

Natural Values Report

For a proposed subdivision at 441 Tinderbox Road, Tinderbox

Version 4, November 2023



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1. Introduction

This report has been prepared in response to a request for additional information (RAI) from Kingborough Council (letter dated 14th July 2020) in respect of a development application for a proposed 13 lot subdivision at 441 Tinderbox Rd (DAS–2020-13). The RAI asks for

“... sufficient information to demonstrate that the proposed protected area encompasses all natural values on private land within the Environmental Living zoned portion of the site and outside those areas required for building areas, private open space and bushfire protection measures” ... and notes that this will require a ... “natural values determination identifying the type, extent and location of natural values on the Balance ...”.

Pursuant to the RAI, this natural values report assesses the natural values present on the Balance lot arising from the subdivision.

2. Background

2.1 Property description

The subject land is most of ‘Tinderbox Farm’, which is comprised of a single title containing an existing dwelling, vineyards, pasture and large areas of forest extending along the western side of the Tinderbox Hills (CT 139168/1). That part of the farm not included in the proposal is subject to an existing permit for subdivision, which is in the process of being finalised (DAS 2004-7).

The forested sections of the subject land and some small areas of pasture are zoned Environmental Living under the Kingborough Interim Planning Scheme 2015 (‘the Scheme’). The balance of the land, which is mostly cleared pastoral land, is zoned Rural Resource.

2.2 Development proposal

An 11-lot staged subdivision is proposed (10 lots and Balance). The initial staging plan is as follows, but it is envisaged that staging could progress in any order, subject to Council approval.

Stage 1: Lots 1 - 4, Public Open Space (area to be agreed with Council) and Balance,

Stage 2: Lots 5 - 8, Public Open Space (area to be agreed with Council) and Balance, and

Stage 3: Lots 9 and 10, Public Open Space (area to be agreed with Council) and Balance.



Figure 1 – Site Location (Source: theLIST 2021)

