGM over the subject land (contained in Figure 2) is acceptable from an ecological perspective.

1.3 Study Area

The study area is an area of land of approximately 12.8 ha in size, located 30 Avonlea Road, Bell Post Hill, located within the City of Greater Geelong. The site is within the Victorian Volcanic Plains bioregion and is located within the Corangamite Catchment Management Authority (DELWP website ii). The site is zoned Rural Living Zone (RLZ) under the Geelong Planning Scheme and is currently subject to Geelong Planning Scheme Amendment C395.

The site appears to have a history of pasture improvement and have been subjected to ploughing, rock removal and gross disturbance. Cowies Creek flows from west to east along the northern sector of the study area. An unnamed drainage line flow across the north western/central sector of the study area into Cowies Creek.

The location of the study area is shown at Figure 1.

1.4 Proposed Development

The subject land is currently zoned Rural Residential.

Planning permit no. PP-1137-2011/A, currently allows a *"nine (9) lot subdivision generally in accordance with the endorsed plans.*

Planning Scheme Amendment C395 seeks to rezone the subject land to Urban Growth Zone.

In the event that the subject land is rezoned, L. Bisinella Developments have instructed TGM to prepare an indicative residential subdivision layout plan to reflect this new zoning. The draft 75 lot subdivision plan is contained in **Figure 2**. I understand that this draft subdivision plan has been prepared with input from the drainage expert, Andrew Prout.

