
From: Matt Thompson <[REDACTED]>
Sent: Saturday, 25 April 2026 3:31 PM
To: Kingborough LPS
Subject: Objection to rezoning in Kingborough Matt Thompson's submission
Attachments: TPC letter NO LCZ - Snug Tiers MThompson.pdf; Snug Tiers Settlement by lot - map a.pdf; Snug Tiers Living Intent - map b.pdf; ECOtas_[REDACTED]Report.pdf

Hello, My name is Matt Thompson of [REDACTED] Snug and I object strongly to the rezoning by Kingborough Council of my property.

Please find attached my letter to you and three attachments, two maps and an environmental report.

Kind regards,

Matt Thompson

Name	Matt Thompson
Date	25/04/26
Property Address	[REDACTED] Snug PID:7663958
Requested Zone	Rural Living Zone

To the Tasmanian Planning Commission,

Hello, my name is Matt Thompson. Thank you for the chance to speak about my property at [REDACTED] Snug.

I object to its rezoning under the Kingborough Draft LPS and Irenelnc review to the Landscape Conservation Zone (LCZ). Applying LCZ is inconsistent with section 34 of the Land Use Planning and Approvals Act 1993 (LUPAA), the LPS Section 8A Guideline No. 1, and the Southern Tasmania Regional Land Use Strategy (STRLUS).

Rural Living Zone (RLZ) subcategory B (minimum lot size 2 ha) would be more suitable. I respectfully ask the Commission to apply this zone, in line with the original purchase, zoning allowances, and the site's current or future residential use. RLZ is also proposed for adjoining properties at [REDACTED].

I purchased my property in 2012 which then was largely native bush with a considerable clearing that was historically a large berry farm well prior to the 1967 fires. I bought it with the aim of building a small off grid, self sufficient dwelling for me to retire comfortably in. I have severe and chronic mental and physical health issues and the peace this natural environment provides me is extremely beneficial to say the least. After a lifetime of work I am now on a disability support pension hoping to work a few hours from home. My plan is and always has been to look after my block and Snug Tiers in general with weed suppression, cool fire reduction burns, rescuing injured wild life, creating environments and nesting boxes for the many endangered wild life, clearing dead trees from across the roads, picking up rubbish including used syringes by the river and so on. I hope to have a large garden near the house for self sufficiency and living off the land as much as possible and share fruit and veg. with the many supportive and community minded neighbours. This is my home and I aim to live here till the end and pass it on to someone else who will care for and benefit from it in the long term future.

While I agree that Tasmania's landscapes should be protected, I believe it can be done best through RLZ as it has been done historically through ELZ and Rural Residential zonings. Rezoning to LCZ would harm our continuous use of the land as allowed when purchased.

LCZ DOES NOT COMPLY WITH LUPAA ZONE GUIDELINES

Section 34 of LUPAA says the Commission must check if the LPS meets the Act's criteria, including zone guidelines. LCZ 4(a) states that LCZ should NOT be used where the land's 'priority is for residential use and development'. The guidelines say LCZ is not for large residential lots 'characterised by native vegetation cover and other landscape values.'

When purchased, my property was zoned Environmental Living. My property is currently zoned Environmental Living (ELZ). The **primary use and strategic intention of the land is and has always been residential**. Although I don't have a dwelling now, I have submitted a Development Application for one, showing my intent to live there.

LUPAA guidelines also state LCZ is not a replacement for ELZ. The priorities don't match: ELZ Living priority permits dwellings, but LCZ prioritises conservation with discretionary dwellings.

In correspondence with the Planning Authority, the TPC noted that the LCZ "appears to have been used ...to replace ELZ", a policy or strategy shift which should be 'comprehensively justified'. Neither the draft LPS nor Irenelnc's review has provided detailed, site-specific reasons for changing my land's priority. They based their decision on general landscape values and rural settlement judgements, neither had community input.

LCZ DOES NOT COMPLY WITH LUPAA OBJECTIVES

LUPAA Schedule 1, Objective (b), aims for 'fair, orderly, and sustainable' land use. Applying LCZ conflicts with this objective. It is unfair to remove permitted residential use; applying LCZ represents a **net reduction** in existing land use rights. The clear majority of Tasmanian councils moving to the Statewide Planning Scheme applied the LCZ sparingly or not at all. Only a few used it moderately or heavily. Most councils (such as Tasman) translated ELZ directly to the Rural Living Zone, yet Irenelnc chose as their model three councils that applied LCZ heavily.

Many councils, including Kingborough in 2019, recognised that LCZ could lower property value, affect insurance and finance, and prevent future dwellings on empty blocks – not meeting the goal of sustainable development that supports communities to provide for their **social, economic** and cultural well-being...' (clause 1 (a), Schedule 1 – Objectives).

RLZ IS THE APPROPRIATE ZONE

RLZ Guideline RLZ 1(a) suggests the RLZ should be applied to residential areas with larger lots used for residential and lower order rural activities, while prioritising residential amenity. This fits my property.

RLZ Guideline RLZ 2(b) states RLZ may be applied to ELZ land where the primary strategic intention is for residential use in a rural setting and a **similar** minimum allowable lot size is being applied. My property's size of 2.08 ha aligns with RLZ B with a minimum lot size of 2 ha.

THE IRENEINC EVALUATION PATHWAY (DECISION TREE)

Irenelnc uses a decision tree to decide zones. On Day 2 of the review hearing, the Commission was told that it's a tool, not a rule [Kate Heckelmann, 05:53:00], and alternatives can be used with good evidence. Even so, applying the evaluation pathway correctly, my property meets the RLZ criteria rather than LCZ.

EVIDENCE OF STRATEGIC INTENT FOR LIVING

Both the original LPS and Irenelnc's report lack clear definitions of "primary strategic intent." They ignore existing rural-residential settlements, historical land use, cultural attachment, community ties, and intergenerational living. Neither STRLUS nor the Kingborough Strategic Plan restrict rural living growth. Past land allocations, subdivision approvals, and development applications show that residential use is the 'strategic intent' of the land.

The review for my locality (Snug/Coningham) is stated as generally meeting strategic intent for living. On my property I have submitted a development application for a dwelling, confirming my intent to live there.

EVIDENCE OF RURAL LIVING SETTLEMENT

Irenelnc's review states that the Snug Tiers community meets the 'strategic intent for living' because there is 'evidence of residential uses scattered throughout'. However, Rural Living Settlement status has been mostly denied, with the report citing a 'lack of consistent subdivision pattern with lots of the size which would contribute to a rural living settlement'.

This assessment appears biased, primarily due to two judgements. First, it favours smaller lot sizes, disregarding RLZ subcategories that limit subdivision of lots under 20ha and also minimises development on larger lots through needs of access and services (note: there is NO maximum lot size in RLZ).

Secondly, the 'consistent pattern' is only recognised if it resembles urban cul-de-sacs or road clusters, ignoring rural and lifestyle properties that are naturally sited around topographical features, inherited large lots, or purchased with future rural living in mind. For example, in Snug Tiers there's a **clear pattern** of large lot subdivision facing into the valley, on a Northwest to Southeast alignment, around the topography.

These biases overlook the fact that residents live just minutes from Snug township, where they shop, support local businesses, send children to school, recreate, and work. The reliance on a desktop analysis, which can't see beyond tree canopies and often lacks on-the-ground insight, leads to subjective judgements about rural settlements. For example, the Irenelnc report notes that three adjoining properties on [REDACTED] display 'a consistent pattern of rural living,' as does my property, yet it is still proposed to be part of the LCZ.

Without applying rural living settlement criteria consistently and with ground-truthing, the evaluation then fails to consider whether landscape values can be managed through planning codes **nor recommends any other outcome than LCZ**, unless the area has no landscape values, which is unlikely given its rural nature and the subjective, non-consulted definition of 'landscape values'.

Homeowners in my area **strongly disagree** with Irenelnc's narrow assessment. We can demonstrate that the Snug Tiers community meets all three rural living settlement characteristics:

1. A 'pattern of **at least** 10 smaller blocks, **generally** between 1–15 ha', with a consistent lot pattern. The **attached map (a)** shows my property among 41 others in Snug Tiers, the majority with lot sizes between 1ha and 15ha (range is 0.18ha to 29.89ha), with a NW/SE subdivision pattern established since the early 1800s. All properties can be managed by available RLZ lot sizes, access and services, to minimise subdivision potential. Our settlement at Snug Tiers adjoins property proposed for RLZ at .
2. A pattern of 'detached dwellings and outbuildings', which Irenelnc admits is "generally met, as many lots have identified residences and cleared areas". As you can see from the **attached map (b)**, you can see that dwellings and outbuildings are located on nearly every property in my community. This also includes properties with development applications or strategic plans for living on empty blocks, such as mine.
3. Visual evidence of rural activities such as 'clearings, grazing and hobby farming etc'. Irenelnc states that "some residential uses are associated with farming", yet at the review hearing, it was clarified that the criteria list is only an example. My property shows a large cleared area with grass and sphagnum moss where wallabies graze. The size can contain a home (currently part of the Development application I have currently with council), large garden and still have plenty of grazing area as a fire retardant and native wildlife. This area is less than 20% of the property which is thick native bush with which I have no intention of changing.

ASSESSING LANDSCAPE VALUES

The STRLUS CV 4.1 states that **community consultation** should determine landscape values. Irenelnc admits in review hearings that they didn't consult. This means the assessment of whether properties meet 'landscape values' is now entirely based on the Planning Authority's judgement.

Irenelnc's choice of dictionary terms 'hilly places' and 'bushland,' and focus on tree-centric descriptions, i.e.: 'predominantly bushland,' 'allotments set within native bushland,' 'dwellings are ... nestled into vegetation,' and 'bushland backdrop' are the main basis for our locality's landscape values.

This overlooks the value of other features like waterways, fields, foraging areas, and the importance of varied terrain (grasslands, clearings, open areas, trails) for different species habitat. Such diversity is vital for a healthy rural or biodiverse landscape and aligns with evidence that people prefer varied scenery, including homesteads, sheds, and domestic animals.

The lack of consultation and reliance on terminology that favours the Planning Authority's narrow definition results in a flawed or biased assessment:

1. Large areas of bushland and vegetation alone do not justify LC zoning. As confirmed at the TPC review hearing on 14/4/26, "LCZ is not for managing vegetation—that is the role of the Natural Assets Code", which applies to all properties. Irenelnc stated that for properties in our area proposed RLZ, overlays will likely (and logically) protect the natural values they identify.
2. Describing dwellings and large lots around topography as 'scattered' implies no strategic planning or intent, which is inaccurate. You can see on the **attached map (b)** that there's overwhelming strategic intent/logic.

3. Biased reasoning: noting large vegetated spaces on rural properties (and comparatively less dwelling area, as set by development criteria) is worded in the report as though this is a choice or evidence that OUR preference was conservation over living: “integration of residential use ... is largely within a small proportion of a parcel”, “the remaining natural setting reinforces the area’s natural values”.
4. Owning private property in natural settings doesn’t mean residents prioritise landscape conservation over residential amenity. Irenelnc implies this repeatedly, both in review references to “built form” being “secondary to the natural landscape” and, in hearings, that lots in bushland reinforce or “contribute” to the area’s “natural values”. Snug Tiers residents purchased homes in natural areas because they **value the contribution this makes to their Rural Living**, not to add to Kingborough’s undefined “landscape values”.
5. Irenelnc relied on overlays in a desktop assessment to identify landscape or environmental features across the locality, ignoring the challenges of topography and identifying these (i.e., through the tree canopy) by aerial images alone. Evidence-based alternative reports or maps of individual properties’ natural settings are needed. Attached is a comprehensive environment report done by Mark Wapstra as part of my DA to council.
6. The scenic protection overlay is broadly applied to properties over 100m above sea level. The photos used in the report, sourced from realestate.com, are aerial shots intended for sale and don’t accurately reflect what is seen from local roads, towns, or waterways. Even Irenelnc admits that in the locality “bushland, landform, and ridgeline features ... remain visually intact,” and the reality is that the siting of homes on Snug Tiers means they cannot be seen from these vantage points. My property and buildings are completely shielded from view by tall native vegetation.

SPOT ZONING, SPLIT ZONING AND FRAGMENTATION

The TPS aims to prevent spot zoning, yet Irenelnc suggests Rural/LCZ split zones on some properties in my locality, which could cause mismatched zone priorities and land use. It’s also **more logical** that the rural activity forms part of an **overall Rural Living community pattern**. There is arguably less fragmentation created by leaving one spot zoned Rural property within an RLZ settlement, than proposing multiple restrictive split zonings.

Irenelnc have also shown that their application of this method is inconsistent. For example, a large lot of 108.84ha at 2274 Channel Highway is split zoned Rural/RLZ and abuts ELZ, RLZ, and Low Density Residential zones, while smaller ELZ parcels have been denied RLZ at all.

BALANCING LANDSCAPE VALUES AND LAND USE

In their S35F report, Kingborough council states that applying the Rural Living zone to rural residential areas **may** “risk that the predominant land use pattern and characteristics of the area could be eroded over time...”. This ignores the long-standing rural nature of the area and the fact that rezoning to LCZ would significantly restrict ongoing private land use, **absolutely guaranteeing** a change in “character and amenity”.

The report notes a “medium/high” risk of RLZ uses in this locality but doesn’t specify what those risks are, how **likely** they are considering the topography, vegetation, and existing settlement patterns, or whether they could be managed through overlay codes, SAPs, or other mechanisms. Irenelnc acknowledged that future reviews could reconsider RLZ decisions, and that any short-term risks could be mitigated. This supports the case that RLZ is appropriate for my property, not LCZ.

At the review hearings, Kate Heckelmann admitted there are **no land uses** that would impact landscape values which aren't already managed by building codes or overlays. This suggests overlaps through stricter zoning isn't necessary because landscape "values can be appropriately **managed through the application and operation of the relevant codes**" (Kingborough LPS guidelines, RLZ 4b).

Assuming LCZ is the only way to protect generic 'landscape values' ignores existing land management, bushfire mitigation efforts, biodiversity initiatives, and conflicts with the intent of the evaluation pathway of **balancing** landscape protection with existing land uses. It is illogical to rezone properties to LCZ to 'protect' the landscape that we've proven we can already care for on our own.

IreneInc suggest that LCZ zoning near Snug Recreation Area is necessary to provide connectivity to the EMZ and act as a buffer between living zones. Not only have National Parks (EMZs) already been put aside for state management, nearly every other Tasmanian council placed other living zones: Rural Living, Residential, Rural, Agricultural, and even Industrial zones next to National Parks or EMZs. It is also contradictory to the placement of Low Density Residential lots beside Coningham's EMZ reserve.

Rural Residential owners provide a significant free workforce to manage areas on the interface of bush, coast, country and town. They need to be able to continue to mitigate natural disaster, care for native species, maintain trails, carriage ways and fire access, and remove invasive pests, which is at risk in the LCZ. Our efforts help protect biodiversity, reduce financial and disaster risks, and improve resilience and food security for all - work that cannot be replaced by council staff or State Parks and Wildlife service.

SUMMARY

Throughout the LPS process, Kingborough Council has failed to consult the community and has not followed the objectives of LUPAA, which emphasise fair land use and community involvement. Their focus on environmental protection seems aimed at removing private land rights, risking long-term harm to residents' well-being and creating potential future financial and legal challenges.

I appreciate the TPC taking heed of the concerns within this letter and respectfully ask for rezoning properties from ELZ to more restrictive zones to stop. Specifically, I request that the TPC direct my property to be zoned from the ELZ to the Rural Living Zone B, with environmental priorities managed by existing natural values codes.

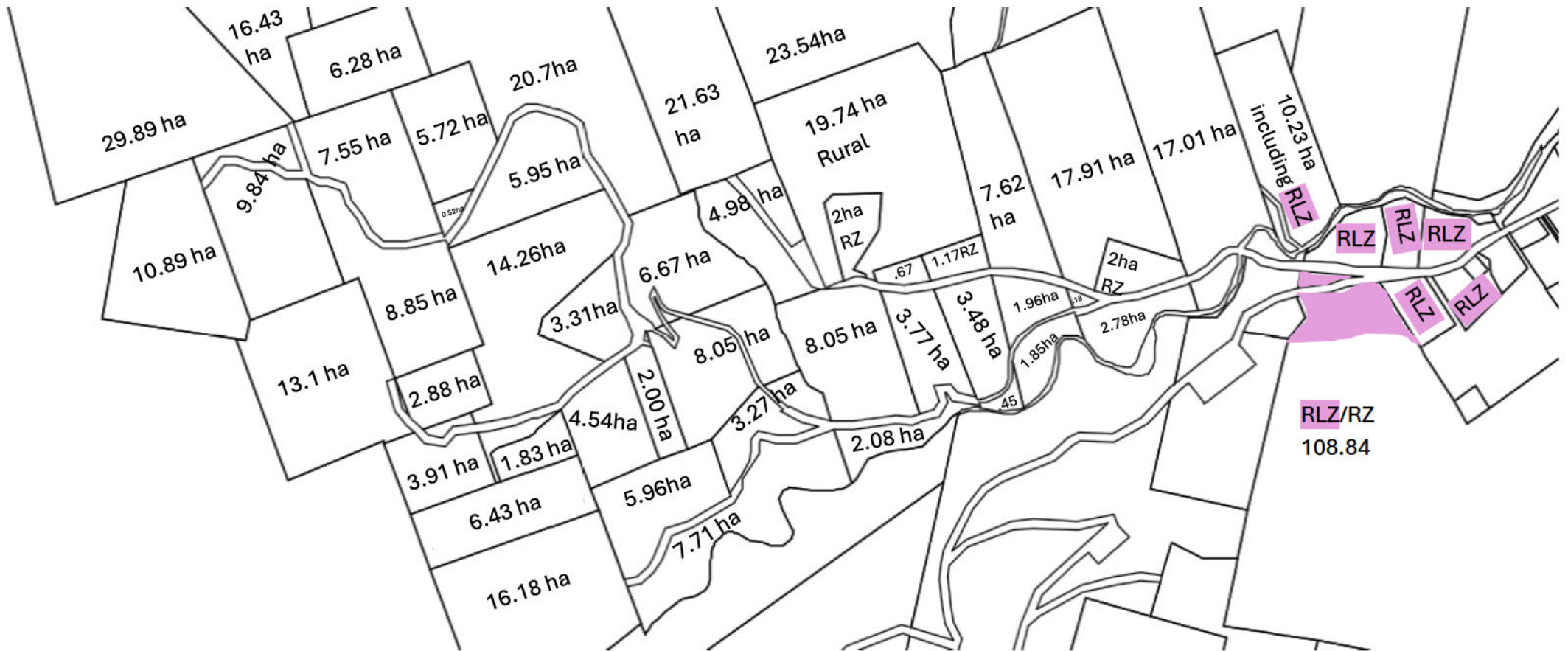
Yours sincerely,

Matt Thompson

Snug

25/4/2026

Send to: KingboroughLPS@planning.tas.gov.au



SNUG TIERS SETTLEMENT - LOT SIZE



SNUG TIERS RURAL LIVING STRATEGIC INTENT

**NATURAL VALUES ASSESSMENT OF [REDACTED]
SNUG, TASMANIA**



**Environmental Consulting Options Tasmania (ECOtas) for
Matthew Thompson
22 May 2020**

Mark Wapstra

28 Suncrest Avenue

Lenah Valley, TAS 7008

ABN 83 464 107 291

email: mark@ecotas.com.au

web: www.ecotas.com.au

phone: (03) 62 283 220

mobile: 0407 008 685

CITATION

This report can be cited as:

ECOtas (2020). *Natural Values Assessment of [REDACTED] Snug, Tasmania*. Report by Environmental Consulting Options Tasmania (ECOtas) for Matthew Thompson, 22 May 2020.

AUTHORSHIP

Field assessment: Mark Wapstra

Report production: Mark Wapstra

Habitat and vegetation mapping: Mark Wapstra

Base data for mapping: LISTmap

Digital and aerial photography: Mark Wapstra, GoogleEarth, LISTmap

ACKNOWLEDGEMENTS

Matthew Thompson provided background information on the proposed land use within the subject title and on-site guidance as to the specific location of project elements.

COVER ILLUSTRATION

Looking down existing cleared area across Snug Rivulet to opposite slopes.

Please note: the blank pages in this document are deliberate to facilitate double-sided printing.

