PRACTICAL ECOLOGY
ecological restoration & consulting

Updated Addendum to Flora and Fauna Assessment and Native Vegetation Impact Analysis

35 and 69-93 Hams Road, Waurn Ponds

October 2018

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0.1	24/04/2018	Dr Andrew Hamer	Internal draft for review
1.0	26/04/2018	Taylors Development Strategists	Draft for client review
1.1	8/05/2018	-	Final for submission
1.2	29/10/2018	Roger Cooper	Updated report adjusted NVIA to reflect new subdivision masterplan. For client review.
1.3	30/10/2018	-	Final Updated Report for submission

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1. INTRODUCTION AND BACKGROUND

Practical Ecology Pty Ltd was commissioned by Taylors Development Strategists Pty Ltd in December 2017 in response to a Request for Further Information from the City of Greater Geelong (dated 10th October, 2017). This was in relation to a proposed planning scheme amendment and permit applications (662/2017 and 663/2017) for the combined property at 35 and 69-93 Hams Road (previously known as 151-229 Anglesea Road), Waurn Ponds. The requirement for Practical Ecology involved providing an addendum to our 2014 assessment report (listed below) which would be informed by a reassessment of the ecological information for the study site.

This piece of work built on a series of ecological assessments that Practical Ecology completed for this site in previous years. Including:

Nance, D (2012) *Due Diligence Flora and Fauna Survey at 35 Hams Road and 151-229 Anglesea Road, Waurn Ponds,* Practical Ecology, Preston

Kidman, J. (2014) *Flora and Fauna Assessment and No Net Loss Analysis Recommendations, 35 Hams Road and 151-229 Anglesea Road Waurn Ponds*, Practical Ecology, Preston

O'Malley, A. (2015) *Growling Grass Frog, Natural Spring, and Bird Habitat Surveys for 35 and 69-93 Hams Road, Waurn Ponds*, Practical Ecology, Preston

The Request for Further information from the City of Greater Geelong (dated 10th October 2017) specifically required:

4. The submitted Flora & Fauna Assessment undertaken by Practical Ecology was undertaken in April 2014. It is requested that the site be reinspected and an addendum be attached to this report to update the report.

5. The flora reports and submitted plans do not acknowledge the existing patch of native vegetation midway along the south side of Hams Road. This vegetation is within the Council road reserve. The City's biodiversity records has identified this as a patch of Grassy Woodland. The submitted documentation needs to be amended to recognise this patch of vegetation and clarify what is proposed in respect to its retention or removal. There will need to be consideration given to micro-citing lot driveways to minimise impacts on this vegetation as well as discuss the location of future underground services.

6. The proposed creek and drainage reserve does not encompass the existing drainage/creek line & the existing dams. The interference with this is that all the low lying areas will be required to be filled altering the overall natural topography of the site. The 2015 frog survey report identified four frog species are using the existing dams & the middle dam (No.2) was recorded as a Sedgy Wetland Habitat Zone. The alignment of the creek reserve needs to be relocated to fully incorporate the existing dams 2 & 3.

Since the previous Flora and Fauna Assessment in 2014, the dimensions of the study site have altered due to road realignments along the western and southern boundaries of the property. This has resulted in the study site extending to the west to include a strip of former road reserve associated with the Anglesea Road. There has also been a portion of land excised to the south for a new road reserve for Baanip Boulevard that now runs east-west partially along the southern border of the property.

Additionally, of relevance to this assessment, the native vegetation provisions (Clause 52.17 of the City of Greater Geelong Planning Scheme) was updated in December, 2017.

On this basis the current policy for which the incorporated document, *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017a) provides guidance, was applied.

As Practical Ecology's 2014 assessment was commissioned to support the concept design phase of the re-zoning, indicative vegetation losses were provided but the final details that would accompany a formal permit application were not provided. In response to the RFI, an updated assessment and report was completed that provided an Addendum to the 2014 report.

Since that date further design work has been completed and the following Masterplan has been drafted: *Option 1 Masterplan, 35 & 69-93 Hams Road, Waurn Ponds. Job: 20679, MP 17, 2 October 2018* requiring updates to previous reporting to reflect the new design. In particular the Native Vegetation Impact Assessment has been updated.

Items highlighted in yellow within this report include information that is linked to the most recent plan ((2 October, 2018) listed above) and advice provided.

Practical Ecology were advised by Taylors' staff that the majority of the property would likely be impacted by some level of construction work. This is with the exception of some parts of the upper sections of the Creek Reserve areas. Practical Ecology have used this advice as the basis for this updated assessment.

Engineered outcomes that will result in loss of natural habitat are:

- Sections of the Creek Reserve areas including the majority of the length of the main waterway involving engineering work aiming to create new levels, the introduction of rock and battering
- Two Drainage Reserves (located in the north and north-west)
- Two Retarding Basins (located centrally and in the eastern portion of the site)
- A shared path within northern part of Creek Reserve & the western crossing of the Creek Reserve
- Two road crossings of the Creek Reserve (central and west)
- The Local Park (although aiming to retain where possible in future design processes)
- Two Tree Reserves (although aiming to retain where possible in future design processes)

Natural habitat intended to be retained:

- Balance of the Creek Reserve
- The 'Overland Flow' site
- Dams and Ponds (with the exception of where Council has requested perimeter fencing or bollards be applied for safety)
- Attached pocket of unlabelled Creek Reserve

1.1 Project Scope

The scope of works undertaken to inform the previous assessment included:

- A brief desktop review of biodiversity information including:
    - any updates to relevant legislation and policy requirements, for example the policy relating to Clause 52.17 of the Planning Scheme
    - any relevant correspondence pertaining to the application such as correspondence with Council
    - previous reports for the site including Practical Ecology's Flora and Fauna Assessment and targeted frog survey reports from 2014 and 2015
    - any other relevant documents and reports relating to the site

- Field survey to re-assess the site particularly to determine any changes in quality and extent of remnant native vegetation, and to note any other items that are relevant to the planning permit application.

- Completion of a Native Vegetation Impact Assessment in accordance with the new *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017a), to determine vegetation losses associated with the rezoning of the site

- Provision of recommendations on the rezoning and actions that can be undertaken to avoid vegetation impacts and habitat removal

- Provision of mapping to illustrate existing/reassessed conditions.

- The updated October 2018 assessment included:

  - An update of the Native Vegetation Impact Assessment in accordance with the new *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017a), to determine vegetation losses associated with the rezoning of the site and

  - Updates to mapping to illustrate existing/reassessed conditions

1.2 Subject Site

1.2.1 Site description

The study site is approximately 23.8 ha in area and consists of two lots: 35 Hams Road and 63-69 Hams Road, Waurn Ponds.

The site area has been altered since the 2014 assessment in that it now includes a portion of land along the western boundary that was formerly part of a road reserve and has been reduced in the south-western corner due to the incursion of Baanip Boulevard (Figure 1).

Figure 1. Site location map with updated boundary, 35 and 69-93 Hams Road, Waurn Ponds

2. METHODS

2.1 Field survey

A site reinspection was undertaken by Yasmin Kelsall and Emma Loboda on 16th January 2018, involving:

- mapping and assessing vegetation as per the Habitat Hectare Methodology
- mapping all Large and Scattered Trees
- the compilation of a list of vascular plants observed across the study site
- consideration of the site's habitat values for threatened fauna and flora
- consideration of any other relevant land management issues relevant to the proposed development

2.2 Vegetation Categorisation, Classification and Quality

Vegetation was assessed for its categorisation according to the *Guidelines for the removal, destruction and lopping of native vegetation (the Guidelines)* (DELWP 2017a), then it's Ecological Vegetation Class (EVC) and finally, quality, as determined by a Habitat Hectare assessment.

2.2.1 Vegetation Categories

Vegetation in the study area was categorised in accordance with the *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017a) which defines native vegetation as :

- **Native Vegetation**

  Native Vegetation as per the Victorian Planning Provisions (Clause 72): plants that are indigenous to Victoria, including trees shrubs, herbs and grasses.

- **Native Vegetation Patch**

  A patch of native vegetation is either:

  - an 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 drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy, or
  - any mapped wetland included in the current wetlands layer available in the Department of Environment, Land, Water and Planning's (DELWP) Native Vegetation Information Management tool and other DELWP systems.