Figure 1

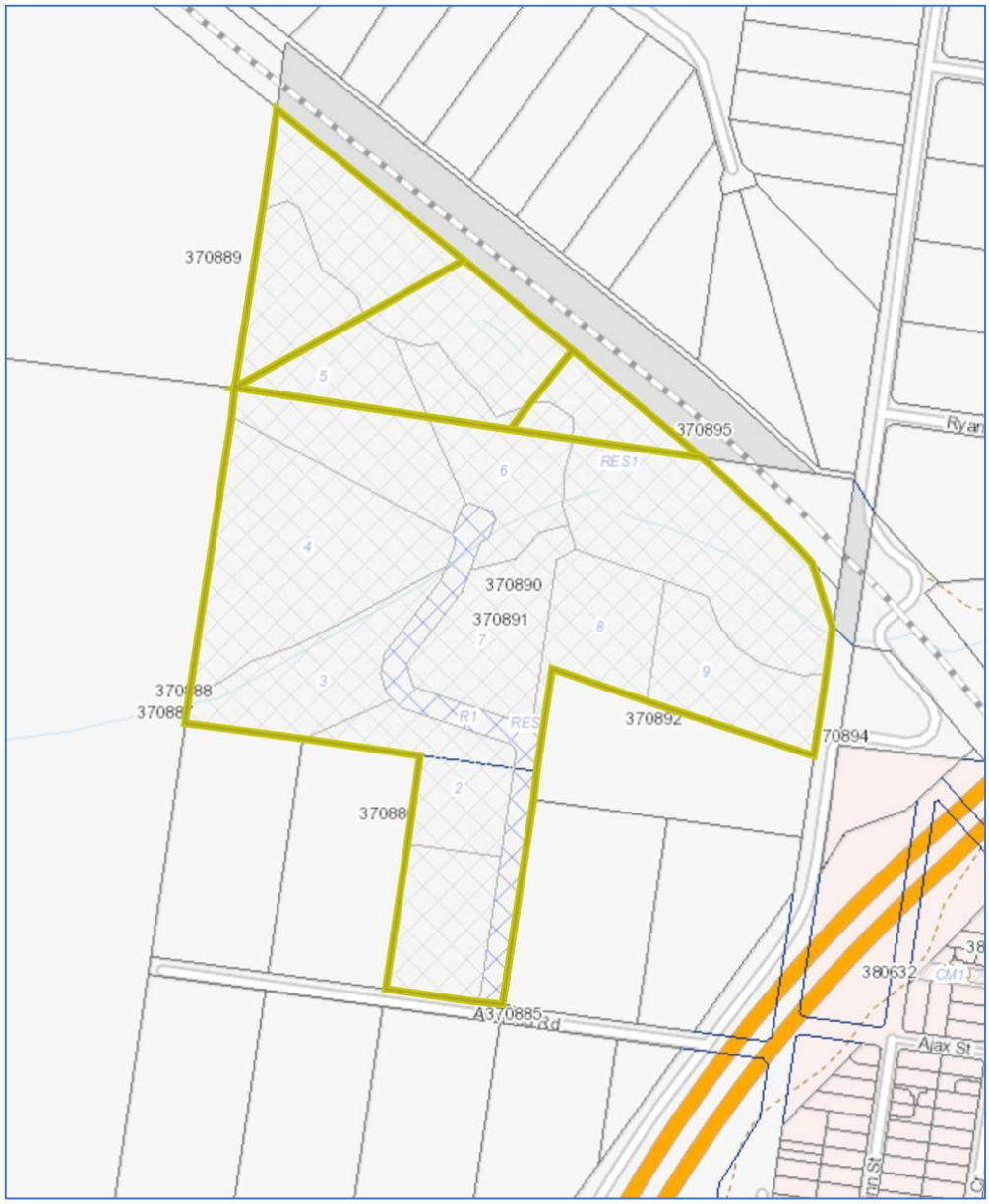

Figure 1. Study area location shown in green outline.

1.5 Planning Scheme Amendment C395 – Indicative Reserve Area and Waterways Mapping

Figure 3 shows the section of the Western Geelong Growth Area Framework Plan map that pertains to the study area and surrounds (Greater Geelong City Council Agenda for Ordinary Council Meeting Section B Reports Page 45). This figure shows the proposed Waterways reserve area (in green) as currently exhibited.

Figure 2

Figure 2. Draft sub-division plan.