CONTENTS

SUMMARY	1
PURPOSE, SCOPE, LIMITATIONS AND QUALIFICATIONS OF THE SURVEY.....	5
Purpose	5
Scope	5
Limitations	5
Qualifications	6
Permit	6
STUDY AREA & LAND USE PROPOSAL	6
METHODS	17
Nomenclature	17
Preliminary investigation	17
Field assessment.....	17
Vegetation classification	18
Threatened flora	18
Threatened fauna	18
Weed and hygiene issues	18
FINDINGS	18
Vegetation types	18
Comments on TASVEG mapping	18
Vegetation types recorded as part of the present study	19
Conservation significance of identified vegetation types	19
Plant species	24
Threatened flora	24
Threatened flora species recorded from the study area	24
Threatened flora species potentially present (database analysis)	24
Threatened fauna	24
Threatened fauna species recorded from the study area	24
Threatened fauna species potentially present (database analysis)	26
Other ecological values	29
Weed species.....	29
Rootrot pathogen, <i>Phytophthora cinnamomi</i>	29
Myrtle wilt	29

Myrtle rust	30
Chytrid fungus and other freshwater pathogens	30
Additional "Matters of National Environmental Significance" – Threatened Ecological Communities	30
"Habitat" trees	31
DISCUSSION.....	31
Summary of key findings.....	31
Legislative and policy implications	32
Recommendations.....	46
REFERENCES.....	46
APPENDIX A. Vegetation community structure and composition	49
APPENDIX B. Vascular plant species recorded from study area	52
APPENDIX C. Analysis of database records of threatened flora	54
APPENDIX D. Analysis of database records of threatened fauna	58
APPENDIX E. DPIPW's <i>Natural Values Atlas</i> report for the study area	63
APPENDIX F. Forest Practices Authority's <i>Biodiversity Values Atlas</i> report for the study area	63
APPENDIX G. CofA's <i>Protected Matters</i> report for the study area	63
ATTACHMENT	63

SUMMARY

General

Matthew Thompson (owner) engaged Environmental Consulting Options Tasmania (ECOtas) to undertake a natural values assessment of [REDACTED] (PID 7663958; C.T. 29344/4; LPI GTT58), Snug, Tasmania, primarily to ensure that the requirements of the identified ecological values are appropriately considered during any further project planning under local, State and Commonwealth government approval protocols.

Site assessment

An ecological assessment of the study area was undertaken by Mark Wapstra (ECOtas) on 21 May 2020.

Summary of key findings

Threatened flora

- No plant species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.

Threatened fauna

- No fauna species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.
- The study area supports potential habitat (to varying degrees) of several species, as follows:
 - Tasmanian devil (*Sarcophilus harrisii*);
 - spotted-tailed quoll (*Dasyurus maculatus* subsp. *maculatus*);
 - eastern quoll (*Dasyurus viverrinus*);
 - eastern barred bandicoot (*Perameles gunnii* subsp. *gunnii*);
 - masked owl (*Tyto novaehollandiae*);
 - grey goshawk (*Accipiter novaehollandiae*);
 - Mount Mangana stag beetle (*Lissotes menalcas*); and
 - swift parrot (*Lathamus discolor*).
- Of these, a development within the existing cleared area (and its fringes) may only marginally impact on potential habitat of these species.

Vegetation types

- The study area supports the following TASVEG mapping units:

- *Eucalyptus obliqua* forest with broad-leaf shrubs (TASVEG code: WOB);
- *Eucalyptus globulus* wet forest (TASVEG code: WGL); and
- extra-urban miscellaneous (TASVEG code: FUM).
- WGL and WOB are not listed as threatened on Schedule 3A of the Tasmanian *Nature Conservation Act 2002*, do not equate threatened ecological communities under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, and are identified as low priority biodiversity values (as vegetation types) under Table E10.1 of the Biodiversity Code of the *Kingborough Interim Planning Scheme 2015*.

Weeds

- No plant species classified as declared weeds within the meaning of the Tasmanian *Weed Management Act 1999* were detected from the study area.

Plant disease

- No evidence of *Phytophthora cinnamomi* (PC, rootrot) was recorded within the study area.
- No evidence of myrtle wilt was recorded from within the study area.
- No evidence of myrtle rust was recorded from within the study area.

Animal disease (chytrid)

- The part of the study area proposed for development does not support habitats conducive to frog chytrid disease.

Recommendations

The recommendations provided below are a summary of those provided in relation to each of the ecological features described in the main report. The main text of the report provides the relevant context for the recommendations.

Vegetation types

There should be no specific management requirements in relation to the native vegetation types identified from the proposed development area. In general terms, minimising the extent of “clearance and conversion” and/or “disturbance” to native vegetation is recommended but it is noted that the higher priority vegetation types (i.e. WGL – mainly as potential swift parrot habitat) is well outside the likely development footprint.

Threatened flora

None identified – no special management required.

Threatened fauna

Apart from the generic recommendation to minimise the extent of “clearance and conversion” and/or “disturbance” to native vegetation, it is further recommended that as far as practical, larger trees should be retained (especially individuals of *Eucalyptus globulus*), recognising the context of personal safety and bushfire hazard management requirements.

Weed and disease management

None identified – no special management required beyond owner-occupation vigilance and control.

Legislative and policy implications

There are no formal requirements for a permit under Section 51 of the Tasmanian *Threatened Species Protection Act 1995* (TSPA).

A formal referral to the Commonwealth Department of the Environment & Energy under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) is not considered required.

Development will require a planning permit pursuant to the provisions of the *Kingborough Interim Planning Scheme 2015*. As part of a development application, an “environmental management plan” is required under 14.4.5 of the Environmental Living zone. This plan should include reference to any trees of high or very high conservation value and how these will be managed, including reference to the tree root protection zone.

PURPOSE, SCOPE, LIMITATIONS AND QUALIFICATIONS OF THE SURVEY

Purpose

Matthew Thompson (owner) engaged Environmental Consulting Options Tasmania (ECOtas) to undertake a natural values assessment of [REDACTED] (PID 7663958; C.T. 29344/4; LPI GTT58), Snug, Tasmania, primarily to ensure that the requirements of the identified ecological values are appropriately considered during any further project planning under local, State and Commonwealth government approval protocols.

Scope

This report relates to:

- flora and fauna species of conservation significance, including a discussion of listed threatened species (under the Tasmanian *Threatened Species Protection Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*) potentially present, and other species of conservation significance/interest;
- vegetation types (forest and non-forest, native and exotic) present, including a discussion of the distribution, condition, extent, composition and conservation significance of each community;
- plant and animal disease management issues;
- weed management issues; and
- a discussion of some of the policy and legislative implications of the identified ecological values.

This report follows the government-produced *Guidelines for Natural Values Surveys – Terrestrial Development Proposals* (DPIPWE 2015) in anticipation that the report (or extracts of it) may be required as part of various approval processes.

The report format should also be applicable to other assessment protocols as required by the Commonwealth Department of the Environment & Energy (for any referral/approval that may be required under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*), which is unlikely to be required in this case.

More specifically, this assessment and report have been to address specific provisions of the *Kingborough Interim Planning Scheme 2015*, with particular reference to the natural values/biodiversity provisions of the Environmental Living zone and Biodiversity Code.

Limitations

The ecological assessment was undertaken on 21 May 2020. Many plant species have ephemeral or seasonal growth or flowering habits, or patchy distributions (at varying scales), and it is possible that some species were not recorded for this reason. However, every effort was made to sample the range of habitats present in the survey area to maximise the opportunity of recording most species present (particularly those of conservation significance). Late spring and into summer is usually regarded as the most suitable period to undertake most botanical assessments. While some species have more restricted flowering periods, a discussion of the potential for the site to support these is presented. In this case, I believe that the survey was appropriately timed to detect the species with a highest priority for conservation management in this part of the State.

The survey was also limited to vascular species: species of mosses, lichens and liverworts were not recorded. However, a consideration is made of threatened species (vascular and non-vascular) likely to be present (based on habitat information and database records) and reasons presented for their apparent absence.

Surveys for threatened fauna were largely limited to an examination of “potential habitat” (i.e. comparison of on-site habitat features to habitat descriptions for threatened fauna), and detection of tracks, scats and other signs.

The survey was not limited by access due to the relatively small title, with access provided by Snug Tiers Road, Snug Rivulet and old internal tracks.

Qualifications

Except where otherwise stated, the opinions and interpretations of legislation and policy expressed in this report are made by the author and do not necessarily reflect those of the relevant agency. The client should confirm management prescriptions with the relevant agency before acting on the content of this report. This report and associated documents do not constitute legal advice.

Permit

Any plant material was collected under DPIPW permit TFL 19120 (in the name of Mark Wapstra). Relevant data will be entered into DPIPW’s *Natural Values Atlas* database by the author. Some plant material may be lodged at the Tasmanian Herbarium by the author.

No vertebrate or invertebrate material was collected.

STUDY AREA & LAND USE PROPOSAL

The study area (Figures 1-3) comprises the subject title of [REDACTED] (PID 7663958; C.T. 29344/4; LPI GTT58), Snug, Tasmania.

Within the study area, the proposal is to construct a single residential dwelling and associated residential elements within the existing cleared area in the far northwest corner of the title. Access to the dwelling will be direct from Snug Tiers Road. A bushfire hazard management zone will presumably need to be established around the dwelling, which may require limited additional modification of native vegetation on the fringes of the existing cleared area.

At this stage of natural values assessment, a specific proposal was not provided such that I assessed the whole title. I also considered this warranted due to the zoning (Environmental Living). However, a follow-up site survey should not be required provided that the recommendations with respect to estimating the extent of clearance and conversion and/or disturbance to native vegetation and individual trees are taken into account as part of development application planning.

Land tenure and other categorisations of the study area are as follows:

- Kingborough municipality, with the subject title zoned as Environmental Living under the *Kingborough Interim Planning Scheme 2015* (Figure 4) and wholly subject to the Biodiversity Protection Area overlay (Figure 5) and partially subject to the Waterway and Coastal Protection Area overlay (but this does not extend to the existing cleared area – other overlays are also applicable but not considered in the scope of the present report;
- South East Bioregion, according to the IBRA 7 bioregions used by most government agencies); and
- NRM South Natural Resource Management (NRM) region.

The title is bounded to the north by Snug Tiers Road, to the west and east by private titles and to the south by Snug Rivulet. The Snug Tiers Nature Recreation Area forms most of the boundary along Snug Rivulet (Figure 6).

The subject title comprises ca. 2.029 ha of native vegetation, mainly supporting wet sclerophyll forest on sheltered generally south-facing slopes above Snug Rivulet. The slopes are generally quite steep, ranging from ca. 80 m a.s.l. (along Snug Rivulet) to ca. 135 m a.s.l. (northwest corner of title on Snug Tiers Road).

The geology of the title is mapped (Figure 7) as Jurassic-age "dolerite (tholeiitic) with locally developed granophyre" (geocode: Jd), which was confirmed by site assessment. The geology is mentioned because it can have a strong influence on the classification of vegetation and the potential occurrence of threatened flora (and to a lesser extent, threatened fauna).

Topographic maps indicate that Snug Rivulet forms the southern boundary of the title, with the mapped "blue line" wavering in and out of the title. A tributary of the rivulet enters the main channel at the far east of the title. No other drainage features are present.

LISTmap's Fire History layer indicates that the February 1967 bushfire event affected the whole title, and that the eastern end of the title was subject to the "Margate" (Incident Number 1701) on 12 Dec. 1994. Site assessment revealed strong evidence for both these fire events with a sparse over-topping canopy of mature trees with massive fire scars (Plates 1 & 2), which I refer to as "fire survivors" of the 1967 fire event, over a much denser and relatively even-aged natural regrowth layer (Plate 3) that has arisen after the 1967 fire event. The 1994 event is evidenced by more recent scorching on trunks (Plate 4).

The title has also been subject to minor selective harvesting (Plate 5) and there are old "snig tracks" that cut across the contours (Plate 6, Figure 10).



Plates 1 & 2. "Fire survivor" (*Eucalyptus obliqua*) with massive basal fire scar



Plate 3. (LHS) Typical even-aged maturing regrowth canopy of wet sclerophyll forest



Plate 4. (RHS) More recent fire scorch marks on bark of *Eucalyptus obliqua*



Plate 5. (LHS) Cut stump indicative of selective tree removal



Plate 6. (RHS) Old "snig track" within title

The far northwest corner of the title has been long-cleared, apparently managed once as a strawberry field (M. Thompson pers. comm.) but was open marsupial-mown "lawn" when purchased ca. 9 years ago (Plates 7 & 8). This area remains as cleared land (Plates 9 & 10).



Plate 7. Distorted 180° view from approximate top peg in northwest corner i.e. looking approximately northeast across open “mown” lawn [courtesy: M. Thompson – ca. Oct. 2012]



Plate 8. View downslope across “mown” lawn [courtesy: M. Thompson – ca. Oct. 2012]



Plates 9 & 10. Status of existing cleared area on 21 May 2020 – LHS = eastern boundary looking from downslope up towards Snug Tiers Road; RHS = looking across slope towards the west along the bottom edge of the clearing

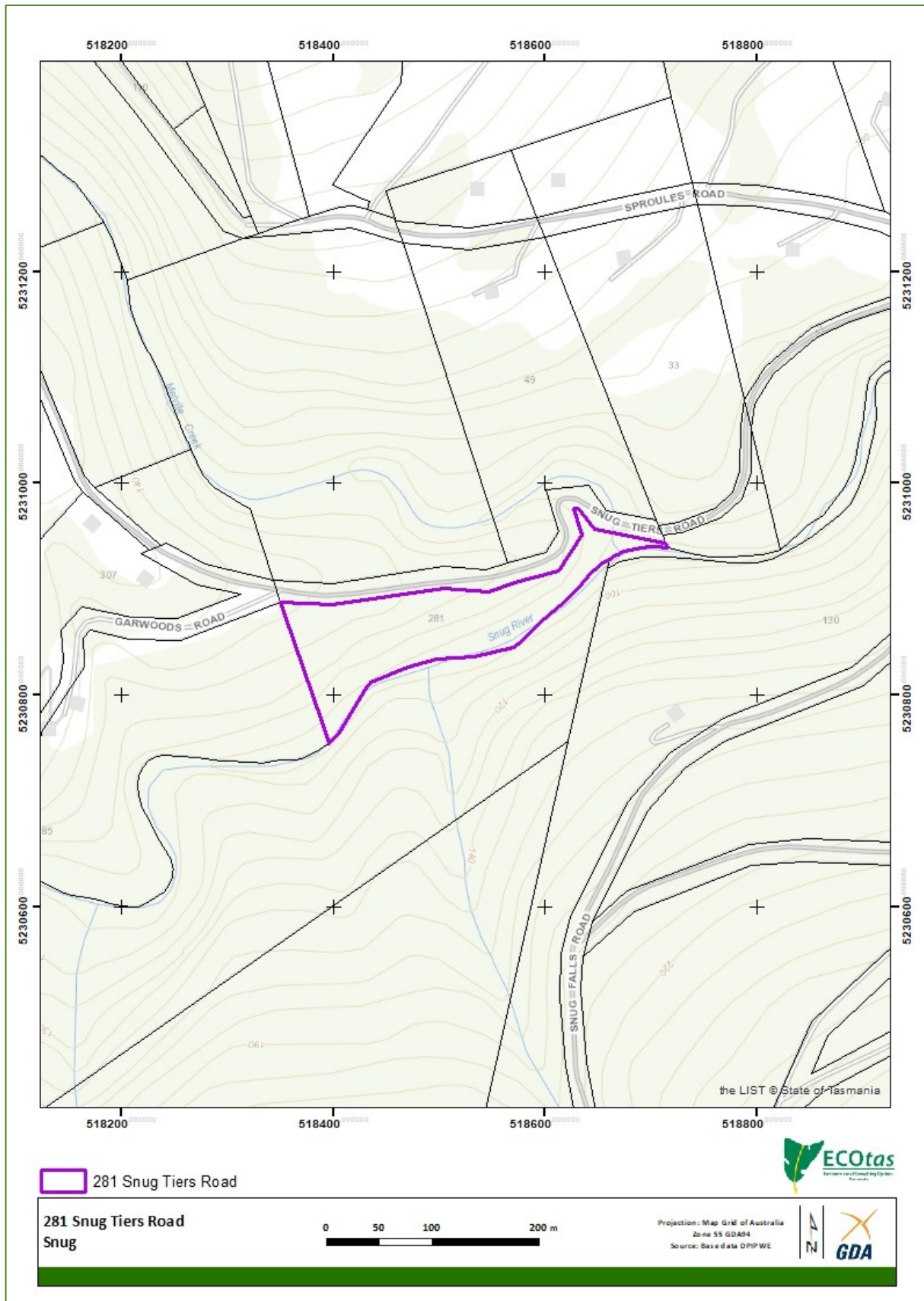


Figure 2. Detailed location of the study area showing general topographic and cadastral features

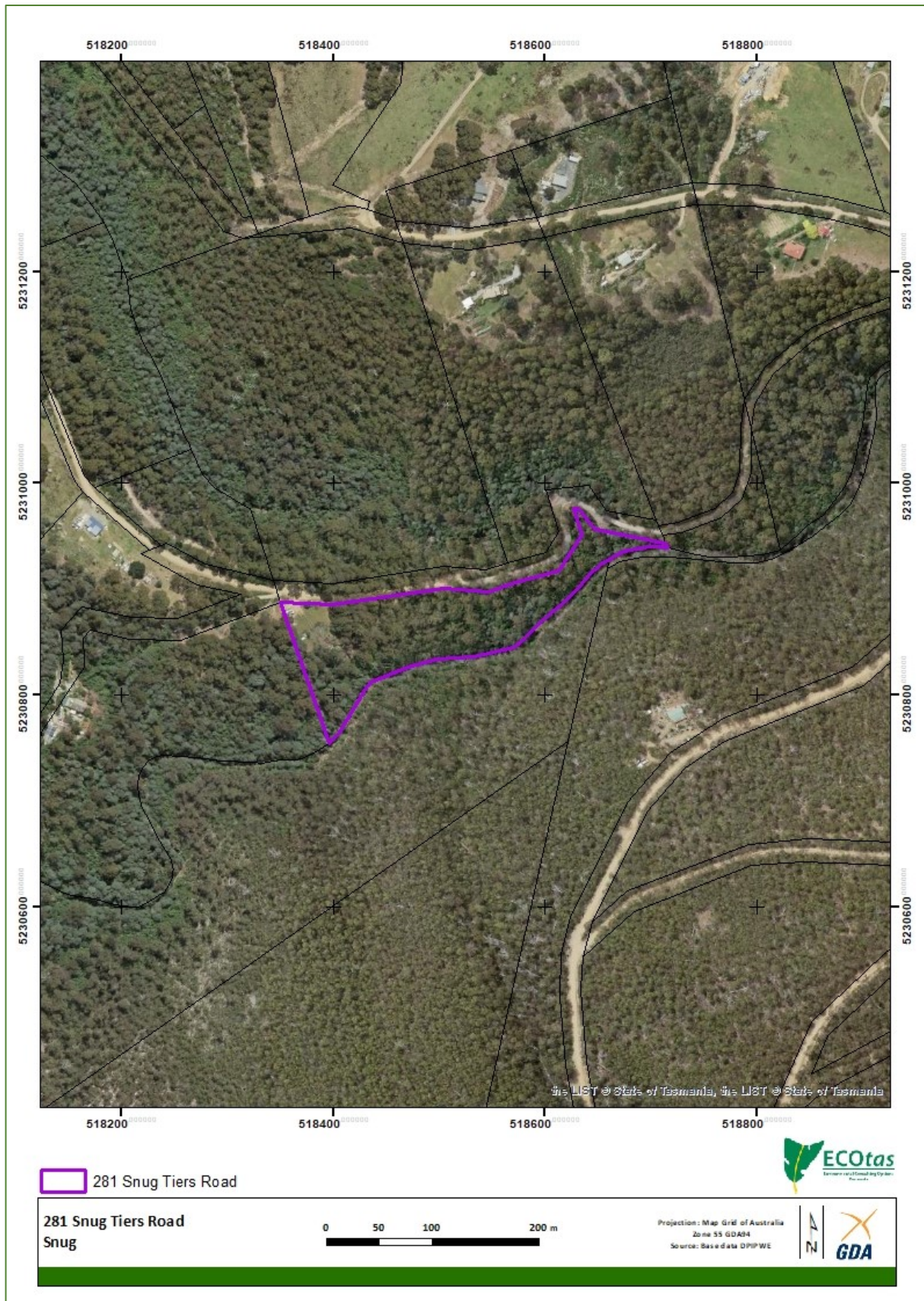


Figure 3. Detailed location of the study area – showing recent aerial imagery and cadastral boundaries