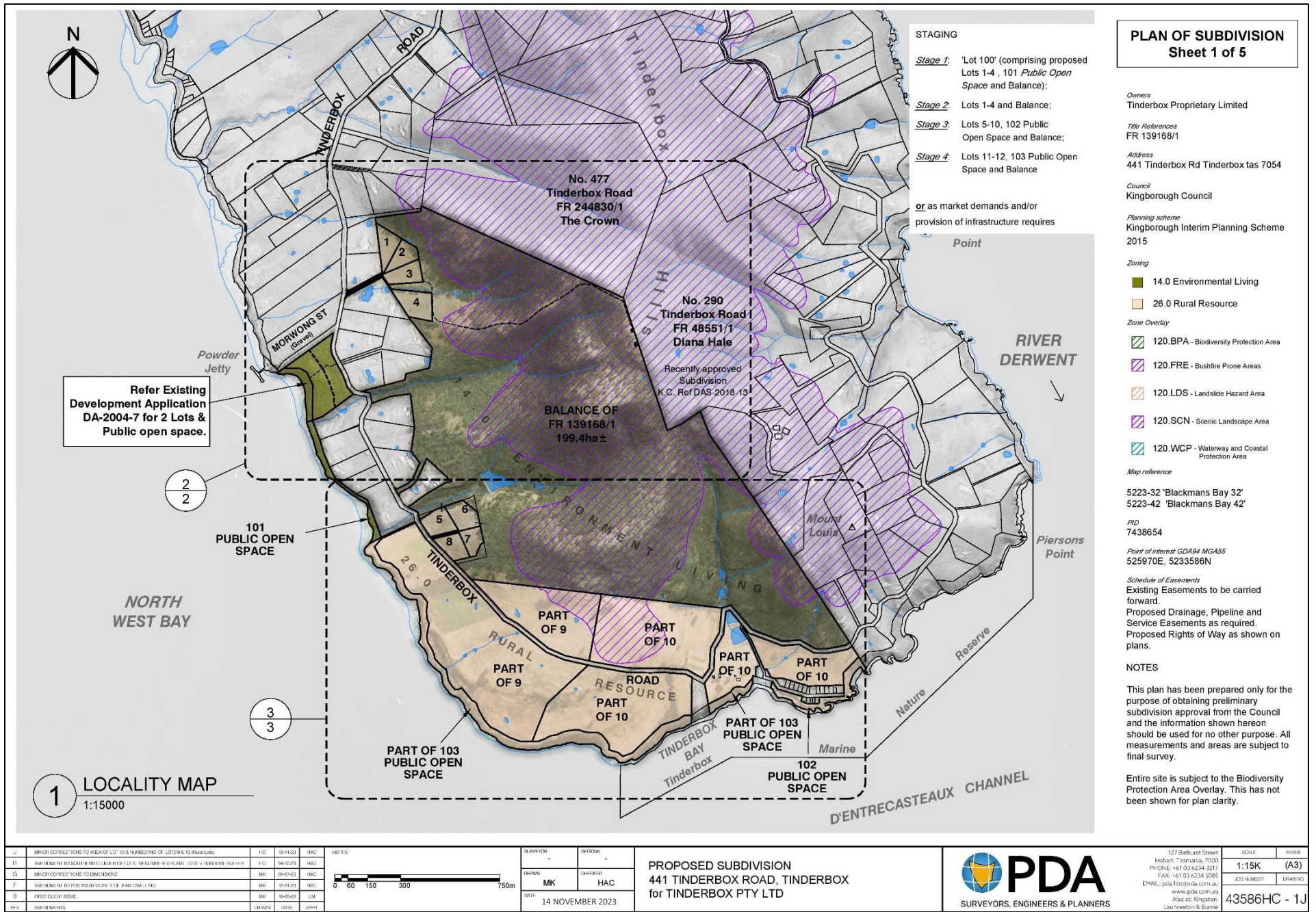


Figure 2 – Proposal Plan from PDA Surveyors (November 2023)

3. Methods

A rapid field survey of the property was undertaken on 8 January 2021, using a timed-meander method. The site was broadly traversed to determine the vegetation communities present and their extent. All perceivable vegetation communities were mapped and classified according to TASVEG 4.0. A list of vascular plants was compiled. Potential threatened fauna habitat was recorded as encountered. Locations of threatened species habitat and significant weeds were mapped with a handheld GPS.

The field survey was supplemented by a desktop review of data from a variety of sources including the Natural Values Atlas (NVA, DPIPWE 2018) and LISTmap. No new survey work was undertaken for this revision of the report, but an up-to-date NVA Report was generated to check for any recent and significant threatened species records from the area (DNRE, 2023).

3.1 Limitations of the survey

The survey was undertaken in summer which is not optimal timing for detecting and identifying some flora species. The inherent limitations of the survey method (time meander method and limited time) mean that some flora species may be present but were not encountered or were overlooked due to seasonal conditions and timing e.g. spring flowering ephemerals, grasses, orchids etc.

4. Natural Values Assessment

4.1 Vegetation Communities

The following are general observations on interpretation applied in mapping vegetation communities on the Balance lot.

- There are some inconsistencies between previous mapping of vegetation by the same author in areas that were part of new lots at an earlier design stage and are now part of the Balance. There are several reasons for this:
 - the original survey work informing the development application focused on the vegetation likely to be impacted by the proposal (primarily the native vegetation within the proposed new lots) and mapping choices/interpretation lacked the context provided by surveying the whole site; the more recent and comprehensive survey has resulted in some corrections and some changes to interpretation.
 - when considering the impact on relatively small areas of vegetation within individual lots, it is appropriate to map to quite a small scale, but this scale of mapping is less appropriate when the same

vegetation is being considered as part of a larger area on the Balance lot; as a result, there has been some 'clumping' of small vegetation patches into broader mapping units and some changes to interpretation.