- **Native canopy tree**

  A *native canopy tree* is a mature tree (i.e. that is able to flower) that is greater than 3m in height and is normally found in the upper layer of the relevant vegetation type.

  Trees are measured by diameter at breast height (DBH) at 1.3 metres above ground level.

- **Large Tree**

A *Large Tree* is either: a live tree that is equal to or greater than the large tree benchmark for the species in the relevant EVC; or a standing dead tree has a DBH measurement of 40 centimeters or greater

- **Scattered Tree:**

  A Scattered Tree is a native canopy tree that does not form part of a patch.

  Scattered Trees have 2 size classes, Large Trees and Small Trees, i.e. those that have a DBH that is less than the large tree benchmark for the species in the relevant EVC.

2.2.2 Ecological Vegetation Classes

Ecological Vegetation Classes (EVCs) are a method of systematic organisation of plant communities into common types that occur in similar environmental conditions throughout Victoria. Each vegetation type is identified on the basis of its floristic composition (the plant species present), vegetation structure (woodland, grassland, saltmarsh), landform (gully, foothill, plain) and environmental characteristics (soil type, climate).

Modelled EVC distribution was accessed to assess the EVCs likely to occur on the study area (DELWP 2018). EVCs were then identified in the field according to observable attributes including dominant and characteristic species consistent with the benchmark descriptions (DELWP 2016).

2.2.3 Habitat Hectare Assessment

A habitat hectare assessment applies to a defined native vegetation patch and is used to determine the condition of the vegetation and significance of native vegetation. This methodology is outlined in *Vegetation Quality Assessment Manual-Guidelines for Applying the Habitat Hectares Scoring Method* (DSE 2004a). The habitat hectare method involves making visual and quantitative assessments on various characteristics of native vegetation according to established criteria that are set against an optimum benchmark.

This process begins with the identification of the EVC. Each EVC has an optimal benchmark representing its mature, natural (pre-1750) state. The assessment area is measured based on 7 habitat/vegetation components and 3 landscape components as a percentage of the EVC benchmark.

Assessment areas are separated into different habitat zones two types of EVCs are observed or where there are observed differences in condition within a single EVC.

When undertaking a habitat hectare assessment, *Large Trees* are documented either within a native vegetation patch or as a Scattered Tree.

2.3 Flora

2.3.1 Flora survey

The study site was re-inspected on foot. A species list (or defined area list) for indigenous or naturalised flora (i.e. not including planted species) was compiled. This built on the previous species list that was determined in 2014. No systematic surveys were undertaken during this study. As previously mentioned the western study site boundary has changed and therefore was not assessed in 2014. However, following assessment of historical aerial photography and the current site inspection, no new patches of native vegetation were identified.

2.3.2 Plant identification

Species that could not be identified in the field were recorded to the nearest possible family or genera. These were then collected as per the protocols associated with Practical Ecology's *Flora and Fauna Guarantee (FFG) Act 1988* permit (No. 10006484) for the collection of plant material. In order to assist in the identification of some flora, major features of the specimens were collected where possible, including leaves, parts of branches, fruit and/or flowers.

2.3.3 Limitations of flora survey

The following considerations should be made regarding the limitations of the flora survey:

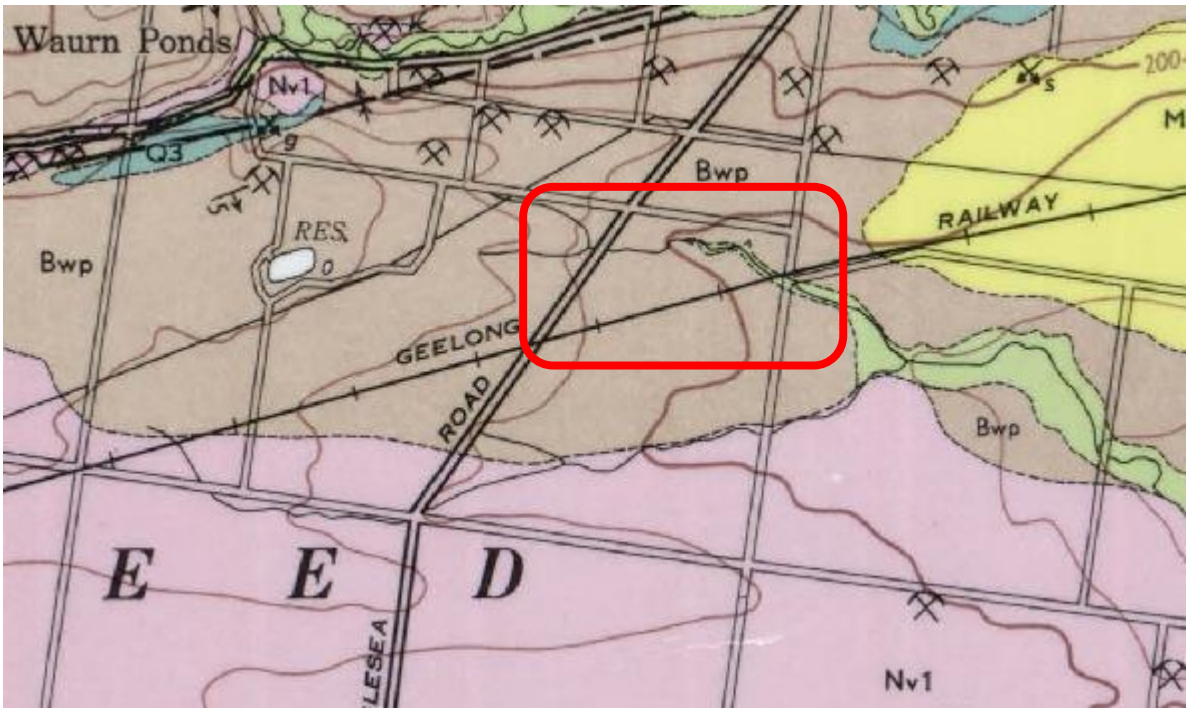
- it was undertaken in mid-summer which is not the optimal time for plant identification, particularly for some herbaceous species that can only be observed for a limited period of time, and so may not have been recorded during the reassessment
- flora surveys were undertaken over a short period of time

3. RESULTS

3.1 Vegetation Categorisation, Classification and Quality

The 1:63,000 Geelong Geological Survey map (1963) indicates that the site lies within an area of Tertiary-aged Waurn Ponds Limestone (shown as *Bwp* in the figure below). This geology confirms that the site lies within the Otway Plains Bioregion. However, it can also be seen that the *Newer Volcanics* geology (shown as *Nv1* in the figure below) which signify the Victorian Volcanic Plain Bioregion are mapped as occurring less than one kilometre to the south. There are a number of vegetation communities that are recognised as being listed under the EPBC Act 1999 that occur within the Victorian Volcanic Plain, but the geological mapping shows that this is not applicable to the study site.

Figure 2. 1:63,000 Geelong Geological Survey map (1963) showing the location of the study site



Three Ecological Vegetation Classes (EVCs) were confirmed to be present across the site: Grassy Woodland (EVC 175), Creekline Grassy Woodland (EVC 68) and Sedge Wetland (EVC 136).

These zones maintain a patchy distribution across the site and were limited to two paddocks and the drainage lines, that generally run west to east, through the northern portion of the site, with a gully that runs from Hams Road (opposite a reserve) south into the main creek. The flora within the majority of these patches consisted of a limited diversity. Map 1 indicates the distribution of the individual patches across the site.

The site reinspection resulted in some changes and additions to the previously mapped vegetation from 2014. As well as some adjustments and additions within the subject properties, a patch of Grassy Woodland vegetation within the Council road reserve on the south side of Hams Road, was confirmed (HZ3).

Adjustments were made to the extent and distribution of patches of Grassy Woodland vegetation including the addition of a number of additional habitat zones. These being a further two Grassy Woodland patches; one Creekline Grassy Woodland patch and two patches of Sedge Wetland.

The EVCs on site and their bioregional conservation status are indicated in Table 1 below.

Table 1. Bioregional Conservation Status for Extant EVCs at Study Site.