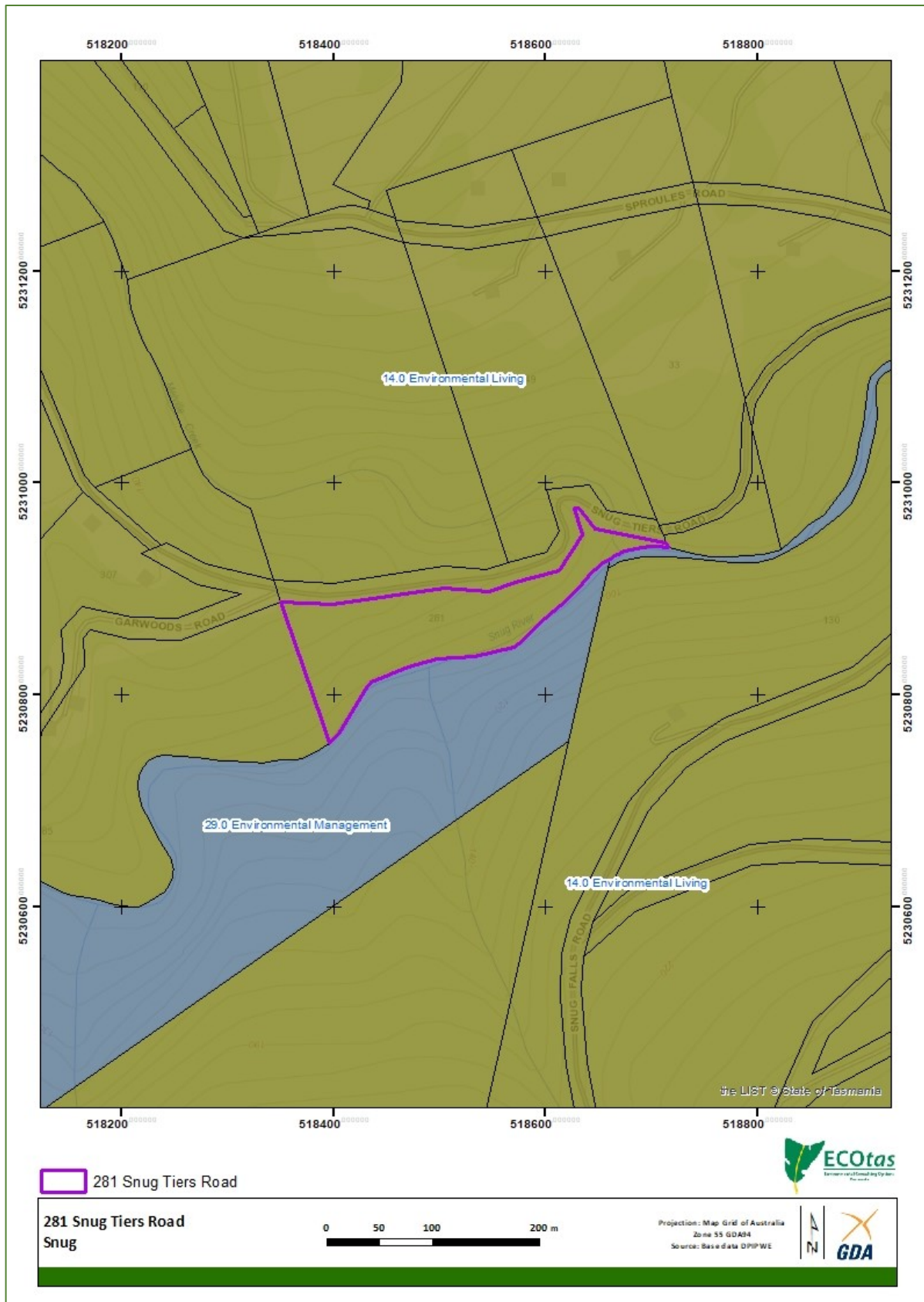


Figure 4. Zoning of subject title and surrounds pursuant to the *Kingborough Interim Planning Scheme 2015* [source: LISTmap]

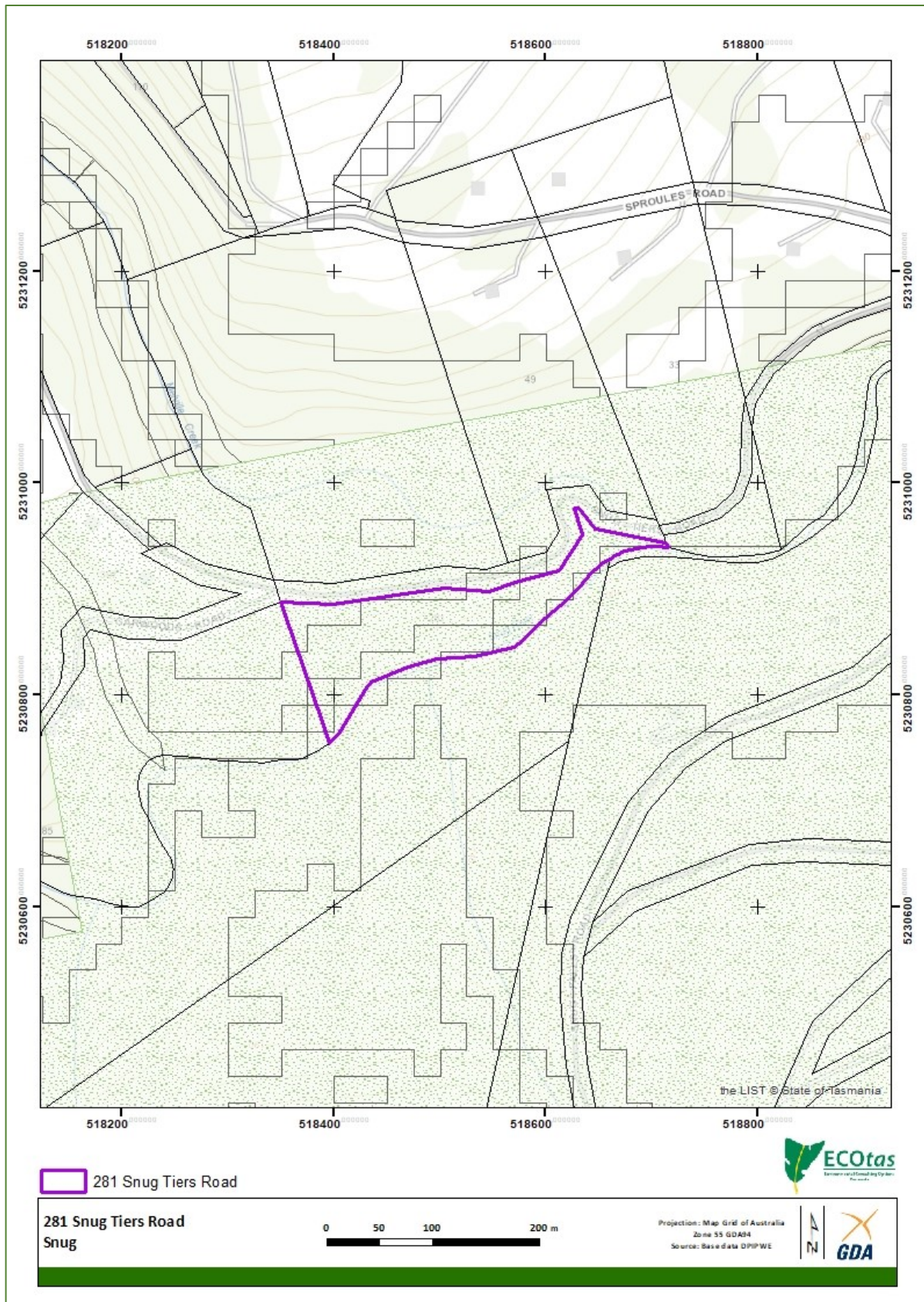


Figure 5. Extent of Biodiversity Protection Area overlay within subject title and surrounds pursuant to the *Kingborough Interim Planning Scheme 2015* [source: LISTmap]

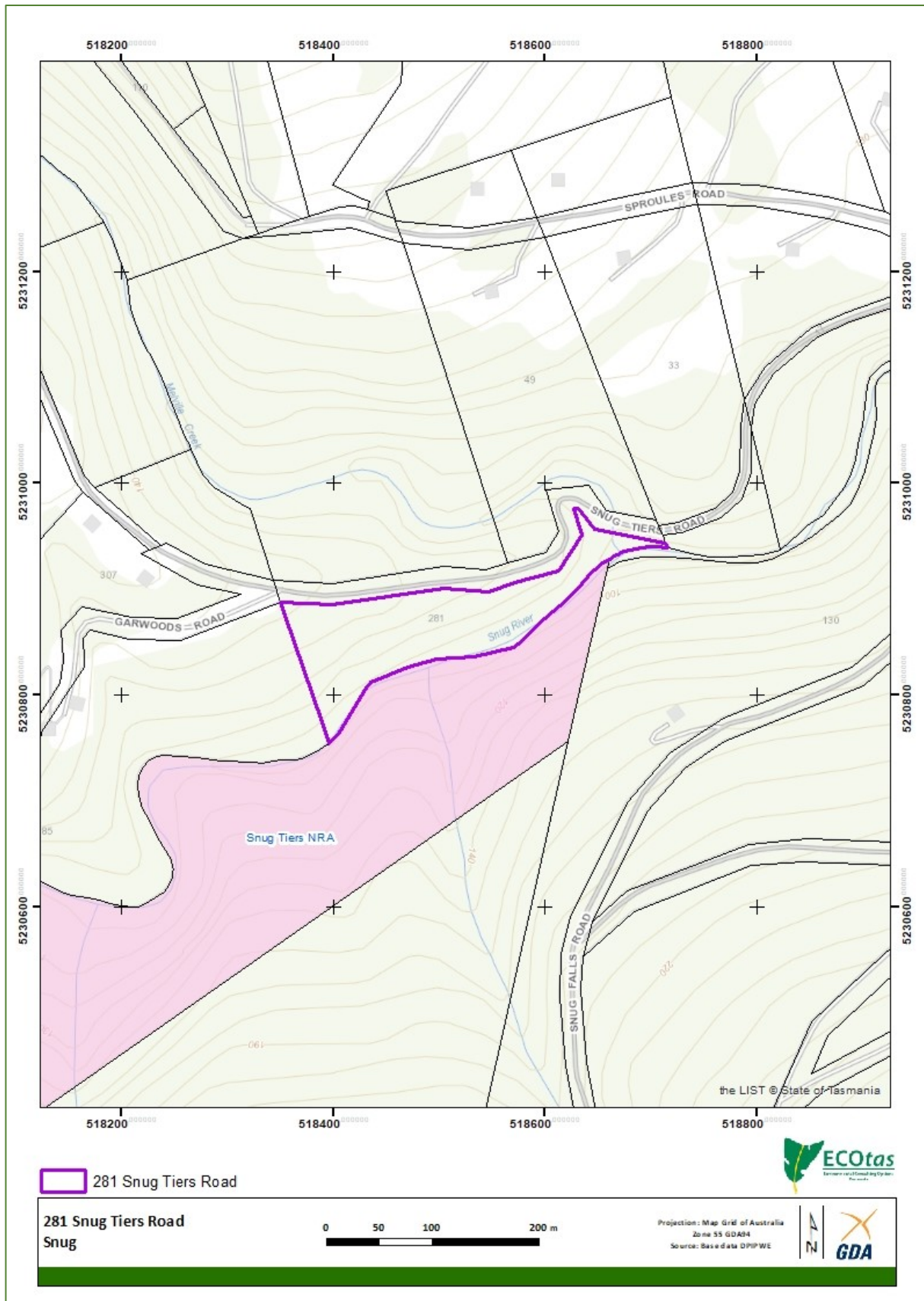


Figure 6. Adjacent formal reserve

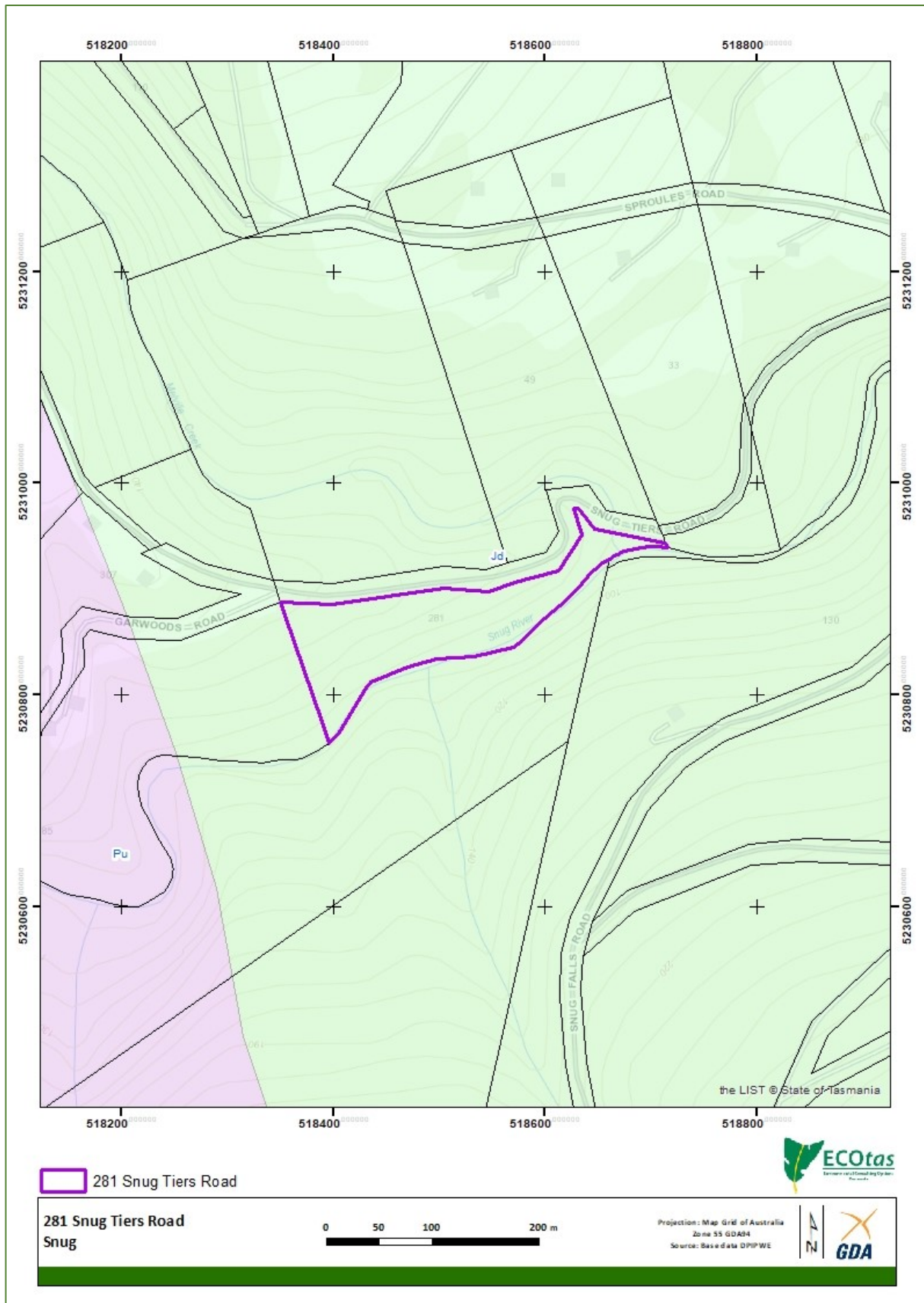


Figure 7. Geology of the subject title and surrounds (refer to text for codes)

METHODS

Nomenclature

All grid references in this report are in GDA94, except where otherwise stated.

Vascular species nomenclature follows de Salas & Baker (2019) for scientific names and Wapstra et al. (2005+) for common names. Fauna species scientific and common names follow the listings in the cited *Natural Values Atlas* report (DPIPWE 2020).

Vegetation classification follows TASVEG 3.0, as described in *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation* (Kitchener & Harris 2013+).

Preliminary investigation

Available sources of previous reports, threatened flora records, vegetation mapping and other potential environmental values were interrogated. These sources include:

- Tasmanian Department of Primary Industries, Parks, Water & Environment's *Natural Values Atlas* records for threatened flora and fauna (GIS coverage maintained by the author current as at date of report);
- Tasmanian Department of Primary Industries, Parks, Water & Environment's *Natural Values Atlas* report ECOTas_SnugTiersRoad for a polygon defining the title area (centred on 518493mE 5230865mN), buffered by 5 km, dated 19 May 2020 (DPIPWE 2020) – Appendix E;
- Forest Practices Authority's *Biodiversity Values Database* report, specifically the species' information for grid reference centroid 518493mE 5230865mN (i.e. the centroid of the study area), buffered by 5 km and 2 km for threatened fauna and flora records, respectively, hyperlinked species' profiles and predicted range boundary maps, dated 19 May 2020 (FPA 2020) – Appendix F;
- Commonwealth Department of the Environment & Energy's *Protected Matters Report* for a point location defining the approximate centre of the title (-43.07471 147.22708), buffered by 5 km, dated 19 May 2020 (CofA 2020) – Appendix G;
- the TASVEG 3.0 and TASVEG Live vegetation coverage (as available through GIS coverage and via LISTmap);
- GoogleEarth and LISTmap aerial orthoimagery; and
- other sources listed in tables and text as indicated.

Field assessment

The assessment was undertaken by Mark Wapstra (ECOtas) on 21 May 2020. The survey included meandering transects of the whole title, facilitated by access from Snug Tiers Road, Snug Rivulet and internal old tracks. Cadastral data uploaded to the iGIS application guided the in-field assessment as none of the boundaries are formally defined by fences or the like. Meandering transects between the above-described features were used to capture the greater range of aspects, slopes and site conditions.

Vegetation classification

Vegetation was classified by waypointing vegetation transitions for later comparison to aerial imagery. The structure and composition of the vegetation types was described using nominal 30 m radius plots at a representative site within the vegetation types, and compiling “running” species lists between plots and vegetation types. Hand-held GPS (Garmin Oregon 600) was used to waypoint the transition between vegetation types.

Threatened flora

With reference to the threatened flora, the survey included consideration of the most likely habitats for such species. Further details are not provided because no such species were detected.

Threatened fauna

Surveys for threatened fauna were largely limited to an examination of “potential habitat” (i.e. comparison of on-site habitat features to habitat descriptions for threatened fauna), and detection of tracks, scats and other signs. Hand-held GPS (Garmin Oregon 600) was used to waypoint the location of clusters of rotten logs (potential habitat of the Mt Mangana stag beetle). At this stage of assessment, individual trees that may have conservation value under the *Kingborough Interim Planning Scheme 2015* have not been mapped (but refer to **DISCUSSION Legislative and policy implications** and **Recommendations** for more details).

Weed and hygiene issues

The subject title was also assessed with respect to plant species classified as declared weeds under the *Tasmanian Weed Management Act 1999*, Weeds of National Significance (WoNS) or “environmental weeds” (author opinion and as included in *A Guide to Environmental and Agricultural Weeds of Southern Tasmania*, NRM South 2017). Further details are not provided because no such species were detected.

The site was also assessed with respect to potential impacts of plant and animal pathogens, by reference to habitat types and field symptoms.

FINDINGS

Vegetation types

Comments on TASVEG mapping

This section, which comments on the existing TASVEG 3.0 and TASVEG Live mapping for the study area, is included to highlight the differences between existing mapping and the more recent mapping from the present study to ensure that any parties assessing land use proposals (via this report) do not rely on existing mapping. Note that TASVEG mapping, which was mainly a desktop mapping exercise based on aerial photography, is often substantially different to ground-truthed vegetation mapping, especially at a local scale. An examination of existing vegetation mapping is

usually a useful pre-assessment exercise to gain an understanding of the range of habitat types likely to be present and the level of previous botanical surveys.

TASVEG 3.0 and TASVEG Live map the subject title area identically as (Figure 8):

- *Eucalyptus obliqua* forest with broad-leaf shrubs (TASVEG code: WOB)
WOB is mapped along Snug Rivulet (both sides) and along Snug Tiers Road (both sides but also including the road itself) with a connection between the rivulet and road in the eastern part of the title and more extensive WOB to the west of the title. There is no apparent aerial photography “signature” or topographic features differentiating WOB from WGL (see below).
- *Eucalyptus globulus* wet forest (TASVEG code: WGL)
WGL is mapped across most of the forested portion of the title, extending off-title to the west, and including the far eastern section of the title (and extending off-title to the adjacent title to the east). Part of the existing cleared area in the northwest of the title is mapped as WGL. As noted under WOB, there is no apparent aerial photography “signature” or topographic features differentiating WGL from WOB and it is noted that any mapping undertaken from road verges would likely be inaccurate (actual dominance in an even-aged canopy with a dense understorey can be difficult to ascertain from a drive-by).
- eastern riparian scrub (TASVEG code: SRE)
Approximately two-thirds of the existing cleared area in the northwest of the title is mapped as SRE, with the balance of the cleared area mapped as part of the WGL polygon. SRE is an obvious mis-coding as this mapping unit is restricted to flood-prone river systems in eastern Tasmania. A previously cleared area should be mapped as some form of modified land, most usually agricultural land (TASVEG code: FAG), urban areas (TASVEG code: FUR), permanent easements (TASVEG code: FPE), regenerating cleared land (TASVEG code: FRG) or extra-urban miscellaneous (TASVEG code: FUM). The latter unit should also be applied to linear features such as roads.

Kingborough Council also has its own vegetation mapping layer (Figure 9), which is sometimes different to TASVEG 3.0 and TASVEG Live, depending on the part of the municipality. In this case, the Council-managed mapping within the subject title is virtually identical to TASVEG mapping, with only the polygon of SRE re-coded as “SRI” (intended to refer to SRE).

Vegetation types recorded as part of the present study

Vegetation types have been classified according to TASVEG 3.0, as described in *From Forest to Fjaeldmark: Descriptions of Tasmania’s Vegetation* (Kitchener & Harris 2013+). Table 1 provides information on the vegetation types identified from the study area. Refer to Figure 10 that provides a map of the revised vegetation types recorded from the subject title. Refer to Appendix A for a more detailed description of the native vegetation mapping units identified from the subject title.

Conservation significance of identified vegetation types

Of the vegetation communities recorded from the subject title, none are listed as threatened on Schedule 3A of the Tasmanian *Nature Conservation Act 2002* or equate to threatened ecological communities under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA).

WOB is one of the most widespread and well-reserved vegetation types in Tasmania. WGL is less widespread but quite well-reserved, but largely restricted to the southeast region. Both vegetation types are classified as low priority biodiversity value within the intent of Table E10.1 of the *Kingborough Interim Planning Scheme 2015*, although both have some level of association with

fauna listed as threatened on the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and/or the EPBCA (see **FINDINGS Threatened fauna** and **DISCUSSION Legislative and policy implications** for more details).