- when considering exemptions available under the Biodiversity Code for the purposes of the development application, it was appropriate to map an area in the central west of the land in a manner that highlighted the fact that it had been previously cleared and converted; without this context, the same area is more appropriately mapped together with adjoining areas as regenerating woodland and forest.
- All forest and woodland on a sandstone substrate with a reasonable proportion of black peppermint in the canopy has been mapped as DAS forest and woodland. Some of these areas are currently mapped under TASVEG as DGL forest, but it is clear from the descriptions of DAS in From Forest to Fjaeldmark (2013) that the community may contain mixed canopies, even to the extent of localised dominance of white gum in gullies.
- For the purposes of this report, areas of previously cleared land have variously been mapped as bracken fern-land (FPF), regenerating cleared land (FRG) or native grassland complex (GCL), depending on whether regrowth is predominantly comprised of bracken, includes a reasonable recruitment of shrubs and tree saplings or is predominantly comprised of grasses and sedges.

Eleven vegetation communities dominated by native species were mapped on the proposed balance lot pursuant to the TASVEG 4.0 vegetation classification system, along with small areas of exotic pasture, weed infestations, dams and urban infrastructure (the area around the telecommunications tower and associated roading). The current conservation status of these communities is summarised in Table 1 and a brief description of most communities is provided below. The broad distribution of vegetation communities is shown in Figure 3.

Table 1 – Summary of native vegetation communities occurring on the Balance lot

Vegetation Community	TASVEG Code	Conservation Status*	Biodiversity Values (KIPS) **	Status Priorities*	Area (ha)
<i>Eucalyptus ovata</i> dry forest and woodland	DOV	E	High (swift parrot habitat) [@]	Endangered on a state-wide basis	1.30
<i>Eucalyptus globulus</i> dry forest and woodland	DGL	V	High (swift parrot habitat) [@]	Vulnerable on a state-wide basis	94.14
<i>Eucalyptus amygdalina</i> forest on sandstone	DAS	V	High	Vulnerable on a state-wide basis	71.27
<i>Eucalyptus viminalis</i> grassy woodland	DVG	p	High (forty spotted pardalote habitat) [@]	Adequately reserved	1.75
<i>Eucalyptus amygdalina</i> forest on dolerite	DAD	p	Low	Adequately reserved	1.16
<i>Eucalyptus obliqua</i> dry forest	DOB	p	Low	Adequately reserved	8.01
<i>Allocasuarina verticillata</i> forest	NAV	p	Low	Adequately reserved community	1.75
<i>Bursaria – Acacia</i> woodland and scrub	NBA	p	Low	Adequately reserved	1.76
Lowland grassland complex	GCL	p	Low	Adequately reserved	11.52
Bracken fernland	FPF	p	Low	Disturbance induced community	0.51
Regenerating cleared land	FRG	p	Low	Disturbance induced community	1.84
Exotic pasture	FAG	-	-	Not applicable	2.93
Weed infestation	FWU	-	-	Not applicable	0.45
Dams	OAQ	-	-	Not applicable	0.74
Road	FUM	-	-	Not applicable	0.65
Total (+/-)					199.9 (+/-)

*as per Schedule 3A of the *Nature Conservation Act 2002*

** as per Table E10.0 of the Kingborough Interim Planning Scheme 2015

[@] Biodiversity value due partly or wholly to presence of significant threatened fauna habitat (Table E10.1)