EVC No.	EVC	Bioregional Conservation Status
175	Grassy Woodland	Endangered
68	Creekline Grassy Woodland	Endangered
136	Sedge Wetland	Vulnerable

3.1.1 Habitat Zone 1 (HZ1a-g)

Habitat Zone 1 consists of a number of patches of relatively depleted Grassy Woodland vegetation (EVC 175). Seven separate patches were identified on site (HZ1a-HZ1g).

Many of these patches have changed in some way from those previously mapped in 2014. This includes: the south-eastern corner of HZ1a has now been excluded and a narrow strip added to the northern part of this area. The extent of HZ1d has been extended to the west, doubling the original area. Two new areas have also been added: HZ1f and HZ1g.

Indigenous species commonly identified within HZ1 included: Common Wallaby-grass *Rytidosperma caespitosum*, Slender Wallaby-grass *Rytidosperma racemosum* var. *racemosum*, the occasional Finger Rush *Juncus subsecundus* and Spear Grasses *Austrostipa spp* throughout.

Native vegetation cover was between 25 % and up to 80 % in some areas (Figure 3).

Weedy species within this zone included: Brown-top Bent **Agrostis capillaris* and Ribwort **Plantago lanceolata* which had the highest cover. Squirrel-tail Fescue **Vulpia bromoides*, Spear Thistle **Cirsium vulgare*, Cocksfoot **Dactylis glomerata*, and Toowoomba Canary-grass **Phalaris aquatica* were also common within this zone.

Figure 3. Habitat Zone 1 looking west from within HZ1g

3.1.2 Habitat Zone 2 (HZ2a-e)

Habitat Zone 2 included five patches of Creekline Grassy Woodland vegetation that were confined to areas that held water along the central drainage line and included the large wetland located centrally within the site (HZ2a) (Figure 4). All of these patches contained a high cover of Common Spike-sedge *Eleocharis acuta* and scattered occurrences of Pale Rush *Juncus pallidus* and Finger Rush. HZ2a also contained Water Milfoil *Myriophyllum spp.* and Swamp Lily *Ottelia ovalifolia* subsp. *ovalifolia.*

Weeds within this zone included patchy invasions of Water Couch **Paspalum distichum* and Gorse **Ulex europaeus* was prevalent along the fringes of the patches and across much of the extent of the drainage line.

Figure 4. Habitat Zone 2 looking west from edge of HZ2a

3.1.3 Habitat Zone 3

Habitat Zone 3 is a patch of Grassy Woodland located on the southern side of the Hams Road reserve, just to the north of the study site (Figure 5). This patch of approximately 0.04 hectares was dominated by shrubby vegetation including Drooping Sheoak *Allocasuarina verticillata* and Hedge Wattle *Acacia paradoxa*. Groundstorey species included Nodding Saltbush *Einadia nutans*, Slender Wallaby-grass, and Spear Grasses.

Weed cover was approximately 60% of HZ3 and consisted mostly of exotic grasses. Weedy species in this zone included: Kikuyu **Cenchrus clandestinus,* Paspalum **Paspalum dilatatum* and a mix of other perennial exotics.

Figure 5. Habitat Zone 3 looking east from edge of HZ3

3.1.4 Habitat Zone 4 (HZ4a-b)

Habitat Zone 4 consists of two patches of Sedge Wetland located within the eastern portion of the site along gully-lines (Figure 5). These two locations, despite being highly disturbed sites as a result of cattle trampling,

contain fringing and aquatic vegetation. There was a high cover of Variable Willow-herb *Epilobium billardierianum* across both areas. Other native species included: Common Spike-rush, Pale Rush and *Cyperus* spp. The dominant weed species was Water Couch **Paspalum distichum*.

Figure 6. Habitat Zone 4 looking south from northern boundary of site

3.1.5 Habitat hectare assessment

Table 2 below presents the results of the Habitat hectare assessments carried out on site.

Table 2. Habitat hectare assessment

	Habitat Zone		**1**	**2**	**3**	**4**
	Bioregion		OR	OR	OR	OR
	EVC Name (initials)		GW	CGW	GW	SW
	EVC Number		175	68	175	136
	EVC Conservation Status		E	E	E	V
	Size of Zones (ha)		6.04	0.32	0.05	0.36
		Max Score	**Score**	**Score**	**Score**	**Score**
Site Condition	Large Old Trees	10	0	0	0	0
	Canopy Cover	5	0	0	0	0
	Understorey	25	5	5	5	5
	Lack of Weeds	15	4	7	0	4
	Recruitment	10	0	0	1	6
	Organic Litter	5	4	5	5	4
	Logs	5	0	0	2	0
	EVC Standardiser		1	1	1	1.36
	Standardised Site Score	75	13	17	13	25.84
Landscape value	Patch Size	25	1	1	1	1
	Neighbourhood					
	Distance to Core					
Habitat points		100	14	18	24.12	14
Habitat Score (habitat points/100)		**0.##**	**0.14**	**0.18**	**0.24**	**0.14**

3.2 Flora

A total of 48 plant taxa were recorded in the study area during this survey of which 14 were indigenous (29 %) and 34 (71 %) were introduced. Appendix 1 lists all flora recorded within the study site. Table 3 below summarises plant taxa recorded in the study area during this survey.

Table 3. Summary of flora species recorded

Flora Status	Number of Taxa
Indigenous vascular species	14
Exotic species	34
TOTAL	**48**

4. DEVELOPMENT PROPOSAL

The development proposal for the study site involves re-zoning the properties at 35 and 69-93 Hams Road, Waurn Ponds from Farming Zone to Residential Zone and also to proceed with a proposed subdivision development.

Practical Ecology's 2014 assessment was commissioned to support the concept design phase of the re-zoning and indicative vegetation losses were provided at that time. However the final native vegetation impact and offset details that would accompany a formal permit application were not provided. A series of recommendations for design and options to minimise impacts were provided.

Similarly, this second 2018 update is still sought to support the rezoning proposal but further detail in the form of an updated Subdivision Masterplan has been utilised. On this basis, this update provides indicative native vegetation losses and offset requirements based on information provided by the client at this stage.

The proposed subdivision development outlined in the *Option 1 Masterplan, 35 & 69-93 Hams Road, Waurn Ponds. Job: 20679, MP 17, 2 October 2018* prepared by Taylors Development Strategists shows that there will be a total of 258 lots created that are planned to be developed over multiple stages. Additionally there are two areas of 'Medium Density Superlots'.

The remaining land uses will include:

- Roads and road reserves.
- A Creek Reserve that runs east-west throughout the central portion of the site. This reserve contains the central creekline and associated water-bodies (noted as Pond and Dams). It is understood that some of the native vegetation will be retained although the majority of areas within the creek corridor itself and within 10 metres each side will be affected by engineering work. It is proposed that an Environmental Significance Overlay will be applied to the Creek Reserves via the planning process.
- One Local Park area, a rectangular space of 0.9 ha that sits centrally within the subdivision.
- Two retarding basin areas, one located centrally within the site and the second in the eastern most portion of the site. Both retarding basins occupy land within the creek reserve. A pump station is located in the eastern most corner of the site.
- Two small Drainage Reserves sit within the residential areas in the northern and western portions of the site.
- Two small Tree Reserves sit along the southern boundary of the site. One in the eastern-most corner and the other centrally located.

5. RELEVANT POLICY AND LEGISLATION

A review of the advice provided in the Practical Ecology reports Kidman (2014) and O'Malley (2015), with consideration of the results of the recent field survey, shows that in general the information and analysis contained within each of these reports is still relevant to current conditions.

5.1 Environment Protection and Biodiversity Conservation Act, 1999, Flora and Fauna Guarantee Act, 1988.

No requirements relevant to the proposal were identified in previous or current assessments. However, following targeted surveys completed in 2015 for the Growling Grass Frog, a number of recommendations are provided that would assist in the conservation of amphibians.

5.2 Relevant provisions under the Planning Scheme

5.2.1 Zoning

The proposal aims to re-zone the site from Farm Zone to Residential Zone. Consideration of vegetation legislation is discussed in relation to Clauses 12, 13, and 52.17 (Kidman, 2014). The actual re-zoning of the land will not necessarily affect vegetation on site. It is also proposed that an Environmental Significance Overlay will be applied to the two Creek Reserves.

The change in land-use from FZ to RZ may be beneficial to any retained areas of vegetation, due to reduction, or elimination of grazing and trampling pressure. However, the residential design process has the potential to affect the native vegetation and ecological values onsite. This is documented in Section 6 of this report and a Native vegetation removal report (Appendix 2).