Figure 3

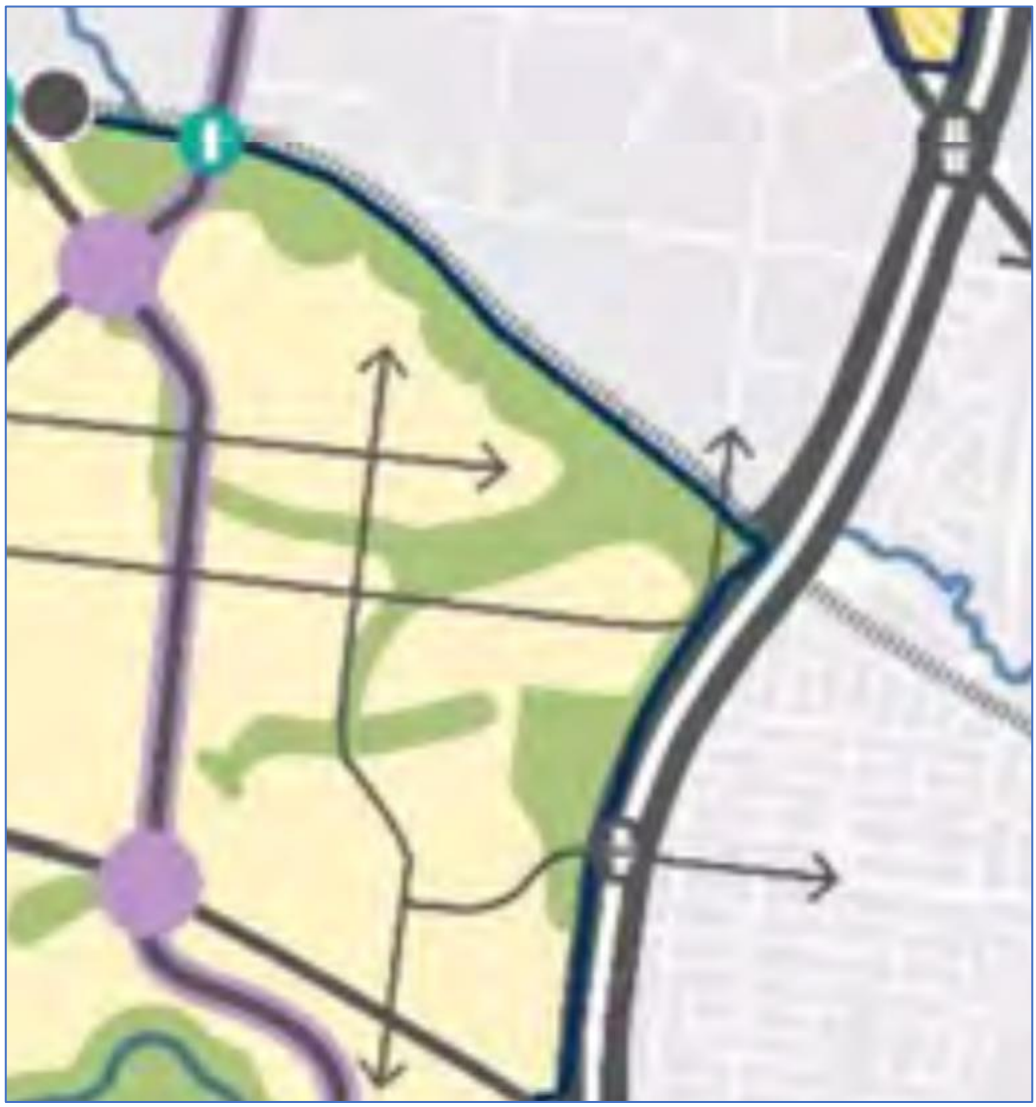

Figure 3. Western Geelong Growth Area Framework Plan map. Detail showing study area and immediate surrounds.

2 METHODS

2.1 Taxonomy

Scientific names for plants follow the Census of Vascular Plants of Victoria (Walsh and Stasjic 2007). Common names for plants follow the Flora of Victoria Vols 2-4 (Walsh and Entwisle 1994-1999).

2.2 Literature and Database Review

Relevant literature and databases, including data from the following sources:

- NVIM tool (DELWP website ii),
- the Victorian Biodiversity Atlas (DELWP Website i)
- Commonwealth Department of Sustainability, Environment, Water, Populations and Communities (EPBC websites i and ii)
- Ecology and Heritage Partners Pty Ltd. Flora and Fauna Technical Report. Western Geelong Growth Area. August 2017.
- Western Geelong Growth Area Framework (Greater Geelong City Council Section B Reports).

were reviewed.

2.3 Field Survey

The site was inspected on foot on the 24th of October 2019. The entire site was traversed. Records were taken of all indigenous and dominant exotic vascular plant species. Observations were made of the existing habitat values.

2.4 Limitations

The assessment was conducted during spring, a time of year that is suitable for the detection of most flora species likely to occur on site. Due to the overwhelmingly degraded nature of the study area, the site inspection is considered to be sufficient to assess the flora values of the site. As a result, there are not considered to be any significant limitations to the findings of this study.

The survey includes only vascular flora. As Habitat Hectare assessments were not undertaken non-vascular flora (mosses, lichens, fungi, etc) were not recorded. Fauna surveys were not undertaken.

2.5 Defining Significance

A number of criteria are applied in order to assess the significance of flora species and vegetation communities. The definition of the criteria is detailed in Appendix 1.

2.6 Defining and Assessing Vegetation

Native vegetation in Victoria has been defined by DELWP as belonging to two categories. These are:

Patch native vegetation

Patch native vegetation is either:

- any area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native
- any area with three or more native canopy trees where the canopy foliage cover is overlapping.

Scattered Tree native vegetation

Scattered tree native vegetation is:

- a native canopy tree that does not form part of a patch.

Habitat Hectares

Habitat hectare (Vegetation Quality Assessment) is a site-based measure that combines extent and condition of native vegetation. The current condition of native vegetation is assessed against a benchmark for its Ecological Vegetation Class (EVC). EVCs are classifications of native vegetation types. The benchmark for an EVC describes the attributes of the vegetation type in its mature natural state, which reflects the pre-settlement circumstances. The condition score of native vegetation at a site can be determined through undertaking a habitat hectare assessment. The habitat hectares of native vegetation is calculated by multiplying the condition of the vegetation by the extent of native vegetation.

(DELWP website ii).

3 RESULTS

3.1 Ecological Vegetation Class

Ecological Vegetation Classes (EVCs) are the primary level of classification of vegetation communities within Victoria. An EVC contains one or more plant (floristic) community and represents a grouping of vegetation communities with broadly similar ecological attributes. Classification of EVCs in this report follows Oates and Taranto (2002).

The pre-1750 EVC mapping of the study area undertaken by DELWP (DELWP Website i) indicates that the study area was comprised of EVC 132 Plains Grassland. EVC 132 Plains Grassland is currently listed as 'Endangered' in the Victorian Volcanic Plain bioregion (DELWP website ii).

