

NATURAL VALUES ASSESSMENT OF 4260 MEANDER VALLEY ROAD (PID 6275320; C.T. 12/6765; LPI GVV15), DELORAINE, TASMANIA



Environmental Consulting Options Tasmania (ECOtas) for
Department of Justice

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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.

Note that any reference to the Department of Primary Industries, Parks, Water & Environment (DPIPWE) now refers to the Department of Natural Resources and Environment Tasmania.

COVER ILLUSTRATION

View into existing facility from Meander Valley Road.

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

CONTENTS	
SUMMARY.....	1
INTRODUCTION.....	5
Purpose	5
Scope	5
Limitations	5
Permit.....	6
LAND USE PROPOSAL.....	6
STUDY AREA	6
Overview.....	6
Other site features	7
METHODS.....	16
Nomenclature	16
Preliminary investigation	16
Field assessment.....	16
Vegetation classification	17
Threatened flora	17
Threatened fauna.....	17
Individual trees.....	17
Weed and hygiene issues	17
FINDINGS.....	18
Vegetation types	18
Comments on TASVEG mapping.....	18
Vegetation types recorded as part of the present study.....	18
Conservation significance of identified mapping units.....	18
Plant species.....	22
General information.....	22
Threatened flora	22
Threatened fauna.....	24
Other natural values.....	29
Individual trees.....	29
Weed species.....	29
Rootrot pathogen, <i>Phytophthora cinnamomi</i>	31

Myrtle wilt	31
Myrtle rust	32
Additional “Matters of National Environmental Significance” – Threatened Ecological Communities	32
DISCUSSION.....	32
Summary of key findings.....	32
Legislative and policy implications	33
Recommendations.....	38
REFERENCES.....	39
APPENDIX A. Descriptions of study area	41
APPENDIX B. Vascular plant species recorded from study area	43
APPENDIX C. Analysis of database records of threatened flora.....	46
APPENDIX D. Analysis of database records of threatened fauna	49
APPENDIX E. DNRET’s <i>Natural Values Atlas</i> report for the study area	54
APPENDIX F. Forest Practices Authority’s <i>Biodiversity Values Atlas</i> report for the study area	54
APPENDIX G. CofA’s <i>Protected Matters</i> report for the study area	54
ATTACHMENTS	54
APPENDIX H. Meander Valley Road (Alverston Drive to Exton Road).....	55

SUMMARY

General

The Tasmanian Department of Justice engaged Environmental Consulting Options Tasmania (ECOtas) to undertake a natural values assessment of 4260 Meander Valley Road (PID 6275320; C.T. 12/6765; LPI GVW15), Deloraine, Tasmania (Figures 1-3), primarily to ensure that the requirements of the identified natural values are appropriately considered during any further project planning under local, State and Commonwealth government approval protocols.

Site assessment

A natural values assessment of the study area was undertaken by Mark Wapstra (ECOtas) on 19 Oct. 2022.

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.
- Potential habitat is present (to varying degrees of marginality) for the following listed species:
 - *Sarcophilus harrisii* (Tasmanian devil);
 - *Dasyurus maculatus* subsp. *maculatus* (spotted-tailed quoll);
 - *Dasyurus viverrinus* (eastern quoll);
 - *Perameles gunnii* subsp. *gunnii* (eastern barred bandicoot);
 - *Litoria raniformis* (green and golden frog, growling grass frog);
 - *Tyto novaehollandiae* subsp. *castanops* (Tasmanian masked owl);
 - *Lathamus discolor* (swift parrot); and
 - *Aquila audax* subsp. *fleayi* (Tasmanian wedge-tailed eagle).
- The study area does not **meet the intent of “significant habitat for a threatened fauna species”, at any reasonable scale or interpretation of the concept, pursuant to the Natural Assets Code of the *Tasmanian Planning Scheme – Meander Valley*.**

Vegetation types

- The study area supports the following TASVEG mapping units:
 - urban areas (TASVEG code: FUR); and
 - agricultural land (TASVEG code: FAG).
- None of the identified mapping units equate to native vegetation communities listed as threatened ecological communities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
- None of the identified mapping units equate to native vegetation communities listed as threatened on Schedule 3A of the Tasmanian *Nature Conservation Act 2002*.
- None of the identified mapping units meet **the intent of "priority vegetation"** pursuant to the Natural Assets Code of the *Tasmanian Planning Scheme – Meander Valley*.

Weeds

- Two plant species classified as declared weeds within the meaning of the Tasmanian *Weed Management Act 1999 (Biosecurity Act 2019)* were detected from the study area, as follows:
 - *Rubus* spp. (blackberry species); and
 - *Salix* spp. (willow species).

Plant disease

- No evidence of *Phytophthora cinnamomi* (PC, rootrot) was observed within the study area (no susceptible species and/or vegetation communities).
- No evidence of myrtle wilt was recorded from within the study area (*Nothofagus cunninghamii* absent).
- No evidence of myrtle rust was recorded from within the study area (no susceptible species present).

Recommendations

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

Vegetation types

The site does not support any native vegetation communities – no special management recommended.

Threatened flora

The site does not support populations of threatened flora not significant potential habitat of such species – no special management recommended.

Threatened fauna

The site does not support populations of threatened flora not significant potential habitat of such species – no special management recommended.

Individual trees

No particular significance is assigned to any specific native trees – no special management recommended.

Weed and disease management

Limited management is recommended, noting that works will either maintain the status quo of weed distribution (by not modifying sites where they occur or result in any such weeds being eliminated from site). Any relevant weed management actions (such as documenting transport of potentially weed-**"contaminated" material off-site**) can be incorporated into an appropriate documents (such as a construction environmental management plan).

Legislative and policy implications

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

There should be no formal requirements for a referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA).

Development will require a planning permit pursuant to the provisions of the applicable planning scheme but specific permit conditions in relation to natural values to the Natural Assets Code of the *Tasmanian Planning Scheme – Meander Valley* are not recommended.

INTRODUCTION

Purpose

The Tasmanian Department of Justice engaged Environmental Consulting Options Tasmania (ECOtas) to undertake a natural values assessment of 4260 Meander Valley Road (PID 6275320; C.T. 12/6765; LPI GVW15), Deloraine, Tasmania (Figures 1-3), primarily to ensure that the requirements of the identified natural 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 natural 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 relevant Commonwealth agency (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 prepared to address specific provisions of the *Tasmanian Planning Scheme – Meander Valley*, with particular reference to the natural values/biodiversity provisions of the Natural Assets Code.

Limitations

The natural values assessment was undertaken on 19 Oct. 2022. 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.

Permit

Any plant material was collected under DNRET permit TFL 22382 (in the name of Mark Wapstra). Relevant data will be entered into **DNRET'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. A permit is not required to undertake the type of habitat-level assessment described herein.

LAND USE PROPOSAL

The site is proposed for the new northern **correctional** facility. At the time of assessment, a design was not provided, the assumption being made that **development could occur anywhere within the title's** boundaries (Figures 1-3), such that the whole of the study area was assessed.

STUDY AREA

Overview

The study area (Figures 1-3) comprises the subject title of 4260 Meander Valley Road, Deloraine, with the following details:

- PID 6275320;
- C.T. 12/6765;
- LPI GVW15.

Title is ca. 385,000 m² (ca. 38.5 ha) in extent (measured area as per LISTmap).

Land tenure and other categorisations relevant to natural values management of the study area are as follows:

- Meander Valley municipality, zoned as Community Purpose pursuant to the *Tasmanian Planning Scheme – Meander Valley* (Figure 4) and partly subject to the Waterway and Coastal Protection Area overlay (Figure 5), this associated with the now essentially anthropogenic drainage features (noting no part of the title is subject to the Priority Vegetation Area overlay); and
- Northern Slopes bioregion, according to the IBRA 7 bioregions used by most government agencies).

The study area is bound to the south by Meander Valley Road, to the north by a State Rail Network title (the Crown, TasRail), to the west by a Reserved Road title (with a private freehold title further to the west used for primary production) and to the east by a private freehold title, also used for primary production.

The study area is currently used as the Ashley Youth Detention Centre comprising several buildings contained within a fenced compound accessed by an existing sealed drive from Meander Valley Road (Plates 1 & 2) to a series of sealed car parks.



Plates 1 & 2. Existing entrance to the site from Meander Valley Road

Outside the secure compound are other buildings, mainly associated with primary production activities (Plates 3 & 4), which occur informally across the balance of the study area, which comprise lush pasture (Plates 5 & 6). The study area is fully fenced (standard stock grazing style fences) both externally and internally, with the paddocks serviced by a series of gravel/dirt farm roads (Plates 7 & 8).



Plates 3 & 4. Examples of buildings and infrastructure associated with primary production activities

Other site features

Topographically, the study area is gently undulating terrain with a rise in the approximate centre on which the current Ashley Youth Detention Centre is positioned (at ca. 250 m a.s.l.), with flatter terrain to the east (at ca. 240 m a.s.l.).



Plates 5 & 6. Examples of primary production pastures that dominate the study area, with good quality internal stock fencing and gates



Plates 7 & 8. Well-formed internal gravel and dirt farm tracks

The geology of the study area is wholly mapped (Figure 6) as Cretaceous-Neogene-aged “basalt” (geocode: Tb). The geology is mentioned because of its strong influence on vegetation classification, association with threatened flora, and to a lesser extent, threatened fauna. Site assessment confirmed that the study area is on fertile soils derived from basalt (the rich red-brown soils typical of this substrate, see Plate 8).

The study area includes three hydrographic lines (the “blue lines” of standard topographic and cadastral maps) shown as “drains”, all clearly anthropogenic in origin with their straight configuration between fenced paddocks and farm tracks. The Waterway and Coastal Protection Area overlay pursuant to the *Tasmanian Planning Scheme – Meander Valley* has been applied to these drainage features to varying widths (Figure 5) indicating different watercourse classes. A small pump-pond on the northern boundary is not subject to the overlay.