As presently conceptualised, the proposed development will be largely restricted to the area mapped as FUM, with bushfire hazard management potentially impinging into the disturbed fringes of WOB only.

Table 1. Vegetation mapping units present in the subject title

[conservation status: NCA – as per Schedule 3A of the Tasmanian *Nature Conservation Act 2002*, using units described by Kitchener & Harris (2013+), relating to TASVEG mapping units (DPIPWE 2020); EPBCA – as per the listing of ecological communities on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, relating to communities as described under that Act, but with equivalencies to TASVEG units]

TASVEG equivalent (Kitchener & Harris 2013+)	Conservation priority TASVEG EPBCA	Comments
Wet eucalypt forest and woodland		
<i>Eucalyptus obliqua</i> forest with broad-leaf shrubs (WOB)	not threatened <i>not threatened</i>	WOB occupied approximately half of the vegetation within the title, occurring in two sections separated by a wide band of WGL. WOB continues to the east of the title (previously assessed by the author), and to the opposite side of Snug Rivulet (at least in sections). WOB also appears to continue extensively to the west of the title. WOB is characterised by a relatively even-aged post-1967 bushfire regrowth canopy with occasional emergent “fire survivors” over a typically dense understorey of broad-leaved shrubs and scattered to locally dense graminoids and ground ferns. The structure is simple, both in terms of the strata present and the ground conditions with the generally steep slopes precluding extensive development of coarse woody debris. WOB is in excellent ecological condition with no weeds or symptoms of disease noted. WOB has been affected by fire events and possibly light historical selective tree removal.
<i>Eucalyptus globulus</i> wet forest (WGL)	not threatened <i>not threatened</i>	WGL occupies a wide band of forest in the approximate middle part of the title, bounded to the east, west and south by WOB. The distinction between WGL and WOB is based on numerous GPS waypoints following a relatively broad transition zone of canopy dominance of <i>Eucalyptus globulus</i> and <i>Eucalyptus obliqua</i>, respectively. WGL is characterised by a relatively even-aged post-1967 bushfire regrowth canopy with occasional emergent “fire survivors” over a typically dense understorey of broad-leaved shrubs and scattered to locally dense graminoids and ground ferns. The structure is simple, both in terms of the strata present and the ground conditions with the generally steep slopes precluding extensive development of coarse woody debris. WGL is in excellent ecological condition with no weeds or symptoms of disease noted. WGL has been affected by fire events.
Modified land		
extra-urban miscellaneous (FUM)	not threatened <i>not threatened</i>	The previously cleared area has been mapped as FUM, with this unit the most applicable of the “modified land” category (Kitchener & Harris 2013+) because the site is not used for primary production (i.e. not FAG), is not regenerating actively to native vegetation in any substantial manner (so not FRG), is not a powerline easement (so not FPE), is not dominated by <i>Pteridium esculentum</i> (so not FPF), and is not dominated by weeds (so not FWU). The non-approved structures and associated elements (e.g. gravel areas, solar array, etc.) suggest urban areas (FUR) is a possible classification but this is usually reserved for permanently occupied sites (i.e. once residential dwelling is approved, the previously cleared area would be better classified as FUR).

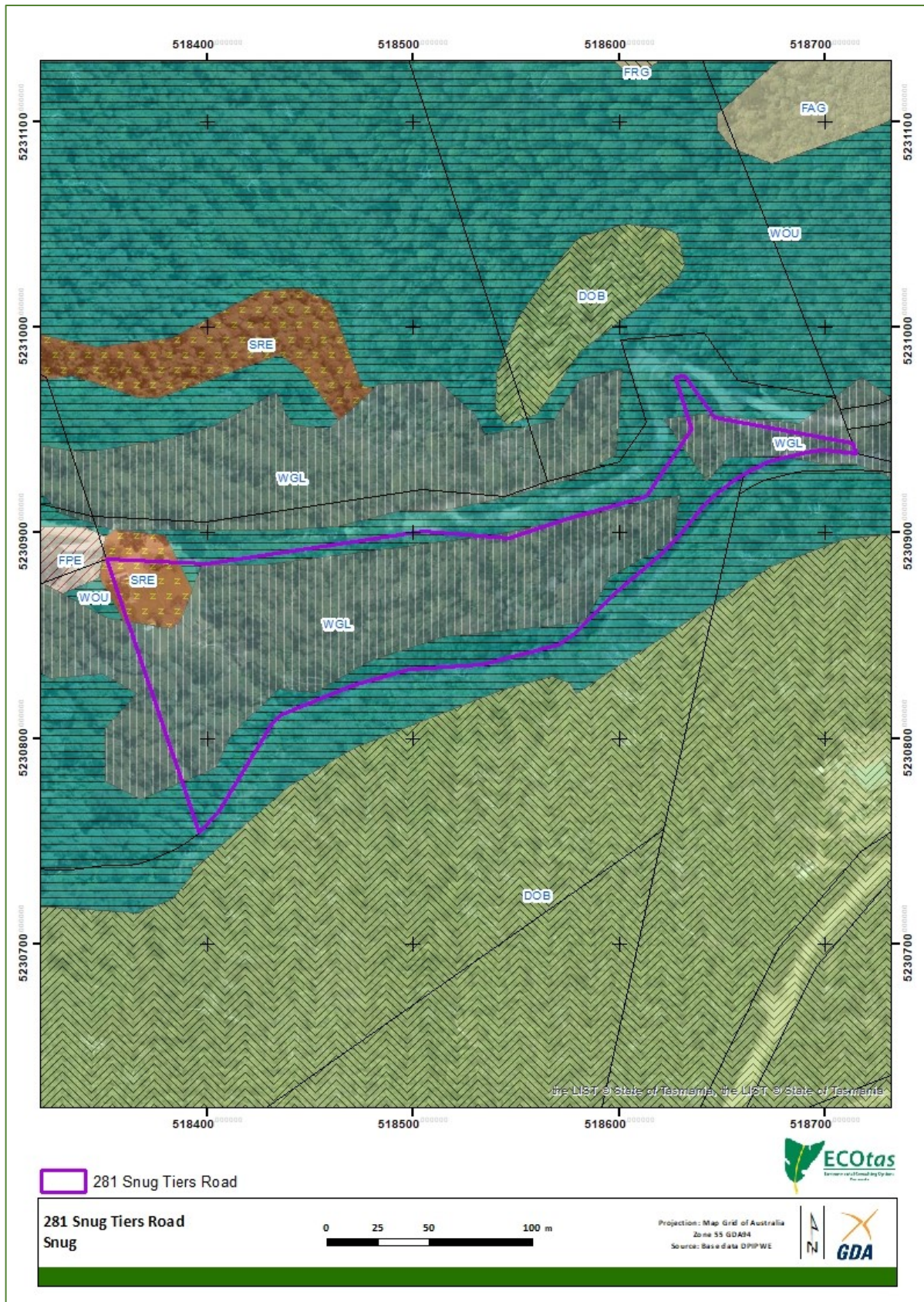


Figure 8. Study area and surrounds showing existing TASVEG 3.0 vegetation mapping (see text for codes)

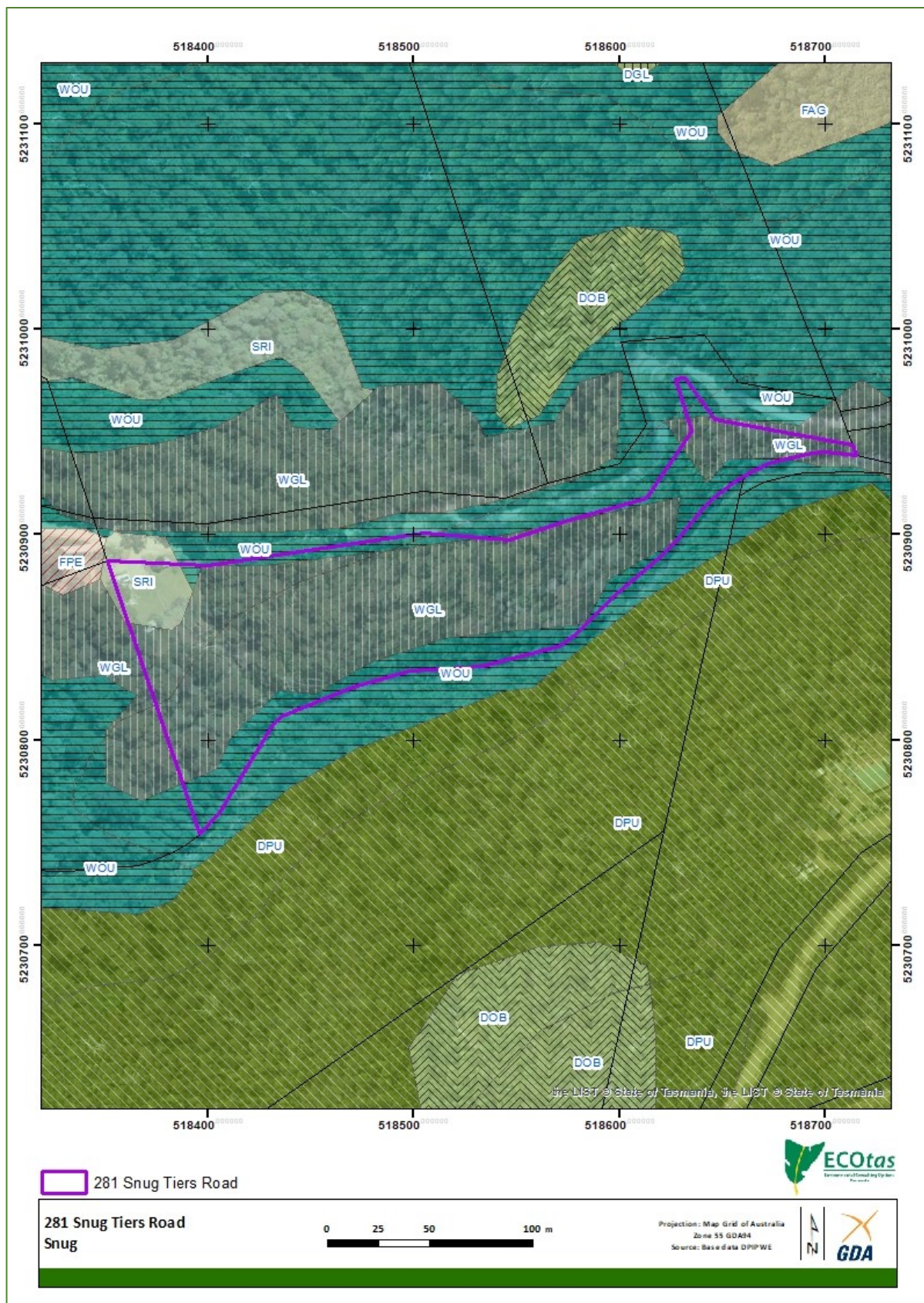


Figure 9. Study area and surrounds showing Council-managed vegetation mapping (refer to text for codes)

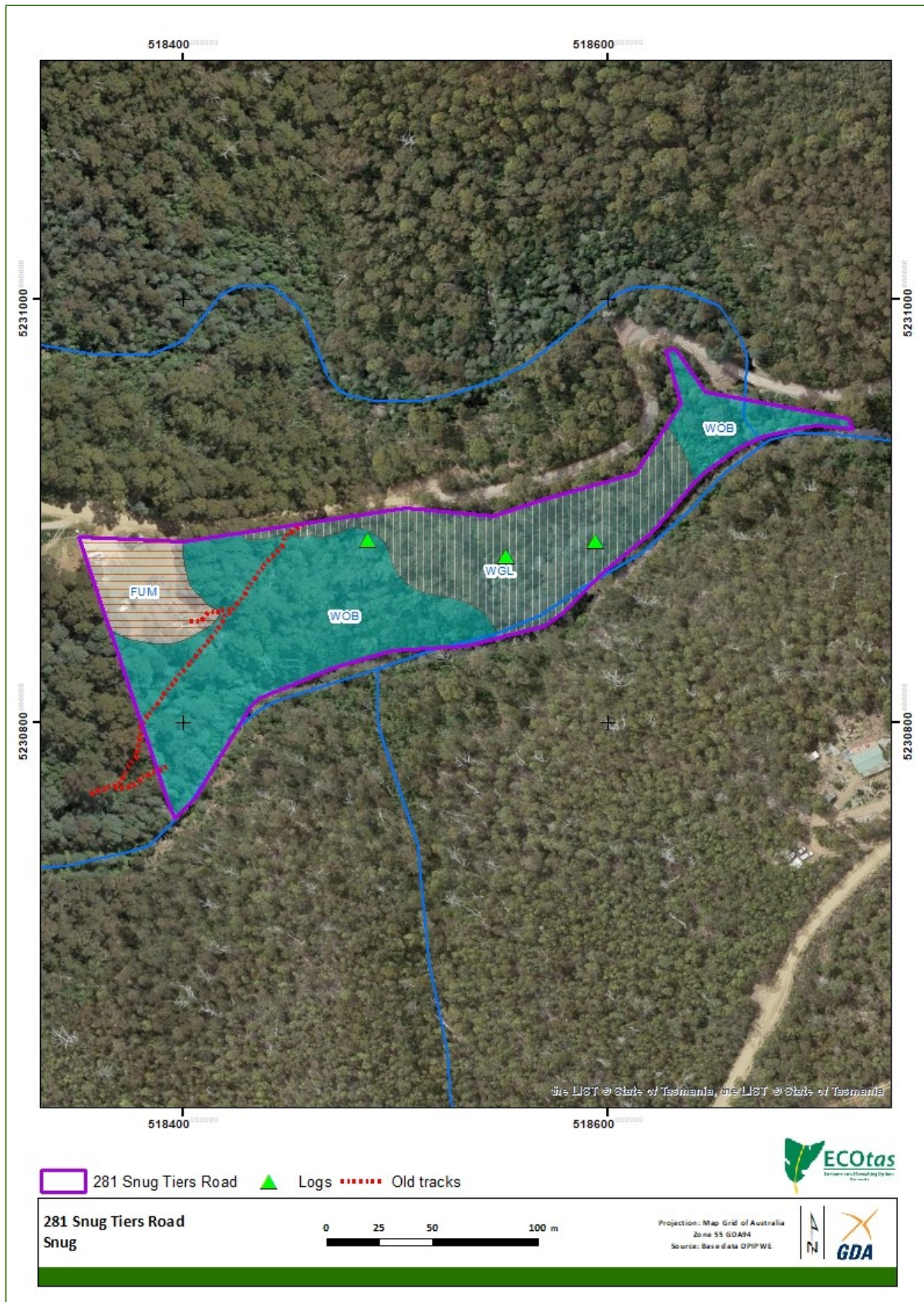


Figure 10. Revised vegetation mapping for subject title (refer to text for codes), also showing old tracks and patches with coarse woody debris

Plant species

General information

A total of 47 vascular plant species were recorded from the subject title (Appendix B), comprising 29 dicotyledons (including 3 endemic species), 11 monocotyledons (including 2 introduced species) and 7 pteridophytes (all native). This species diversity (i.e. relatively low) is highly typical of regrowth-structured wet sclerophyll forest in this part of the State. The diversity in WGL and WOB was virtually identical.

Additional surveys at different times of the year may detect additional short-lived herbs and grasses but a follow-up survey is not considered warranted because of the small disturbance footprint and low likelihood of species with a high priority for conservation management being present.

Threatened flora

Threatened flora species recorded from the study area

No flora species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) are known from database information, or were detected as a consequence of the field survey, from the study area.

The habitat types present (i.e. regrowth-structured wet sclerophyll forest: WGL and WOB) in this part of the State are not strongly associated with threatened flora (refer section below and Table C1).

Threatened flora species potentially present (database analysis)

Figure 11 indicates threatened flora species near to the study area and Table C1 (Appendix C) provides a listing of threatened flora from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Threatened fauna

Threatened fauna species recorded from the study area

No fauna species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) are known from database information, or were detected as a consequence of the field survey, from the study area.

The vegetation types present have some association with threatened fauna (refer section below and Table D1).

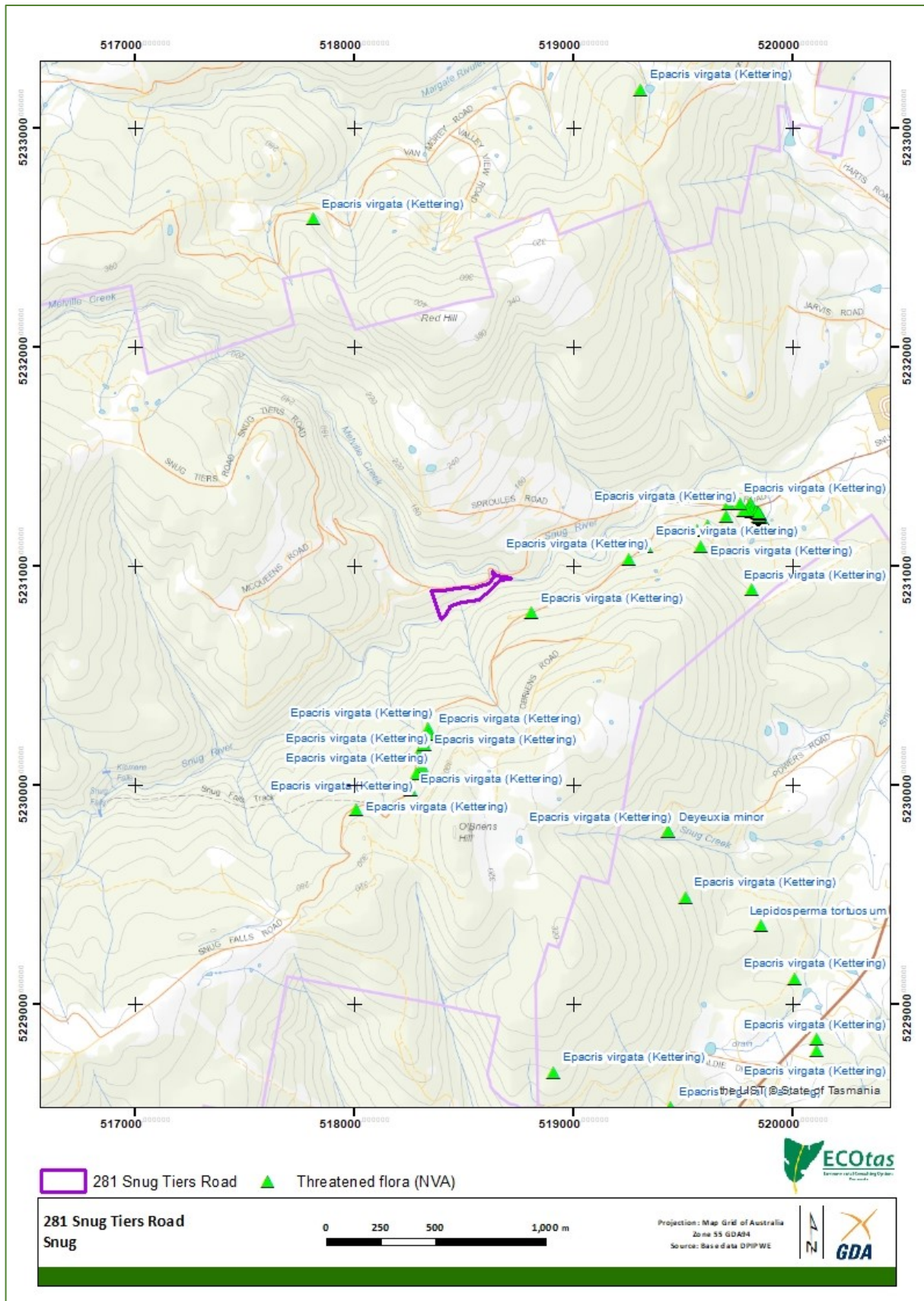


Figure 11. Distribution of threatened flora close to the study area (overview)

Threatened fauna species potentially present (database analysis)

Figure 12 indicates threatened fauna species near to the study area and Table D1 (Appendix D) provides a listing of threatened fauna from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Site assessment indicated that the title supports ubiquitous potential habitat for a suite of threatened fauna species. This includes potential habitat of species such as *Sarcophilus harrisii* (Tasmanian devil), *Dasyurus maculatus* subsp. *maculatus* (spotted-tailed quoll), *Dasyurus viverrinus* (eastern quoll), *Perameles gunnii* subsp. *gunnii* (eastern barred bandicoot), *Tyto novaehollandiae* (masked owl), *Accipiter novaehollandiae* (grey goshawk) and *Aquila audax* (wedge-tailed eagle). Small-scale development essentially restricted to the already disturbed part of the title is not anticipated to have a significant deleterious impact on these species. The existing cleared area and immediate fringes are not considered as significant/important habitat for these species.

The subject title does support potential foraging habitat for *Lathamus discolor* (swift parrot) in the form of forest dominated by *Eucalyptus globulus* (blue gum), which has been mapped as WGL; and forest that includes *Eucalyptus globulus* as a minor component in the canopy, which has been mapped as WOB. The subject title is not considered to support potential nesting habitat of this species because of the regrowth-structured even-aged canopy of wet sclerophyll, with even the over-topping scattered emergent trees many decades away from forming hollows.