The current study records no areas of native vegetation that accords with EVC 132 Plains Grassland within the study area (Table 1, Section 4 and Plates 1-3).

Areas of riparian native vegetation that occur within Cowies Creek are potentially indicative of either EVC 56 Floodplain Riparian Woodland or EVC 654 Creekline Tussock Grassland. EVC 56 Floodplain Riparian Woodland and EVC 654 Creekline Tussock Grassland are both endangered within the VVP bioregion (DELWP website ii). Refer to Figure 4 for DELWP EVC mapping.

Figure 4

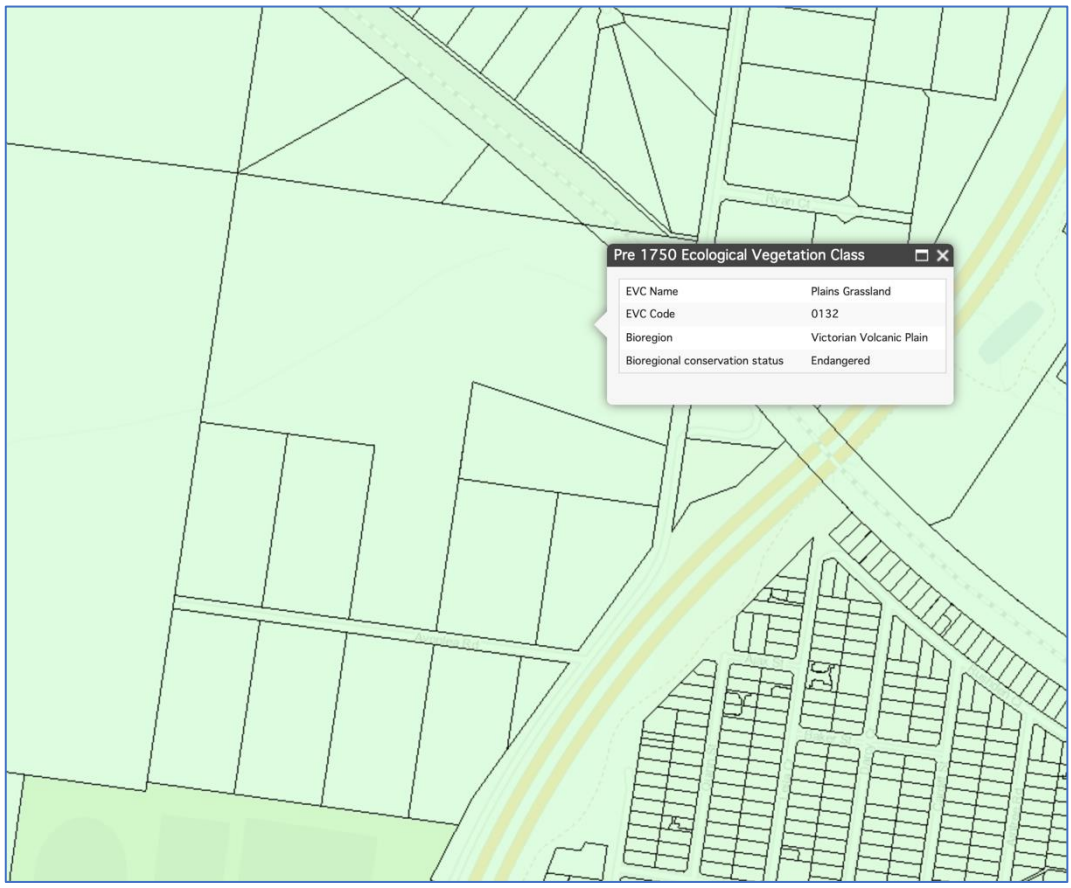

Figure 4. Pre 1750 EVC mapping (DELWP data).

3.2 FLORA

3.2.1 Indigenous Species

A total of two indigenous plant species were recorded from the study area.

3.2 Vegetation Condition

Cowies Creek.
The Cowies Creek riparian corridor contains predominately exotic vegetation, two locally significant indigenous plant species, Rush and Cumbungi, were recorded,

Drainage line.
The drainage line area consists of exotic vegetation only. The study area appears to have been de-rocked and disturbed at some time in the past and is currently fallow. The vegetation is in very poor condition. Due to the de-rocking and the absence of indigenous vegetation, faunal habitat values are considered to be to be low.