Plate 9. (LHS) Small pump-pond along northern boundary

Plate 10. (RHS) Example of typical anthropogenic drain between fenced paddocks

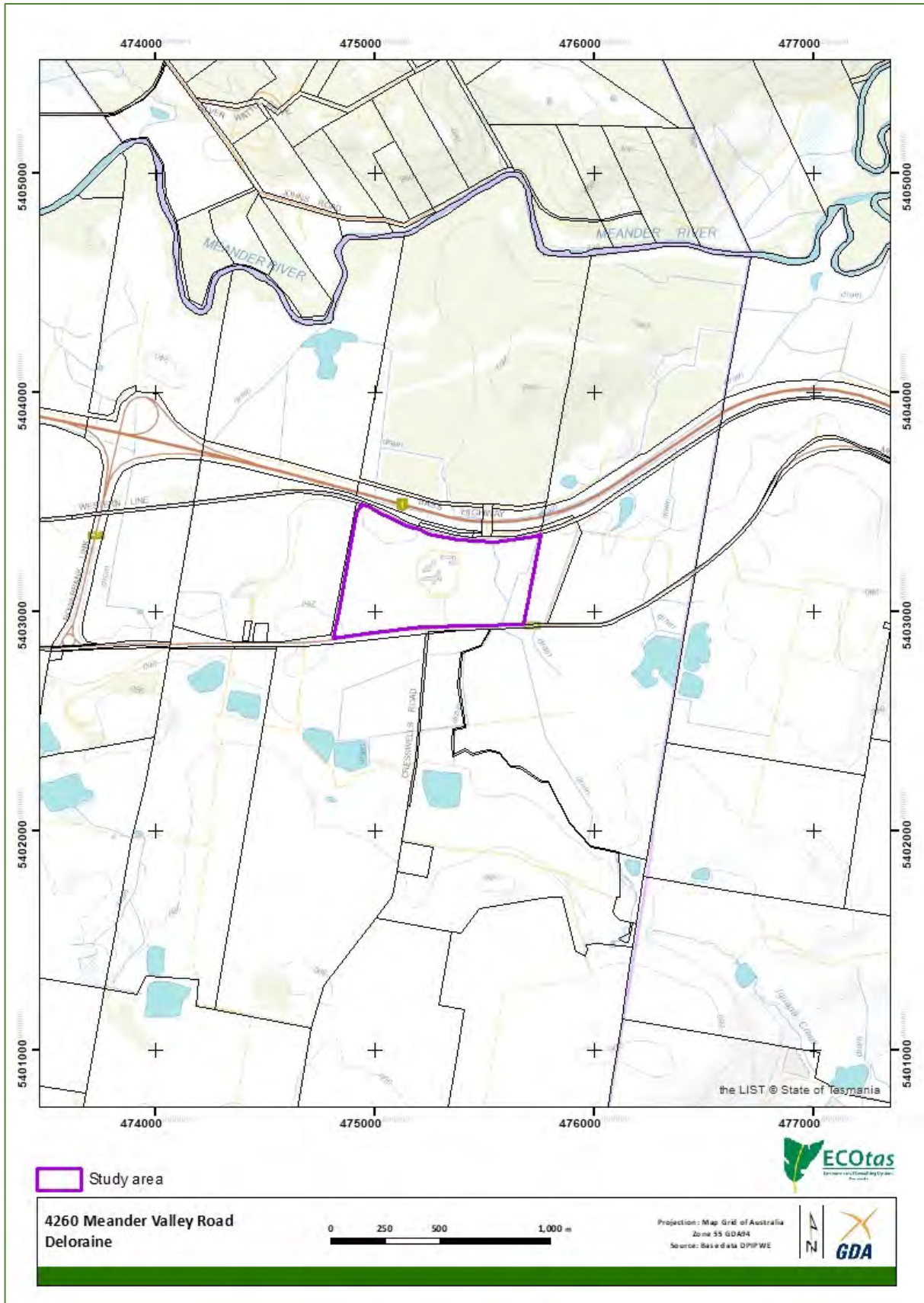


Figure 1. General location of study area

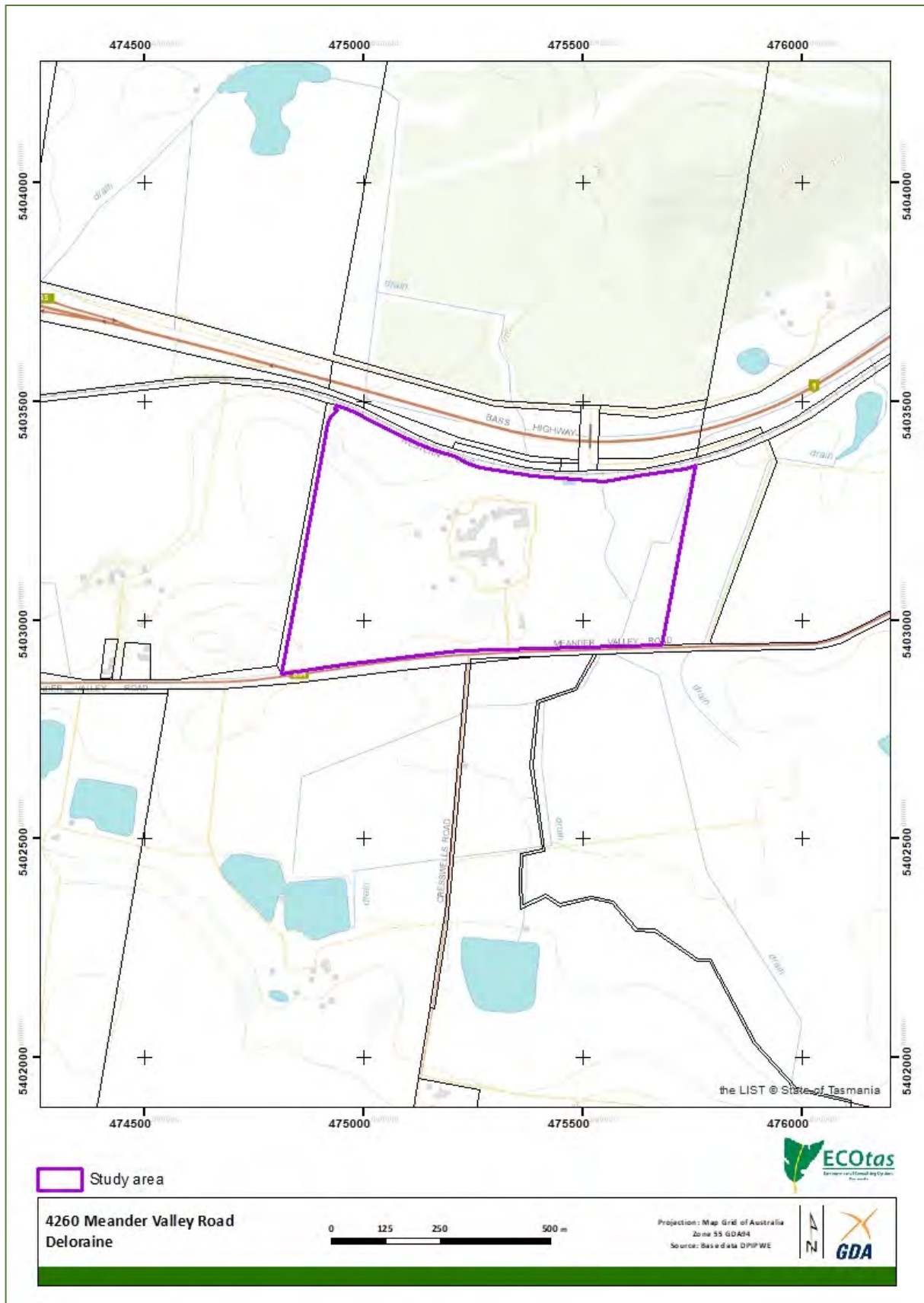


Figure 2. Detailed location of study area showing general topographic and cadastral features

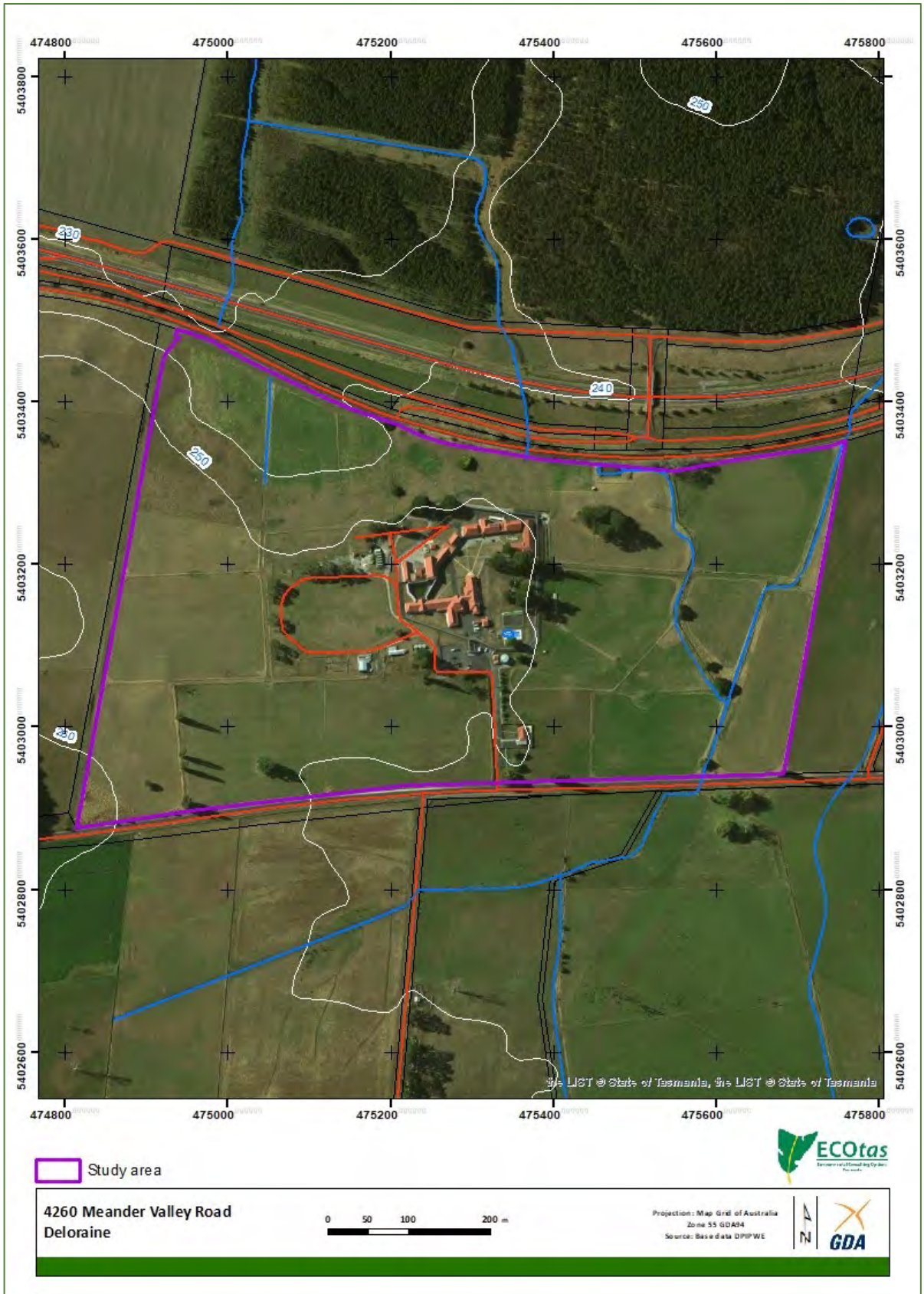


Figure 3. Detailed location of study area showing recent aerial imagery (LISTmap orthoimagery) and cadastral boundaries

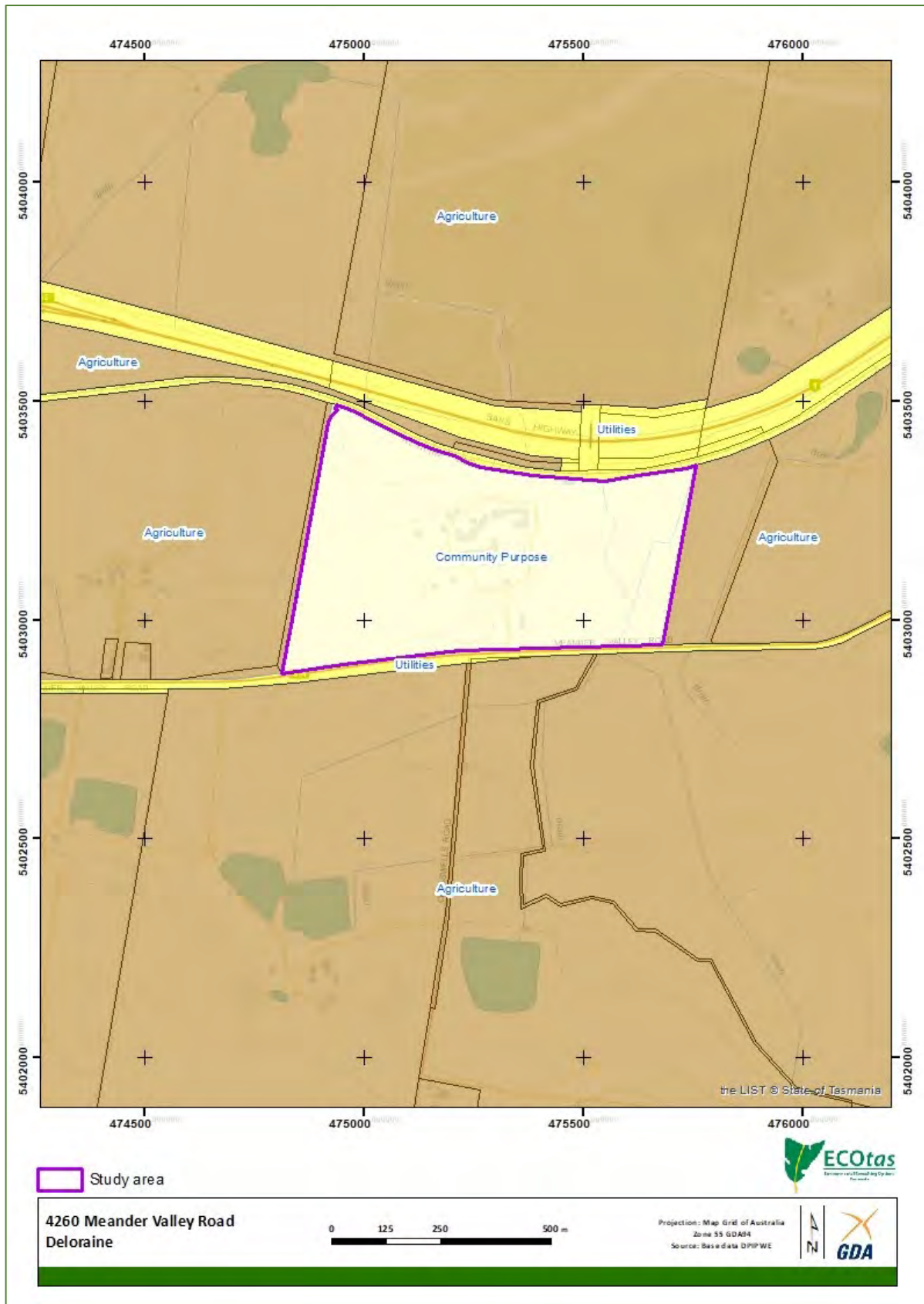


Figure 4. Zoning of study area and surrounds pursuant to the *Tasmanian Planning Scheme – Meander Valley*



Figure 5a. Extent of Waterway and Coastal Protection Area overlay within and adjacent to study area (overview) pursuant to the *Tasmanian Planning Scheme – Meander Valley*

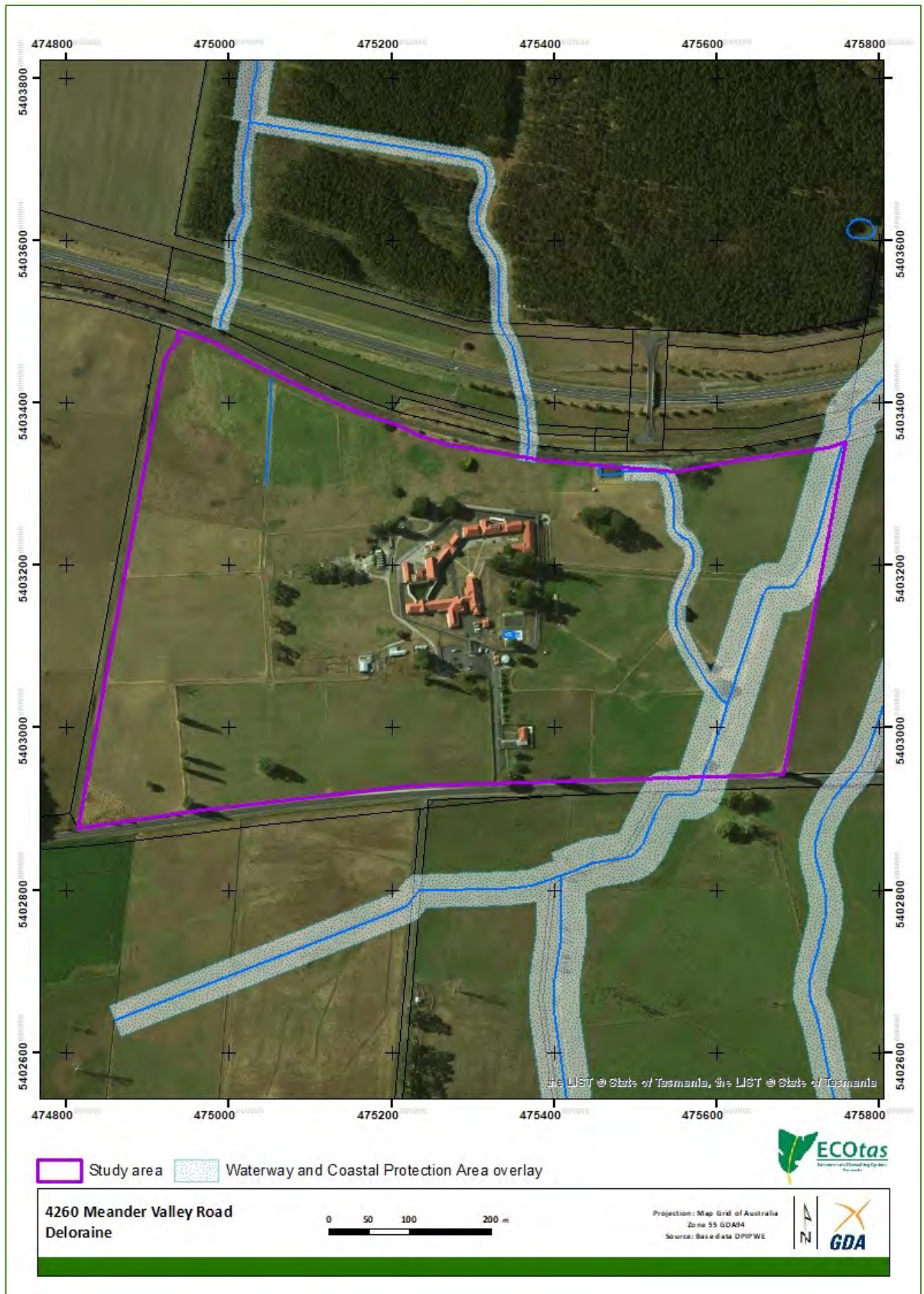


Figure 5b. Extent of Waterway and Coastal Protection Area overlay within and adjacent to study area (detail) pursuant to the *Tasmanian Planning Scheme – Meander Valley*