Wet sclerophyll forest in this part of the State is within the range of *Lissotes menalcas* (Mount Mangana stag beetle) and I have observed the species at nearby Snug Falls in similar habitat. However, most of the title is steep and relatively rocky, with the downed trees elevated above the ground, meaning potential habitat (i.e. a downed rotting log in contact with the ground is absent). However, there are localised patches of rotting logs, mainly associated with the less steep terrain (e.g. toeslope closer to Snug Rivulet and flatter terrain closer to Snug Tiers Road). These patches (see Plates 7-12 for examples of coarse woody debris types) were mapped (Figure 10) and are all well outside the likely disturbance footprint of a development. The fringes of WOB around the previously cleared area are considered as marginal potential habitat for this species only.



Plate 7. Section of steep slope in eastern part of title with virtually no coarse woody debris



Plates 8 & 9. Examples of elevated logs that cannot provide habitat for a ground-dwelling flightless stag beetle (i.e. logs must be in contact with ground)



Plate 10. Example of toeslope section with regrowth forest but higher density of coarse woody debris (refer Plates 11 & 12 for examples)



Plates 11 & 12. Examples of coarse woody debris with some level of rot

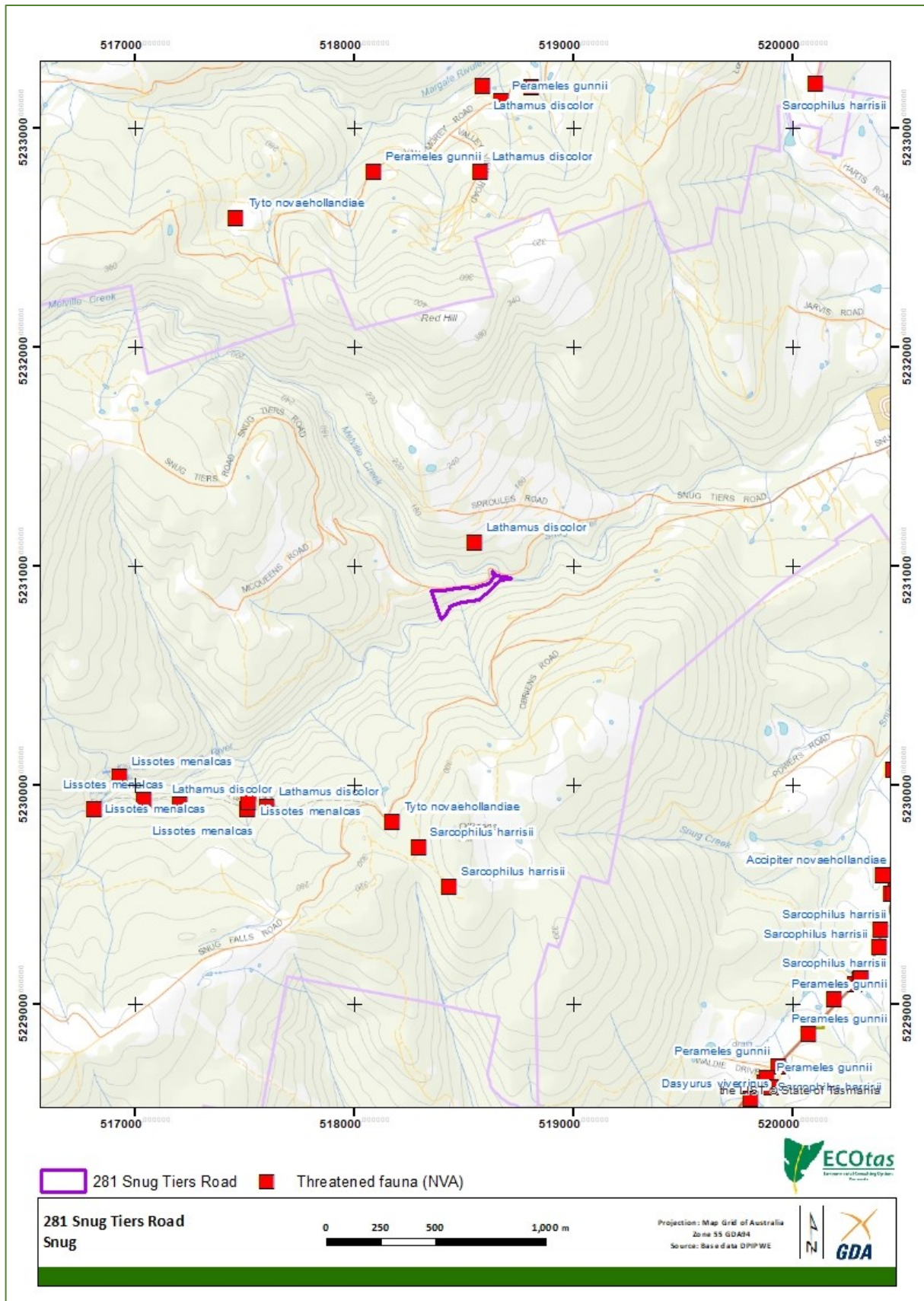


Figure 12. Distribution of threatened fauna close to the study area (overview)

Other ecological values

Weed species

No plant species classified as declared weeds within the meaning of the Tasmanian *Weed Management Act 1999* were detected from the subject title.

Given that access to the title will be from the fully-formed and well-maintained Snug Tiers Road, the risk of construction machinery and vehicles introducing weeds to the subject title is considered negligible. In the case of titles with no to negligible weeds present, owner-occupation is considered the most appropriate long-term management option, where vigilance and immediate control are practical.

Several planning manuals provide guidance on appropriate management actions, which can be referred to develop site-specific prescriptions for any proposed works in the study area. These manuals include:

- Allan, K. & Gartenstein, S. (2010). *Keeping It Clean: A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens*. NRM South, Hobart;
- Rudman T. (2005). *Interim Phytophthora cinnamomi Management Guidelines*. Nature Conservation Report 05/7, Biodiversity Conservation Branch, Department of Primary Industries, Water & Environment, Hobart;
- Rudman, T., Tucker, D. & French, D. (2004). *Washdown Procedures for Weed and Disease Control*. Edition 1. Department of Primary Industries, Water & Environment, Hobart; and
- DPIWE (2015). *Weed and Disease Planning and Hygiene Guidelines – Preventing the Spread of Weeds and Diseases in Tasmania*. Department of Primary Industries, Parks, Water & Environment, Hobart.

Rootrot pathogen, *Phytophthora cinnamomi*

Phytophthora cinnamomi (PC) is widespread in lowland areas of Tasmania, across all land tenures. However, disease will not develop when soils are too cold or too dry. For these reasons, PC is not a threat to susceptible plant species that grow at altitudes higher than about 700 metres or where annual rainfall is less than about 600 mm (e.g. Midlands and Derwent Valley). Furthermore, disease is unlikely to develop beneath a dense canopy of vegetation because shading cools the soils to below the optimum temperature for the pathogen. A continuous canopy of vegetation taller than about 2 metres is sufficient to suppress disease. Hence PC is not considered a threat to susceptible plant species growing in wet sclerophyll forests, rainforests (except disturbed rainforests on infertile soils) and scrub e.g. teatree scrub (Rudman 2005; FPA 2009).

The vegetation types identified from the study area are not recognised as potentially susceptible to PC. Site assessment did not record any field symptoms (dead and/or dying susceptible plant species). No special management should be required in relation to PC.

Myrtle wilt

Myrtle wilt, caused by a wind-borne fungus (*Chalara australis*), occurs naturally in rainforest where myrtle beech (*Nothofagus cunninghamii*) is present. The fungus enters wounds in the tree, usually

caused by damage from wood-boring insects, wind damage and forest clearing. The incidence of myrtle wilt often increases forest clearing events such as windthrow and wildfire.

The study area does not support *Nothofagus cunninghamii*. No special management is required.

Myrtle rust

Myrtle rust is a disease limited to plants in the Myrtaceae family. This plant disease is a member of the guava rust complex caused by *Austropuccinia psidii*, a known significant pathogen of Myrtaceae plants outside Australia. Infestations are currently limited to NSW, Victoria, Queensland and Tasmania (DPIPWE 2015).

No evidence of myrtle rust was noted (several possible indicator species present). The longer-term management issue for the site is to ensure that any ornamental plantings source plants from a reputable nursery free from the pathogen (such businesses are already subject to strict biosecurity conditions).

Chytrid fungus and other freshwater pathogens

Native freshwater species and habitat are under threat from freshwater pests and pathogens including *Batrachochytrium dendrobatidis* (chytrid frog disease), *Mucor amphibiorum* (platypus mucor disease) and the freshwater algal pest *Didymosphenia geminata* (didymo) (Allan & Gartenstein 2010). Freshwater pests and pathogens are spread to new areas when contaminated water, mud, gravel, soil and plant material or infected animals are moved between sites. Contaminated materials and animals are commonly transported on boots, equipment, vehicles tyres and during road construction and maintenance activities. Once a pest pathogen is present in a water system it is usually impossible to eradicate. The manual *Keeping it Clean - A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens* (Allan & Gartenstein 2010) provides information on how to prevent the spread of freshwater pests and pathogens in Tasmanian waterways wetlands, swamps and boggy areas.

While the title supports habitats suitable for amphibian species (e.g. along Snug Rivulet), the specific development site is very well-drained and unsuitable for such species, such special management should not be warranted.

Additional "Matters of National Environmental Significance" – Threatened Ecological Communities

CofA (2020) indicates that the following threatened ecological communities listed on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) may or are likely to occur within the area:

- Alpine Sphagnum Bogs and Associated Fens [Endangered]
- Giant Kelp Marine Forests of South East Australia [Endangered]
- Lowland Native Grasslands of Tasmania [Critically Endangered]
- Subtropical and Temperate Coastal Saltmarsh [Vulnerable]
- Tasmanian Forests and Woodlands dominated by Black Gum or Brookers Gum (*Eucalyptus ovata* / *E. brookeriana*) [Critically Endangered]

Existing vegetation mapping (Figure 8) and revised vegetation mapping (Figure 10) indicates that none of these communities are present within or adjacent to the subject title. There are no implications under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

"Habitat" trees

The subject title supports relatively even-aged post-fire regrowth-structured forest. However, there are scattered older-growth/larger trees with potentially higher conservation status. Under the *Kingborough Interim Planning Scheme 2015*, "high conservation value trees" are defined as "a tree that is of a species that is listed in the *Threatened Species Protection Act 1995* or the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) and/or provide potential or significant habitat for a threatened species listed in either of those acts". The subject title does not support any trees species listed as threatened in their own right. The degree to which an individual tree provides "potential or significant habitat for a threatened species listed in either of those acts" is obviously open to interpretation. However, Council's *Policy No. 6.10 Biodiversity Offset Policy* (hereafter the *Policy*) provides a means of assessing whether a site supports trees with some level of conservation value through Table 2 of the *Policy* that defines the "conservation value of individual trees".

In the case of the present title, such trees could include individuals of *Eucalyptus globulus* with a DBHOB (diameter at breast height over bark) of 40-70 cm (high conservation value) or >70 cm (very high conservation value) and any trees with a DBHOB > 100 cm (the nominal threshold for wet forest types). Site assessment indicated that *Eucalyptus ovata* (black gum), *Eucalyptus viminalis* (white gum) and *Eucalyptus rubida* (candlebark) are not present.

Removal of high and very high conservation value trees will have implications under the *Kingborough Interim Planning Scheme 2015*, as they may qualify as moderate priority biodiversity value under Table E10.1 of the Biodiversity Code. It is recommended that as part of further site planning (including bushfire hazard management) that high and very high conservation value trees are mapped and shown on a site plan as either "retain" or "remove". If a tree is in the "retain" category, site plan should also show the Tree Root Protection Zone (equivalent to a radius of 12 x DBH) and whether less than 10% of the TRPZ will be impacted (nominal threshold after which the planning authority usually request a suitably qualified arborist provide a tree-by-tree assessment).

DISCUSSION

Summary of key findings

Threatened flora

- No plant species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.

Threatened fauna

- No fauna species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.

- The study area supports potential habitat (to varying degrees) of several species, as follows:
 - Tasmanian devil (*Sarcophilus harrisii*);
 - spotted-tailed quoll (*Dasyurus maculatus* subsp. *maculatus*);
 - eastern quoll (*Dasyurus viverrinus*);
 - eastern barred bandicoot (*Perameles gunnii* subsp. *gunnii*);
 - masked owl (*Tyto novaehollandiae*);
 - grey goshawk (*Accipiter novaehollandiae*);
 - Mount Mangana stag beetle (*Lissotes menalcas*); and
 - swift parrot (*Lathamus discolor*).
- Of these, a development within the existing cleared area (and its fringes) may only marginally impact on potential habitat of these species.

Vegetation types

- The study area supports the following TASVEG mapping units:
 - *Eucalyptus obliqua* forest with broad-leaf shrubs (TASVEG code: WOB);
 - *Eucalyptus globulus* wet forest (TASVEG code: WGL); and
 - extra-urban miscellaneous (TASVEG code: FUM).
- WGL and WOB are not listed as threatened on Schedule 3A of the Tasmanian *Nature Conservation Act 2002*, do not equate threatened ecological communities under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, and are identified as low priority biodiversity values (as vegetation types) under Table E10.1 of the Biodiversity Code of the *Kingborough Interim Planning Scheme 2015*.

Weeds

- No plant species classified as declared weeds within the meaning of the Tasmanian *Weed Management Act 1999* were detected from the study area.

Plant disease

- No evidence of *Phytophthora cinnamomi* (PC, rootrot) was recorded within the study area.
- No evidence of myrtle wilt was recorded from within the study area.
- No evidence of myrtle rust was recorded from within the study area.

Animal disease (chytrid)

- The part of the study area proposed for development does not support habitats conducive to frog chytrid disease.

Legislative and policy implications

Some commentary is provided below with respect to the key threatened species, vegetation management and other relevant legislation. Note that there may be other relevant policy instruments in addition to those discussed. The following information does not constitute legal advice and it is recommended that independent advice is sought from the relevant agency/authority.

Tasmanian Threatened Species Protection Act 1995

Threatened flora and fauna on this Act are managed under Section 51, as follows:

51. Offences relating to listed taxa

- (1) Subject to subsections (2) and (3), a person must not knowingly, without a permit –
 - (a) take, keep, trade in or process any specimen of a listed taxon of flora or fauna; or
 - (b) disturb any specimen of a listed taxon of flora or fauna found on land subject to an interim protection order; or
 - (c) disturb any specimen of a listed taxon of flora or fauna contrary to a land management agreement; or
 - (d) disturb any specimen of a listed taxon of flora or fauna that is subject to a conservation covenant entered into under Part 5 of the *Nature Conservation Act 2002*; or
 - (e) abandon or release any specimen of a listed taxon of flora or fauna into the wild.
- (2) A person may take, keep or process, without a permit, a specimen of a listed taxon of flora in a domestic garden.
- (3) A person acting in accordance with a certified forest practices plan or a public authority management agreement may take, without a permit, a specimen of a listed taxon of flora or fauna, unless the Secretary, by notice in writing, requires the person to obtain a permit.
- (4) A person undertaking dam works in accordance with a Division 3 permit issued under the *Water Management Act 1999* may take, without a permit, a specimen of a listed taxon of flora or fauna.

The simplest interpretation of this is that any activity that results in a specimen (i.e. individual) of listed flora or fauna being “knowingly taken” would require a permit to be issued through the Policy & Conservation Advice Branch (PCAB, DPIPWE) through a formal application process. Note that the Act does not make reference to “potential habitat” such that activities that result in loss of/disturbance to potential habitat (but not known sites) – which mainly refers to threatened fauna – would not require a permit. The subject title does not support any known locations of threatened flora or fauna such that the Act does not have application.

Commonwealth Environment Protection and Biodiversity Conservation Act 1999

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* an action will require approval from the minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

Matters of national environmental significance considered under the EPBCA include:

- listed threatened species and communities
- listed migratory species;
- Ramsar wetlands of international importance;
- Commonwealth marine environment;
- world heritage properties;
- national heritage places;
- the Great Barrier Reef Marine Park;
- nuclear actions; and
- a water resource, in relation to coal seam gas development and large coal mining development.

The Commonwealth Department of the Environment & Energy provides a policy statement titled *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (CofA 2013, herein the *Guidelines*), which provides overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under the EPBCA.

The *Guidelines* define a **significant impact** as:

"...an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts"

and note that:

"...all of these factors [need to be considered] when determining whether an action is likely to have a significant impact on matters of national environmental significance".

The *Guidelines* provide advice on when a significant impact may be likely:

"To be 'likely', it is not necessary for a significant impact to have a greater than 50% chance of happening; it is sufficient if a significant impact on the environment is a real or not remote chance or possibility.

If there is scientific uncertainty about the impacts of your action and potential impacts are serious or irreversible, the precautionary principle is applicable. Accordingly, a lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on the environment".

The *Guidelines* provide a set of Significant Impact Criteria, which are "intended to assist...in determining whether the impacts of [the] proposed action on any matter of national environmental significance are likely to be significant impacts". It is noted that the criteria are "intended to provide general guidance on the types of actions that will require approval and the types of actions that will not require approval...[and]...not intended to be exhaustive or definitive".

Listed ecological communities

The subject title does not support any such communities.

Threatened flora

The study area does not support populations of EPBCA-listed flora, nor significant potential habitat of such species.

Threatened fauna

The study area may support populations of threatened fauna listed on the Act, most notably the Tasmanian devil, spotted-tailed quoll, eastern quoll, eastern barred bandicoot and swift parrot. Note that the study area is within the range of several other species listed on the Act but it is unlikely that any proposal will result in a significant impact on these species (this includes wide-ranging species such as the wedge-tailed eagle and masked owl).

The *Guidelines* consider a "significant impact" to comprise loss that is likely to lead to a long-term decrease in the size of an important population of a species; reduce the area of occupancy of an important population; fragment an existing important population into two or more populations (unlikely); adversely affect habitat critical to the survival of a species; disrupt the breeding cycle of an important population; modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline; result in invasive species that are

harmful to a threatened species becoming established in the threatened species' habitat; introduce disease that may cause the species to decline; or interfere substantially with the recovery of the species.

With respect to the Tasmanian devil, spotted-tailed quoll, eastern quoll and eastern barred bandicoot, it is difficult to anticipate a scenario in which a referral to the Commonwealth Department of the Environment & Energy would become necessary at the scale of the proposed activities (a single residential dwelling and associated bushfire hazard management in an existing disturbed area, accessed from existing well-formed tracks).

It is highly unlikely that the development will result in a significant impact on potential habitat of the swift parrot because the development will avoid the area mapped as DGL and may only impact on individuals of *Eucalyptus globulus*.

Tasmanian Forest Practices Act 1985 and associated Forest Practices Regulations 2017

Future land use activities may need to consider the provisions of this Act and associated *Regulations*. In particular, the interaction of the Tasmanian *Land Use Planning Approvals Act 1993* (i.e. the *Kingborough Interim Planning Scheme 2015*) and the Tasmanian *Forest Practices Act 1985* and associated *Forest Practices Regulations 2017* may need to be determined by Kingborough Council and/or the Forest Practices Authority for particular land use activities.

However, the *Regulations* provide the following relevant circumstances in which a Forest Practices Plan is not required.

4. Circumstances in which forest practices plan, &c., not required

For the purpose of section 17(6) of the Act, the following circumstances are prescribed:

- (a) the harvesting of timber or the clearing of trees, with the consent of the owner of the land, if the land is not vulnerable land and –
 - (i) the volume of timber harvested or trees cleared is less than 100 tonnes for each area of applicable land per year; or
 - (ii) the total area of land on which the harvesting or clearing occurs is less than one hectare for each area of applicable land per year –whichever is the lesser;
- (j) the harvesting of timber or the clearing of trees on any land, or the clearance and conversion of a threatened native vegetation community on any land, for the purpose of enabling –
 - (i) the construction of a building within the meaning of the *Land Use Planning and Approvals Act 1993* or of a group of such buildings; or
 - (ii) the carrying out of any associated development –if the construction of the buildings or carrying out of the associated development is authorised by a permit issued under that Act.

On this basis, the proposed development will not require a Forest Practices Plan.

Tasmanian Nature Conservation Act 2002

Schedule 3A of the Act lists vegetation types classified as threatened within Tasmania. The study area supports no such vegetation types.

Tasmanian Weed Management Act 1999

No plant species classified as “declared weeds” within the meaning of the *Tasmanian Weed Management Act 1999* were detected from the study area. As such, this Act should not impose direct management requirements on the proposal.

Tasmanian Wildlife (General) Regulations 2010

While the assessment of the study area indicated the presence of species listed on schedules of the Regulations (i.e. “specially protected wildlife”, “protected wildlife”, “partly protected wildlife”), no individuals, or products (e.g. nests, dens, etc.), of these species, are likely to be directly physically affected by the works.

Tasmanian Land Use Planning and Approvals Act 1993

The applicable planning scheme for the study area is the *Kingborough Interim Planning Scheme 2015*. The title is zoned as Environmental Management (Figure 4) under the *Scheme* and wholly subject to the Biodiversity Protection Area overlay (Figure 5).

Note that the following is my interpretation of the provisions of the *Kingborough Interim Planning Scheme 2015* and does not represent the views of Kingborough Council. The following does not constitute legal advice. It is recommended that formal advice be sought from the relevant agency prior to acting on any aspect of this statement.