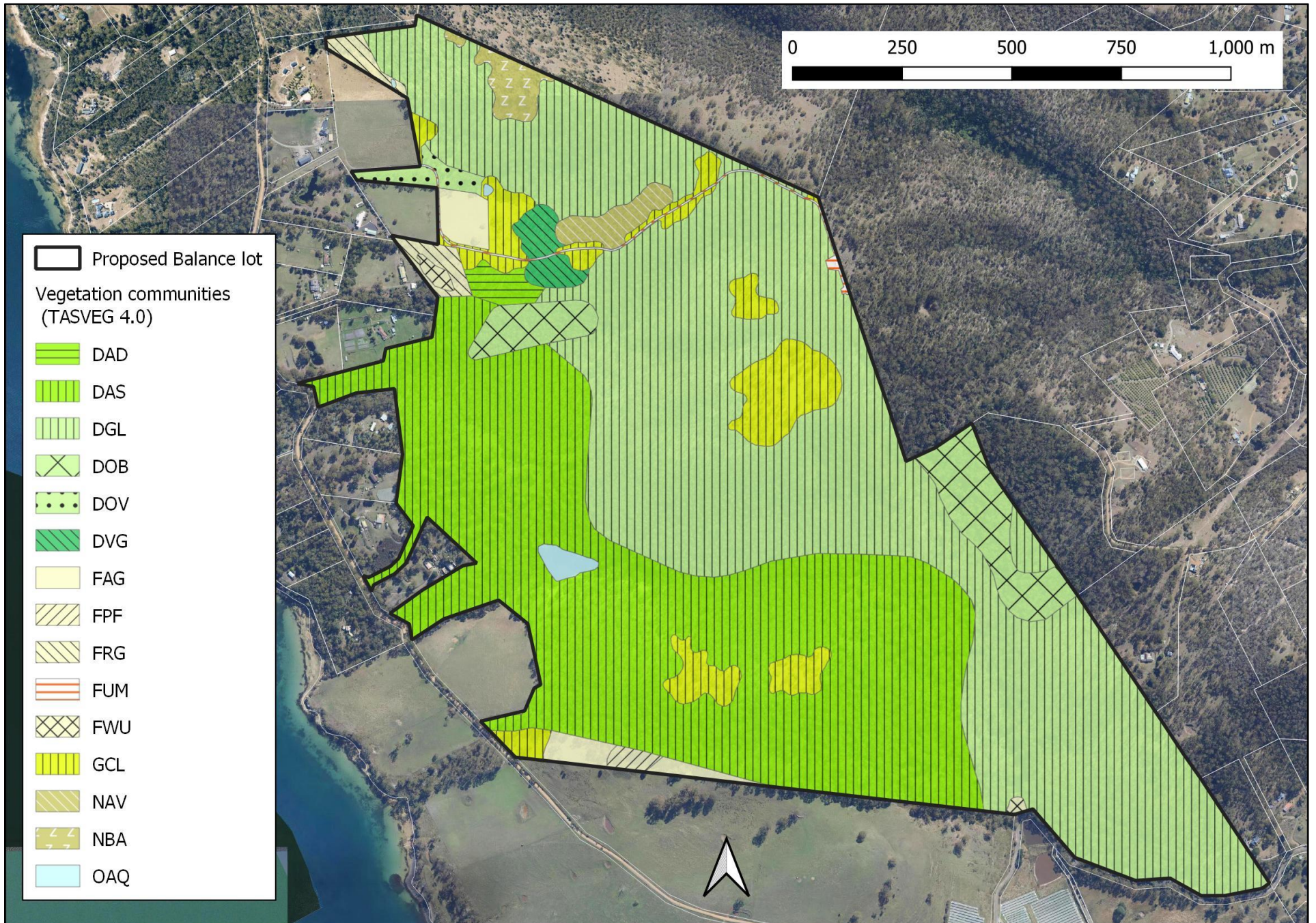


Figure 3 – Vegetation communities on the Balance lot

TASVEG Unit – *Eucalyptus globulus* dry forest and woodland

TASVEG Code – DGL

This community occurs on dolerite across the upper slopes and some of the mid-slopes of the land (see Figure 3). Blue gum (*Eucalyptus globulus*) is generally the dominant tree species, although white gum (*E. viminalis*) is co-dominant or locally dominant in the south-east corner of the subject land. Stringybark (*E. obliqua*), black peppermint (*E. amygdalina*) and white peppermint (*E. pulchella*) occur as sub dominant or occasional trees in the canopy from place to place, particularly as the community grades into adjoining forest communities.