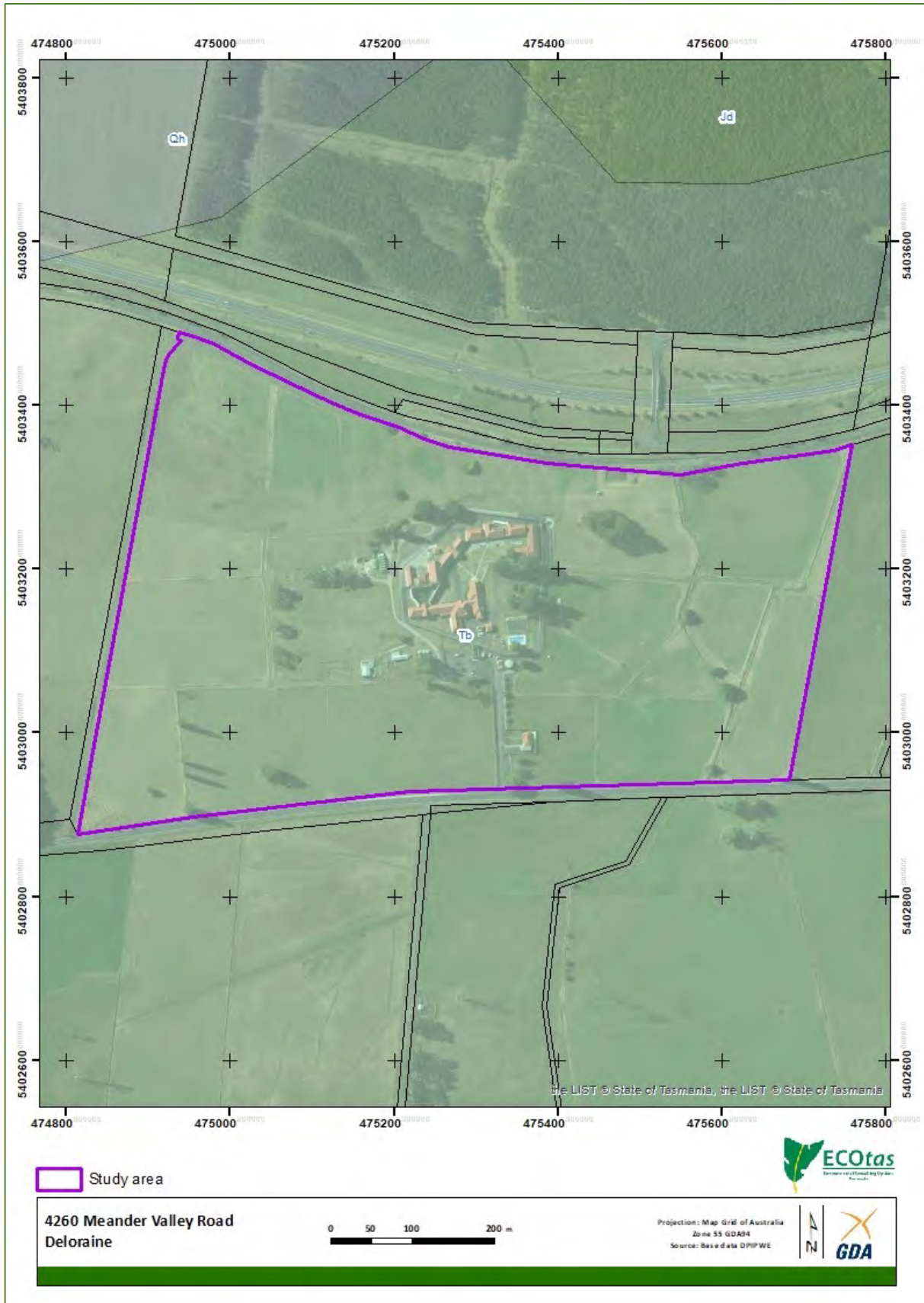


Figure 6. Geology of study area and surrounds (refer to text for code)

METHODS

Nomenclature

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

Vascular species nomenclature follows de Salas & Baker (2022) 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 (DNRET 2022a).

Vegetation classification follows TASVEG 4.0, 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 **Natural Resources and Environment Tasmania'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 Natural Resources and Environment Tasmania's** *Natural Values Atlas* report ECOtas_4260MeanderValleyRoad for a polygon defining the study area (centred on 475258mE 5403147mN), buffered by 5 km, dated 13 Nov. 2022 (DNRET 2022a) – Appendix E;
- **Forest Practices Authority's** *Biodiversity Values Database* report, specifically the species' information for grid reference centroid 475258mE 5403147mN (i.e. a point defining the approximate centre of the assessment area), buffered by 5 km and 2 km for threatened fauna and flora records, respectively, **hyperlinked species' profiles and predicted range boundary maps**, dated 13. Nov. 2022 (FPA 2022) – Appendix F;
- Commonwealth *Protected Matters Report* for a polygon defining the study area, buffered by 5 km, dated 13 Nov. 2022 (CofA 2022) – Appendix G;
- the TASVEG 3.0, TASVEG 4.0 & TASVEG Live vegetation coverages (as available through GIS coverage and via LISTmap);
- GoogleEarth, LISTmap and ESRI aerial orthoimagery; and
- other sources listed in tables and text as indicated.

Field assessment

The assessment was undertaken by Mark Wapstra (ECOtas) on 19 Oct. 2022. Cadastral data uploaded to the iGIS application guided the in-field assessment (although all boundaries fenced and well-defined). Meandering transects were used to capture the greater range of aspects, slopes and site conditions.

The survey was not limited by access due to the simple configuration of the study area, numerous access tracks and open paddocks.

All data was captured using hand-held GPS (Garmin Oregon 600).

Vegetation classification

Vegetation was classified by waypointing vegetation transitions for later comparison to aerial imagery. In this case, there were no native vegetation communities present such that recording and survey was simplified to compiling lists of vascular plant species observed.

Threatened flora

With reference to the threatened flora, the survey included consideration of the most likely habitats for such species. No threatened flora were encountered so further methods are not presented.

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, except as indicated below.

With specific reference to *Litoria raniformis* (green and golden frog, growling grass frog), the survey included staking out the pump-pond along the northern boundary for ca. 30 minutes between ca. 11.00-11.30 am in warm (ca. 20°C), still and sunny conditions listening and observing for evidence of the species, with periodic call playback through a speaker attached to an iPhone. Similar but less formal listening periods were undertaken at selected sites along the drains (as at track crossings where drains met or were culverted into ponds), where a silent period of 5 minutes after arrival was implemented followed by 5-10 minutes listening with occasional call playback.

Individual trees

All trees identified as indigenous to Tasmania within the study area were characterised by geolocating using the waypoint function on a hand-held GPS, identifying to species and measuring girth using a diameter tape (accurate to 1 cm).

Non-indigenous trees were not similarly characterised, although all individuals and copses were examined for evidence of use (e.g. nests, whitewash, pellets) by species such as the masked owl by use of binoculars and walking beneath and around each tree.

Weed and hygiene issues

The study area was 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).**

The study area was 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 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.

In this case, it is useful to examine TASVEG 3.0, 4.0 & Live mapping because while the latter two should be the most up-to-date, the former has been used to inform the *Tasmanian Planning Scheme* and specifically the **Regional Ecosystem Model's mapping of the Priority Vegetation Area** overlay (noting that this is not present on this site).

In this case, TASVEG 3.0, 4.0 & Live (Figure 7) all map the study area identically as agricultural land (TASVEG code: FAG). This recognises the long-term use of the site for primary production in the context of surrounding land use. While infrastructure such as buildings, sheds and roads associated with primary production activities are usually subsumed logically into the concept of FAG, in this case, the long-established use of the buildings as the Ashley Youth Detention Centre would be better mapped as another modified land mapping unit.

Vegetation types recorded as part of the present study

Vegetation types have been classified according to TASVEG 4.0, as described in *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation* (Kitchener & Harris 2013+). Table 1 provides information on the mapping units identified from the study area (Figure 8). Refer to Appendix A for annotated descriptions of the mapping units identified from the study area.

Conservation significance of identified mapping units

As mapping units within the modified land category, FUR & FAG do not equate threatened ecological communities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* or to native vegetation communities listed as threatened on Schedule 3A of the *Tasmanian Nature Conservation Act 2002*. As non-native mapping units, FUR & FAG cannot qualify as "**priority vegetation**" pursuant to the **Natural Assets Code of the *Tasmanian Planning Scheme – Meander Valley***, which is defined as follows:

C7.3 Definition of Terms

C7.3.1 In this code, unless the contrary intention appears:

means native vegetation where any of the following apply:

- (a) it forms an integral part of a threatened native vegetation community as prescribed under Schedule 3A of the *Nature Conservation Act 2002*...

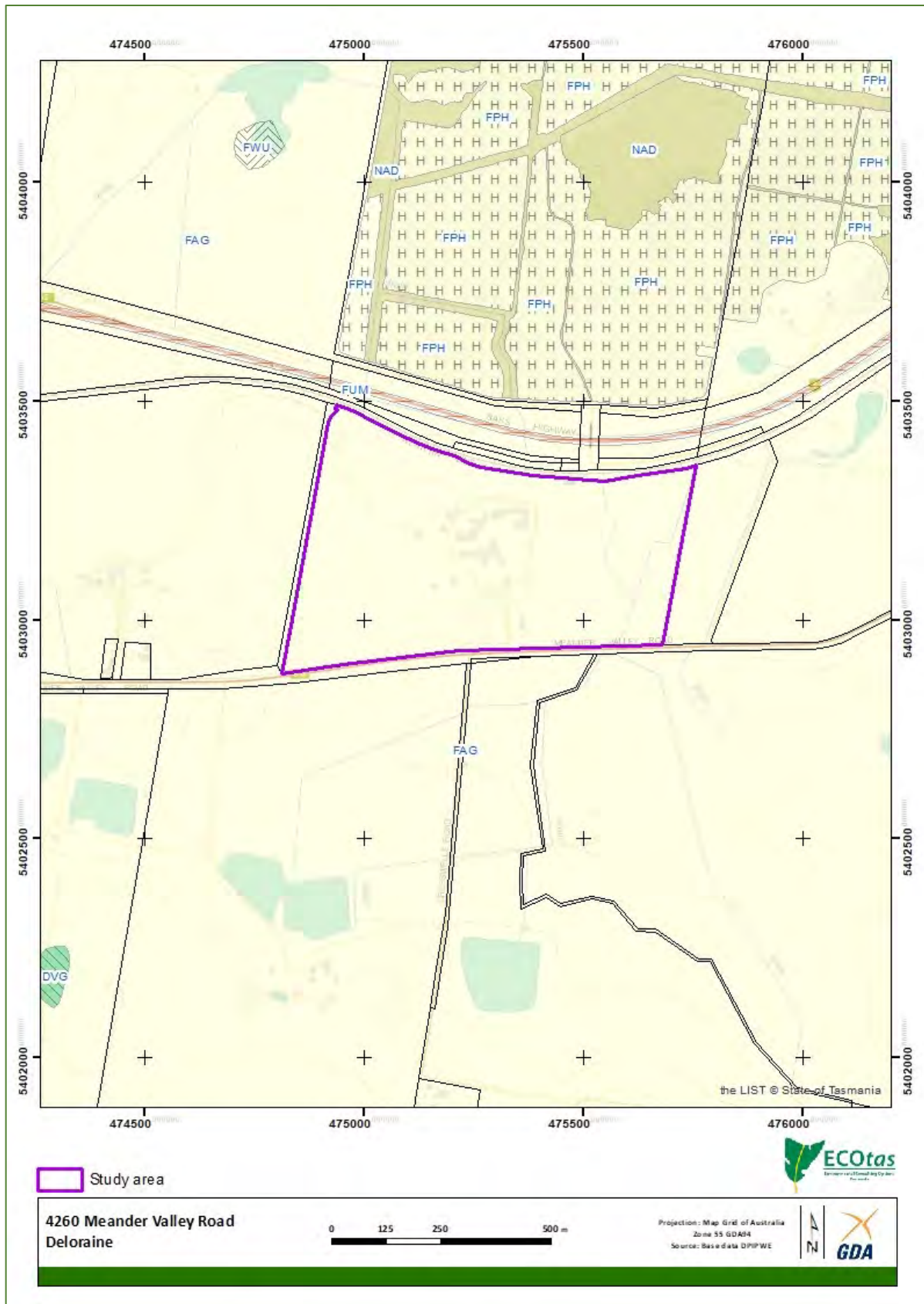


Figure 7a. Study area and surrounds (overview) showing existing TASVEG 4.0 vegetation mapping (see text for codes)

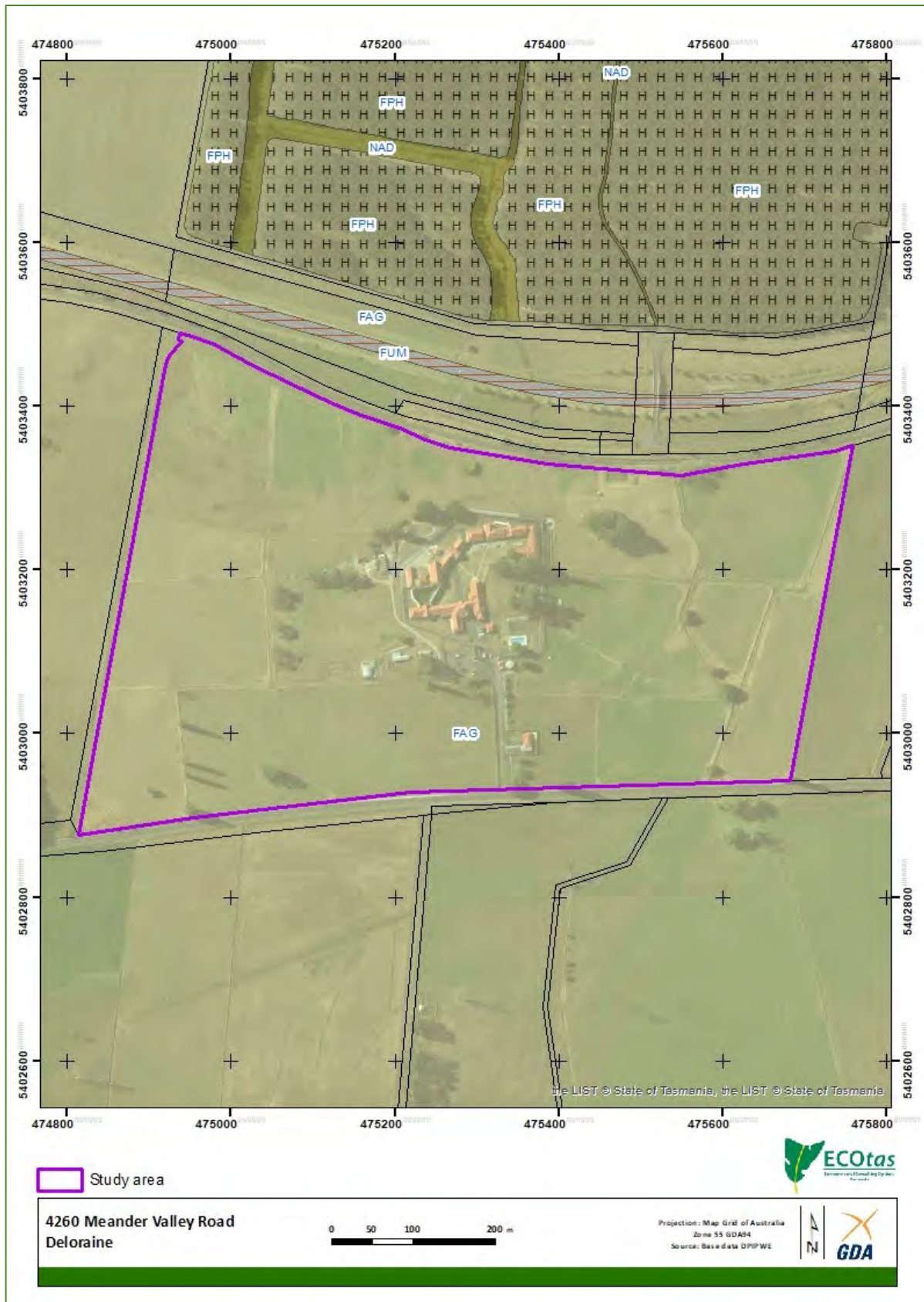


Figure 7b. Study area and surrounds (detail) showing existing TASVEG 4.0 vegetation mapping (see text for codes)



Figure 8. Revised vegetation mapping for study area (see text for codes)

Table 1. Vegetation mapping units present in study area

[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 (DNRET 2022b); 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 mapping unit (Kitchener & Harris 2013+)	Conservation priority NCA EPBCA	Comments
<i>Modified land</i>		
urban areas (FUR)	not threatened <i>not threatened</i>	The current Ashley Youth Detention Centre and associated car parks, houses and access are mapped as FUR, recognising that no part of this area is used for primary production or other uses.
agricultural land (FAG)	not threatened <i>not threatened</i>	The balance of the study area is mapped as FAG, recognising its long-term use as a production farm (with now less formal but continuing stock grazing occurring) with well-defined fenced boundaries, internally fenced paddocks and anthropogenic drains. The concept of FAG includes infrastructure associated with primary production including some buildings and clusters of buildings, as well as rows of trees (planted or remnant).