5.2.2 Areas of Aboriginal Cultural Heritage Sensitivity (AACHS)

Areas of Aboriginal Cultural Heritage Sensitivity are outlined along the drainage line within the site. This site was one of the last areas where the Wathaurong local indigenous people lived in this region. A stone monument just to the south east of this site pays tribute to this group of aborigines, who were given a one acre block to live upon in 1861.

If significant works are to be undertaken within any of the identified areas of significance then a Cultural Heritage Management Plan (CHMP) will need to be prepared to guide works on the site. f.

5.3 Catchment and Land Protection Act, 1994

The following table lists the declared noxious weeds observed on site (with control categories relevant to the Corangamite Catchment Management Authority region).

Table 4. Declared Noxious weeds occurring within the Study Area

Scientific Name	Common Name	Control Category
**Cirsium vulgare*	Spear Thistle	R
**Lycium ferocissimum*	African Boxthorn	C
**Nassella neesiana*	Chilean Needle-grass	R
**Nassella trichotoma*	Serrated Tussock	C
**Rosa rubiginosa*	Sweet Briar	C
**Ulex europaeus*	Gorse	C

6. NATIVE VEGETATION IMPACT ESTIMATES AND RECOMMENDATIONS

This section addresses the proposed native vegetation impacts associated with this permit application. A permit is required to remove native vegetation on the site as outlined in the Native Vegetation Clause 52.17 of the planning scheme and detailed in the *Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017a).

The purpose of clause 52.17 and 'the Guidelines' is to ensure a no net loss to biodiversity as a result of removal or loss of native vegetation. This is achieved in three steps:

1. Avoid the removal, destruction or lopping of native vegetation
2. Minimise impacts from the removal where native vegetation cannot be avoided and,
3. Provide an offset to compensate for the biodiversity impact if a permit is granted

6.1 Assessment Pathway

An application to remove, destroy or lop native vegetation must be classified as one of the following assessment pathways:

- basic
- intermediate
- detailed

The application requirements and decision guidelines in Clause 52.17 must be applied in accordance with the relevant assessment pathway.

To determine the assessment pathway, two factors are considered in relation to the native vegetation proposed to be removed:

- the location category (shown in the location map as location 1, 2 or 3)
- the extent of proposed native vegetation removal

Table 5. Determining the Assessment Pathway

Extent of native vegetation	Location category		
	Location 1	Location 2	Location 3
Less than 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
Less than 0.5 hectares and including one or more large trees	Intermediate	Intermediate	Detailed
0.5 hectares or more	Detailed	Detailed	Detailed

Source: Table 3, *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017a)

6.1.1 Location category

The location category has been determined for all of Victoria. Native vegetation will be in either Location 1, 2 or 3 as outlined below

- Location 3 – includes locations where the removal of less than 0.5 hectares of native vegetation could have a significant impact on habitat for a rare or threatened species.

- Location 2 – includes locations that are mapped as endangered EVCs and/or sensitive wetlands and coastal areas are not included in Location 3
- Location 1 – includes all remaining locations in Victoria.

The vegetation to be removed is in both Location 1 and Location 2. Figure 7 below shows the location category.

Figure 7. Location category for vegetation to be removed

6.1.2 Extent of impact from proposed development

As outlined in 'The Guidelines', an application must consider:

- the proposal and all buildings and works that could impact on existing native vegetation, including mapped wetlands.
- any ancillary uses, utilities, access and earthworks associated with the use or development and any defendable space requirements.
- the full extent of native vegetation removal must be considered.
- assumed losses accounting for indirect loss of native vegetation for example, encroachment into tree protection zones, loss from changed water flows and shading.

The current development proposal, including impacts upon the Hams Road reserve will result in impacts that total 6.194 ha. This is shown on Map 2.

6.2 Application pathway

As the area of vegetation that will be impacted is greater than 0.5 ha, the proposed clearing within the site follows the Detailed application pathway.

Table 6 presents the application requirements to remove native vegetation under Clause 52.17 as provided in *the Guidelines for the removal, destruction and lopping of native vegetation* (DELWP 2017a) and *preliminary information to provide guidance for the next stages of the planning process.*

Table 6. Application requirements for applications for a permit to remove native vegetation

No.	Application requirements	Assessment Pathway	Provided/response
1	Information about the native vegetation to be removed, including: • the assessment pathway and reason for the assessment pathway. This includes the location category of the native vegetation to be removed • a description of the native vegetation to be removed • maps showing the native vegetation and property in context • the offset requirement, determined that will apply if the native vegetation is approved to be removed.	Section 3.1, Map 1 and Section 6.1.2	Yes ☒ No ☐ N/a ☐
2	Topographic and land information relating to the native vegetation to be removed, showing ridges, crests and hilltops, wetlands and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion, as appropriate.	Shown in Map 1 & 2	Yes ☒ No ☐ N/a ☐
3	Recent photographs (dated) of the native vegetation to be removed.	Section 3.1	Yes ☒ No ☐ N/a ☐
4	Details of any other native vegetation approved to be removed, or that was removed without the required approvals, on the same property or on contiguous land in the same ownership as the applicant, in the five year period before the application for a permit is lodged.	None	Yes ☒ No ☐ N/a ☐
5	An avoid and minimise statement. The statement describes any efforts to avoid the removal of, and minimise the impacts on the biodiversity and other values of native vegetation, and how these efforts focussed on areas of native vegetation that have the most value.	Section 6.3	Yes ☒ No ☐ N/a ☐
6	A copy of any property vegetation plan that applies to the site.	N/A	Yes ☐ No ☐ N/a ☒
7	Where the removal of native vegetation is to create defendable space, a written statement explaining why the removal of native vegetation is necessary. This is not required when the creation of defendable space is in conjunction with an application under the Bushfire Management Overlay.	N/A	Yes ☐ No ☐ N/a ☒
8	If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan	N/A	Yes ☐ No ☐ N/a ☒
9	An offset statement explaining that an offset that meets the offset requirements for the native vegetation to be removed has been identified and how it will be secured.	Section 6.3	Yes ☒ No ☐ N/a ☐
For detailed assessments:			
10	A site assessment report of the native vegetation to be removed, including: • A habitat hectare assessment of any patches of native vegetation. The location, number, circumference and species of: any large trees within patches. of any scattered trees, and whether each tree is small or large.	Section 3.1	Yes ☒ No ☐ N/a ☐
11	Information about impacts on rare or threatened species habitat, including: • The relevant section of the Habitat importance map for each rare or threatened species requiring a species offset. • For each rare or threatened species that the native vegetation to be removed is habitat for, according to the Habitat importance maps: – the species' conservation status – the proportional impact of the removal of native vegetation on the total habitat for that species – whether their habitats are highly localised habitats, dispersed habitats, or important areas of habitat within a dispersed species habitat. Note: A report from DELWP systems and tools contains information required to address this application requirement.	Provided in the Native vegetation removal report in Appendix 2 and also considered within previous Ecological Assessments	Yes ☒ No ☐ N/a ☐

6.3 Avoid and Minimising impacts to biodiversity

Table 7 details the initial steps that have been applied to avoid and minimise biodiversity impacts of the proposed development based on advice provided by Taylors Development Strategists. Other guiding recommendations include:

- Attempt to incorporate existing patches of vegetation into areas of open space
- Avoid designing buildings or works that impact on the waterway or wetland areas
- Avoid placing lots and/or dwellings too close to vegetation that may need to be subsequently cleared to accommodate defendable space requirements under the requirements of the Bushfire Prone Area
- Aim to incorporate/reintroduce locally native vegetation where possible in future designs and to enhance local habitat values where possible

Table 7. Steps taken to avoid and minimise biodiversity impacts

Steps taken to avoid and minimise biodiversity impacts
• Avoids clearing within some of the Creek Reserves. • It is also intended that an Environmental Significance Overlay be applied to the Creek Reserve in the future. • Detailed landscape features planning will endeavour to include further measures to avoid and minimise impacts upon native vegetation.

6.4 Native vegetation removal requirements

The Native Vegetation Removal Report is provided by DELWP (2017b) as per the clearing outlined above. A summary of the report is given in Table 8 and the full report is provide in Appendix 2.