Remainder of study area.
The study area consists of exotic vegetation and planted non-indigenous native species only. The study area appears to have been de-rocked and disturbed at some time in the past and is currently fallow. The vegetation is in very poor condition. Due to the de-rocking and the absence of indigenous vegetation, faunal habitat values are considered to be to be low.

The native plantation species are in the main comprised of non- indigenous Giant Honey-myrtle (*Melaleuca armillaris*) and Eucalypt sp (*Eucalyptus* sp).

One area that contains three presumably planted River Red Gum (*Eucalyptus camaldulensis*) (Plate 6) occur near to Cowies Creek and are located within draft sub-division proposed municipal Reserve (Figure 2). Refer to Table 1 for a list of the indigenous and dominant exotic naturalised vascular species recorded this survey for the study area and status. Refer to Figure 6 for the location of native vegetation recorded this survey

Table 1 Vascular Plant Species recorded for the study area 24th of October 2019 and status.

Botanical Name	Common Name	Status
Avena fatua	Wild Oat	Exotic
Avena sp	Wild Oat	Exotic
Bromus sp	Brome Grass	Exotic
Cirsium vulgare	Spear Thistle	Exotic
Dactlis glomeratus	Cock's-foot	Exotic
Erodium botrytis	Crane's-bill	Exotic
Eucalyptus camaldulensis	River Red Gum	Presumed planted
Galenia pubescens	Blanket Weed	Exotic
Juncus subsecundus	Finger Rush	Native
Lolium spp	Rye-grass	Exotic
Lycium ferrocisimum	Boxthorn	Exotic
Malva parviflora	Small-flowered Mallow	Exotic
Nasella trichitoma	Serrated Tussock	Exotic
Nassella neesiana	Chilean Needle-grass	Exotic
Phalaris aquatica	Toowoomba Canary-grass	Exotic
Plantago lanceolata	Ribwort	Exotic
Silybum marinum	Varigated Thistle	Exotic
Typha domingensis	Cumbungi	Native

3.3 Significant Flora

No indigenous plant species of National, State or Regional Conservation Significance were recorded during the survey. The two recorded native species are of local conservation significance.

3.4 Ecological Significance

On the basis of the available information the majority of the study area is of **negligible** significance for biodiversity conservation. The vegetation is highly unlikely to make a contribution to the biodiversity of the Victorian Volcanic Plains bioregion as it:

- Is highly degraded with a high cover of bare earth and exotic plant species.
- Has no indigenous plant species.
- Is unlikely to have significant habitat values.

However, the area of Cowies Creek that is proposed to be included within a municipal reserve is of note as it contains some indigenous plant species (Rush [*Juncus* spp], Cumbungi [*Typha* sp]), is potential habitat for fauna species and is part of the Cowies creek drainage system. This area would be considered to be of **Local** conservation significance.

3.5 Listed Significant Species

The DELWP database (DELWP Website i) lists two significant plant species and two significant fauna species as occurring within the immediate vicinity of the study area (i.e. within 5 kilometres).

Due to the highly degraded and fragmented nature of the study area none, three species are considered likely to occur within the study area.

One of these species, Adamson's Blown-grass could potentially occur within Cowies Creek.

Refer to Table 2 for the listed significant species including a discussion of preferred habitat, likelihood of occurrence and response to the Framework criteria.

Table 2 Listed Significant Flora and Fauna Species and Likelihood of Occurrence

Scientific Name	Common Name	Record this survey	Status	Preferred Habitat	Likelihood of occurrence
Tripogonella lolliformis	Rye Beetle-grass	No	r	grasslands (historical record from nearby railway reserve)	Highly modified habitat – Unlikely to occur
Lachnogrostis adamsonii	Adamson's Blown-grass	No	V, L	Semi-saline waterways	Potential habitat in Cowies Creek
Perameles gunnii	Eastern Barred Bandicoot	No*	E, c e, L	grasslands	Highly modified habitat – Unlikely to occur
Sminthopsis crassicaudata	Fat-tailed Dunnart	No*	n	grasslands	Highly modified habitat – Unlikely to occur

r – rare (Victoria)
n – near threatened (Victoria)
v – vulnerable (Victoria)
c e – critically endangered (Victoria)
E – endangered (Australia)
L – Flora and Fauna Guarantee Act listed

(Flora of Victoria and DELWP website iii).
* Fauna survey not undertaken

4 LEGISLATION AND GOVERNMENT POLICY

4.1 Commonwealth

4.1.1 Environment Protection and Biodiversity Conservation Act (1999)

The Environment Protection and Biodiversity Conservation (EPBC) Act (1999) was **e**stablished to 'promote the conservation of biodiversity by providing strong protection for listed species and communities in the Commonwealth and for protected areas, Ramsar sites, Commonwealth Reserves, conservation zones and World Heritage sites, etc'.