Plant species

General information

A total of 112 vascular plant species were recorded from the study area (Appendix B), comprising 72 dicotyledons (including 62 naturalised and 2 endemic species), 38 monocotyledons (including 34 naturalised species) and 2 gymnosperms (naturalised). The very high diversity of naturalised/introduced species is notable, reflecting the historical and contemporary land use, with native species restricted to a few scattered trees and ubiquitous herbs and grasses such as pioneer herbs that colonise anthropogenic habitats such as gravel tracks or robust perennial graminoids that occur in anthropogenic habitats such as drainage ditches.

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 negligible likelihood of species with a high priority for conservation management being present.

Threatened flora

Database information indicates that the study area does not support known populations of flora listed as threatened on the Tasmanian *Threatened Species Protection Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Protection Act 1999* (Figure 9).

Figure 9 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.

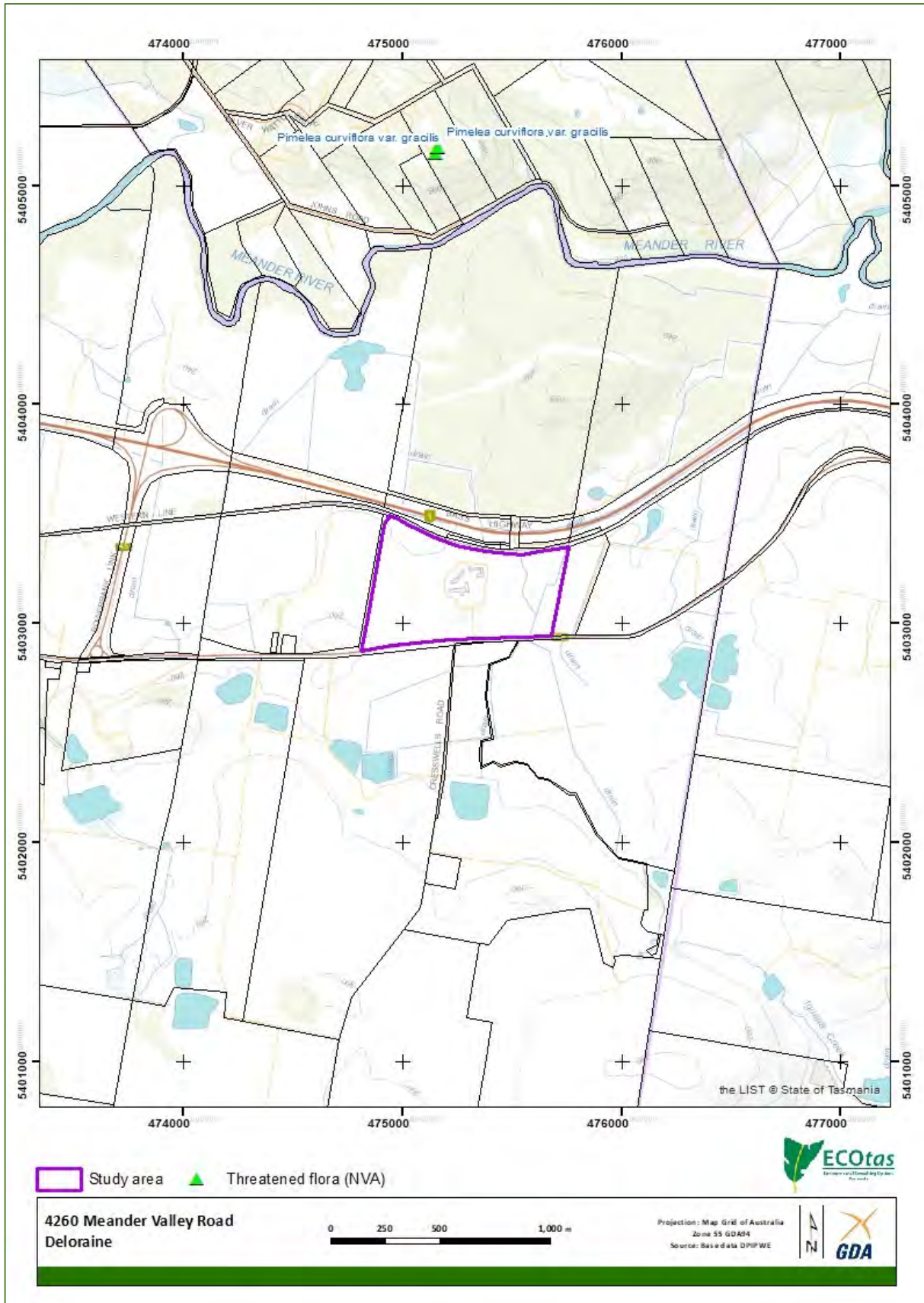


Figure 9. Distribution of threatened flora close to the study area (overview)

Threatened fauna

Database information indicates that the subject title does not support known populations of fauna listed as threatened on either the Tasmanian *Threatened Species Protection Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Protection Act 1999* (Figure 10a). Site assessment did not detect any such species.

Figure 10a 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.

Note that is a recorded nest of *Haliaeetus leucogaster* (white-bellied sea-eagle) along the Meander River but this is outside the notional 500 m or 1,000 m line-of-sight management zones often applied to such sites (Figure 10b). There is no modelled potential habitat within the notional 500 m or 1,000 m line-of-sight of the study area (Figure 10b).

Site assessment indicated that the study area 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) and *Aquila audax* (wedge-tailed eagle), simply because such species can occur in a wide range of habitats including highly modified sites. However, at no reasonable scale are the lush pastures, farm infrastructure and existing detention facility considered to be **“significant” for such species.**

The site supports remnant individuals of *Eucalyptus ovata* (black gum), a tree species identified as potential foraging habitat for *Lathamus discolor* (swift parrot). These trees are all quite small and restricted to a few fencelines and fringes of car parks (Figure 11). At no reasonable scale are such **scattered trees considered to comprise “significant habitat” for the species (refer to Appendix D for a more detailed review).**

In my opinion, no part of the study area **qualifies as “priority vegetation” because of the presence of “significant habitat for a threatened fauna species” within the intent of C7.3.1(c) of the Natural Assets Code of the Tasmanian Planning Scheme – Meander Valley, where “significant habitat” is defined under the Scheme as follows:**

“the habitat within the known or core range of a threatened fauna species, where any of the following applies:

- (a) is known to be of high priority for the maintenance of breeding populations throughout **the species’ range; or**
- (b) the conversion of it to non-priority vegetation is considered to result in a long-term **negative impact on breeding populations of the threatened fauna species”.**

Problematically, the *Scheme* **does not define the terms “known” or “core” range, which means this could rely on those used by other agencies such as the Forest Practices Authority and/or the Department of Natural Resources and Environment Tasmania, which are effectively presented in the relevant database reports (DNRET 2022a; FPA 2022).** While the study area is within the so-called **“known or core range” of some listed fauna species, in no manner can any part of the site be assigned as being of “high priority for the maintenance of breeding populations throughout the species’ range” at any reasonable scale (see Appendix D for a more detailed analysis of this) or be in any way construed as meeting the intent of a scenario in which “the conversion of it [i.e. “significant habitat”] to non-priority vegetation [could be] considered to result in a long-term negative impact on breeding populations of the threatened fauna species” (see also Appendix D for a more detailed analysis of this).**

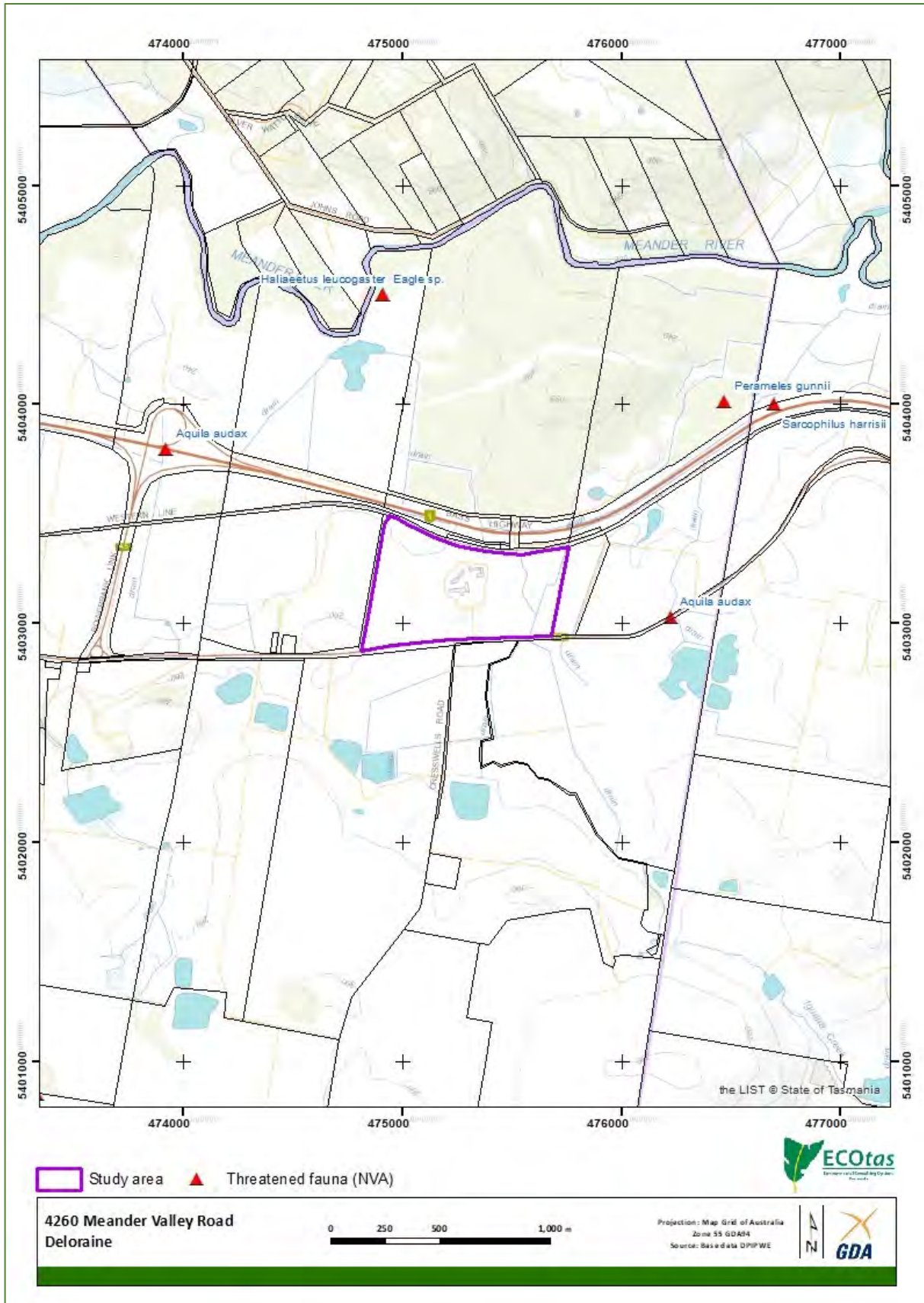


Figure 10a. Distribution of threatened fauna close to the study area (overview)



Figure 10b. Indicative modelled potential eagle nesting habitat showing RND #2682 (note distance between nest and northwest corner of study area is 1,010 m)



Figure 11a. Distribution of individual trees within study area (overview) – note all other trees shown on aerial imagery are exotic (numbers cross-reference to Table 2)



Figure 11b. Distribution of individual trees within study area (overview) – note all other trees shown on aerial imagery are exotic (numbers cross-reference to Table 2)

Other natural values

Individual trees

Most of the study area supports effectively no native vascular plant species. There are scattered native trees, some of which appear to be planted (based on species outside their normal range and/or seemingly planted in neat rows), mainly along fencelines (Figure 11, Table 2). Given the context of the site (primary production land in a wider similar setting), no particular significance is assigned to any particular tree, irrespective of species, noting none are hollow-bearing (and all many decades from forming hollows that would be suitable for a species such as the masked owl).

Table 2. Details of all native trees identified from study area (numbers cross-reference to Figure 11)

tree	easting	northing	species	DBH	notes
1	475292	5403048	<i>E. ovata</i>	82	
2	475055	5403084	<i>E. ovata</i>	75	
3	475054	5403098	<i>E. ovata</i>	86	
4	475054	5403125	<i>E. ovata</i>	83	
5	475053	5403129	<i>E. amygdalina</i>	44	
6	475052	5403160	<i>E. ovata</i>	85	
7	475054	5403171	<i>E. ovata</i>	65	
8	475050	5403174	<i>E. ovata</i>	62	
9	475055	5403172	<i>E. ovata</i>	41	
10	475053	5403174	<i>E. ovata</i>	67	
11	475089	5403192	<i>E. amygdalina</i>	96	
12	475100	5403196	<i>E. ovata</i>	58, 89	
13	475173	5403243	<i>E. pulchella</i>	53	planted
14	475172	5403245	<i>E. amygdalina</i>	56	planted
15	475180	5403248	<i>A. dealbata</i>	51	planted

Weed species

Two plant species classified as declared weeds within the meaning of the Tasmanian *Weed Management Act 1999 (Biosecurity Act 2019)* were detected from the study area, as follows (Figure 12):

- *Salix* spp. (willow species) – restricted to four localised sites associated with poorly-drained ground including the drains; and
- *Rubus* spp. (blackberry) – scattered to locally dense along fencelines/drains.



Figure 12. Distribution of declared weeds within study area

FINDINGS *Other natural values Weeds* continued...

Given that access to the site during construction will be from the sealed Meander Valley Road and works will occur on sites that are already modified (buildings and/or pasture), the risk of construction machinery and vehicles introducing weeds to the study area is considered low.

Longer-term special management (e.g. a complex weed management plan) is not considered warranted because works will either maintain the status quo of weed distribution (by not modifying sites where they occur or result in any such weeds being eliminated from site).