Table 8. Summary of native vegetation to be removed

Summary Item	Result
Assessment pathway	Detailed
Total extent	6.194 ha
Remnant patches	6.194 ha
Scattered Trees (small)	0 tree
Scattered Trees (large)	0 tree
Location category	2
Strategic biodiversity value score of all marked native vegetation	0.336

Offset targets

If a permit is granted to remove the selected vegetation a requirement to obtain a native vegetation offset will be included in the permit conditions. The offset must meet the following requirements:

Table 9. Offsets required if a permit is granted

Offset type	Offset requirements	
	Offset amount	Offset attributes
General	0.876 general habitat units	• Offset must be within the Corangamite Catchment Management Authority (CMA) or Greater Geelong City Council area • Offset must have a minimum strategic biodiversity value of 0.269 • 0 large trees

6.5 Offset Strategy

All applications that require a permit to remove native vegetation must include an offset strategy as a part of the application.

Offsets can be either:

- First party – located on land owned by the landholder who is proposing to remove the native vegetation
- Third party – located on land owned by a third party

Based on the Subdivision Masterplan, there is limited capacity currently available within the proposed development scenario that will allow for any of the offset requirements to be provided onsite.

This may be something that the client wishes to investigate further in the future. However any onsite offsets will need to meet all of the relevant requirements.

Detail on this is provided in the Native vegetation gain scoring manual:

https://www.environment.vic.gov.au/__data/assets/pdf_file/0026/51794/Native-vegetation-gain-scoring-manual-Version-2.pdf

In summary the eligibility criteria for an offset site includes that:

- it meets condition, size and configuration standards
- surrounding land uses are compatible
- significant threats can be controlled
- it is not subject to certain other agreements
- it is not managed to reduce bushfire risk.
- security and management commitments can be met
- it meets the offset requirements associated with the proposed development

In particular there are restrictions on the siting of a house site for bushfire considerations. i.e. an offset cannot be sited within 150 m of a dwelling.

If third party (offsite) offsets are required, the current process involves utilising a 'private offset broker' for this purpose. Further information is provided via the DELWP webpage:

https://www.environment.vic.gov.au/native-vegetation/native-vegetation/offsets-for-the-removal-of-native-vegetation

7. SUMMARY OF RECOMMENDATIONS

This Addendum report has involved reviewing the recommendations provided in our 2014 report relevant to the rezoning of the site in relation to relevant native vegetation legislation. On this basis the following points are provided:

7.1 Summary of Findings

- The site contains patches of remnant native vegetation primarily in the northern portion of the property. This includes a patch of Grassy Woodland that is located within the Hams Road reserve, other patches of depleted Grassy Woodland now represented largely by remnant native grasses; and wetland and creekline vegetation along the waterway and wetland areas in the northern portion of the study site.
- Some patches of weeds were identified that require management under the *Catchment and Land Protection Act, 1994* (documented in the 2014 report).
- The waterway and its wetlands contain the most environmentally sensitive areas within the site and requires careful consideration to avoid adverse impacts at any future design stages.

7.2 Summary of Recommendations

- The site is within a Bushfire Prone Area (BPA); appropriate siting of dwellings and allotments in order to achieve appropriate setbacks from any unmanaged vegetation is required.
- Attempt to incorporate existing patches of remnant indigenous vegetation into areas of open space.
- Avoid designing buildings or works that will impact on the drainage line.
- Avoid placing lots and/or dwellings too close to vegetation that may need to be subsequently cleared to accommodate defendable space requirements under the BPA.
- Avoid excessive earthworks within and adjacent to the drainage line.
- Avoid siting of any infrastructure that will see significant alteration to the waterway.
- Avoid creating situations that may increase erosion, i.e. minimise soil disturbance.
- It is recommended that ecological enhancement works be undertaken along the drainage line, but with consideration of the requirements of any bushfire risk requirements, i.e. the restoration work will not create areas of 'classifiable' vegetation as per AS 3959 (2009).
- Revegetation offsets, if intended to be created on site, may not account for the total offset required. Therefore, offsets for the loss of vegetation on site are recommended to be sourced off site, through native vegetation credit traders.
- Weed infestations should be controlled where areas of open space are to be created. A weed management program will need to be prepared to manage weeds across areas of open space and any areas where offsets are to be established. This should include areas along the drainage line.
- A suitable Construction Environment Management Plan (CEMP) is recommended to guide any future construction work.

8. REFERENCES

DELWP (2016) *Ecological Vegetation Class (EVC) Benchmarks*. Department of Environment, Land, Water and Planning, Government of Victoria. Accessed via: http://www.depi.vic.gov.au/environment-and-wildlife/biodiversity/evc-benchmarks

DELWP (2017a) *Guidelines for the removal, destruction and lopping of native vegetation* Department of Environment, Land, Water and Planning, Government of Victoria, Melbourne.

DELWP (2017b) *Native Vegetation Information Management system (NVIM)*. Department of Environment, Land, Water and Planning, Government of Victoria. Accessed via: https://nvim.delwp.vic.gov.au/

DELWP (2018) *Native Vegetation Information Management system (NVIM)*. Department of Environment, Land, Water and Planning, Government of Victoria. Accessed via: https://nvim.delwp.vic.gov.au/

DEPI (2008) *Native Vegetation - Modelled 1750 Ecological Vegetation Classes (with Bioregional Conservation Status) (NV1750_EVCBCS)*. Department of Environment and Primary Industries, Government of Victoria.

DSE (2004) *Vegetation Quality Assessment Manual - Guidelines for applying the habitat hectares scoring method, Version 1.3*. Department of Sustainability and Environment, East Melbourne, Victoria.

Appendix 1. Flora recorded at study site

Flora species recorded in the study area during fieldwork.
* denotes exotic species # denotes native species extended beyond natural range

Origin	Scientific Name	Common Name
	Acacia paradoxa	Hedge Wattle
	Allocasuarina verticillata	Drooping Sheoak
	Austrostipa spp.	Spear Grass
*	*Avena barbata*	Bearded Oat
*	*Bromus rubens*	Red Brome
*	*Cenchrus clandestinus*	Kikuyu
*	*Cirsium vulgare*	Spear Thistle
*	*Cynodon dactylon var. dactylon*	Couch
*	*Cynosurus echinatus*	Rough Dog's-tail
*	*Cyperus eragrostis*	Drain Flat-sedge
*	*Dactylis glomerata*	Cocksfoot
	Einadia nutans	Nodding Saltbush
	Eleocharis acuta	Common Spike-sedge
*	*Helminthotheca echioides*	Ox-tongue
*	*Hirschfeldia incana*	Buchan Weed
*	*Holcus lanatus*	Yorkshire Fog
*	*Hordeum secalinum*	Knotted Barley-grass
*	*Juncus articulatus subsp. articulatus*	Jointed Rush
	Juncus bufonius	Toad Rush
	Juncus pallidus	Pale Rush
	Juncus subsecundus	Finger Rush
	Lachnagrostis filiformis s.l.	Common Blown-grass
*	*Leontodon taraxacoides subsp. taraxacoides*	Hairy Hawkbit
*	*Lolium perenne*	Perennial Rye-grass
*	*Lotus angustissimus*	Slender Bird's-foot Trefoil
*	*Lycium ferocissimum*	African Box-thorn
	Lythrum hyssopifolia	Small Loosestrife
	Myriophyllum spp.	Water Milfoil
*	*Nassella hyalina*	Cane Needle-grass
*	*Nassella neesiana*	Chilean Needle-grass
*	*Nassella trichotoma*	Serrated Tussock
	Ottelia ovalifolia subsp. ovalifolia	Swamp Lily
*	*Paspalum dilatatum*	Paspalum
*	*Paspalum distichum*	Water Couch
*	*Phalaris aquatica*	Toowoomba Canary-grass
*	*Plantago lanceolata*	Ribwort
*	*Prunus spp.*	Prunus
*	*Rosa rubiginosa*	Sweet Briar
*	*Rumex pulcher subsp. pulcher*	Fiddle Dock

Origin	Scientific Name	Common Name
	Rytidosperma caespitosum	Common Wallaby-grass
	Rytidosperma racemosum var. racemosum	Slender Wallaby-grass
*	*Sagina procumbens*	Spreading Pearlwort
*	*Sonchus asper s.l.*	Rough Sow-thistle
*	*Sonchus oleraceus*	Common Sow-thistle
*	*Sporobolus africanus*	Rat-tail Grass
*	*Trifolium angustifolium var. angustifolium*	Narrow-leaf Clover
*	*Ulex europaeus*	Gorse
*	*Vulpia bromoides*	Squirrel-tail Fescue

Appendix 2. Native vegetation removal report

Native vegetation removal report

This report provides information to support an application to remove, destroy or lop native vegetation in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*. The report **is not an assessment** by **DELWP** of the proposed native vegetation removal. Native vegetation information and offset requirements have been determined using spatial data provided by the applicant or their consultant.