The understorey is variously open and grassy or shrubby, depending on aspect and topography. Native cherry (*Exocarpos cupressiformis*), prickly box (*Bursaria spinosa*), blackwood (*Acacia melanoxylon*) and black sheoak (*Allocasuarina littoralis*) are common tall shrubs in places, while common small shrubs from place to place include viscid daisybush (*Olearia viscosa*), prickly beauty (*P. juniperina*), common correa (*Correa reflexa* var. *reflexa*), peachberry heath (*Lissanthe strigosa*) and native indigo (*Indigofera australis*).

The generally open and grassy groundcover is dominated by tussockgrass (*Poa* sp.), wallabygrass (*Rytidosperma* sp.), speargrass (*Austrostipa* sp.) and sagg (*Lomandra longifolia*), with other prominent species including ivyleaf violet (*Viola hederacea*), native cranberry (*Astroloma humifusum*), creeping bossiaea (*Bossiaea prostrata*) and common raspwort (*Gonocarpus tetragynus*). South facing slopes and gullies sometimes feature a dense sedgy groundcover dominated by sword sedges (*Lepidosperma laterale*) and sagg, while rocky south-facing slopes feature a low shrubby understorey dominated by viscid daisy bush.

TASVEG Unit – *Eucalyptus amygdalina* dry forest on sandstone

TASVEG Code – DAS

This community occurs on sandstone across much of the mid to lower slopes of the land (see Figure 3). Black peppermint dominates the canopy, typically with the occasional white gum also present in the canopy. White gum and/or blue gum are co-dominant in gullies along the western margins of the land and in places on south-facing slopes. Occasional stringybarks also occur in the canopy where the community grades into DOB forest.

The understorey is variously heathy, shrubby or open and grassy, depending on aspect, topography and soil depth. There is typically only a sparse mid-storey of tall shrubs and small trees, with native cherry (*Exocarpos cupressiformis*) common throughout and prickly box (*Bursaria spinosa*), young blackwoods (*Acacia melanoxylon*), young silver wattles (*A. dealbata*) and banksia (*Banksia marginata*) also prominent in places.

Groundcover on deeper soils on south-facing slopes is generally comprised of a dense sward of bracken reaching chest height in places, while deeper soils on the lower slopes in the mid-west of the land feature a heathy groundcover dominated by golden pea (*Aotus ericoides*). North-facing slopes and ridges feature an open, grassy groundcover dominated by tussockgrass (*Poa* sp.), wallabygrass (*Rytidosperma* sp.), speargrass (*Austrostipa* sp.) and sagg (*Lomandra longifolia*), along with a range of small shrubs and herbs, including native cranberry (*Astroloma humifusum*) and common raspwort (*Gonocarpus tetragynus*).

TASVEG Unit – *Eucalyptus ovata* dry forest

TASVEG Code – DOV

A small area of DOV forest occurs along a drainage line in the north-west of the lot. The canopy is comprised entirely of black gum (*E. ovata*) over an understorey free of shrubs except for the occasional prickly box along the eastern margins where the community intergrades with DGL forest. The groundcover is dominated by a dense sward of sword sedges (*Lepidosperma* spp.), sagg and native grasses.

TASVEG Unit – *Eucalyptus viminalis* grassy woodland

TASVEG Code – DVG

A small area of DVG forest occurs on a spur in the north of the lot where it is bisected by the access road to the communications tower on top of the Tinderbox Hills (see Figure 3). White gum is almost completely dominant, with only occasional black gums (*E. ovata*) and black peppermints along the southern margins of the community where it intergrades with DAD forest. The understorey at the northern end of this community where it intergrades with NAV forest is dominated by dense regrowth of young drooping sheoak (*Allocasuarina verticillata*). Elsewhere, the understorey is typically open and grassy, with tussock grass, speargrass and wallabygrass all prominent, along with occasional patches of sword sedge (*Lepidosperma laterale*).