Environmental Living zone

To the best of my knowledge, the *Scheme* does not include any particular Local Area Objectives or Desired Future Character Statements for this part of the municipality.

The Use Table (Table 14.2) indicates that “Residential” is a permitted Use Class with the Qualification that “Only if single dwelling or home-based business”.

Under the Development Standards for Building and Works (14.4) and specifically Design (14.4.3), the Acceptable Solutions are stated as:

A1

The location of buildings and works must comply with any of the following:

- (a) be located within a building area, if provided on the title;
- (b) be an addition or alteration to an existing building;
- (c) be located on a site that does not require the clearing of native vegetation and is not on a skyline or ridgeline.

To the best of my knowledge, A1(a) is not satisfied because there is not a building area shown on title.

A1(b) is not satisfied because the proposal is for a new dwelling.

I do not believe that the development site is on a skyline or ridgeline. While I am not technically qualified to respond to A1(c), my site assessment and examination of topographic maps clearly

indicates that the site is on below a minor ridgeline and not on a skyline, such that I believe this element of A1(c) is satisfied.

A1(c) requires that "location of buildings and work must... be located on a site that does not require the clearing of native vegetation...".

The *Scheme* defines "native vegetation as:

"plants that are indigenous to Tasmania including trees, shrubs, herbs and grasses that have not been planted for domestic or commercial purposes".

While the previously cleared area within the northwest part of the title supports some native plant species, to all intents and purposes the site is best mapped as some form of modified land within the intent of TASVEG mapping unit descriptions (Kitchener & Harris 2013+), viz. extra-urban miscellaneous (TASVEG code: FUM). As such, I believe it is reasonable to indicate that a development wholly contained within the existing cleared area should satisfy A1(c) and hence the Acceptable Solution would be met.

However, I believe that at least some fuel management may need to occur within the fringing areas (mapped as WOB, and hence as "native vegetation"). In this regard, it is noted that A1(c) uses the phrase "clearing of native vegetation". I usually interpret the term "clearing" to have the same meaning as "clearance and conversion" defined under the Biodiversity Code because the term "clearing" is not otherwise defined in the *Scheme*. However, A1(c) does not include the term "disturbance" so I do not believe that it reasonably includes activities such as bushfire hazard management that may need to occur in the fringes of native vegetation mapped as WOB. If this is the interpretation that is accepted, A1 will be satisfied by placing the development within the existing cleared area and restricting bushfire hazard management to its fringes. If, however, the interpretation is tighter than this, the Performance Criteria are considered below.

Below the Performance Criteria of 14.4.3 are explored (those related to "clearing of native vegetation" only).

P1

The location of buildings and works must satisfy all of the following:

- (a) be located in an area requiring the clearing of native vegetation only if:
 - (i) there are no sites clear of native vegetation and clear of other significant site constraints such as access difficulties or excessive slope;
 - (ii) the extent of clearing is the minimum necessary to provide for buildings, associated works and associated bushfire protection measures;
 - (iii) the location of clearing has the least environmental impact;

If the development is within the existing cleared area and bushfire hazard management restricted to its immediate fringes (and hence minimised as far as practical), it appears that all three sub-clauses of P1(a) are immediately met.

Under the Development Standards for Building and Works (14.4) and specifically Environmental Values (14.4.5), the objective is stated as:

14.4.5 Environmental Values

Objective

To ensure development maintains and enhances environmental values.

In my opinion, this objective has a logical inconsistency and it is more usual to phrase such an objective as "maintain or enhance". Construction of a residential dwelling will certainly not substantially detract from the identified environmental values of the site and may only marginally impinge on fringing regrowth-structured forest. As such, I believe that the intent of the objective is met.

Under the Development Standards for Building and Works (14.4) and specifically Environmental Values (14.4.5), the Acceptable Solution is stated as:

A1

Development must be located within a building area on a plan of subdivision.

To the best of my knowledge, A1 is not satisfied because there is not a building area shown on title.

Under the Development Standards for Building and Works (14.4) and specifically Environmental Values (14.4.5), the Performance Criteria are stated as:

P1

The application is accompanied by an environmental management plan for the whole site, setting out measures to be put in place to protect flora and fauna habitats, riparian areas, any environmental values identified as part of a site analysis, and identify measures to be used to mitigate and offset adverse environmental impacts.

The preceding report and this review of the specific *Scheme* provisions should meet part of the intent of an "environmental management plan" noting that this, in my opinion, should only be reasonably applied to the subject area not the "whole site" (which technically under the *Scheme* and links to the definition under the Tasmanian *Land Use Planning and Approvals Act 1993* is defined as the whole title).

The *Scheme* does not specify the form an "environmental management plan" needs to take. In this case, I suggest that design drawings be modified to form an "environmental management plan" in two parts.

Part 1 (page 1) would show the whole site (whole title) and the area of proposed development relative to the title, with an annotation clearly indicating that any parts of the title outside the development area will remain subject to the provisions of the Environmental Living zone and Biodiversity Code. In effect, this means that any clearance and conversion or disturbance of native vegetation would need to be subject to a new planning permit application and take appropriate account of the identified natural values. However, active management of any retained forest on the title should not be required to maintain its current ecological condition. This is because wet sclerophyll forest is resilient and robust to natural changes and the forest within the title does not require any active intervention to ensure its condition is maintained or enhanced (for example, no weeds have been identified).

Part 2 (page 2) would show the more specific development area, clearly identifying all relevant elements of the project (e.g. access, parking, dwelling, water tanks, wastewater treatment areas, etc.) relative to natural values identified as warranting special management. It would be reasonable to indicate that the management of any native vegetation (if required) within the bushfire hazard management area will be subject to the provisions of an approved bushfire hazard management plan. This part of the plan would also show all trees of high or very high conservation value (refer to **FINDINGS "Other ecological values "Habitat" trees** for more details) that are proposed for removal and retention within the development area (i.e. there should be no need to show trees outside the development area, except perhaps those where their Tree Root Protection Zone (TRPZ) will extend into the development area). It is suggested that all such trees be tagged in the field (e.g. flagging tape and marker pen, metal tag, spray paint, etc.) and cross-referenced on the site plan. The critical details to record that relate to Table 2 of *Council Policy 6.10 Biodiversity Offset Policy* that defines the "conservation value of individual trees" is species and DBHOB (diameter at breast height over bark at 1.3 m above the ground). As discussed on site, there are only two tree species present within or immediately adjacent to the development area: *Eucalyptus globulus* (blue gum) and *Eucalyptus obliqua* (stringybark). The critical DBHOB thresholds are 40-70 cm or >70 cm for *Eucalyptus globulus* and >100 cm for any species (as I have classified the surrounding forest as wet forest). The tree root protection zone (TRPZ), defined as 12 x the DBHOB for any trees with high or very high conservation value, should be shown on the site plan. Once the tree

locations are pinpointed, it should be a relatively simple matter to show the TRPZ and estimate (within reasonable practical limits) how much of the TRPZ will be impacted. The objective is to shift development either wholly outside the TRPZ or minimise the impact to the TRPZ (ideally to less than 10%).

The environmental management plan can show all the trees described above, noting species, DBHOB and TRPZ and intended management (e.g. remove or retain). Trees to be retained may need to be protected during construction and the methods can be annotated on the environmental management plan (e.g. temporary fencing, bollards, flagging, extent of excavation, where vehicles and machinery should not park to avoid soil compaction, etc.).

On the basis of the above analysis, in my opinion a proposed residential dwelling and associated works and elements should meet the intent and specifics of the provisions of the Environmental Living zone in relation to “natural values”, provided that the recommended actions are undertaken in relation to the “environmental management plan” required under 14.4.5.

Biodiversity Code

Under the *Kingborough Interim Planning Scheme 2015*, the title proposed for development is wholly subject to the Biodiversity Protection Area (BPA) overlay (Figure 5). The reason for the allocation of the subject area to the BPA is presumably the apparent cover of native vegetation, which is currently coded on TASVEG and Council’s own vegetation mapping layers as non-threatened forest types (WOB and WGL). It is noted that the BPA extends on to adjacent areas mapped as agricultural land (TASVEG code: FAG) supporting old pasture, residential areas and major roads. That is, the overlay is applied for both a specific purpose (in some cases) and in a more generic sense (i.e. to allow for the consideration of potential impacts of a development on biodiversity values).

The purpose of the Biodiversity Code is stated below:

E10.1 Purpose

E10.1.1

The purpose of this provision is to:

- (a) minimise loss of identified threatened native vegetation communities and threatened flora species;
- (b) conserve identified threatened fauna species by minimising clearance of important habitat and managing environmental impact;
- (c) minimise loss of other biodiversity values that are recognised as locally significant by the Planning Authority.

The subject title does not support a threatened native vegetation community, such that E10.1.1(a) should not have direct application in relation to vegetation types.

The subject title does not support threatened flora, such that E10.1.1(a) should not have direct application in relation to threatened flora.

The subject title does contain “important habitat...[for]...threatened fauna species”. While the broader title is within the range of some threatened species (e.g. Tasmanian devil, spotted-tailed quoll, eastern quoll, eastern barred bandicoot, wedge-tailed eagle, masked owl, grey goshawk), and may be utilised opportunistically, the vegetation present could hardly be described as “important” at any reasonable scale, such that E10.1.1(b) should not have direct application to these species. The forest mapped as WGL (and individuals of *Eucalyptus globulus* within forest mapped as WOB) could be classified as potential foraging habitat for the swift parrot, and any wet forest as potential habitat for the Mount Mangana stag beetle. The degree to which this meets the

intent of "important habitat...[for]...threatened fauna species" is open to interpretation but I believe it is reasonable to conclude that E10.1.1(b) has at least general application.

The subject title may contain "other biodiversity values that are recognised as locally significant by the Planning Authority". Note that the detailed elements of high, moderate and low priority biodiversity values included in Table E10.1 are explored in detail below.

The application of the Biodiversity Code is stated below:

E10.2 Application

This code applies to development involving clearance and conversion or disturbance of native vegetation within a Biodiversity Protection Area.

"Native vegetation" is defined under the *Scheme* as:

"plants that are indigenous to Tasmania including trees, shrubs, herbs and grasses that have not been planted for domestic or commercial purposes".

The subject title is wholly covered by the Biodiversity Protection Area overlay and supports "native vegetation", such that the Biodiversity Code has some application to the proposed development. The concept of "native vegetation" was discussed under provision 14.4.3 A1(c) of the Environmental Living zone.

"Clearance and conversion" means:

"the process of removing native vegetation from an area of land and: (a) leaving the area of land, on a permanent or extended basis, in a state predominantly unvegetated with native vegetation; or (b) replacing the native vegetation so removed, on a permanent or extended basis, with residential, commercial, mining, agriculture or other non-agricultural development".

"Disturbance" means:

"the alteration of the structure and species composition of a native vegetation community through actions including cutting down, felling, thinning, logging, removing or destroying of a native vegetation community".

In the case of the proposed development, I would not regard any development within the area mapped as FUM (i.e. modified land) as technically comprising "clearance and conversion". Further "clearance and conversion" would not be proposed but perhaps very minor modification of adjacent vegetation will be required to satisfy bushfire hazard management. However, the degree to which this comprises "disturbance" is open to interpretation because the definition requires the "alteration of the structure and species composition". Arguably, fuel modification only results in modification (to some degree) of the structure of the vegetation but is less likely to materially impact the species composition. In a broad sense, however, fuel modification may fall within the intended definition of "disturbance", such that the Biodiversity Code has application.

The application requirements under the Biodiversity Code are stated below:

E10.5 Application Requirements

E10.5.1

In addition to any other application requirements, the planning authority may require the applicant to provide a natural values determination if considered necessary to determine compliance with acceptable solutions.

E10.5.2

In addition to any other application requirements, the planning authority may require the applicant to provide any of the following information if considered necessary to determine compliance with performance criteria:

- (a) a natural values determination;

- (b) a natural values assessment;
- (c) a report detailing how impacts on priority biodiversity values will be avoided, minimised, and/or mitigated;
- (d) a special circumstances justification report;
- (e) a biodiversity offsets plan.

A "natural values assessment" (a higher level of assessment than a "natural values determination") is defined as:

"an ecological assessment, generally consistent with the Guidelines for Natural Values Assessment (DPIPWE July 2009), by a suitably qualified person (biodiversity) to identify and convey:

- (a) the location of priority biodiversity values affecting the site;
- (b) the significance of priority biodiversity values, with particular reference to Table E10.1;
- (c) any likely impact on these priority biodiversity values including existing activities on the site, nearby land uses, weeds, pests, pathogens and the degree of connectivity with other land with natural values;
- (d) the likely impact of the proposed development or use on these priority biodiversity values;
- (e) recommendations for the design and siting of the proposed development or use to avoid or minimise the identified impacts;
- (f) recommendations for the mitigation or management of any residual impacts.

The preceding report on the ecological values and this review of the provisions of the Biodiversity Code should meet the intent and specifics of a "natural values assessment" under the Biodiversity Code.

The Development Standards for Buildings and Works have the following objective:

E10.7 Development Standards

E10.7.1 Buildings and Works

Objective:

To ensure that development for buildings and works that involves clearance and conversion or disturbance within a Biodiversity Protection Area does not result in unnecessary or unacceptable loss of priority biodiversity values.

This is a difficult objective to meet in literal terms because it is subjective and terms such as "unnecessary" and "unacceptable" are not defined, particularly in relation to a proposed use that is acceptable under the zoning. However, a residential dwelling positioned within the existing cleared area should meet the intent of this objective.

The Acceptable Solution is stated as:

A1

Clearance and conversion or disturbance must be within a Building Area on a plan of subdivision approved under this planning scheme.

To the best of my knowledge, there is no "Building Area on a plan of subdivision approved under this planning scheme" such that A1 cannot be met.

To address the Performance Criteria, it is necessary to categorise the significance of the "priority biodiversity values" present as "low", "moderate" or "high", as the category affects the manner in which the criteria are addressed.

"High priority biodiversity values" are defined as (taken from Table E10.1 with author commentary below each):

Native vegetation communities listed as threatened under the *Nature Conservation Act 2002*.

The subject title does not support threatened native vegetation communities.

Significant habitat for and/or areas known to contain threatened species listed under the *Threatened Species Protection Act 1995* or the *Environment Protection and Biodiversity Conservation Act 1999* that are:

- (a) recognised as endangered or vulnerable; or
- (b) largely confined in their total distribution to the municipal area; or
- (c) have most of their range within the municipal area.

"Significant habitat" is defined under the *Scheme* as:

"Native vegetation determined from published literature and/or agreed by the Threatened Species Section (DPIPWE) in consultation with species specialist, and/or endorsed by the Threatened Species Scientific Advisory Committee (TSSAC) as habitat within the range of a threatened or vulnerable flora or fauna species that: (i) is known to be of high priority for the maintenance of breeding populations throughout the species' range; and/or (ii) if converted to non-native vegetation is considered to result in a long term negative impact on breeding populations of the species. It may include areas that do not currently support breeding populations of the species but that need to be maintained to ensure the long-term future of the species".

In relation to threatened flora, the subject title does not support such species.

In relation to threatened fauna, the subject title provides ubiquitous potential habitat for species such as the Tasmanian devil, spotted-tailed quoll, eastern quoll, eastern barred bandicoot, wedge-tailed eagle, masked owl and grey goshawk but the preceding report has demonstrated that it is not reasonable to consider the title as "significant" for these species.

However, it is possible to assign a higher level of significance to potential habitat for the swift parrot and Mount Mangana stag beetle. However, the more "significant habitat" for the swift parrot is the forest mapped as WGL, which will not be affected by the development (only forest mapped as WOB will be marginally affected by bushfire hazard management). Individual trees of *Eucalyptus globulus* are rightly considered under moderate priority biodiversity values. Most of the title supports low quality potential habitat for the Mount Mangana stag beetle (i.e. the patches with localised coarse woody debris). That is, I do not believe that the development area includes significant habitat for threatened fauna.

Native vegetation communities with a distribution on a bioregional basis having contracted to less than 10% of its former area.

The native vegetation mapping unit identified from the part of the subject title proposed for development is *Eucalyptus obliqua* forest with broad-leaf shrubs (TASVEG code: WOB). The title is within the South East bioregion. Data from DPIPWE (<http://dpirwe.tas.gov.au/conservation/development-planning-conservation-assessment/planning-tools/tasmanian-reserve-estate-spatial-layer>) indicates the following extent at different scales, with no indication that this represents a 90% loss of the pre-1750 extent of the community.

Statewide	79,800 ha (47% reserved)
NRM South	38,600 ha (49% reserved)
South East	14,300 ha (51% reserved)
Kingborough	7,700 ha (68% reserved)

That is, WOB is widespread and well-reserved at all scales (in fact, the indicated values would be much higher if most of the areas mapped as WOU were re-allocated to WOB). It is recognised as a resilient and robust vegetation type requiring no active management to ensure its persistence.

Native vegetation communities with a total area on a bio-regional basis generally being less than 1,000 ha.

As above.

Remnants occurring on land systems components which have been more than 90% cleared of their native vegetation.

The title forms part of the greater Snug Tiers rural-residential area. Examination of aerial imagery clearly indicates that the subject title does not represent a remnant in any reasonable sense.

“Moderate priority biodiversity values” are defined as (taken from Table E10.1 with author commentary below each):

Significant habitat for and/or areas known to contain threatened species listed under the *Threatened Species Protection Act 1995* or the *Environment Protection and Biodiversity Conservation Act 1999* that are:

- (a) recognised as rare; and
- (b) are not specific to the municipal area.

Of the threatened fauna species identified as potentially present, only the spotted-tailed quoll is listed as “rare” but has a landscape-scale distribution and the site did not support particular habitat elements strongly associated with the species. No species recognised as specific to the municipal area have been identified.

Potential habitat for threatened species listed under the *Threatened Species Protection Act 1995* or the *Environment Protection and Biodiversity Conservation Act 1999*.

“Potential habitat” is defined under the *Scheme* as:

“All vegetation types within the potential range of a threatened flora or fauna species that are likely to support that species in the short and/or long term. It may not include habitats known to be occupied intermittently. Potential habitat is determined from published and unpublished scientific literature and/or via expert opinion, is agreed by the Threatened Species Section (DPIPWE) in consultation with species specialist, and/or endorsed by the Threatened Species Scientific Advisory Committee (TSSAC) under the *Threatened Species Protection Act 1995*”.

In relation to threatened flora, the subject title does support potential habitat for some species (see Table 2 of preceding report) but no populations of such were identified, so this is reasonably regarded as not being applicable.

See comments in preceding section under high priority biodiversity values in regard to threatened fauna species. Because this definition of “potential habitat” now includes the extremely nebulous concept of “...likely to support that species in the short and/or long term”, it becomes almost impossible to discount any area of “native vegetation” (however modified), or even many patches of modified land such as pasture, regenerating cleared land, plantations, etc., within the municipality as not being “moderate priority biodiversity value”, which is clearly not the intent. The definition does, however, include the concept of “may not include habitats known to be occupied intermittently”, which means species such as the Tasmanian devil, spotted-tailed quoll, eastern quoll, eastern barred bandicoot, wedge-tailed eagle, masked owl, swift parrot and grey goshawk that may “pass through” (but not permanently occupy) the site would not qualify the site as “moderate priority biodiversity value”. I do not regard the fringing WOB around the FUM to be significant in any real sense for the Mount Mangana stag beetle because it lacks coarse woody debris.

Native vegetation communities approaching a reduction in areal extent of 70% within a bioregional context.

See above under high priority biodiversity values.

Other priority species that are not listed but are considered of conservation significance in the municipal area.

“Priority species” are defined under the *Scheme* as:

“...non-listed taxa identified in the Tasmanian RFA (Commonwealth of Australia and State of Tasmania 1997, as amended) as requiring some of form or protection or further research, non-listed species identified as poorly reserved in Tasmania, type locations and edge-of-range populations”.

The title does not support such values. None of the RFA-listed non-listed taxa are present (note that the RFA has essentially been updated such that the list of priority species is now consistent with formally legislated lists). It is recognised that this municipal authority also now recognises *Eucalyptus rubida* (candlebark) as “priority species” due to its highly localised distribution in the municipality. This species is not present within or adjacent to the subject title. Poorly-reserved species have attempted to be defined and described at various times by DPIPWE but the lists are of limited value because they lack rigour and rely on out-of-date data. This means that “poorly-reserved” taxa are best considered on a case-by-case basis by a suitably qualified person in relation to a specific development proposal and/or site. The title does not include any species that could reasonably be categorised as poorly-reserved. The title does not support any type locations of any taxa. The title does not include any edge-of range populations of any taxa.

High conservation value trees.

The *Scheme* defines a “high conservation value tree” as:

“a tree that is of a species that is listed in the *Threatened Species Protection Act 1995* or the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) and/or provide potential or significant habitat for a threatened species listed in either of those acts”.

Refer to main report (**FINDINGS Other ecological values** “Habitat” trees) that indicated that while there are no individual trees that are listed as threatened, some trees that may qualify under Table 2 of *Council Policy 6.10 Biodiversity Offset Policy* may be affected by the proposal. Until an “environmental management plan” is prepared that identified such trees, it is difficult to confirm if “moderate priority biodiversity values” in the form of “high conservation value trees” will be affected.

“Low priority biodiversity values” are defined as (taken from Table E10.1 with authors commentary below each):

All other native vegetation communities.