Date of issue: **29/10/2018**
Time of issue: **2:42 pm**

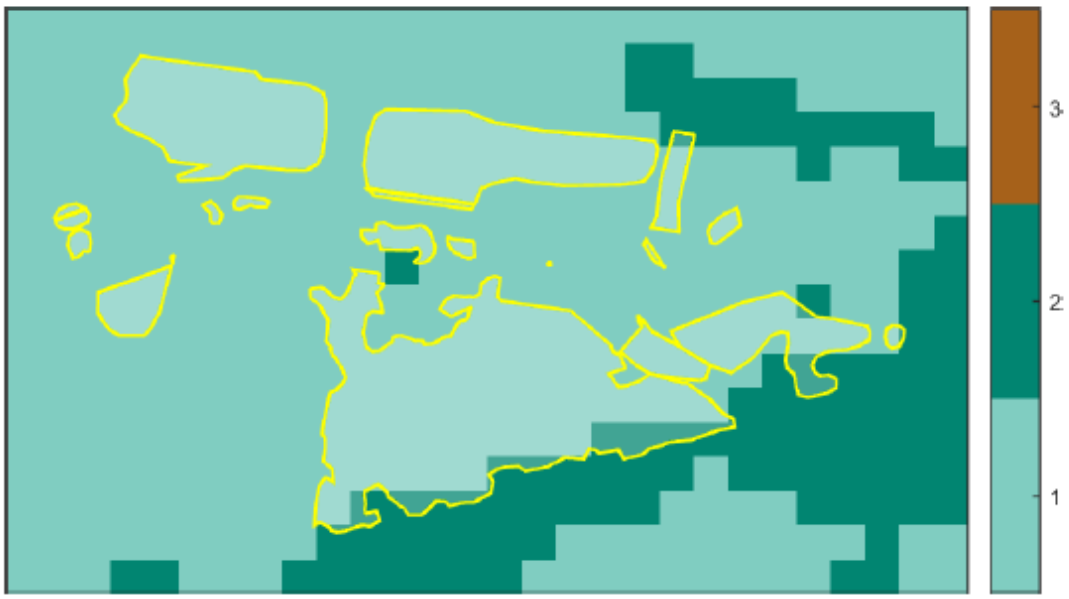
Report ID: PRE_2018_056

Project ID	removal_35_Hams_Rd_Waurn_Ponds

Assessment pathway

Assessment pathway	**Detailed Assessment Pathway**
Extent including past and proposed	6.194 ha
Extent of past removal	0.000 ha
Extent of proposed removal	6.194 ha
No. Large trees proposed to be removed	0
Location category of proposed removal	Location 2 The native vegetation is in an area mapped as an endangered Ecological Vegetation Class (as per the statewide EVC map). Removal of less than 0.5 hectares of native vegetation in this location will not have a significant impact on any habitat for a rare or threatened species.

1. Location map



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Native vegetation removal report

Offset requirements if a permit is granted

Any approval granted will include a condition to obtain an offset that meets the following requirements:

General offset amount[1]	0.876 general habitat units
Vicinity	Corangamite Catchment Management Authority (CMA) or Greater Geelong City Council
Minimum strategic biodiversity value score[2]	0.269
Large trees	0 large trees

NB: values within tables in this document may not add to the totals shown above due to rounding

Appendix 1 includes information about the native vegetation to be removed

Appendix 2 includes information about the rare or threatened species mapped at the site.

Appendix 3 includes maps showing native vegetation to be removed and extracts of relevant species habitat importance maps

1 The general offset amount required is the sum of all general habitat units in Appendix 1.

2 Minimum strategic biodiversity score is 80 per cent of the weighted average score across habitat zones where a general offset is required

Page 2

Native vegetation removal report

Next steps

Any proposal to remove native vegetation must meet the application requirements of the Detailed Assessment Pathway and it will be assessed under the Detailed Assessment Pathway.

If you wish to remove the mapped native vegetation you are required to apply for a permit from your local council. Council will refer your application to DELWP for assessment, as required. **This report is not a referral assessment by DELWP.**

This *Native vegetation removal report* must be submitted with your application for a permit to remove, destroy or lop native vegetation.

Refer to the *Guidelines for the removal, destruction or lopping of native* vegetation (the Guidelines) for a full list of application requirements This report provides information that meets the following application requirements:

- The assessment pathway and reason for the assessment pathway
- A description of the native vegetation to be removed (partly met)
- Maps showing the native vegetation and property (partly met)
- Information about the impacts on rare or threatened species.
- The offset requirements determined in accordance with section 5 of the Guidelines that apply if approval is granted to remove native vegetation.

Additional application requirements must be met including:

- Topographical and land information
- Recent dated photographs
- Details of past native vegetation removal
- An avoid and minimise statement
- A copy of any Property Vegetation Plan that applies
- A defendable space statement as applicable
- A statement about the Native Vegetation Precinct Plan as applicable
- A site assessment report including a habitat hectare assessment of any patches of native vegetation and details of trees
- An offset statement that explains that an offset has been identified and how it will be secured.

www.delwp.vic.gov.au

Appendix 1: Description of native vegetation to be removed

The species-general offset test was applied to your proposal. This test determines if the proposed removal of native vegetation has a proportional impact on any rare or threatened species habitats above the species offset threshold. The threshold is set at 0.005 per cent of the mapped habitat value for a species. When the proportional impact is above the species offset threshold a species offset is required. This test is done for all species mapped at the site. Multiple species offsets will be required if the species offset threshold is exceeded for multiple species.

Where a zone requires species offset(s), the species habitat units for each species in that zone is calculated by the following equation in accordance with the Guidelines:

Species habitat units = extent x condition x species landscape factor x 2, where the species landscape factor = 0.5 + (habitat importance score/2)

The species offset amount(s) required is the sum of all species habitat units per zone

Where a zone does not require a species offset, the general habitat units in that zone is calculated by the following equation in accordance with the Guidelines:

General habitat units = extent x condition x general landscape factor x 1.5, where the general landscape factor = 0.5 + (strategic biodiversity value score/2)

The general offset amount required is the sum of all general habitat units per zone.