TASVEG Unit – *Eucalyptus amygdalina* dry forest on dolerite

TASVEG Code – DAD

A small area of DAD forest occurs in the north of the lot directly to the south of the DVG woodland (see Figure 3). Black peppermint is almost completely dominant, with only occasional black gums (*E. ovata*) and white gums along the northern margins of the community where it intergrades with DVG woodland and stringybarks along the southern margins where it intergrades with DOB forest. The understorey in this community is similar to the adjoining DVG woodland, but also includes occasional Spanish heath (*Erica lusitanica*) which is invading from the area of regenerating cleared land to the east.

TASVEG *Eucalyptus obliqua* dry forest and woodland

TASVEG Code – DOB

Small patches of DOB forest occur in gullies in the north-west and central east of the lot (see Figure 3). Stringybark is the dominant canopy species, with black peppermint, blue gum and white gum also present where the community intergrades with adjoining DAD, DAS and DGL forest.

The DOB forest contains a sparse mid-storey of scattered tall shrubs and small trees including young blackwoods, prickly moses (*Acacia verticillata*) and occasional native cherry. Prominent smaller shrubs in the understorey include common heath (*Epacris impressa*), yellow spiky pea (*Daviesia ulicifolia*) and trailing native-primrose (*Goodenia lanata*), while prominent species in the groundcover include tussock grass, sagg, flax lily (*Dianella tasmanica*), bracken, and dwarf riceflower (*Pimelea humilis*).

TASVEG Unit – Bursaria/Acacia woodland

TASVEG Code – NBA

A small area of NBA woodland has been mapped in the far north of the lot. This community features occasional emergent white gums, scattered native box and occasional patches of young eucalypt saplings over an open, grassy groundcover matching the description provided below for GCL.

TASVEG Unit – *Allocasuarina verticillata* forest

TASVEG Code – NAV

A small area of this community occurs on an exposed, rocky, north-facing slope in the central north of the lot. The community contains a dense canopy of drooping sheoak, with very little understorey on the dolerite scree substrate.

TASVEG Unit – Lowland grassland complex

TASVEG Code – GCL

Patches of native grassland complex occur across the land, typically associated with exposed hilltops and ridge-lines. All show signs of past disturbance and given the previous use of the land for 'bush run grazing' of sheep it is probable that they have at least been influenced by grazing and use as 'sheep camps'. The extent to which each of these patches may be natural or induced and maintained by disturbance is not always obvious, but there are signs that some patches may ultimately succeed to NBA woodland or open eucalypt woodland. Patches of GCL on the top of the tinderbox hills are typically dominated by species of wallabygrass, speargrass and/or tussock grasses (*Poa spp.*), but in some instances also contain patches dominated by kangaroo grass

(*Themeda triandra*). Exotic grasses and herbs are also present amongst the grassland. Some feature occasional emergent blue gums, white gums or native box, while a range of exotic grasses and herbs also occur in the grassland.

TASVEG Unit – Regenerating Cleared Land

TASVEG Code – FRG

Two areas of regenerating cleared land have been mapped. Arguably these areas could have been mapped as GCL, but the extent of eucalypt recruitment in the northern patch and establishment of shrubs in both areas have led to interpretation as FRG.

The northern patch of FRG is in good condition and regeneration back to DGL woodland or forest is well on its way. The southern patch was previously cleared and fenced off as a paddock. It has native shrub species invading from the margins but is also subject to an infestation of Spanish heath (*Erica lusitanica*) that is dense enough in places to have been mapped as weed infestation (FWU).

4.1.1 Conservation status of the vegetation communities

DOV forest and woodland is listed as a threatened community under both the Tasmanian *Nature Conservation Act 2002* (NCA) and listed as a threatened ecological community under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBCA), while DGL forest and woodland and DAS forest and woodland are both listed as threatened under the NCA.