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
- DPIPWE (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 m 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 m 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/habitats identified from the study area are not recognised as being particularly susceptible to PC. Site assessment did not record any field symptoms (dead and/or dying susceptible plant species – none present). 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. 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).

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

CofA (2022) indicates that the following threatened ecological communities listed on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) are likely to occur within the area:

- Tasmanian Forests and Woodlands dominated by Black Gum or Brookers Gum (*Eucalyptus ovata* / *E. brookeriana*) [Critically Endangered]; and
- Tasmanian White Gum (*Eucalyptus viminalis*) Wet Forest [Critically Endangered].

Existing vegetation mapping (Figure 7) and revised vegetation mapping (Figure 8) indicates that these communities are not present within or adjacent to the study area i.e. there are no implications under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* in relation to threatened ecological communities.

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.
- Potential habitat is present (to varying degrees of marginality) for the following listed species:
 - *Sarcophilus harrisii* (Tasmanian devil);
 - *Dasyurus maculatus* subsp. *maculatus* (spotted-tailed quoll);
 - *Dasyurus viverrinus* (eastern quoll);

- *Perameles gunnii* subsp. *gunnii* (eastern barred bandicoot);
 - *Litoria raniformis* (green and golden frog, growling grass frog);
 - *Tyto novaehollandiae* subsp. *castanops* (Tasmanian masked owl);
 - *Lathamus discolor* (swift parrot); and
 - *Aquila audax* subsp. *fleayi* (Tasmanian wedge-tailed eagle).
- The study area does not **meet the intent of “significant habitat for a threatened fauna species”, at any reasonable scale or interpretation of the concept, pursuant to the Natural Assets Code of the *Tasmanian Planning Scheme – Meander Valley*.**

Vegetation types

- The study area supports the following TASVEG mapping units:
 - urban areas (TASVEG code: FUR); and
 - agricultural land (TASVEG code: FAG).
- None of the identified mapping units equate to native vegetation communities listed as threatened ecological communities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
- None of the identified mapping units equate to native vegetation communities listed as threatened on Schedule 3A of the *Tasmanian Nature Conservation Act 2002*.
- None **of the identified mapping units meet the intent of “priority vegetation” pursuant to the Natural Assets Code of the *Tasmanian Planning Scheme – Meander Valley*.**

Weeds

- Two plant species classified as declared weeds within the meaning of the *Tasmanian Weed Management Act 1999 (Biosecurity Act 2019)* were detected from the study area, as follows:
 - *Rubus* spp. (blackberry species); and
 - *Salix* spp. (willow species).

Plant disease

- No evidence of *Phytophthora cinnamomi* (PC, rootrot) was observed within the study area (no susceptible species and/or vegetation communities).
- No evidence of myrtle wilt was recorded from within the study area (*Nothofagus cunninghamii* absent).
- No evidence of myrtle rust was recorded from within the study area (no susceptible species present).

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 Conservation Assessments, Department of Natural Resources and Environment Tasmania, through a formal application process.**

In the absence of an identifiable known location of a specimen of a threatened fauna or flora species from the area proposed for development, the Act has no application. The Act does not make **reference to the clearance or disturbance of “potential habitat”.**

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 relevant Commonwealth agency 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 (CofA 2013), 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".

When considering whether or not an action is likely to have a significant impact on a matter of national environmental significance it is relevant to consider all adverse impacts which result from the action, including indirect and offsite impacts. Indirect and offsite impacts include:

- a. 'downstream' or 'downwind' impacts, such as impacts on wetlands or ocean reefs from sediment, fertilisers or chemicals which are washed or discharged into river systems;
- b. 'upstream impacts' such as impacts associated with the extraction of raw materials and other inputs which are used to undertake the action; and
- c. 'facilitated impacts' which result from further actions (including actions by third parties) which are made possible or facilitated by the action.

For example, the construction of a dam for irrigation water facilitates the use of that water by irrigators with associated impacts. Likewise, the construction of basic infrastructure in a previously undeveloped area may, in certain circumstances, facilitate the urban or commercial development of that area.

Consideration should be given to all adverse impacts that could reasonably be predicted to follow from the action, whether these impacts are within the control of the person proposing to take the action or not. Indirect impacts will be relevant where they are sufficiently close to the proposed action to be said to be a consequence of the action, and they can reasonably be imputed to be within the contemplation of the person proposing to take the action.

Listed ecological communities

The study area does not support any such communities.

Threatened flora

The study area does not support any such species, nor potential habitat of such species (except in a very general sense).

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 and eastern barred bandicoot (simply because these species can occur in a wide range of habitats from highly modified to natural), although no specific evidence such as scats, diggings or dens were noted. Note that the study area is within the range of several other species listed on the Act but it is unlikely that the proposal will result in a significant impact on these species (this includes wide-ranging species such as the wedge-tailed eagle and masked owl but also those with potential habitat but no recorded occurrences such as the swift parrot).

The relevant Commonwealth agency provides a *Significant Impact Guidelines* policy statement (CofA 2013) to determine if referral to the department is required. 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 (unlikely to be the case); reduce the area of occupancy of an important population (also unlikely at any reasonable scale); fragment an existing important population into two or more populations (minor habitat loss will occur but not such that fragmentation will result); adversely affect habitat critical to the survival of a species (“critical habitat” has not been defined per se); disrupt the breeding cycle of an important population (unlikely); modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline (this seems unlikely – see previous commentary); result in invasive species that are harmful to a threatened species becoming established in the threatened species’ habitat (unlikely); introduce disease that may cause the species to decline (unlikely to introduce and/or exacerbate Devil Facial Tumour Disease); or interfere substantially with the recovery of the species (unlikely at any reasonable scale).**

On this initial review of the *Guidelines*, it seems unlikely that as proposal that includes modification of existing pasture, primary production infrastructure and a detention facility will result in the need for a referral.

Tasmanian Forest Practices Act 1985 and associated Forest Practices Regulations 2017

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, any proposed development should not require a Forest Practices Plan.

Tasmanian Nature Conservation Act 2002

Schedule 3A of the Act lists native vegetation communities classified as threatened within Tasmania. No such communities are present such that this part of the Act should not have any application.

Tasmanian Weed Management Act 1999 (Biosecurity Act 2019)

Two plant species classified as declared weeds within the meaning of the Act were detected from the study area, as follows:

- *Rubus* spp. (blackberry species); and
- *Salix* spp. (willow species).

Meander Valley municipality is a zone B municipality with respect to these species under the **Statutory Weed Management Plan (see www.nre.tas.gov.au)**. **“Containment is the most appropriate management objective for Zone B municipalities which have problematic infestations but no plan and/or resources to undertake control actions at a level required for eradication. The management outcome for Zone B municipalities is ongoing prevention of the spread of [these species] from existing infestations to areas free or in the process of becoming free of [these species]”**. In this case, limited special management is recommended, noting that works will either maintain the status quo of weed distribution (by not modifying sites where they occur or result in any such weeds being eliminated from site). Any relevant weed management actions (such as documenting transport of potentially weed-**“contaminated” material off-site**) can be incorporated into an appropriate documents (such as a construction environmental management plan).

Tasmanian Land Use Planning and Approvals Act 1993

The applicable planning scheme for the study area is the *Tasmanian Planning Scheme – Meander Valley*. Note that the following is my interpretation of the provisions of the *Scheme* and may not necessarily represent the views of Meander Valley 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.

The study area is zoned as Community Purpose pursuant to the *Tasmanian Planning Scheme – Meander Valley* (Figure 4). There do not appear to be any specific provisions under this zone related to the management of natural values.

No part of the study area is subject to the Priority Vegetation Area overlay such that there are no relevant provisions of the Natural Assets Code that are applicable because the Code does not have application, as follows:

C7.2 Application of this Code:

C7.2.1 This code applies to development on land within the following areas:

- (c) a priority vegetation area only if within the following zone:
 - (vii) Community Purpose Zone

C7.2.2 This code does not apply to use.

While parts of the study area are subject to the Waterway and Coastal Protection Area overlay (Figure 5), the Natural Assets Code has the following application:

C7.2 Application of this Code:

C7.2.1 This code applies to development on land within the following areas:

- (a) **a waterway and coastal protection area...**

At this stage of planning, it appears unlikely that there will be a material impact to any part of the study area where the overlay is applied, noting that it has been applied to anthropogenic drains only. The relevant provisions may need to be further reviewed if site plans indicate possible impact to any part of the overlay.

Recommendations

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

Vegetation types

The site does not support any native vegetation communities – no special management recommended.

Threatened flora

The site does not support populations of threatened flora not significant potential habitat of such species – no special management recommended.

Threatened fauna

The site does not support populations of threatened flora not significant potential habitat of such species – no special management recommended.

Individual trees

No particular significance is assigned to any specific native trees – no special management recommended.

Weed and disease management

Limited management is recommended, noting that works will either maintain the status quo of weed distribution (by not modifying sites where they occur or result in any such weeds being eliminated from site). Any relevant weed management actions (such as documenting transport of potentially weed-**"contaminated" material off-site**) can be incorporated into an appropriate documents (such as a construction environmental management plan).

Legislative and policy implications

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

There should be no formal requirements for a referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA).

Development will require a planning permit pursuant to the provisions of the applicable planning scheme but specific permit conditions in relation to natural values to the Natural Assets Code of the *Tasmanian Planning Scheme – Meander Valley* are not recommended.

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APPENDIX A. Descriptions of study area

The images below provided information on the expression of the two mapping units identified from the study area.



Plates A1-A6. Examples of anthropogenic drains through lush pasture mapped as FAG – the only native plant species are robust graminoids such as *Carex appressa*



Plates A7-A10. Examples of primary production areas mapped as FAG – the only native plant species are pioneer herbs such as *Euchiton japonicus* and *Crassula decumbens*



Plates A11 & A12. Examples of area mapped as FUR (entrance road, car parking, detention facility, etc.)

APPENDIX B. Vascular plant species recorded from study area

Botanical nomenclature follows *A Census of the Vascular Plants of Tasmania* (de Salas & Baker 2022), with family placement updated to reflect the nomenclatural changes recognised in the *Flora of Tasmania Online* (de Salas 2022+) and APG (2016); common nomenclature follows *The Little Book of Common Names of Tasmanian Plants* (Wapstra et al. 2005+, updated online at www.nre.tas.gov.au).

i = naturalised species; e = endemic species

Table B1. Summary of vascular species recorded from study area
[ornamentals along road verges, gardens and the like excluded]

STATUS	ORDER			
	DICOTYLEDONAE	MONOCOTYLEDONAE	GYMNOSPERMAE	PTERIDOPHYTA
	8	4	-	-
e	2			
i	62	34	2	-
Sum	72	38	2	0
TOTAL	112			

DICOTYLEDONAE

AMARANTHACEAE

i *Chenopodium murale* nettleleaf goosefoot

ASTERACEAE

i *Arctotheca calendula* capeweed
 i *Bellis perennis* english daisy
 i *Calendula officinalis* garden marigold
 i *Cirsium vulgare* spear thistle
 i *Erigeron bonariensis* flaxleaf fleabane
 i *Euchiton japonicus* common cottonleaf
 i *Hypochaeris glabra* smooth catsear
 i *Hypochaeris radicata* rough catsear
 i *Lactuca saligna* willow lettuce
 i *Leontodon saxatilis* hairy hawkbit
 i *Sonchus asper* prickly sowthistle
 i *Sonchus oleraceus* common sowthistle
 i *Taraxacum officinale* common dandelion

BORAGINACEAE

i *Myosotis laxa* subsp. *caespitosa* lesser forgetmenot

BRASSICACEAE

i *Brassica oleracea* wild cabbage
 i *Brassica rapa* turnip
 i *Cardamine hirsuta* hairy bittercress
 i *Raphanus raphanistrum* wild radish
 i *Sisymbrium officinale* hedge-mustard

CARYOPHYLLACEAE

i *Cerastium vulgare* common mouse-ear
 i *Moenchia erecta* erect chickweed
 i *Polycarpon tetraphyllum* fourleaf allseed
 i *Sagina apetala* annual pearlwort
 i *Stellaria media* garden chickweed

CRASSULACEAE

i *Crassula alata* var. *alata* winged crassula
 i *Crassula decumbens* var. *decumbens* spreading stonecrop

EUPHORBIACEAE

i *Euphorbia helioscopia* sun spurge
 i *Euphorbia peplus* petty spurge

FABACEAE

Acacia dealbata subsp. *dealbata* silver wattle

i	<i>Lotus corniculatus</i> var. <i>corniculatus</i>	common birdsfoot-trefoil	
i	<i>Lotus subbiflorus</i>	hairy birdsfoot-trefoil	
i	<i>Lotus uliginosus</i>	greater birdsfoot-trefoil	
i	<i>Medicago polymorpha</i>	burr medick	
i	<i>Trifolium campestre</i>	hop clover	
i	<i>Trifolium incarnatum</i>	crimson clover	
i	<i>Trifolium repens</i>	white clover	
i	<i>Trifolium subterraneum</i>	subterranean clover	
	FAGACEAE		
i	<i>Quercus</i> sp.	oak	
	GENTIANACEAE		
i	<i>Centaurium erythraea</i>	common centaury	
	GERANIACEAE		
i	<i>Geranium dissectum</i>	cutleaf cranesbill	
i	<i>Geranium molle</i>	soft cranesbill	
	LINACEAE		
i	<i>Linum usitatissimum</i>	linseed flax	
	LYTHRACEAE		
	<i>Lythrum hyssopifolia</i>	small loosestrife	
	MYRTACEAE		
e	<i>Eucalyptus amygdalina</i>	black peppermint	
	<i>Eucalyptus ovata</i> var. <i>ovata</i>	black gum	
e	<i>Eucalyptus pulchella</i>	white peppermint	
	ONAGRACEAE		
i	<i>Epilobium ciliatum</i>	glandular willowherb	
	<i>Epilobium hirtigerum</i>	hairy willowherb	
	OXALIDACEAE		
i	<i>Oxalis incarnata</i>	pale woodsorrel	
	<i>Oxalis perennans</i>	grassland woodsorrel	
i	<i>Oxalis pes-caprae</i>	soursob	
	PAPAVERACEAE		
i	<i>Fumaria muralis</i> subsp. <i>muralis</i>	wall fumitory	
	PLANTAGINACEAE		
i	<i>Plantago coronopus</i> subsp. <i>coronopus</i>	slender buckshorn plantain	
i	<i>Plantago lanceolata</i>	ribwort plantain	
i	<i>Plantago major</i>	great plantain	
	POLYGONACEAE		
i	<i>Acetosella vulgaris</i>	sheep sorrel	
	<i>Persicaria hydropiper</i>	green waterpepper	
i	<i>Polygonum arenastrum</i>	small wireweed	
i	<i>Rumex conglomeratus</i>	clustered dock	
i	<i>Rumex crispus</i>	curled dock	
i	<i>Rumex obtusifolius</i> subsp. <i>obtusifolius</i>	western broadleaf dock	
i	<i>Rumex pulcher</i> subsp. <i>pulcher</i>	fiddle dock	
	RANUNCULACEAE		
i	<i>Ranunculus repens</i>	creeping buttercup	
	RESEDACEAE		
i	<i>Reseda luteola</i>	weld	
	ROSACEAE		
i	<i>Potentilla recta</i>	upright cinquefoil	
i	<i>Rosa rubiginosa</i>	sweet briar	
i	<i>Rubus</i> sp.	blackberry	DW
	RUBIACEAE		
i	<i>Galium aparine</i>	cleavers	
	SALICACEAE		
i	<i>Populus alba</i>	white poplar	
i	<i>Salix matsudana</i> cv. <i>tortuosa</i>	twisted willow	DW
i	<i>Salix x fragilis</i> nothovar. <i>fragilis</i>	crack willow	DW
	GYMNOSPERMAE		
	CUPRESSACEAE		
i	<i>Hesperocyparis macrocarpa</i>	monterey cypress	
	PIACEAE		
i	<i>Pinus radiata</i>	radiata pine	
	MONOCOTYLEDONAE		
	ALISMACEAE		
i	<i>Alisma plantago-aquatica</i>	water plantain	