Native vegetation to be removed

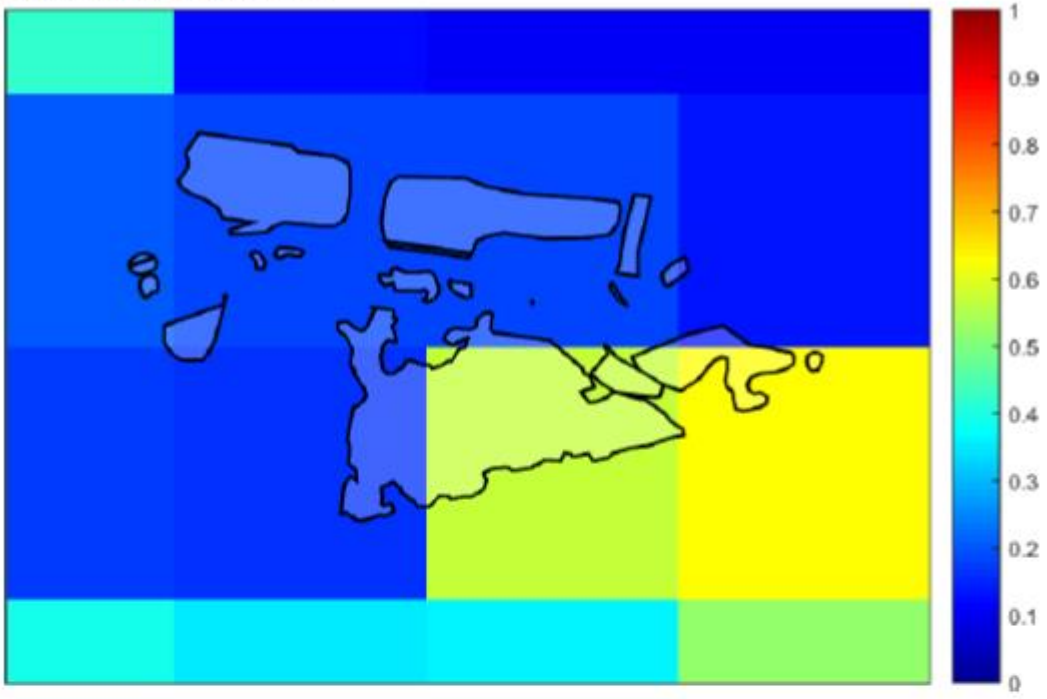
Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
1-BA	Patch	vvp_0175	Endangered	0	no	0.140	3.025	3.025	0.422		0.451	General
1-AA	Patch	vvp_0175	Endangered	0	no	0.140	0.980	0.980	0.180		0.121	General
1-AB	Patch	vvp_0175	Endangered	0	no	0.140	0.030	0.030	0.180		0.004	General
1-C	Patch	vvp_0175	Endangered	0	no	0.140	0.034	0.034	0.162		0.004	General
1-D	Patch	vvp_0175	Endangered	0	no	0.140	0.497	0.497	0.530		0.080	General
1-E	Patch	vvp_0175	Endangered	0	no	0.140	0.018	0.018	0.630		0.003	General
1-G	Patch	vvp_0175	Endangered	0	no	0.140	0.982	0.982	0.180		0.122	General
1-FA	Patch	vvp_0175	Endangered	0	no	0.140	0.171	0.171	0.178		0.021	General
1-FB	Patch	vvp_0175	Endangered	0	no	0.140	0.001	0.001	0.180		0.000	General
2-B	Patch	vvp_0068	Endangered	0	no	0.180	0.016	0.016	0.180		0.003	General
2-C	Patch	vvp_0068	Endangered	0	no	0.180	0.012	0.012	0.180		0.002	General

Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
2-EA	Patch	vvp_0068	Endangered	0	no	0.180	0.021	0.021	0.200		0.003	General
2-EB	Patch	vvp_0068	Endangered	0	no	0.180	0.011	0.011	0.200		0.002	General
4-B	Patch	vvp_0136	Vulnerable	0	no	0.140	0.142	0.142	0.569		0.023	General
4-AA	Patch	vvp_0136	Vulnerable	0	no	0.140	0.114	0.114	0.180		0.014	General
4-AB	Patch	vvp_0136	Vulnerable	0	no	0.140	0.008	0.008	0.180		0.001	General
2-D	Patch	vvp_0068	Endangered	0	no	0.180	0.025	0.025	0.200		0.004	General
2-AA	Patch	vvp_0068	Endangered	0	no	0.180	0.086	0.086	0.180		0.014	General
2-AB	Patch	vvp_0068	Endangered	0	no	0.180	0.021	0.021	0.180		0.003	General
1-BB	Patch	vvp_0175	Endangered	0	no	0.140	0.000	0.000	0.180		0.000	General

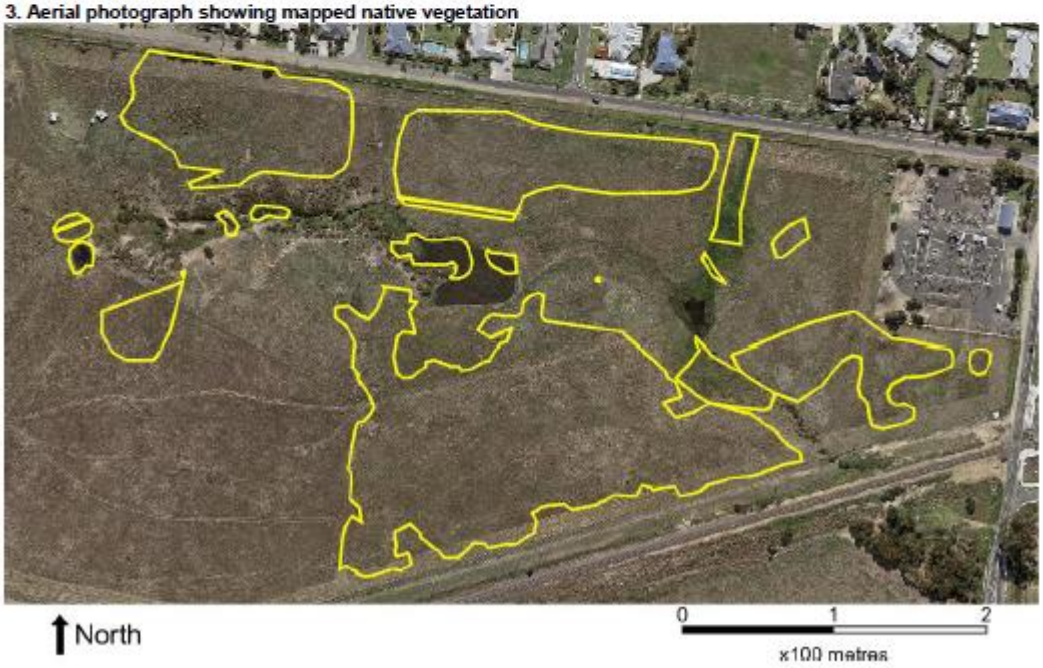
Pages 6-8 of NVRR provided in Appendix 3 of this report.

Appendix 3 – Images of mapped native vegetation

2. Strategic biodiversity values map



3. Aerial photograph showing mapped native vegetation



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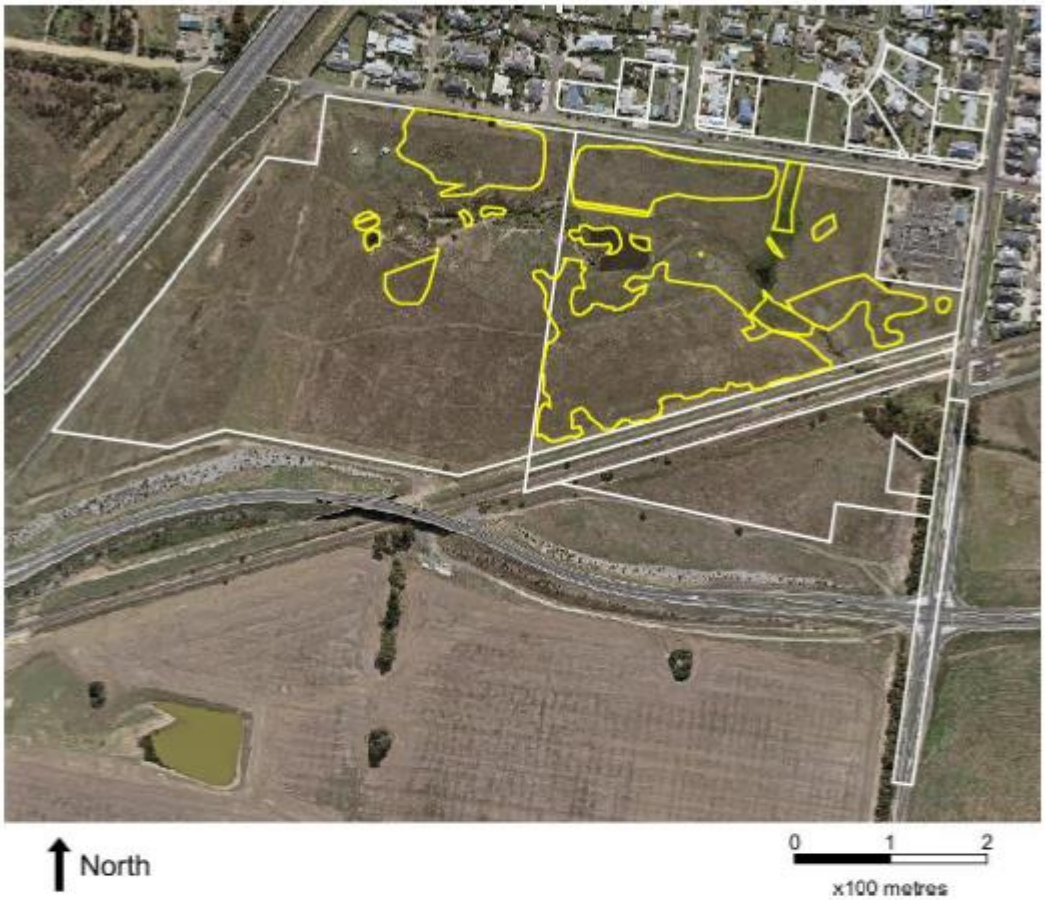
4. Map of the property in context



Yellow boundaries denote areas of proposed native vegetation removal.