The EPBC Act applies to developments and associated activities that have the potential to significantly impact on matters protected under the Act. Under the Act, unless exempt, actions require approval from the Australian Government Minister for Environment and Heritage if they are likely to significantly impact on a 'matter of national environmental significance'. There are currently seven matters of national environmental significance (NES):

- World Heritage properties;
- National Heritage properties;
- nationally listed threatened species and ecological communities;
- listed migratory species;
  Ramsar wetlands of international significance;
- Commonwealth marine areas; and
- nuclear actions (including uranium mining).

Any person proposing to take an action that may, or will, have a significant impact on a matter of national environmental significance must refer the action to the Australian Government Minister for Environment and Water Resources for determination as to whether the action is a 'controlled action' or is not approved.

Natural Temperate Grassland of the Victorian Volcanic Plain is an ecological community that is listed as 'Critically Endangered' under the EPBC Act (EPBC Website i). The study area carries no native vegetation (non-vascular lichens occur on localised minor disturbed basaltic rocks at low cover values).

4.1.2 Implications

Due to the degraded nature of the vegetation of the study area, it is assessed that there are no implications for the draft sub-division plan under the EPBC Act for the Natural Temperate Grassland of the Victorian Volcanic Plain ecological community.

4.2 Native Vegetation Permitted Clearing Regulations

Under Particular Provision (Native Vegetation Clause 52.17) the State has gazetted the Native Vegetation Permitted Clearing Regulations. The Regulations 'introduce a risk based approach to assessing applications to remove native vegetation' (DELWP website i).

The purpose of Clause 52.17 is to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. This is achieved by applying the following three step approach in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (Department of Environment, Land, Water and Planning, 2017) the *Guidelines*:

1. Avoid the removal, destruction or lopping of native vegetation.

2. Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.

3. Provide an offset to compensate for the biodiversity impact if a permit is granted to re move, destroy or lop native vegetation.

To manage the removal, destruction or lopping of native vegetation to minimise land and water degradation. (DELWP Website i).

Under the Regulations, any areas of patch or scattered tree native vegetation that are proposed to be removed are subject to protection/and or recruitment offsets, depending upon the characteristics of the site.

When native vegetation removal is permitted, an offset must be secured which achieves a no net loss outcome for biodiversity. To achieve this the offset makes a contribution to Victoria's biodiversity that is equivalent to the contribution made by the native vegetation that was removed. The type and amount of offset required depends on the native vegetation being removed and the contribution it makes to Victoria's biodiversity.

Implications for the current proposal are discussed as follows. Refer to Figure 5 for Location mapping (DELWP data).

4.2.1 Implications

The results show that the current vegetation condition for the study area is less than 25% cover value of perennial native vascular understorey species for the proposed development site. Areas of native Spear-grass, Wallaby-grass and non-vascular flora (lichens) on basaltic rock were recorded as localized occurrences. However, this vegetation occurred at significantly less than 25% cover value. The study area is consequently assessed to be comprised of exotic vegetation (i.e. non-patch or scattered tree native vegetation).

The draft sub-division plan requires the removal of no 'patch' or 'scattered tree' native vegetation.

Consequently, there would be no implications for the removal of native vegetation under the Regulations.

Refer to Plates 1-6 for photographs of the study area vegetation existing conditions.

Figure 5

Figure 5. Distribution of vegetation according to 'Location'. Green equates to 'Location 1' (i.e. lowest risk), dark green equates to 'Location 2' (i.e. medium risk), (DELWP Website i).

The study area is located within Locations 1 and 2. The implementation of the draft sub-division plan (Figure 2) would require no removal of 'patch' or 'scattered tree' native vegetation.

Figure 6 shows the results of this survey for the subject property as well as two locations known to this author that contain significant native vegetation (located on the railway reserve to the north of the study area and the C395 planning scheme amendment area.