CYPERACEAE	
	<i>Carex appressa</i> tall sedge
i	<i>Cyperus eragrostis</i> drain flatsedge
IRIDACEAE	
i	<i>Romulea rosea</i> var. <i>australis</i> lilac oniongrass
JUNCACEAE	
i	<i>Juncus articulatus</i> jointed rush
	<i>Juncus pallidus</i> pale rush
	<i>Juncus procerus</i> tall rush
POACEAE	
i	<i>Agrostis capillaris</i> browntop bent
i	<i>Agrostis stolonifera</i> creeping bent
i	<i>Aira caryophyllea</i> subsp. <i>caryophyllea</i> silvery hairgrass
i	<i>Alopecurus pratensis</i> subsp. <i>pratensis</i> meadow foxtail
i	<i>Anthoxanthum odoratum</i> sweet vernalgrass
i	<i>Arrhenatherum elatius</i> var. <i>bulbosum</i> bulbous oatgrass
i	<i>Avena sativa</i> cereal oat
i	<i>Briza maxima</i> greater quaking-grass
i	<i>Briza minor</i> lesser quaking-grass
i	<i>Bromus catharticus</i> prairie grass
i	<i>Bromus diandrus</i> great brome
i	<i>Bromus hordeaceus</i> soft brome
i	<i>Catapodium rigidum</i> ferngrass
i	<i>Cynodon dactylon</i> var. <i>dactylon</i> couchgrass
i	<i>Dactylis glomerata</i> cocksfoot
i	<i>Digitaria sanguinalis</i> summergrass
i	<i>Festuca arundinacea</i> tall fescue
i	<i>Holcus lanatus</i> yorkshire fog
i	<i>Hordeum leporinum</i> long-anther barleygrass
i	<i>Lolium multiflorum</i> italian ryegrass
i	<i>Lolium perenne</i> perennial ryegrass
i	<i>Panicum hillmanii</i> witch panic
i	<i>Paspalum dilatatum</i> paspalum
i	<i>Phalaris aquatica</i> toowoomba canarygrass
i	<i>Phleum pratense</i> subsp. <i>pratense</i> timothy grass
i	<i>Poa annua</i> winter grass
i	<i>Poa infirma</i> early meadowgrass
i	<i>Poa pratensis</i> kentucky bluegrass
i	<i>Polypogon monspeliensis</i> annual beardgrass
TYPHACEAE	
i	<i>Typha latifolia</i> great reedmace
	<i>Typha orientalis</i> broadleaf cumbungi

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 **DNRET's Natural Values Atlas** (DNRET 2022a) 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 (2022).

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
<i>Acacia axillaris</i> midlands wattle	v VU # only	<i>Acacia axillaris</i> is mainly confined to riparian habitats such as dense riparian scrub and associated floodplains but also extends to paddocks and open grassy forests in frost hollows and areas of poor drainage, but also occasionally occurs on rocky slopes (there is a somewhat anomalous population on the midslopes of Mt Barrow in the northeast). All populations are strongly associated with dolerite.	Potential habitat absent.
<i>Barbarea australis</i> riverbed wintercress	e EN # only	<i>Barbarea australis</i> is a riparian species found near river margins, creek beds and along flood channels adjacent to the river, tending to favour slower reaches (not found on steeper sections). It predominantly occurs in flood deposits of silt and gravel deposited as point bars and at the margins of base flows, or more occasionally or between large cobbles on sites frequently disturbed by fluvial processes. Some of the sites are a considerable distance from the river, in flood channels scoured by previous flood action, exposing river pebbles. Most populations are in the Central Highlands, but other populations occur in the northeast and upland areas in the central north.	Potential habitat absent.
<i>Brunonia australis</i> blue pincushion	r -	<i>Brunonia australis</i> typically occurs in grassy woodlands and dry sclerophyll forests dominated by <i>Eucalyptus amygdalina</i> or less commonly <i>E. viminalis</i> or <i>E. obliqua</i> . Some smaller populations are found in heathy and shrubby dry forests. The species occurs on well-drained flats and gentle slopes between 10-350 metres a.s.l. It is most commonly found on sandy and gravelly alluvial soils, with a particular preference for ironstone gravels.	Potential habitat absent.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
<i>Colobanthus curtisiae</i> grassland cupflower	r VU # only	<i>Colobanthus curtisiae</i> occurs in lowland grasslands/grassy woodlands, also on rocky outcrops and margins of forest on dolerite on the Central Highlands (including disturbed sites such as log landings and snig tracks).	Potential habitat absent.
<i>Euphrasia scabra</i> yellow eyebright	e -	<i>Euphrasia scabra</i> occurs in moist herb/sedge communities in grassy leads in marshes and in drier open grassy areas at the headwaters of creeks. Its habitat is associated with gaps created by grazing, flooding or other disturbance. It has been recorded from scattered sites throughout lowland areas of Tasmania, including the northwest coast, central north, Midlands, Eastern Tiers and around Hobart.	Potential habitat absent.
<i>Glycine latrobeana</i> clover glycine	v VU # only	<i>Glycine latrobeana</i> occurs in a range of habitats, geologies and vegetation types. Soils are usually fertile but can be sandy when adjacent to or overlaying fertile soils. The species mainly occurs on flats and undulating terrain over a wide geographical range, including near-coastal environments, the Midlands, and the Central Plateau. It mainly occurs in grassy/heathy forests and woodlands and native grasslands.	Potential habitat absent.
<i>Glycine microphylla</i> small-leaf glycine	v -	<i>Glycine microphylla</i> occurs in dry to dampish sclerophyll forest and woodland in the north and east of the State, with outlying sites at Woolnorth.	Potential habitat absent.
<i>Juncus prismatocarpus</i> branching rush	r -	The habitat of <i>Juncus prismatocarpus</i> is poorly understood because of a paucity of records in Tasmania but includes sedgy/grassy margins of rivers such as the Apsley River. On the mainland it occurs in floodplain and riparian vegetation.	Potential habitat marginally present (along drainage features and around the small pump-pond). This perennial graminoid was not detected (no significant seasonal constraint on detection and/or identification, noting the spring survey was ideally timed).
<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 metres 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. It can also occur on frequently slashed grassy/weedy roadside verges where shade trees are absent.	Potential habitat present (mainly around old pine trees). This perennial herb/sub-shrub was not detected (no seasonal constraint on detection and/or identification).

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
<i>Leucochrysum albicans</i> subsp. <i>tricolor</i> grassland paperdaisy	e EN # only	<i>Leucochrysum albicans</i> subsp. <i>tricolor</i> occurs in the west and on the Central Plateau and the Midlands, mostly on basalt soils in open grassland. This species would have originally occupied <i>Eucalyptus pauciflora</i> woodland and tussock grassland.	Potential habitat absent.
<i>Pimelea curviflora</i> var. <i>gracilis</i> slender curved riceflower	r -	<i>Pimelea curviflora</i> var. <i>gracilis</i> occurs in wet and dry sclerophyll forest to hardwood plantations. Understories vary from open and grassy to densely shrubby. It can densely colonise disturbed sites such as firebreaks, log landings and tracks.	Potential habitat absent.
<i>Pomaderris phyllicifolia</i> subsp. <i>phyllicifolia</i> narrowleaf dogwood	r -	<i>Pomaderris phyllicifolia</i> subsp. <i>phyllicifolia</i> occurs in a wide range of habitats, very strongly associated with flood-prone rocky and densely shrubby rivers but extending across broader floodplains and gentle slopes into grassy/shrubby dry sclerophyll forest.	Potential habitat absent.
<i>Prasophyllum stellatum</i> ben lomond leek-orchid	e CR # only	<i>Prasophyllum stellatum</i> is known from two disjunct locations in Tasmania, at Storys Creek and Cluan Tiers, with sites ranging from 555-960 m a.s.l. The species occurs in forest dominated by <i>Eucalyptus delegatensis</i> (with <i>Eucalyptus dalrympleana</i> as a minor canopy component), with a shrubby to grassy understorey. All sites occur on dolerite, with a relatively high surface rock cover and deep clay-loam soils at most sites.	Potential habitat absent.
<i>Senecio psilocarpus</i> swamp fireweed	e VU # only	<i>Senecio psilocarpus</i> is known from six widely scattered sites in the northern half of the State, including King and Flinders islands. It occurs in swampy habitats including broad valley floors associated with rivers, edges of farm dams amongst low-lying grazing/cropping ground, herb-rich native grassland in a broad swale between stable sand dunes, adjacent to wetlands in native grassland, herbaceous marshland and low-lying lagoon systems.	Potential habitat marginally present (along drainage features and around the small pump-pond). This perennial herb was not detected (no significant seasonal constraint on detection and/or identification, noting the spring survey was ideally timed).
<i>Viola caleyana</i> swamp violet	r -	The habitat of <i>Viola caleyana</i> in Tasmania is poorly understood but includes lowland wet grasslands, possibly wet heathlands and a variety of forest types.	Potential habitat (as presently understood and based on reported sites) absent.
<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 (wholly atypical of all reported sites). This perennial herb was not detected (no significant seasonal constraint on detection and/or identification, noting the spring survey was ideally timed).

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 **DNRET's Natural Values Atlas** (DNRET 2022a), Bryant & Jackson (1999) and FPA (2022); marine, wholly pelagic and littoral species such as marine mammals, fish and offshore seabirds are excluded. Species marked with # are listed in CofA (2022).

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project 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 for the grey goshawk 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.	Potential habitat absent, except in a very general sense. The species may utilise the greater study area as part of a home range and for foraging but development as proposed within the context of surrounding land uses should not have a significant impact on potential habitat of the species.
<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, as both species of <i>Gahnia</i> are not present.
<i>Apus pacificus</i> fork-tailed swift	- - # only	Seasonal migrant (December through March) with habitat open skies over any habitat, more commonly associated with forested hills and mountains (McNab 2018).	Potential habitat widespread but this is a species that flies at high altitude, very fast and highly mobile, feeding on the wing and virtually never perches (McNab 2018). This species should not require further consideration.
<i>Aquila audax</i> subsp. <i>fleayi</i> wedge-tailed eagle	e EN #	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).	Potential nesting habitat absent (the site is mainly pasture and buildings with all trees remnant, relatively small and very exposed). No known nests within 1,000 m of study area. Modelling of potential nesting habitat (Figure 10b) indicates that no part of the study area, and no areas within 500 m or 1,000 m line-of-sight, qualify as potential nesting habitat, which is confirmed by reference to aerial imagery and a broader overview of the site from roadside surveys showing extensive paddocks and plantations between the study area and the nearest forested slopes.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
			The species may utilise the greater study area as part of a home range and for foraging but development as proposed within the context of surrounding land uses should not have a significant impact on potential habitat of the species.
<i>Botaurus poiciloptilus</i> Australasian bittern	- EN #	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 or cutting grass growing over a muddy or peaty substrate (TSSC 2011).	Potential habitat absent, except in the most general of senses. This species should not require further consideration.
<i>Bubulcus coromandus</i> [syn. <i>B. ibis</i> , <i>Ardea ibis</i>] cattle egret	- - # only	Seasonal migrant (April through October) with habitat agricultural lands, crops, dams, pastures, particularly those with cattle, mudflats and wetlands (McNab 2018).	Potential habitat absent, except in the most general of sense. This species should not require further consideration.
<i>Catadromus lacordairei</i> green-lined ground beetle	v -	Potential habitat is open, grassy/sedgy, low altitude grasslands and woodlands associated with temporary and permanent wetlands and low-lying plains, flats and ephemeral drainages adjacent to rivers and streams. Key habitat elements that need to be present include sheltering sites such as patches of stones, coarse woody debris and/or cracking soil	Potential habitat absent (site is open pasture and old buildings with all key habitat components absent).
<i>Ceyx azureus</i> subsp. <i>diemenensis</i> [syn. <i>Alcedo</i> <i>azurea</i> subsp. <i>diemenensis</i>] Tasmanian azure kingfisher	e EN # only	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. The paddock drains are not suitable (lack perches for foraging and the banks are too low for nesting).
<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 marginally present, simply because the species can occur in a wide range of habitats that includes wholly modified landscapes. No evidence (e.g. scats) of the species was observed. The site is unlikely to support dens of the species because of the understorey lacking substantial large coarse woody debris, rock piles, and wombat burrows. The species may utilise the greater study area as part of a home range and for foraging but development as proposed within the context of surrounding land uses should not have a significant impact on potential habitat of the species.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
<i>Dasyurus viverrinus</i> eastern quoll	- EN #	Potential habitat includes rainforest, heathland, alpine areas and scrub. However, it seems to prefer dry forest/native grassland mosaics which are bounded by agricultural land.	See under spotted-tailed quoll.
<i>Galaxias fontanus</i> Swan galaxias	e EN	Potential habitat is slow to moderately fast flowing streams containing permanent water (even when not flowing), which have good instream cover from overhanging banks and/or logs, and shade from overhanging vegetation. A population can only be maintained where barriers have prevented establishment of trout and redfin perch. The nature of these barriers is variable and can include permanent natural structures such as waterfalls and chutes and also low flow-dependent features such as marshes, ephemeral water-losing and remnant channels, braided channel floodplain features.	The site is outside the potential range of the species being wholly within the catchment of the Meander River (and not part of the Macquarie River system).
<i>Gallinago hardwickii</i> Latham's snipe	- - # only	Seasonal migrant that prefers brackish, fresh and saline habitats including lagoons, lakes, marshes, swamps, wet grasslands and paddocks and wetlands with tussockgrasses (McNab 2018).	Potential habitat absent, except in the most general of senses. This species should not require further consideration.
<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.	Potential nesting habitat absent (the site is mainly pasture and buildings with all trees remnant, relatively small and very exposed). The nearest nest site is RND #2682 ("On south bank of the Meander River Approx 3.6km ENE of Deloraine", first reported simply as "Eagle sp." on 27 Jun. 2019 from an aerial survey, later indicated on 11 May 2020 as that of a white-bellied sea-eagle. This nest site is ca. 1,010 m from the nearest boundary of the study area (Figure 10b) i.e. the site is well outside the nominal 500 m and also outside the 1,000 m line-of-sight buffer zones often applied to the management of eagle nests during the breeding season. The species may utilise the greater study area as part of a home range and for foraging but development as proposed within the context of surrounding land uses should not have a significant impact on potential habitat of the species.
<i>Hirundapus caudacutus</i> white-throated needletail	- VU #	Seasonal migrant (December through March) with habitat open skies over any habitat, more commonly associated with forested hills and mountains (McNab 2018).	Potential habitat widespread but this is a species that flies at high altitude, very fast and highly mobile, feeding on the wing and virtually never perches (McNab 2018). This species should not require further consideration.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
<i>Lathamus discolor</i> swift parrot	e CR #	Potential foraging habitat comprises <i>E. globulus</i> or <i>E. ovata</i> trees that are old enough to flower. Potential nesting habitat is considered to comprise eucalypt forests that contain hollow-bearing trees.	<i>Eucalyptus globulus</i> is absent so this aspect of potential foraging habitat is not present. <i>Eucalyptus ovata</i> is present (as ten trees located along fencelines) so this aspect of potential foraging habitat is technically present. That said, the site is quite atypical of the intent of the habitat description that refers to forests and woodlands dominated by <i>Eucalyptus ovata</i> or where the species is locally dominant or extensive (i.e. the description probably does not reasonably refer to scattered "paddock trees" in this type of scenario). The site supports no hollow-bearing trees so potential breeding habitat is not present (and it is wholly atypical of all reported breeding sites that tend to be in hollow-rich forests on ridgelines and upper slopes).
<i>Litoria raniformis</i> green and golden frog	v VU #	Potential habitat is permanent and temporary waterbodies, usually with vegetation in or around them, including 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 marginally present. The anthropogenic drains that pass through paddocks may support the species in an ephemeral sense, although are far from ideal in that they are very open and subject to periodically very high flows, effectively flushing them clear. The small pump-pond is superficially potential habitat but is also exposed and the aquatic/emergent vegetation is restricted to some <i>Typha latifolia</i> rather than floating emergent. Site assessment on a warm, still spring day did not indicate any amphibian species in this small artificial pond.
<i>Myiagra cyanoleuca</i> satin flycatcher	- - # only	Seasonal migrant (November through march) with habitat scrub, wet and dry sclerophyll forests, woodlands and creeklines (McNab 2018).	Potential habitat absent, except in the most general of sense. This species should not require further consideration.
<i>Neophema chrysostoma</i> blue-winged parrot	- - # only	Seasonal migrant (October through April) with habitat agricultural lands, crops, dams, paddocks, coastal scrub, open grassy woodlands, heathland and saltmarshes (McNab 2018).	Potential habitat absent, except in the most general of sense. This species should not require further consideration.
<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. Significant habitat is dense tussock grass-sagg-sedge swards, piles of coarse woody debris and denser patches of low shrubs (especially those that are densely branched close to the ground providing shelter) within the core range of the species.	Potential habitat present. The species is widely reported in the greater Deloraine-Longford-Launceston area, apparently benefiting from the mosaic of pasture, croplands, semi-native grassland and remnant native vegetation between urban and peri-urban environments. The species may utilise the greater study area as part of a home range and for foraging but development as proposed within the context of surrounding land uses should not have a significant impact on potential habitat of the species.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on project area and database records
<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 absent. The anthropogenic drainage ditches through the paddocks are unsuitable (and disconnected to any marine/estuarine environment).
<i>Pseudemoia pagenstecheri</i> tussock skink	v -	Potential habitat comprises native grasslands dominated by tussock-forming grasses.	Potential habitat absent. Native grassland is absent.
<i>Pseudemoia rawlinsoni</i> glossy grass skink	r -	Potential habitat is wetlands and swampy sites (including grassy wetlands, teatree swamps and grassy sedgeland), and margins of such habitats.	Potential habitat absent (no swampy habitats as described present).
<i>Sarcophilus harrisi</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 (4-27 km ²). Potential denning habitat is areas of burrowable, well-drained soil, log piles or sheltered overhangs such 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.	See under spotted-tailed quoll.
<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. While the species can roost in a wide variety of trees (including in highly modified environments) and can forage in such habitats (taking advantage of species such as rabbits, rats and mice), no evidence of the species beneath trees or around buildings was observed (e.g. pellets, whitewash, furthers, carcasses of prey, etc.). The species may utilise the greater study area as part of a home range and for foraging but development as proposed within the context of surrounding land uses should not have a significant impact on potential habitat of the species.