Appendix 3. Table from the Native Vegetation Removal Report for impacts on threatened species habitats on site

Appendix 2: Information about impacts to rare or threatened species' habitats on site

This table lists all rare or threatened species' habitats mapped at the site.

Species common name	Species scientific name	Species number	Conservation status	Group	Habitat impacted	% habitat value affected
Curly Sedge	*Carex tasmanica*	500650	Vulnerable	Dispersed	Habitat importance map	0.0003
Melbourne Yellow-gum	*Eucalyptus leucoxylon subsp. connata*	504484	Vulnerable	Dispersed	Habitat importance map	0.0002
Large-headed Fireweed	*Senecio macrocarpus*	503116	Endangered	Dispersed	Habitat importance map	0.0001
Yellow Watercrown Grass	*Paspalidium flavidum*	507820	Endangered	Dispersed	Habitat importance map	0.0001
Salt Blown-grass	*Lachnagrostis robusta*	504223	Rare	Dispersed	Habitat importance map	0.0001
Plump Swamp Wallaby-grass	*Amphibromus pithogastrus*	503624	Endangered	Dispersed	Habitat importance map	0.0001
Brackish Plains Buttercup	*Ranunculus diminutus*	504314	Rare	Dispersed	Habitat importance map	0.0001
Small Scurf-pea	*Cullen parvum*	502773	Endangered	Dispersed	Habitat importance map	0.0001
Swamp Everlasting	*Xerochrysum palustre*	503763	Vulnerable	Dispersed	Habitat importance map	0.0001
Snowy Mint-bush	*Prostanthera nivea var. nivea*	502746	Rare	Dispersed	Habitat importance map	0.0000
Wavy Swamp Wallaby-grass	*Amphibromus sinuatus*	503625	Vulnerable	Dispersed	Habitat importance map	0.0000
Plains Yam-daisy	*Microseris scapigera s.s.*	504657	Vulnerable	Dispersed	Habitat importance map	0.0000
Spiny Rice-flower	*Pimelea spinescens subsp. spinescens*	504823	Endangered	Dispersed	Habitat importance map	0.0000
Matted Flax-lily	*Dianella amoena*	505084	Endangered	Dispersed	Habitat importance map	0.0000
Pale-flower Crane's-bill	*Geranium sp. 3*	505344	Rare	Dispersed	Habitat importance map	0.0000
Leafy Twig-sedge	*Cladium procerum*	500786	Rare	Dispersed	Habitat importance map	0.0000
Purple Blown-grass	*Lachnagrostis punicea subsp. punicea*	504206	Rare	Dispersed	Habitat importance map	0.0000

Arching Flax-lily	*Dianella sp. aff. longifolia (Benambra)*	505560	Vulnerable	Dispersed	Habitat importance map	0.0000
Pale Swamp Everlasting	*Coronidium gunnianum*	504655	Vulnerable	Dispersed	Habitat importance map	0.0000
Purple Blown-grass	*Lachnagrostis punicea subsp. filifolia*	504222	Rare	Dispersed	Habitat importance map	0.0000
Purple Diuris	*Diuris punctata*	501084	Vulnerable	Dispersed	Habitat importance map	0.0000
Growling Grass Frog	*Litoria raniformis*	13207	Endangered	Dispersed	Habitat importance map	0.0000
Small Milkwort	*Comesperma polygaloides*	500798	Vulnerable	Dispersed	Habitat importance map	0.0000
Tough Scurf-pea	*Cullen tenax*	502776	Endangered	Dispersed	Habitat importance map	0.0000
Hairy Tails	*Ptilotus erubescens*	502825	Vulnerable	Dispersed	Habitat importance map	0.0000
Lewin's Rail	*Lewinia pectoralis pectoralis*	10045	Vulnerable	Dispersed	Habitat importance map	0.0000
Clover Glycine	*Glycine latrobeana*	501456	Vulnerable	Dispersed	Habitat importance map	0.0000
Trailing Hop-bush	*Dodonaea procumbens*	501090	Vulnerable	Dispersed	Habitat importance map	0.0000
Fine-hairy Spear-grass	*Austrostipa puberula*	503988	Rare	Dispersed	Habitat importance map	0.0000
Australian Little Bittern	*Ixobrychus dubius*	10195	Endangered	Dispersed	Habitat importance map	0.0000
Australasian Bittern	*Botaurus poiciloptilus*	10197	Endangered	Dispersed	Habitat importance map	0.0000
Baillon's Crake	*Porzana pusilla palustris*	10050	Vulnerable	Dispersed	Habitat importance map	0.0000
Hardhead	*Aythya australis*	10215	Vulnerable	Dispersed	Habitat importance map	0.0000
Australasian Shoveler	*Anas rhynchotis*	10212	Vulnerable	Dispersed	Habitat importance map	0.0000
Grey Goshawk	*Accipiter novaehollandiae novaehollandiae*	10220	Vulnerable	Dispersed	Habitat importance map	0.0000
Brolga	*Grus rubicunda*	10177	Vulnerable	Dispersed	Habitat importance map	0.0000
Black Falcon	*Falco subniger*	10238	Vulnerable	Dispersed	Habitat importance map	0.0000
Blue-billed Duck	*Oxyura australis*	10216	Endangered	Dispersed	Habitat importance map	0.0000
Branching Groundsel	*Senecio cunninghamii var. cunninghamii*	503104	Rare	Dispersed	Habitat importance map	0.0000
Musk Duck	*Biziura lobata*	10217	Vulnerable	Dispersed	Habitat importance map	0.0000

White-throated Needletail	*Hirundapus caudacutus*	10334	Vulnerable	Dispersed	Habitat importance map	0.0000

Habitat group

- Highly localised habitat means there is 2000 hectares or less mapped habitat for the species
- Dispersed habitat means there is more than 2000 hectares of mapped habitat for the species

Habitat impacted

- Habitat importance maps are the maps defined in the Guidelines that include all the mapped habitat for a rare or threatened species
- Top ranking maps are the maps defined in the Guidelines that depict the important areas of a dispersed species habitat, developed from the highest habitat importance scores in dispersed species habitat maps and selected VBA records
- Selected VBA record is an area in Victoria that represents a large population, roosting or breeding site etc.

Map 1. Existing conditions

35 Hams Rd, Waurn Ponds

Legend

- Study site
- Parcels
- Contours (10m)
- Watercourse
- Railways

Ecological Vegetation Class

- Grassy Woodland
- Creekline Grassy Woodland
- Sedgy Wetland

Weeds

- Chilean Needle-grass
- Gorse
- Spear Thistle
- Patersons Curse
- Non-native wetland

Details

Data Source: Aerial photography courtesy of NearMap (Dec 2017)

Version	1	Date	8/05/2018

N

0 50 100 150 m

Scale 1:3,200 (Page size A3)

Disclaimer

Practical Ecology bears no responsibility for the accuracy and completeness of this information and any decisions or actions taken on the basis of the map. While information appears accurate at publication, nature and circumstances are constantly changing.

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Map 2. Ecological impact

35 Hams Rod, Waurn Ponds

Legend

- Study site
- Contours (10m)
- Railways
- Watercourse
- Wetland
- Habitat zones

Proposed development

- Creek Reserve
- Drainage Link
- Park
- Tree Reserve
- Pump Station
- Residential
- Retarding Basin
- Road
- Proposed paths (2m wide)
- Path construction zone (1m buffer on either side)
- Waterway engineering work
- Waterway engineering work construction zone (10m buffer on each side)

Vegetation impacts

- Retained
- Impacted

Details

Date: 29/10/2018
Version: 1
Aerial photography from Nearmap (Dec 2017).

N

0 25 50 75 100 m

Scale 1:3,200 (Page size A3)

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