Applicable.

The Performance Criteria in relation to “moderate priority biodiversity values” are considered in case the interpretation of this assessment and report is that such values are present (in relation to high conservation value trees only, noting that my interpretation of WOB and FUM as vegetation types and potential habitat of threatened fauna is as “low priority biodiversity values”).

The Performance Criteria for high priority biodiversity values are stated as:

P1

Clearance and conversion or disturbance must satisfy the following:

- (b) if moderate priority biodiversity values:
 - (i) development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;

- (ii) impacts resulting from bushfire hazard management measures are minimised as far as reasonably practicable through siting and fire-resistant design of habitable buildings;
- (iii) remaining moderate priority biodiversity values on the site are retained and improved through implementation of current best practice mitigation strategies and ongoing management measures designed to protect the integrity of these values;
- (iv) residual adverse impacts on high priority biodiversity values not able to be avoided or satisfactorily mitigated are offset in accordance with the *Guidelines for the Use of Biodiversity Offsets in the Local Planning Approval Process*, Southern Tasmanian Councils Authority 2013 and Council Policy 6.10.

In relation to moderate priority biodiversity values, the relevant value is “high conservation value trees”. It is assumed that the development will be able to minimise impact on such trees in the broader context of the title by being placed in the area of previous disturbance. It is possible that a small number of high or very high conservation value trees may need removal – this dealt with under P1(b)(iv).

I would usually accept a bushfire hazard management plan from an accredited practitioner as satisfying the intent of P1(b)(ii). In this case, based on my site assessment, I believe that impacts will be minimised as far as practical, essentially restricted to minor fuel modification in the fringing areas of WOB around the FUM. Ideally, BAL29 should be aimed for but I recognise (in my broader experience) that the site is on a steep upper slope surrounded by fire-prone vegetation. In these case, I usually defer to an accredited bushfire practitioner to develop a bushfire hazard management plan suitable for the site. In this case, I would accept a lower BAL rating as still meeting the intent of “[minimising] impacts resulting from bushfire hazard management measures...”. I also recognise that standard bushfire hazard management plans do not include specific direction regarding individual tree management rather providing more generic guidance on concepts such as “vertical separation” and “horizontal separation”. I am aware that this planning authority sometimes request information on the likely impact of bushfire hazard management on individual trees. In this case, I believe that the recommended “environmental management plan” required under the provisions of the Environmental Living zone can include information on the estimated extent of native vegetation (WOB) that may be subject to “clearance and conversion” and/or “disturbance” because of bushfire hazard management activities and also show individual trees. It may be practical to identify those of high and very high conservation value and indicate if they can be practically retained.

To satisfy P1(b)(iii), the remaining moderate priority biodiversity values need to be “retained and improved” in some manner. In this case, I suggest that the fact that the title is already subject to the Environmental Living zoning and the Biodiversity Protection Area overlay that more formal mechanisms to “retain and improve” the remaining moderate priority biodiversity values are not warranted, noting that the configuration, size and steepness of the title (as well as closeness to a road and waterway) effectively preclude any form of further development. I. In this case, I believe that the recommended “environmental management plan” required under the provisions of the Environmental Living zone can specify this and that this plan then be included as a permit condition.

P1(b)(iv) refer to “residual impacts not able to be avoided or satisfactorily mitigated are offset in accordance with the *Guidelines for the Use of Biodiversity Offsets in the Local Planning Approval Process*, Southern Tasmanian Councils Authority 2013 and Council Policy 6.10”. In relation to moderate priority biodiversity values (i.e. high conservation value trees), the *Biodiversity Offset Policy 6.10* allows a financial offset to be contributed on a per tree basis at a rate of up to \$500/tree for very high conservation value trees and up to \$250/tree for high conservation value trees. Until the site plan is produced, it is difficult to anticipate how this policy may be applied.

Recommendations

The recommendations provided below are a summary of those provided in relation to each of the ecological features described in the main report. The main text of the report provides the relevant context for the recommendations.

Vegetation types

There should be no specific management requirements in relation to the native vegetation types identified from the proposed development area. In general terms, minimising the extent of “clearance and conversion” and/or “disturbance” to native vegetation is recommended but it is noted that the higher priority vegetation types (i.e. WGL – mainly as potential swift parrot habitat) is well outside the likely development footprint.

Threatened flora

None identified – no special management required.

Threatened fauna

Apart from the generic recommendation to minimise the extent of “clearance and conversion” and/or “disturbance” to native vegetation, it is further recommended that as far as practical, larger trees should be retained (especially individuals of *Eucalyptus globulus*), recognising the context of personal safety and bushfire hazard management requirements.

Weed and disease management

None identified – no special management required beyond owner-occupation vigilance and control.

Legislative and policy implications

There are no formal requirements for a permit under Section 51 of the Tasmanian *Threatened Species Protection Act 1995* (TSPA).

A formal referral to the Commonwealth Department of the Environment & Energy under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) is not considered required.

Development will require a planning permit pursuant to the provisions of the *Kingborough Interim Planning Scheme 2015*. As part of a development application, an “environmental management plan” is required under 14.4.5 of the Environmental Living zone. This plan should include reference to any trees of high or very high conservation value and how these will be managed, including reference to the Tree Root Protection Zone.

REFERENCES

Allan, K. & Gartenstein, S. (2010). *Keeping It Clean: A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens*. NRM South, Hobart.

- APG (Angiosperm Phylogeny Group) (2016). An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG IV. *Botanical Journal of the Linnean Society* 181(1): 1–20.
- Bryant, S.L. & Jackson, J. (1999). *Tasmania's Threatened Fauna Handbook: What, Where and How to Protect Tasmania's Threatened Animals*. Threatened Species Unit, Parks & Wildlife Service, Hobart.
- CofA (Commonwealth of Australia) (2013). *EPBC Act Policy Statement 1.1: Significant Impact Guidelines – Matters of National Environmental Significance*. Commonwealth of Australia, Canberra.
- CofA (Commonwealth of Australia) (2020). Department of the Environment & Energy's *Protected Matters Report* for a point location defining the approximate centre of the title (-43.07471 147.22708), buffered by 5 km, dated 19 May 2020 – Appendix G.
- de Salas, M.F. & Baker, M.L. (2019). *A Census of the Vascular Plants of Tasmania, including Macquarie Island*. Tasmanian Herbarium, Hobart.
- DPIPWE (Department of Primary Industries, Parks, Water & Environment) (2015). *Weed and Disease Planning and Hygiene Guidelines – Preventing the Spread of Weeds and Diseases in Tasmania*. Department of Primary Industries, Parks, Water & Environment, Hobart.
- DPIPWE (Department of Primary Industries, Parks, Water & Environment) (2015). *Guidelines for Natural Values Surveys – Terrestrial Development Proposals*. Department of Primary Industries, Parks, Water & Environment, Hobart.
- DPIPWE (Department of Primary Industries, Parks, Water & Environment) (2015). *Biosecurity Factsheet: Myrtle Rust*. Department of Primary Industries, Parks, Water & Environment, Hobart.
- DPIPWE (Department of Primary Industries, Parks, Water & Environment) (2020). *Natural Values Atlas* report ECOfas_SnugTiersRoad for a polygon defining the title area (centred on 518493mE 5230865mN), buffered by 5 km, dated 19 May 2020 – Appendix E.
- DPIPWE (Department of Primary Industries, Parks, Water & Environment) (2020) Threatened Native Vegetation Communities List, as per Schedule 3A of the *Tasmanian Nature Conservation Act 2002*. [http://dipwe.tas.gov.au/conservation/flora-of-tasmania/monitoring-and-mapping-tasmanias-vegetation-\(tasveg\)/tasveg-the-digital-vegetation-map-of-tasmania/threatened-native-vegetation-communities](http://dipwe.tas.gov.au/conservation/flora-of-tasmania/monitoring-and-mapping-tasmanias-vegetation-(tasveg)/tasveg-the-digital-vegetation-map-of-tasmania/threatened-native-vegetation-communities).
- Duretto, M.F. (Ed.) (2009+) *Flora of Tasmania Online*. Tasmanian Herbarium, Hobart.
- FPA (Forest Practices Authority) (2009). *Management of Phytophthora cinnamomi in Production Forests. Flora Technical Note No. 8*. Forest Practices Authority, Hobart.
- FPA (Forest Practices Authority) (2016). *Habitat Descriptions of Threatened Flora in Tasmania*. Forest Practices Authority, Hobart.
- FPA (Forest Practices Authority) (2017). *Threatened Flora Species Survey Notes*. Forest Practices Authority, Hobart.
- FPA (Forest Practices Authority) (2020). *Biodiversity Values Database* report, specifically the species' information for grid reference centroid 518493mE 5230865mN (i.e. the centroid of the study area), buffered by 5 km and 2 km for threatened fauna and flora records, respectively, hyperlinked species' profiles and predicted range boundary maps, dated 19 May 2020 – Appendix F.
- Kitchener, A. & Harris, S. (2013+). *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation*. Edition 2 (online edition). Department of Primary Industries, Parks, Water & Environment, Hobart.
- NRM South (2017). *A Guide to Environmental and Agricultural Weeds of Southern Tasmania*. NRM South, Hobart.

- Rudman T. (2005). *Interim Phytophthora cinnamomi Management Guidelines*. Nature Conservation Report 05/7, Biodiversity Conservation Branch, Department of Primary Industries, Water & Environment, Hobart.
- Rudman, T., Tucker, D. & French, D. (2004). *Washdown Procedures for Weed and Disease Control*. Edition 1. Department of Primary Industries, Water & Environment, Hobart.
- TSS (Threatened Species Section) (2003+). *Notesheets and Listing Statements* for various threatened species. Department of Primary Industries, Parks, Water & Environment, Hobart.
- TSSC (Threatened Species Scientific Committee) (2011). *Commonwealth Conservation Advice on Botaurus poiciloptilus (Australasian Bittern)*. Department of Sustainability, Environment, Water, Population & Communities. Canberra.
- Wapstra, M. (2018). *Flowering Times of Tasmanian Orchids: A Practical Guide for Field Botanists*. Self-published by the author (Fourth Edition, July 2018 version).
- Wapstra, H., Wapstra, A., Wapstra, M. & Gilfedder, L. (2005+, updated online at www.dpipwe.tas.gov.au). *The Little Book of Common Names for Tasmanian Plants*. Department Primary Industries, Parks, Water & Environment, Hobart.

APPENDIX A. Vegetation community structure and composition

The tables below provide basic information on the structure and composition of the vegetation mapping units identified from the study area.

<i>Eucalyptus globulus</i> wet forest (TASVEG code: WGL)		
WGL occupies a wide band of forest in the approximate middle part of the title, bounded to the east, west and south by WOB. The distinction between WGL and WOB is based on numerous GPS waypoints following a relatively broad transition zone of canopy dominance of <i>Eucalyptus globulus</i> and <i>Eucalyptus obliqua</i>, respectively. WGL is characterised by a relatively even-aged post-1967 bushfire regrowth canopy with occasional emergent "fire survivors" over a typically dense understorey of broad-leaved shrubs and scattered to locally dense graminoids and ground ferns. The structure is simple, both in terms of the strata present and the ground conditions with the generally steep slopes precluding extensive development of coarse woody debris. WGL is in excellent ecological condition with no weeds or symptoms of disease noted. WGL has been affected by fire events.		
		
WGL on slopes of title		
Stratum	Height (m) Cover (%)	Species (underline = dominant, parentheses = sparse)
Trees	35-45 m +	<u><i>Eucalyptus globulus</i></u> , (<i>Eucalyptus obliqua</i>)
Trees	30 m 30%	<u><i>Eucalyptus globulus</i></u> , (<i>Eucalyptus obliqua</i>), (<i>Acacia dealbata</i>)
Shrubs	4-9 m 60-80%	<u><i>Bedfordia salicina</i></u> , <u><i>Pomaderris apetala</i></u> , <i>Acacia leprosa</i> , <i>Notelaea ligustrina</i> , <i>Cassinia aculeata</i> , <i>Olearia argophylla</i> , <i>Nematolepis squamea</i> , <i>Exocarpos cupressiformis</i>
Low shrubs	< 3 m 5-30%	<u><i>Coprosma quadrifida</i></u> , <i>Beyeria viscosa</i> , <i>Pimelea drupacea</i>
Grasses	+	<i>Microlaena stipoides</i>

Graminoids	variable	<i>Lepidosperma elatius</i>
Trunked ferns	<1 m <1%	<i>Dicksonia antarctica</i>
Ground ferns	<5%	<i>Polystichum proliferum</i> , <i>Blechnum nudum</i> , <i>Pteridium esculentum</i>
Herbs	+	<i>Pterostylis pedunculata</i> , <i>Viola hederacea</i>

***Eucalyptus obliqua* forest with broad-leaf shrubs (TASVEG code: WOB)**

WOB occupied approximately half of the vegetation within the title, occurring in two sections separated by a wide band of WGL. WOB continues to the east of the title (previously assessed by the author), and to the opposite side of Snug Rivulet (at least in sections). WOB also appears to continue extensively to the west of the title.

WOB is characterised by a relatively even-aged post-1967 bushfire regrowth canopy with occasional emergent "fire survivors" over a typically dense understorey of broad-leaved shrubs and scattered to locally dense graminoids and ground ferns. The structure is simple, both in terms of the strata present and the ground conditions with the generally steep slopes precluding extensive development of coarse woody debris.

WOB is in excellent ecological condition with no weeds or symptoms of disease noted. WOB has been affected by fire events and possibly light historical selective tree removal.



WOB on midslopes

Stratum	Height (m) Cover (%)	Species (underline = dominant, parentheses = sparse)
Trees	35-45 m +	<u><i>Eucalyptus obliqua</i></u> , (<i>Eucalyptus globulus</i>)
Trees	30 m 30%	<u><i>Eucalyptus obliqua</i></u> , (<i>Eucalyptus globulus</i>), (<i>Acacia dealbata</i>)

Shrubs	4-9 m 60-80%	<i>Bedfordia salicina</i> , <i>Pomaderris apetala</i> , <i>Acacia leprosa</i> , <i>Notelaea ligustrina</i> , <i>Cassinia aculeata</i> , <i>Olearia argophylla</i> , <i>Nematolepis squamea</i> , <i>Exocarpos cupressiformis</i> , <i>Acacia verticillata</i>
Low shrubs	< 3 m 5-30%	<i>Coprosma quadrifida</i> , <i>Beyeria viscosa</i> , <i>Pimelea drupacea</i>
Grasses	+	<i>Microlaena stipoides</i>
Graminoids	variable	<i>Lepidosperma elatius</i>
Trunked ferns	<1 m <5%	<i>Dicksonia antarctica</i>
Ground ferns	<5%	<i>Polystichum proliferum</i> , <i>Blechnum nudum</i> , <i>Pteridium esculentum</i> , <i>Histiopteris incisa</i>
Climbers	+	<i>Clematis aristata</i>
Herbs	+	<i>Pterostylis pedunculata</i> , <i>Hydrocotyle hirta</i> , <i>Geranium potentilloides</i> , <i>Viola hederacea</i> , <i>Galium densum</i> , <i>Oxalis perennans</i>

APPENDIX B. Vascular plant species recorded from study area

Botanical nomenclature follows *A Census of the Vascular Plants of Tasmania* (de Salas & Baker 2019), with family placement updated to reflect the nomenclatural changes recognised in the *Flora of Tasmania Online* (Duretto 2009+) and APG (2016); common nomenclature follows *The Little Book of Common Names of Tasmanian Plants* (Wapstra et al. 2005+, updated online at www.dpipwe.tas.gov.au).

i = introduced/naturalised; e = endemic to Tasmania.

Table B1. Summary of vascular species recorded from the study area

STATUS	ORDER			
	DICOTYLEDONAE	MONOCOTYLEDONAE	GYMNOSPERMAE	PTERIDOPHYTA
	26	9	-	7
e	3	-	-	-
i	-	2	-	-
Sum	29	11	0	7
TOTAL	47			

DICOTYLEDONAE

APIACEAE

Hydrocotyle hirta

hairy pennywort

ASTERACEAE

e *Bedfordia salicina*

tasmanian blanketleaf

Cassinia aculeata subsp. *aculeata*

common dollybush

Euchiton japonicus

common cottonleaf

Olearia argophylla

musk daisybush

Senecio minimus

shrubby fireweed

ELAEocarpaceae

e *Aristotelia peduncularis*

heartberry

ERICACEAE

e *Leptecophylla divaricata*

spreading pinkberry

EUPHORBIACEAE

Beyeria viscosa

pinkwood

FABACEAE

Acacia dealbata subsp. *dealbata*

silver wattle

Acacia leprosa var. *graveolens*

varnish wattle

Acacia melanoxylon

blackwood

Acacia verticillata subsp. *verticillata*

prickly moses

GERANIACEAE

Geranium potentilloides var. *potentilloides*

mountain cranesbill

LAMIACEAE

Prostanthera lasianthos var. *lasianthos*

christmas mintbush

MYRTACEAE

Eucalyptus globulus subsp. *globulus*

tasmanian blue gum

Eucalyptus obliqua

stringybark

OLEACEAE

Notelaea ligustrina

native olive

OXALIDACEAE

Oxalis perennans

grassland woodsorrel

RANUNCULACEAE

Clematis aristata

mountain clematis

RHAMNACEAE

Pomaderris apetala subsp. *apetala*

common dogwood

ROSACEAE	
<i>Acaena novae-zelandiae</i>	common buzzy
RUBIACEAE	
<i>Coprosma quadrifida</i>	native currant
<i>Galium densum</i>	shade bedstraw
RUTACEAE	
<i>Nematolepis squamea</i> subsp. <i>squamea</i>	satinwood
<i>Zieria arborescens</i> subsp. <i>arborescens</i>	stinkwood
SANTALACEAE	
<i>Exocarpos cupressiformis</i>	common native-cherry
THYMELAEACEAE	
<i>Pimelea drupacea</i>	cherry riceflower
VIOLACEAE	
<i>Viola hederacea</i>	ivy-leaf violet
MONOCOTYLEDONAE	
ASPARAGACEAE	
<i>Lomandra longifolia</i>	sagg
CYPERACEAE	
<i>Lepidosperma elatius</i>	tall sword-sedge
JUNCACEAE	
<i>Juncus pallidus</i>	pale rush
<i>Juncus pauciflorus</i>	looseflower rush
ORCHIDACEAE	
<i>Pterostylis pedunculata</i>	maroonhood
POACEAE	
i <i>Agrostis capillaris</i> var. <i>capillaris</i>	browntop bent
<i>Agrostis venusta</i>	graceful bent
i <i>Aira caryophyllea</i> subsp. <i>caryophyllea</i>	silvery hairgrass
<i>Lachnagrostis filiformis</i>	common blowngrass
<i>Microlaena stipoides</i> var. <i>stipoides</i>	weeping grass
<i>Rytidosperma penicillatum</i>	slender wallabygrass
PTERIDOPHYTA	
BLECHNACEAE	
<i>Blechnum nudum</i>	fishbone waterfern
DENNSTAEDTIACEAE	
<i>Histiopteris incisa</i>	batswing fern
<i>Pteridium esculentum</i> subsp. <i>esculentum</i>	bracken
DICKSONIACEAE	
<i>Dicksonia antarctica</i>	soft treefern
DRYOPTERIDACEAE	
<i>Polystichum proliferum</i>	mother shieldfern
HYMENOPHYLLACEAE	
<i>Hymenophyllum cupressiforme</i>	common filmyfern
POLYPODIACEAE	
<i>Notogrammitis billardierei</i>	common fingerfern

APPENDIX C. Analysis of database records of threatened flora

Table C1 provides a listing of threatened flora from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Table C1. Threatened flora records from within 5,000 m of boundary of the study area

Species listed below are listed as rare (r), vulnerable (v), endangered (e), or extinct (x) on the Tasmanian *Threatened Species Protection Act 1995* (TSPA); vulnerable (VU), endangered (EN), critically endangered (CR) or extinct (EX) on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). Information below is sourced from DPIPWE's *Natural Values Atlas* (DPIPWE 2020) and other sources where indicated. Habitat descriptions are taken from FPA (2016), FPA (2017) and TSS (2003+), except where otherwise indicated. Species marked with # are listed in CofA (2020).