APPENDIX E. **DNRET'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.

ATTACHMENTS

- .shp/.dwg file of revised vegetation
- .shp file of point locations of individual trees
- .shp file of point locations of declared weeds

APPENDIX H. Meander Valley Road (Alverston Drive to Exton Road)

Preamble

As part of the broader engagement to assess the natural values of 4260 Meander Valley Road title, Environmental Consulting Options Tasmania (ECOtas) was also engaged to assess the natural values associated with the road corridor between Alverston Drive (Deloraine) to Exton Road (Exton), to inform design and management related to the potential location of utilities/services.

Study area

The study area comprised both sides of Meander Valley Road between the sealed road verge and the adjacent private property boundaries (Figures H1 & H2). The road corridor title is zoned as Utilities pursuant to the *Tasmanian Planning Scheme – Meander Valley* (Figure H3). No part of the study area is subject to the Priority Vegetation Area overlay pursuant to the *Tasmanian Planning Scheme – Meander Valley*.

Assessment

The site assessment was undertaken by Mark Wapstra (ECOtas) on 19 Oct. 2022. The assessment included a slow-drive in two directions within the indicated scope (Figures H1 & H2). Selected sections were slow-walked (traffic management deemed unnecessary due to safe parking, flashing lights, person working sign, distance from verge, road speed, time in corridor).

Findings

Vegetation types

TASVEG 4.0 currently shows the study area as comprising the following TASVEG mapping units (Figure H4):

- urban areas (TASVEG code: FUR)
FUR is mapped for the residential parts of Deloraine (but not Exton).
- agricultural land (TASVEG code: FAG)
FAG is mapped for most of the study area, with this mapped across paddocks on either side of the road but also across the road itself (including the major roundabout) and across the whole of the township of Exton.

Site assessment indicated that both sides of the road are best classified as extra-urban miscellaneous (FUM), urban areas (FUR), agricultural land (FAG) or permanent easements (FPE) or some combination i.e. modified land mapping units under the TASVEG system. A revised vegetation map is not provided. Refer to Plates H1-H8.

No threatened vegetation types are present as per Schedule 3A of the *Tasmanian Nature Conservation Act 2002*. No threatened ecological communities are present as per the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBCA).



Plates H1-H8. Examples of road corridor between Exton Road and Alverston Drive

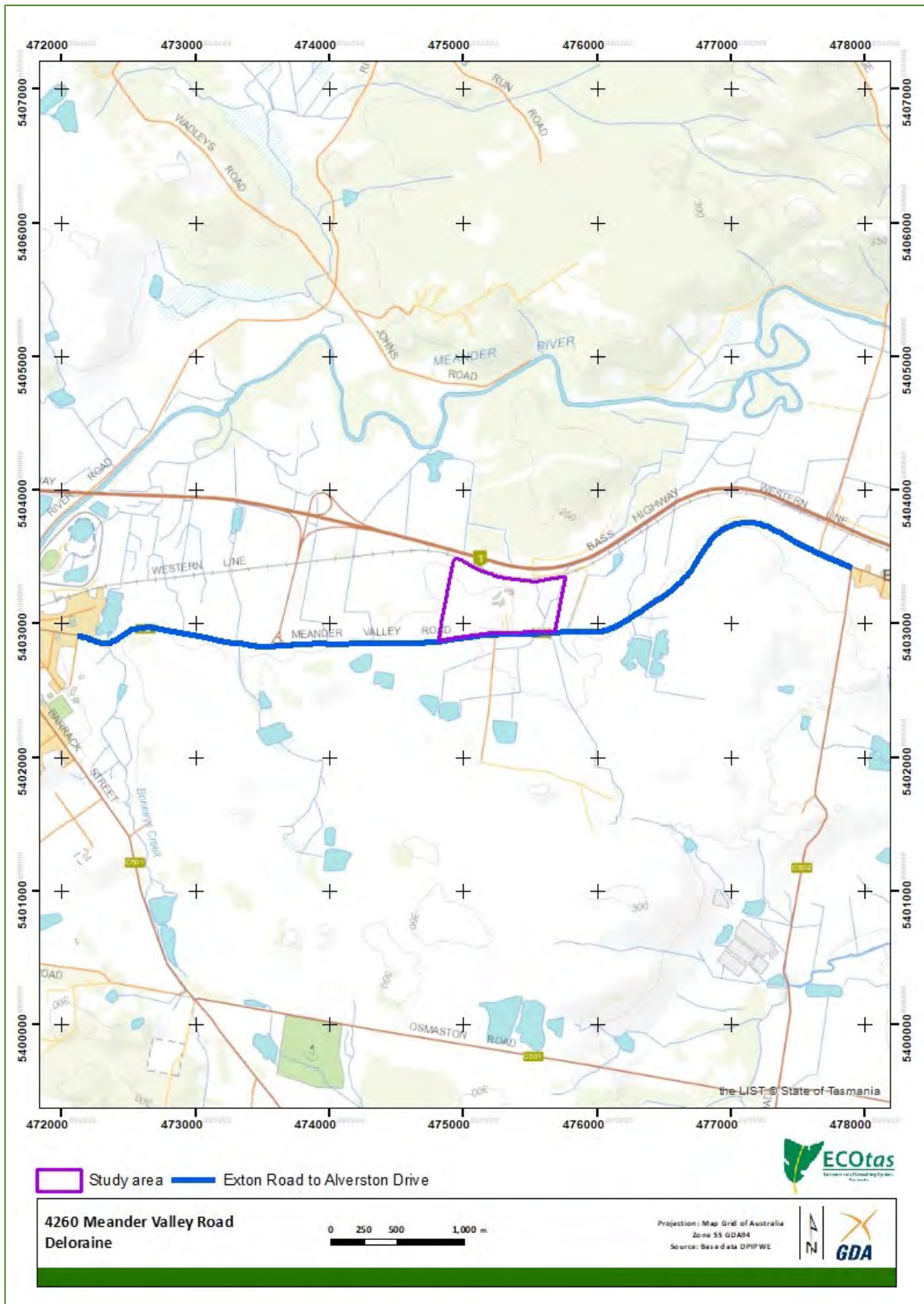


Figure H1. Overview of study area: Exton Road to Alverston Drive (topographic features)

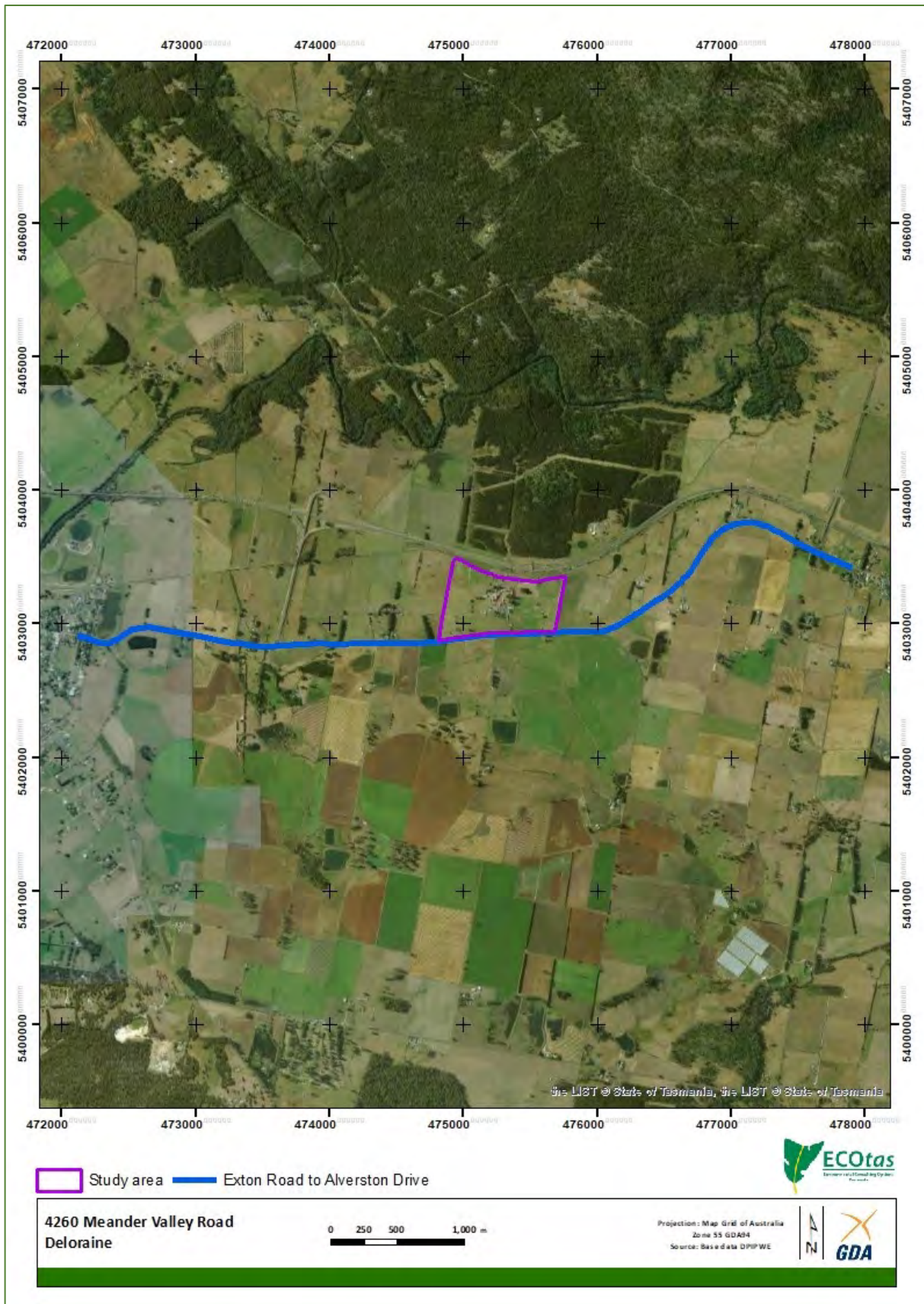


Figure H2. Overview of study area: Exton Road to Alverston Drive (aerial imagery)