The circle 'A' is the location of the presumably planted River Red Gum (Plate 5). Patch 1 is the area of native vegetation or potential native vegetation located along Cowies Creek (Plate 6).

Patches 2 and 3 are areas of relatively intact EVC 1323 Plains Grassland vegetation that are dominated by Kangaroo Grass (*Themeda triandra*) and that contain a population of more than 200 plants of Large-flowered Cranes-bill (*Geranium* sp.1), a species that is listed as Endangered In Victoria (Vicflora website ii). This occurrence is potentially the largest population in existence. These sites are recorded as City of Greater Geelong BioSites 1000160 and 1000162 (Figure 6).

The remainder of the study area is comprised entirely of exotic vegetation.

Figure 6 Location of native vegetation

Figure 6. Location of native vegetation recorded this survey.

5 DISCUSSION

Upon assessment of the study area, the following observations are made relating to the draft sub-division plan (prepared by TGM Group Pty Ltd October 2019, Figure 2 in this report) and the C395 planning amendment proposed reserve area.

The draft sub-division plan proposes a corridor of at least 40 metres wide along the drainage line that is designated Municipal Reserve. This corridor is bound by access roads on either side. The draft sub-division plan also proposes a corridor of at least 40 metres wide along Cowies Creek. This corridor is bound by access roads on the south and the railway line on the north.

The C395 planning amendment proposes a larger ecological reserve area based on the drainage line and Cowies Creek.

- The draft sub-division plan, as proposed, will not impact upon native vegetation.
- The area of municipal reserve as proposed by the draft sub-division plan is adequate to protect existing ecological values.
- The area of municipal reserve as proposed by the draft sub-division plan is in keeping with standard design principles, such as the Melbourne Water Waterway Guidelines.
- Habitat values within the drainage corridor are currently very low. Revegetation with appropriate indigenous plant species would improve habitat values.
- There are no significant ecological values located beyond the proposed municipal reserve area, as proposed by the draft sub-division plan, that warrant protection.
- The larger ecological reserve area, as proposed by the C395 planning amendment is unlikely to provide any significantly improved outcomes for ecological values compared with that as proposed by the draft sub-division plan.
- The larger ecological reserve area, as proposed by the C395 planning amendment is likely to be difficult to restore and more costly to manage than that proposed by the draft sub-division plan.
- A smaller ecological reserve would allow for more focused management outcomes, such as improving ecological values of Cowies Creek and providing habitat for species such as Adamson's Blown-grass and Large-flowered Crane's-bill.
- The one significant plant species recorded in proximity of the study area, Adamson's Blown-grass (Ecology and Heritage Partners), was not recorded this survey. However, habitat for this species potentially occurs within Cowies Creek. This habitat is not impacted on by the draft sub-division plan.
- The area that contains three presumably planted River Red Gum (Plate 6) occur near Cowies Creek and can be retained within draft sub-division plan proposed municipal Reserve.
- The draft sub-division plan, as proposed, will not impact upon the values of the Large-flowered Crane's-bill.
- The area of 'Modelled Native Vegetation (in areas not surveyed)' as mapped by Ecology Heritage Partners for the study area (Flora and Fauna Technical Report. Western Geelong Growth Area Figure 2) is not confirmed by this study (Figure 6). As reported, this survey finds these areas to be degraded and comprised of exotic plant species. This finding has implications for the size of the proposed reserved area.

- The findings of this survey are consistent with the previous February 2012 survey of part of the study area (Trengove 2012).
- The area of municipal reserve, as proposed by the draft sub-division plan, is broadly supported by the findings of this report as being as an adequate and appropriate response to the local ecological conditions.
-

Figure 7

Figure 7. Location of recorded and modelled native vegetation for the study area as recorded by Ecology and Heritage Partners. The areas of blue are 'Modelled Native Vegetation (in areas not surveyed)' the areas of green are 'remnant native vegetation'. Location of City of Greater Geelong BioSites 1000160 and 1000162.

6 CONCLUSIONS

The approximately 12.8 hectare site at 30 Avonlea Road, Bell Post Hill, that is the subject of this report contains vegetation that is overwhelmingly exotic and degraded.

Apart from within the Cowies Creek riparian zone, no indigenous plant species (native vegetation) were located. With the exception of Cowies Creek, ecological values are negligible for the site, including the drainage line area.