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
<i>Allocasuarina duncanii</i> conical sheoak	r -	<i>Allocasuarina duncanii</i> is strongly associated with dolerite rock plates or shallow soils over dolerite, where it occurs in monotypic stands or in association with <i>Eucalyptus delegatensis</i> or <i>E. coccifera</i> . Two small sites are on quartzitic sandstone. The species is found from 230-1,000 m a.s.l. with most sites above 500 m.	Potential habitat present along Snug Rivulet. This tall shrub/small tree was not detected (no seasonal constraint on detection and/or identification).
<i>Asperula scoparia</i> subsp. <i>scoparia</i> prickly woodruff	r -	<i>Asperula scoparia</i> subsp. <i>scoparia</i> is widespread in Tasmania, and is mainly found in native grasslands and grassy forests, often on fertile substrates such as dolerite-derived soils. Forested sites are usually dominated by <i>Eucalyptus globulus</i> and <i>E. viminalis</i> (lower elevations) and <i>E. delegatensis</i> (higher elevations).	Potential habitat absent (wet sclerophyll forest only).
<i>Austrostipa bigeniculata</i> doublejointed speargrass	r -	<i>Austrostipa bigeniculata</i> is found mainly in the southeast and Midlands in open woodlands and grasslands, where it is often associated with <i>Austrostipa nodosa</i> .	Potential habitat absent (wet sclerophyll forest only).
<i>Caladenia caudata</i> tailed spider-orchid	v VU #	<i>Caladenia caudata</i> has highly variable habitat, which includes the central north: <i>Eucalyptus obliqua</i> heathy forest on low undulating hills; the northeast: <i>E. globulus</i> grassy/heathy coastal forest, <i>E. amygdalina</i> heathy woodland and forest, <i>Allocasuarina</i> woodland; and the southeast: <i>E. amygdalina</i> forest and woodland on sandstone, coastal <i>E. viminalis</i> forest on deep sands. Substrates vary from dolerite to sandstone to granite, with soils ranging from deep windblown sands, sands derived from sandstone and well-developed clay loams developed from dolerite. A high degree of insolation is typical of many sites.	Potential habitat absent (wet sclerophyll forest only).

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
<i>Caladenia filamentosa</i> daddy longlegs	r -	<i>Caladenia filamentosa</i> occurs in lowland heathy and sedgy eucalypt forest and woodland on sandy soils.	Potential habitat absent (wet sclerophyll forest only).
<i>Colobanthus curtisiae</i> grassland cupflower	r VU # only	<i>Colobanthus curtisiae</i> occurs in lowland grasslands and grassy woodlands but is also prevalent on rocky outcrops and margins of forest on dolerite on the Central Highlands.	Potential habitat absent and this part of the State is not known to support the species.
<i>Comesperma defoliatum</i> leafless milkwort	r -	<i>Comesperma defoliatum</i> occurs in wet heathland/sedgeland, buttongrass moorland, coastal low scrub and on the crests of dunes. It has also been recorded from flat alkaline pans. The predominant substrates include peat, quartzite and sand.	Potential habitat absent (wet sclerophyll forest only).
<i>Corunastylis morrisii</i> bearded midge-orchid	e -	<i>Corunastylis morrisii</i> occurs in near-coastal lowland habitats in buttongrass moorland and sedgy open eucalypt woodland on moderately-drained sites, including raised clay pans in poorly drained peaty sedgeland. A site on mudstone at Kelleve occurs in <i>Eucalyptus amygdalina</i> forest with sparse shrubs on gently undulating terrain.	Potential habitat absent (wet sclerophyll forest only).
<i>Corunastylis nudiscapa</i> bare midge-orchid	e -	<i>Corunastylis nudiscapa</i> is restricted to a few sites in the area between Hobart and Kettering. It has been recorded from open forests and woodlands on mudstone and sandstone, dominated by <i>Eucalyptus tenuiramis</i> , and occasionally <i>E. obliqua</i> or <i>E. amygdalina</i> , with a heathy or grassy ground layer of varying density.	Potential habitat absent (wet sclerophyll forest only).
<i>Deyeuxia minor</i> small bentgrass	r -	<i>Deyeuxia minor</i> inhabits open eucalypt forests or the margins of wet sclerophyll forest in the southwest, south and northeast of the State.	Potential habitat present, mainly along road verges and in canopy gaps associated with the old tracks. This perennial grass was not detected (no seasonal constraint on detection and/or identification).
<i>Dianella amoena</i> grassland flaxlily	r EN # only	<i>Dianella amoena</i> occurs mainly in the northern and southern Midlands, where it grows in native grasslands and grassy woodlands.	Potential habitat absent (wet sclerophyll forest only).
<i>Dryopoa dives</i> giant mountaingrass	r -	<i>Dryopoa dives</i> occurs on Snug Plains in wet or damp sclerophyll forest, teatree scrub and sedgeland, often on the edge of animal or vehicular tracks. Typically, it occurs within clumps of <i>Gahnia grandis</i> (cutting grass) in the ecotone between heathy moorlands and damp sclerophyll forest. Some occurrences are associated with old sawmill sites.	Potential habitat absent (wholly atypical of the only known sites higher on Snug Tiers).
<i>Epacris virgata</i> Kettering pretty heath	v -	<i>Epacris virgata</i> (Kettering) occurs among foothills in southeastern Tasmania in dry sclerophyll forest on hilly terrain at elevations of	Potential habitat absent (wet sclerophyll forest only). CofA (2020) refers to <i>Epacris virgata</i> as the "Dan Hill heath" assigning a status

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
		10-300 m a.s.l., mainly on dolerite, though sometimes close to the geological boundary of dolerite and Permian mudstone. It is generally associated with grassy/heathy <i>Eucalyptus ovata</i> woodland/forest, but is also occasionally found in grassy/heathy <i>E. pulchella</i> woodland/forest.	of EN to the taxon. This refers to the northern Tasmanian entity only.
<i>Juncus amabilis</i> gentle rush	r -	<i>Juncus amabilis</i> occurs in a variety of habitats, usually poorly-drained sites such as damp grasslands and grassy woodlands, wet pastures, roadside ditches and edges of still and slow-flowing waterbodies. As presently understood, the species is mainly confined to lowland areas in the eastern half of the State but there are potential higher elevation and more western records that require confirmation.	Potential habitat marginally present (in so far as this species has been recorded from a wide range of disturbed habitats). This perennial graminoid was not detected (no seasonal constraint on detection and/or identification).
<i>Lepidium hyssopifolium</i> soft peppergrass	e EN # only	The native habitat of <i>Lepidium hyssopifolium</i> is the growth suppression zone beneath large trees in grassy woodlands and grasslands (e.g. over-mature black wattles and isolated eucalypts in rough pasture). <i>Lepidium hyssopifolium</i> is now found primarily under large exotic trees on roadsides and home yards on farms. It occurs in the eastern part of Tasmania between sea-level to 500 m a.s.l. in dry, warm and fertile areas on flat ground on weakly acid to alkaline soils derived from a range of rock types.	Potential habitat absent (wet sclerophyll forest only).
<i>Lepidosperma tortuosum</i> twisting rapier sedge	r -	<i>Lepidosperma tortuosum</i> occurs in heathland and heathy woodland, in lowland sites, mainly in eastern parts of the State. It often occurs in the sedgier (peatier) parts of dry heathland. It can occur on a range of substrates.	Potential habitat absent (wet sclerophyll forest only).
<i>Prasophyllum amoenum</i> dainty leek-orchid	v EN #	<i>Prasophyllum amoenum</i> has been recorded from Snug Tiers and Mt Wellington. At Snug Tiers the species occurs in sedgy buttongrass moorland and heath, and also in openings in eucalypt woodland and scrub on damp stony loam. On Mt Wellington the species is found in and near cushion plants in alpine moorland.	Potential habitat absent (wet sclerophyll forest only).
<i>Prasophyllum apoxychilum</i> tapered leek-orchid	v EN # only	<i>Prasophyllum apoxychilum</i> is restricted to eastern and northeastern Tasmania where it occurs in coastal heathland or grassy and scrubby open eucalypt forest on sandy and clay loams, often among rocks. It occurs at a range of elevations and seems to be strongly associated with dolerite in the east and southeast of its range.	Potential habitat absent (wet sclerophyll forest only).

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
<i>Pterostylis atriola</i> snug greenhood	r -	<i>Pterostylis atriola</i> occurs in the north and east of Tasmania on generally stony soil in dry to damp sclerophyll forest, typically with an open understorey. The species occurs at a range of elevations but is most strongly associated with winter cold sites (e.g. Snug Tiers) or areas receiving a moderately consistent rainfall (e.g. Wielangta, Railton).	Potential habitat absent (wet sclerophyll forest only).
<i>Pterostylis squamata</i> ruddy greenhood	v -	<i>Pterostylis squamata</i> occurs in heathy and grassy open eucalypt forest, woodland and heathland on well-drained sandy and clay loams.	Potential habitat absent (wet sclerophyll forest only).
<i>Pterostylis ziegeleri</i> grassland greenhood	v VU # only	<i>Pterostylis ziegeleri</i> occurs in the State's south, east and north, with an outlying occurrence in the northwest. In coastal areas, the species occurs on the slopes of low stabilised sand dunes and in grassy dune swales, while in the Midlands it grows in native grassland or grassy woodland on well-drained clay loams derived from basalt.	Potential habitat absent (wet sclerophyll forest only).
<i>Thelymitra bracteata</i> leafy sun-orchid	e -	<i>Thelymitra bracteata</i> is known from two sites in southern Tasmania: Rosny Hill and Coningham. It grows in open grassy and heathy forest/woodland on mudstone and sandstone.	Potential habitat absent (wet sclerophyll forest only).
<i>Thelymitra jonesii</i> skyblue sun-orchid	e EN # only	<i>Thelymitra jonesii</i> occurs in moist coastal heath on sandy to peaty soils and in <i>Eucalyptus obliqua</i> forest in deep loam soil over dolerite.	Potential habitat absent (wet sclerophyll forest only).
<i>Westringia angustifolia</i> narrowleaf westringia	r -	<i>Westringia angustifolia</i> occurs mainly in mid elevations, always on dolerite (but can be close to dolerite-sediment contact zones), in dry to wet sclerophyll forest on broad ridges, slopes and dense riparian shrubberies.	Potential habitat present along Snug Rivulet. This shrub was not detected (no seasonal constraint on detection and/or identification).
<i>Xerochrysum palustre</i> swamp everlasting	v VU # only	<i>Xerochrysum palustre</i> has a scattered distribution with populations in the northeast, east coast, Central Highlands and Midlands, all below about 700 m elevation. It occurs in wetlands, grassy to sedgy wet heathlands and extends to associated heathy <i>Eucalyptus ovata</i> woodlands. Sites are usually inundated for part of the year.	Potential habitat absent (wet sclerophyll forest only).

APPENDIX D. Analysis of database records of threatened fauna

Table D1 provides a listing of threatened fauna from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Table D1. Threatened fauna records from 5,000 m of boundary of the study area

Species listed below are listed as rare (r), vulnerable (v), endangered (e), or extinct (x) on the Tasmanian *Threatened Species Protection Act 1995* (TSPA); vulnerable (VU), endangered (EN), critically endangered (CR) or extinct (EX) on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). Information below is sourced from the DPIPW's *Natural Values Atlas* (DPIPWE 2020), Bryant & Jackson (1999) and FPA (2020); marine, wholly pelagic and littoral species such as marine mammals, fish and offshore seabirds are excluded. Species marked with # are listed in CofA (2020).

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
<i>Accipiter novaehollandiae</i> grey goshawk	e -	Potential habitat is native forest with mature elements below 600 m altitude, particularly along watercourses. Significant habitat may be summarised as areas of wet forest, rainforest and damp forest patches in dry forest, with a relatively closed mature canopy, low stem density, and open understorey in close proximity to foraging habitat and a freshwater body (i.e. stream, river, lake, swamp, etc.).	Potential habitat present. The species may occasionally utilise the greater study area as part of a home range and for foraging but small-scale development essentially within the existing cleared area and its immediate fringes should not have a significant impact on this aspect of the life history of the species.
<i>Alcedo azurea</i> subsp. <i>diemenensis</i> Tasmanian azure kingfisher	v EN # only	Potential habitat comprises potential foraging habitat and potential breeding habitat. Potential foraging habitat is primarily freshwater (occasionally estuarine) waterbodies such as large rivers and streams with well-developed overhanging vegetation suitable for perching and water deep enough for dive-feeding. Potential breeding habitat is usually steep banks of large rivers (a breeding site is a hole (burrow) drilled in the bank).	Potential habitat absent. Snug Rivulet is not suitable for the species (flood-prone river with shallow pools and rocky banks). Listed in CofA (2020) as <i>Ceyx azureus</i> subsp. <i>diemenensis</i>
<i>Antipodia chaostola</i> tax. <i>leucophaea</i> chaostola skipper	e EN #	Potential habitat is dry forest and woodland supporting <i>Gahnia radula</i> (usually on sandstone and other sedimentary rock types) or <i>Gahnia microstachya</i> (usually on granite-based substrates).	Potential habitat absent (both <i>Gahnia</i> species not present).
<i>Apus pacificus</i> fork-tailed swift	- - # only	Occasional non-breeding migrant to Tasmania only.	Potential habitat present. However, as this species rarely lands or roosts (and does not breed) on the Australian migration, any proposal should not have a deleterious impact on the species. Further consideration of this species should not be required.
<i>Aquila audax</i> subsp. <i>fleayi</i> tasmanian wedge-tailed eagle	e EN #	Potential habitat comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is a wide variety of forest (including areas	Potential nesting habitat absent (generally even-aged regrowth-structured forest). No known nests within 1,000 m of study area.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
		subject to native forest silviculture) and non-forest habitats. Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest. Nest trees are usually amongst the largest in a locality. They are generally in sheltered positions on leeward slopes, between the lower and mid sections of a slope and with the top of the tree usually lower than the ground level of the top of the ridge, although in some parts of the State topographic shelter is not always a significant factor (e.g. parts of the northwest and Central Highlands). Nests are usually not constructed close to sources of disturbance and nests close to disturbance are less productive. More than one nest may occur within a territory but only one is used for breeding in any one year. Breeding failure often promotes a change of nest in the next year.	The species may occasionally utilise the greater study area as part of a home range and for foraging but small-scale development essentially within the existing cleared area and its immediate fringes should not have a significant impact on this aspect of the life history of the species.
<i>Botaurus poiciloptilus</i> australasian bittern	- EN # only	Potential habitat is comprised of wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds (e.g. <i>Phragmites</i>, <i>Cyperus</i>, <i>Eleocharis</i>, <i>Juncus</i>, <i>Typha</i>, <i>Baumea</i>, <i>Bolboschoenus</i>) or cutting grass (<i>Gahnia</i>) growing over a muddy or peaty substrate (TSSC 2011).	Potential habitat absent.
<i>Dasyurus maculatus</i> subsp. <i>maculatus</i> spotted-tailed quoll	r VU #	Potential habitat is coastal scrub, riparian areas, rainforest, wet forest, damp forest, dry forest and blackwood swamp forest (mature and regrowth), particularly where structurally complex and steep rocky areas are present, and includes remnant patches in cleared agricultural land.	Potential habitat widespread. No evidence (e.g. scats, dens) of the species was observed. The species may occasionally utilise the greater study area as part of a home range and for foraging but small-scale development essentially within the existing cleared area and its immediate fringes should not have a significant impact on this aspect of the life history of the species. In fact, maintaining the existing clearing may actively benefit the species by promoting prey (e.g. grazing mammals, etc.).
<i>Dasyurus viverrinus</i> eastern quoll	- EN #	Potential habitat is a variety of habitats including rainforest, heathland, alpine areas and scrub. However, it seems to prefer dry forest and native grassland mosaics which are bounded by agricultural land.	Refer to comments under spotted-tailed quoll.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
<i>Haliaeetus leucogaster</i> white-bellied sea-eagle	v -	Potential habitat comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is any large waterbody (including sea coasts, estuaries, wide rivers, lakes, impoundments and even large farm dams) supporting prey items (fish). Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest within 5 km of the coast (nearest coast including shores, bays, inlets and peninsulas), large rivers (class 1), lakes or complexes of large farm dams. Scattered trees along river banks or pasture land may also be used.	See comments under wedge-tailed eagle.
<i>Hirundapus caudacutus</i> white-throated needletail	- VU #	This species is mostly aerial, from heights of less than 1 m up to more than 1,000 m above the ground. Although they occur over most types of habitat, they are recorded most often above wooded areas, including open forest and rainforest.	Potential habitat present. However, as this species rarely lands or roosts (and does not breed) on the Australian migration, any proposal should not have a deleterious impact on the species. Further consideration of this species should not be required.
<i>Lathamus discolor</i> swift parrot	e CR #	Potential habitat comprises potential foraging habitat and potential nesting habitat. Potential foraging habitat comprises <i>Eucalyptus globulus</i> (blue gum) or <i>Eucalyptus ovata</i> (black gum) trees that are old enough to flower. For management purposes, potential nesting habitat is considered to comprise eucalypt forests that contain hollow-bearing trees.	Refer to FINDINGS Threatened fauna <u>Threatened fauna species potentially present (database analysis)</u> for more details.
<i>Lissotes menalcas</i> Mt Mangana stag beetle	v -	Potential habitat is any eucalypt forest that contains rotting logs (often numerous, and usually greater than about 40 cm diameter at mid-log length) below about 650 m a.s.l. (generally moist habitats that have not been subject to high intensity or frequent fires in about the last 20 years). The species has a patchy distribution within areas of potential habitat.	Refer to FINDINGS Threatened fauna <u>Threatened fauna species potentially present (database analysis)</u> for more details.
<i>Litoria raniformis</i> green and golden frog	v VU	Potential habitat is permanent and temporary waterbodies, usually with vegetation in or around them. Potential habitat includes features such as natural lagoons, permanently or seasonally inundated swamps and wetlands, farm dams, irrigation channels, artificial water-holding sites such as old quarries, slow-flowing stretches of streams and rivers and drainage features.	Potential habitat absent (Snug Rivulet is not suitable habitat as a flood-prone rocky waterway).
<i>Myiagra cyanoleuca</i> satin flycatcher	- - # only	Potential habitat is variable but mainly eucalypt-dominated forests, with a stronger association with wetter forest gullies.	Potential habitat present. This is a spring-summer migrant that may occasionally utilise the greater study area for foraging. No sightings were made on the single day of assessment in November, which was

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
			undertaken outside the species' resident period in Tasmania. Small-scale development essentially within the existing cleared area and its immediate fringes should not have a significant impact on this species.
<i>Pardalotus quadragintus</i> forty-spotted pardalote	e EN #	Potential habitat is any forest and woodland supporting <i>E. viminalis</i> (white gum) where the canopy cover of <i>E. viminalis</i> is $\geq 10\%$ or where <i>E. viminalis</i> occurs as a localised canopy dominant or co-dominant in patches exceeding 0.25 ha.	Potential habitat absent. <i>Eucalyptus viminalis</i> is not present.
<i>Perameles gunnii</i> subsp. <i>gunnii</i> eastern barred bandicoot	- VU #	Potential habitat is open vegetation types including woodlands and open forests with a grassy understorey, native and exotic grasslands, particularly in landscapes with a mosaic of agricultural land and remnant bushland.	Potential habitat marginally present, although the species is not strongly associated with wetter forest types, except where there are natural and anthropogenic gaps that create open grassy areas. The species may occasionally utilise the greater study area as part of a home range and for foraging but small-scale development essentially within the existing cleared area and its immediate fringes should not have a significant impact on this aspect of the life history of the species. In fact, maintaining the grassy opening may actively benefit this species.
<i>Prototroctes maraena</i> Australian grayling	v VU #	Potential habitat is all streams and rivers in their lower to middle reaches. Areas above permanent barriers (e.g. Prosser River dam, weirs) that prevent fish migration, are not potential habitat.	Potential habitat probably absent. The species is not known from Snug Rivulet and it is presumed that upstream movement to this part of the catchment is highly unlikely.
<i>Pseudemoia pagenstecheri</i> tussock skink	v -	Potential habitat is grassland and grassy woodland (including rough pasture with paddock trees), generally with a greater than 20% cover of native grass species, especially where medium to tall tussocks are present.	Potential habitat absent. There are no areas with greater than 20% cover of tussock-forming grass species present.
<i>Sarcophilus harrisii</i> tasmanian devil	e EN #	Potential habitat is all terrestrial native habitats, forestry plantations and pasture. Devils require shelter (e.g. dense vegetation, hollow logs, burrows or caves) and hunting habitat (open understorey mixed with patches of dense vegetation) within their home range (427 km ²). Significant habitat is a patch of potential denning habitat where three or more entrances (large enough for a devil to pass through) may be found within 100 m of one another, and where no other potential denning habitat with three or more entrances may be found within a 1 km radius, being the approximate area of the smallest recorded devil home range. Potential denning habitat is areas of burrowable, well-drained soil, log piles or sheltered overhangs such	Refer to comments under spotted-tailed quoll.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
		as cliffs, rocky outcrops, knolls, caves and earth banks, free from risk of inundation and with at least one entrance through which a devil could pass.	
<i>Tyto novaehollandiae</i> subsp. <i>castanops</i> masked owl	e VU #	Potential habitat is all areas with trees with large hollows (≥ 15 cm entrance diameter). Remnants and paddock trees (in any dry or wet forest type) in agricultural areas may constitute potential habitat. Significant habitat is any areas within the core range of native dry forest with trees over 100 cm dbh with large hollows (≥ 15 cm entrance diameter).	Potential nesting habitat absent (large trees with large hollows are absent from the study area). The species may occasionally utilise the greater study area as part of a home range and for foraging but small-scale development essentially within the existing cleared area and its immediate fringes should not have a significant impact on this aspect of the life history of the species. In fact, the existing cleared area is likely to provide an ideal foraging site for the masked owl (e.g. potential prey present such as rabbits, pademelons, potoroos and bandicoots).

APPENDIX E. DPIPWE's *Natural Values Atlas* report for the study area

Appended as pdf file.

APPENDIX F. Forest Practices Authority's *Biodiversity Values Atlas* report for the study area

Appended as pdf file.

APPENDIX G. CofA's *Protected Matters* report for the study area

Appended as pdf file.

ATTACHMENT

- .shp file of revised vegetation mapping