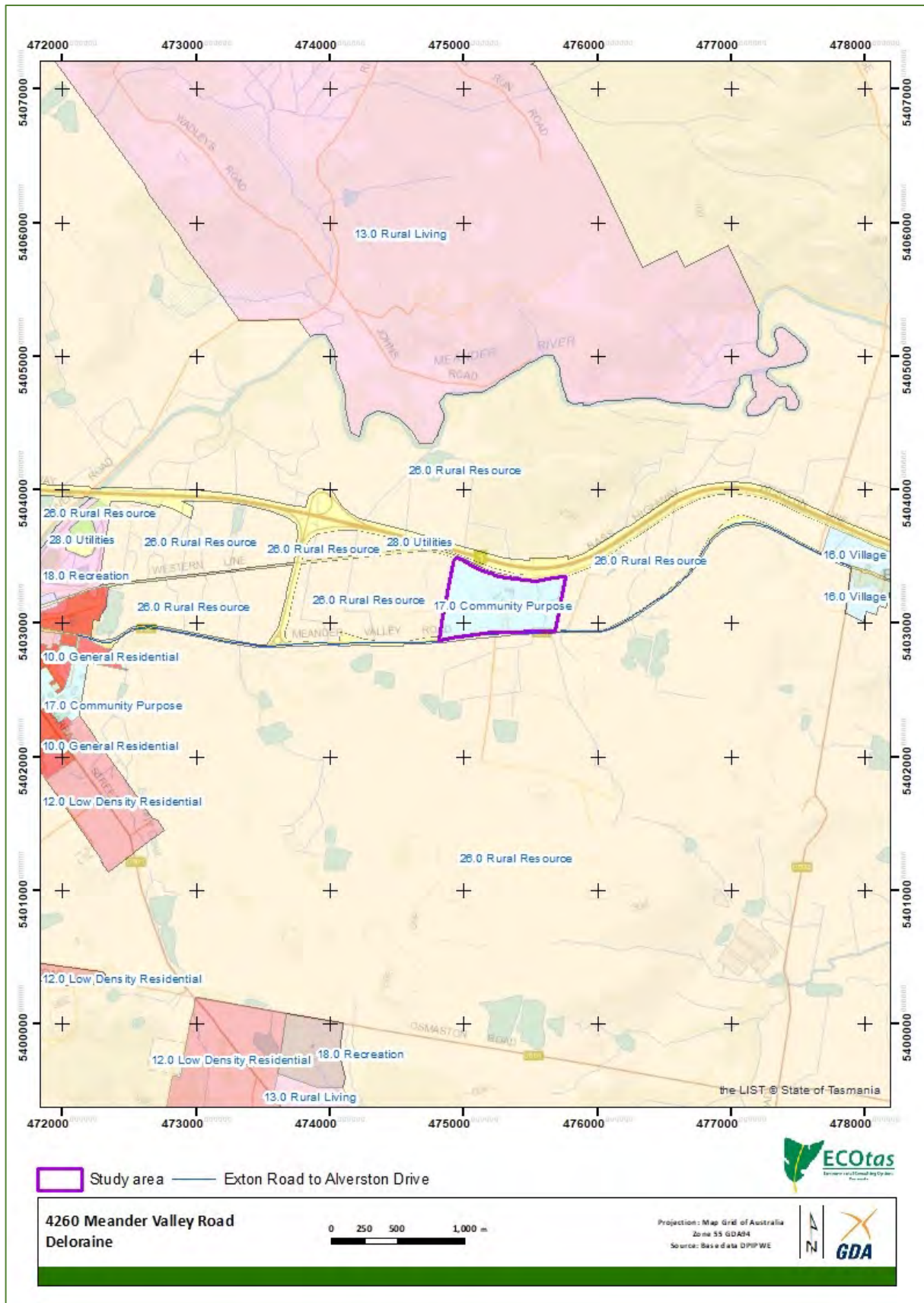


Figure H3. Zoning of study area pursuant to Tasmanian Planning Scheme – Meander Valley

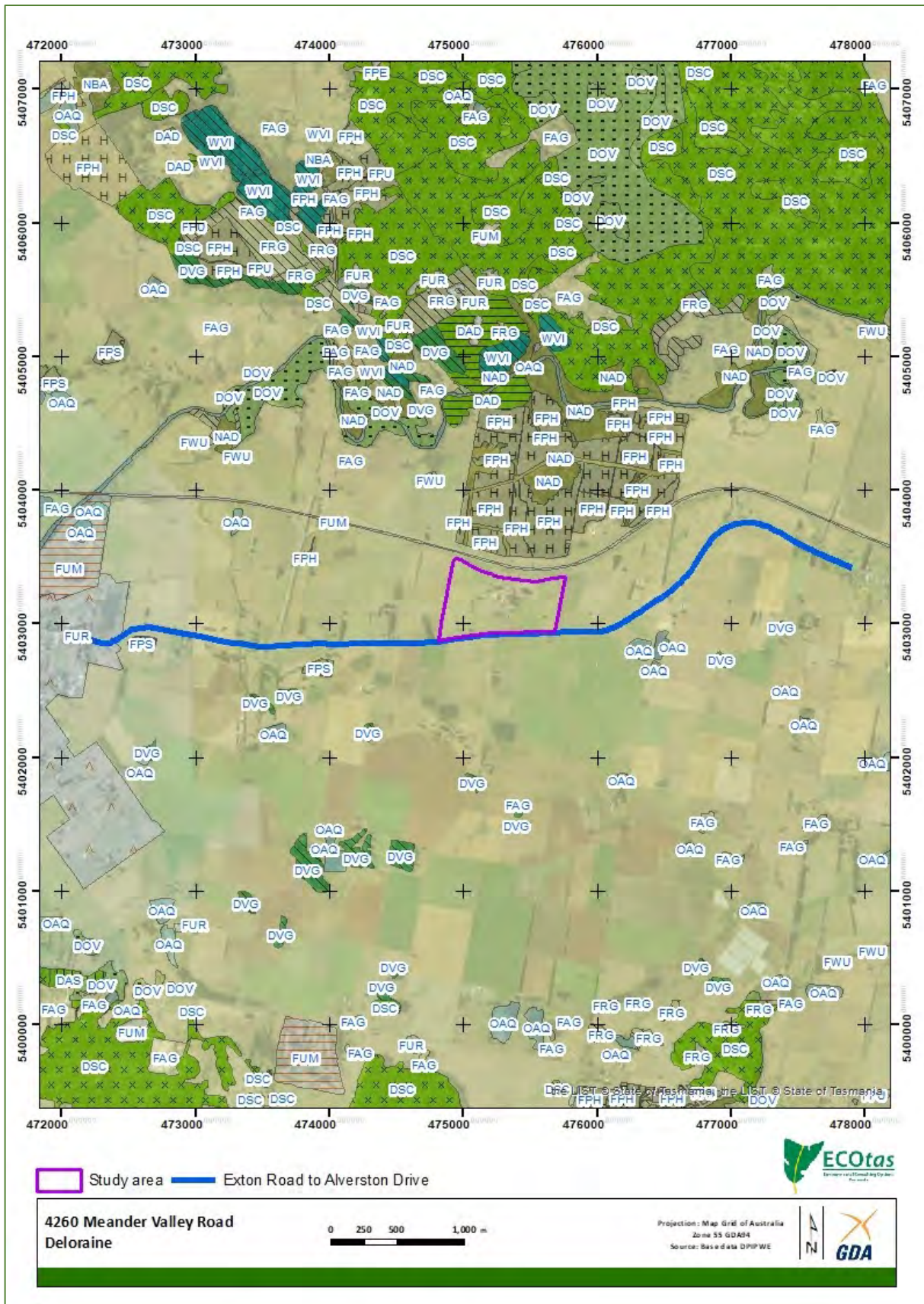


Figure H4. Existing TASVEG 4.0 vegetation mapping for study area (refer to text for codes)

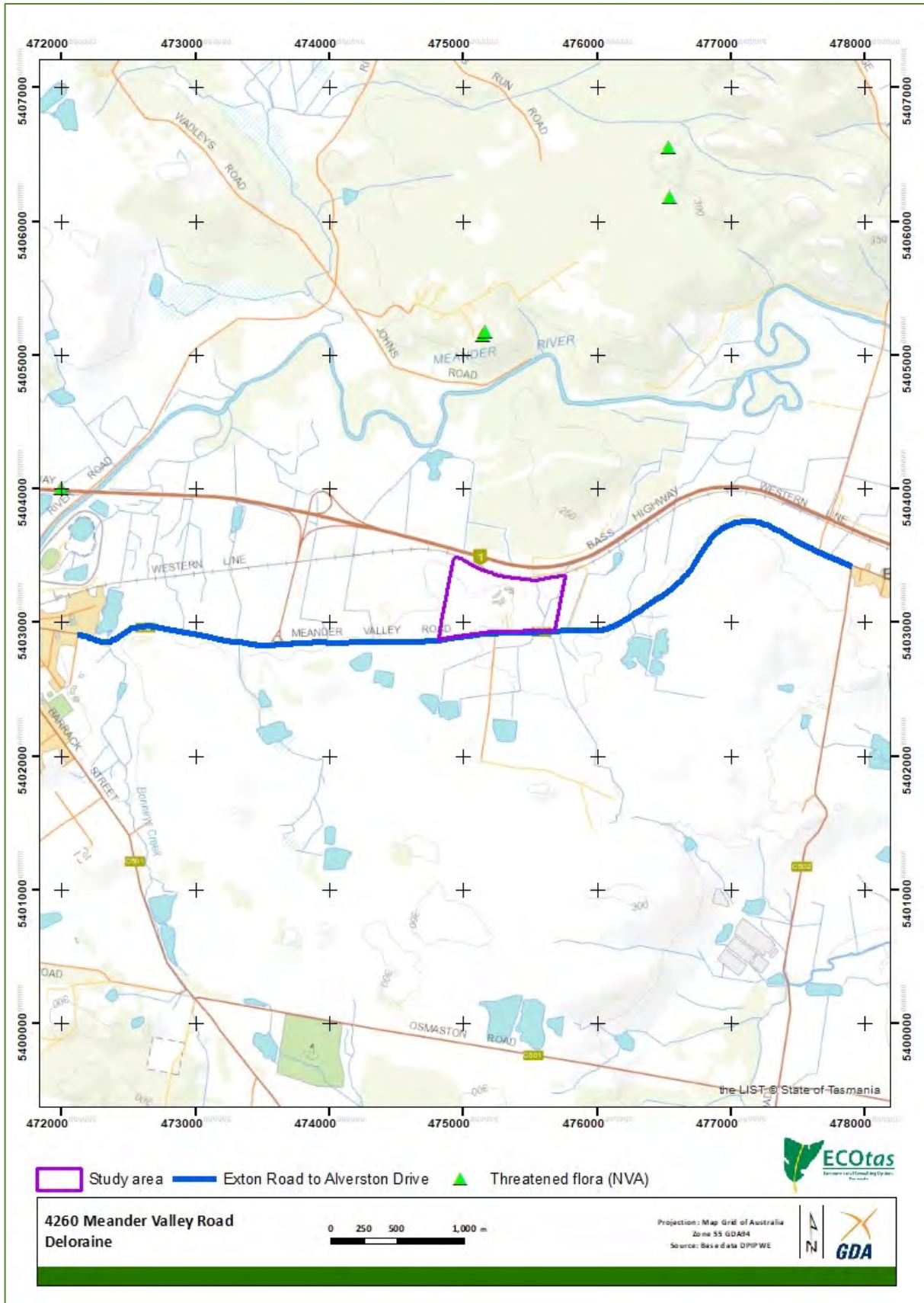


Figure H5. Existing records of threatened flora (overview)

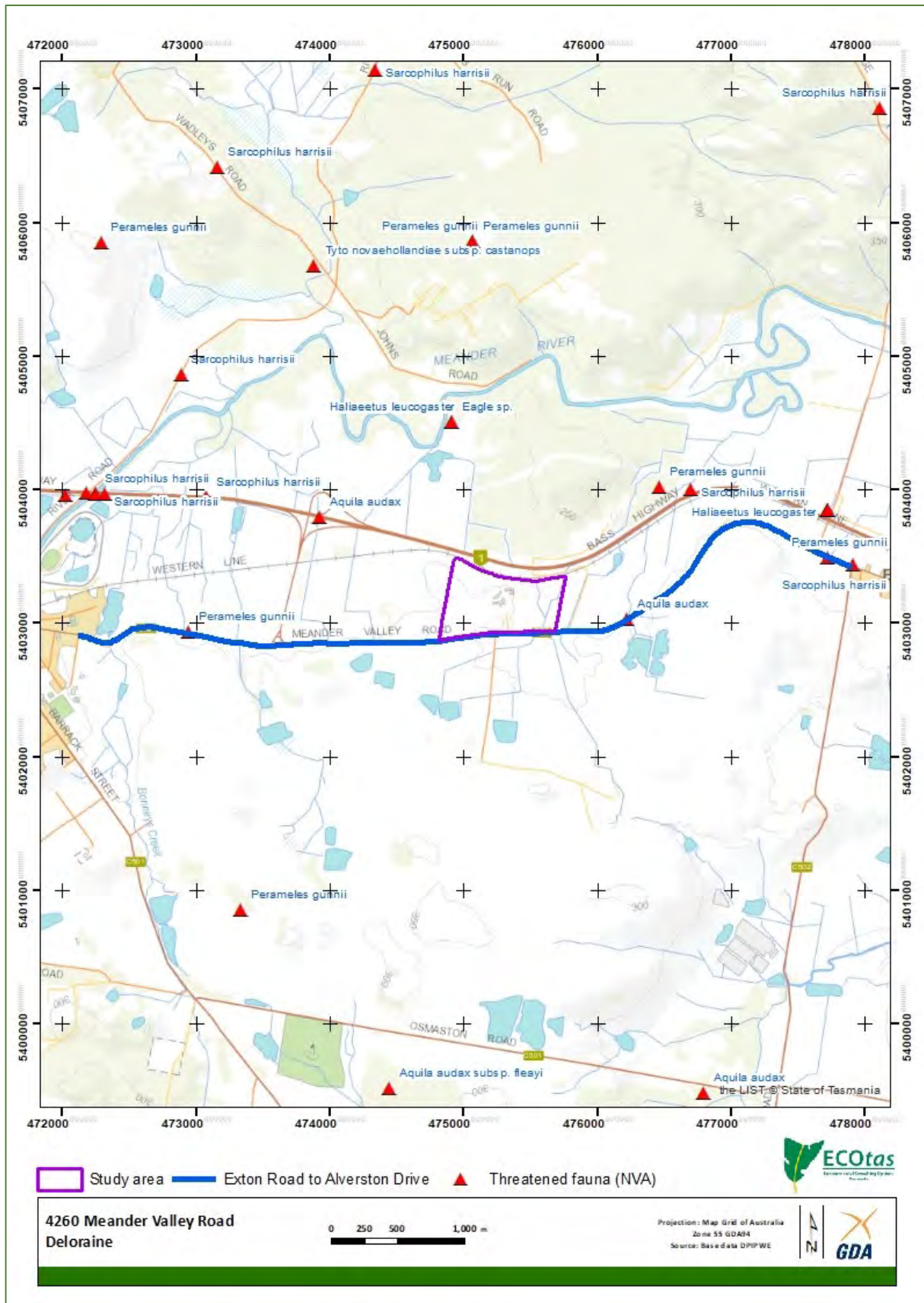


Figure H6. Existing records of threatened fauna (overview)

Findings continued...

Threatened flora

No flora species listed as threatened on the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) were detected, or are known from database information, from the study area (Figure H5).

I do not believe that follow-up surveys are warranted (i.e. survey was already appropriately timed).

Threatened fauna

No fauna species listed as threatened on the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) were detected, or are known from database information (apart from roadkill records of mammals and sighting records of wedge-tailed eagle), from the study area (Figure H6).

The road verges (and the surrounds) provide potential habitat for a suite of species (Tasmanian devil, spotted-tailed quoll, eastern quoll, eastern barred bandicoot, green and golden frog) but I do not believe that follow-up surveys are warranted for the type of works proposed.

Recommendations

No specific recommendations in relation to natural values.