Areas of riparian native vegetation that occur within Cowies Creek are potentially indicative of either EVC 56 Floodplain Riparian Woodland or EVC 654 Creekline Tussock Grassland. EVC 56 Floodplain Riparian Woodland and EVC 654 Creekline Tussock Grassland are both endangered within the VVP bioregion.

The current study records no areas of native vegetation that accords with EVC 132 Plains Grassland within the study area.

No indigenous plant species of National, State or Regional Conservation Significance were recorded during the survey. The two recorded native species are of local conservation significance.

Due to the degraded nature of the vegetation of the study area, it is assessed that there are no implications for the draft sub-division plan under the EPBC Act for the Natural Temperate Grassland of the Victorian Volcanic Plain ecological community.

The draft sub-division plan requires the removal of no ‘patch’ or ‘scattered tree’ native vegetation. Consequently, there would be no implications for the removal of native vegetation under the Native Vegetation Permitted Clearing Regulations.

The area of ‘Modelled Native Vegetation (in areas not surveyed)’ as mapped by Ecology Heritage Partners for the study area is not confirmed by this study. This survey finds these areas to be degraded and comprised of exotic plant species. This finding has implications for the size of the proposed reserved area.

There are no significant ecological values located beyond the proposed municipal reserve area that warrant protection. Consequently, the area of municipal reserve, as proposed by the draft sub-division plan, is broadly supported by the findings of this report as being as an adequate and appropriate response to the local ecological conditions.

There are not considered to be any significant limitations to the findings of this study.

Appendix 1 - ASSESSING CONSERVATION SIGNIFICANCE

Conservation significance is assessed at a range of scales, including global, international, national, state, regional and local. Criteria used for determining the conservation significance of flora at national to local scales are presented below for botanical conservation significance.

National botanical significance applies to an area when it supports one or more of the following attributes:

a population of at least one nationally threatened plant species listed by Briggs and Leigh (1996) or plant species listed on the schedules to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

A nationally threatened ecological community listed on the schedules of the *Environment Protection and Biodiversity Conservation Act 1999*.

State botanical significance applies to an area when it supports one or more of the following attributes:

A population of at least one plant species threatened in Victoria, as listed by Gullan et al. (1990), NRE (2000a) or more recently in the unpublished records of the Flora Information System (NRE), or on the schedules to the Victorian *Flora and Fauna Guarantee Act 1988*.

An ecological community considered threatened in Victoria through its listing on the schedules of the *Flora and Fauna Guarantee Act 1988*.

Regional botanical significance applies to an area that supports one or more of the following attributes:

Supports a population of one or more regionally depleted species defined in a valid regional assessment of biodiversity (eg. Regional Native Vegetation Plan, Environment Conservation Council Report or Comprehensive Regional Assessment documents).

An ecological vegetation class that is considered endangered or vulnerable in a particular bioregion (based on Conn 1993 and the Regional Native Vegetation Plan), in which case the area is of **High Regional** significance.

An ecological vegetation class that is considered depleted in a particular bioregion (based on Conn 1993 and the Regional Native Vegetation Plan), in which case it is of **Regional** significance.

Local botanical significance applies to all remnant native vegetation that does not meet the above criteria. In much of Victoria, and in particular in the Victorian Volcanic Plain bioregion, native vegetation has been so depleted by past clearing and disturbance that all remaining vegetation must be considered to be of at least local conservation significance.

6 REFERENCES

Corangamite Catchment Management Authority (2005) 'Corangamite Native Vegetation Plan' CCMA Website.

Greater Geelong City Council Agenda for Ordinary Council Meeting Section B Reports. C395 Planning Scheme Amendment.

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Plates 1-6 Vegetation Existing Conditions

Plate 1. Drainage line, north and south banks, typical conditions. Degraded exotic vegetation with negligible habitat values.

Plate 2. Drainage line, north and south banks, typical conditions. Degraded exotic vegetation with negligible habitat values.

Plate 3. Drainage line, typical conditions. Degraded exotic vegetation with negligible habitat values.

Plate 4. Drainage line, typical conditions. Degraded exotic vegetation with negligible habitat values.

Plate 5. Planted River Red Gum located in proposed municipal reserve.

Plate 6. Cowies Creek, typical conditions. Degraded exotic vegetation with native Rush.