Listings under State and Federal legislation mean that these three communities all constitute ‘High Priority Biodiversity Values’ pursuant to Table E10.0 of the Scheme. All DGL and DOV also qualify as high priority biodiversity values due to the habitat value they provide to the endangered swift parrot (*Lathamus discolor*). In addition, all forest and woodland on the lot containing white gums qualifies as a high priority biodiversity value due to the habitat value it provides to the endangered forty-spotted pardalote (*Pardalotus quadragintus*). This includes DVG forest and woodland, but also much of the DAS forest and woodland, which often features white gums as occasional trees or sub-dominant canopy trees.

4.2 Flora

Species recorded on the lot are listed in Appendix 1. Whilst every effort was made to record all species encountered the limitations of the survey technique and seasonal factors means that additional species are likely to be recorded at the site if subsequent surveys were to be conducted.

4.2.1 Threatened Flora

Due to the nature and time constraints of the survey, no dedicated effort was made to identify threatened flora species. The searches of the Natural Value Atlas (DPIPWE, 2021; DNRE, November 2023) revealed that one threatened species has been previously recorded within 500 m of the site. An additional 11 threatened species have been recorded within a 5 km radius of the site that could potentially occur based on habitat preferences. These species are listed in Table 2 including a comment on the likelihood of them occurring at this site.

Table 2 – Threatened flora recorded within a 5 km radius of the site and potential habitat exists on the lot

Species	Status TSPA	Status EPBCA	Comments
Species recorded within 500 m			
<i>Austrostipa blackii</i> Crested speargrass	r		Potential habitat present in open grassy woodlands, particularly closer to the coast (ie SE of the lot)
Species recorded within 5 km			
<i>Asperula scoparia scoparia</i> prickly woodruff	r		Potential habitat present in grassy woodlands
<i>Austrostipa bigeniculata</i> doublejointed speargrass	r		Potential habitat present in open grassy woodlands and grasslands
<i>Caladenia caudata</i> tailed spider orchid	v	VU	Marginal habitat may be present, unlikely to occur
<i>Caladenia filamentosa</i> daddy longlegs	r		Potential habitat present on well drained soils
<i>Cyrtostylis robusta</i> large gnat-orchid	r		Marginal habitat may be present, probably unlikely to occur
<i>Juncus vaginatus</i> clustered rush	r		Marginal habitat may be present, probably unlikely to occur
<i>Lepidosperma tortuosum</i> twisting rapiersedge	r		Potential habitat present in eucalypt woodland
<i>Pterostylis squamata</i> ruddy greenhood	r	-	Potential habitat present in DAS woodland and forest
<i>Scleranthus fasciculatus</i> spreading knawel	v		Potential habitat present in open grassy woodlands and grasslands
<i>Senecio squarrosus</i> leafy fireweed	r		Potential habitat present in open grassy woodlands
<i>Thelymitra bracteata</i> leafy sun-orchid	e		Potential habitat present in grassy and heathy DAS woodland and forest

TTSPA = Tasmanian *Threatened Species Protection Act 1995*.

EPBCA = Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

4.3 Weeds

Several declared and environmental weeds were recorded on the site. The greatest concentration of weeds is in the south-east corner of the lot adjoining both long-established farmland and more recent residential lots, with weeds derived from both sources. No new survey work was conducted for this revision of the report, so the information presented here is nearly three years out-of-date.

4.3.1 Declared weeds (see Figures 4 and 5)

Blackberry (*Rubus fruticosus*)

A dense infestation of blackberry occurs in the south-east of the lot between Tinderbox Road and an in-stream dam. Scattered patches were also recorded in a gully in the central west of the lot near Tinderbox Road.

Boneseed (*Chrysanthemoides monilifera*)

Several plants were located within DGL woodland in the south-east corner of the lot. It is possible that other isolated specimens occur in the vicinity of residential lots along the south-eastern boundary.

Gorse (*Ulex europaeus*)

Several individual plants were recorded around the large dam in the central west of the lot, with seed presumably introduced on machinery or in imported material used in construction of the dam.

Montpellier broom (*Genista monspessulana*)

Scattered individual plants were recorded in the south-east corner, in a gully in the central west of the lot and along a vehicle track associated with this gully. It is likely that other isolated specimens and small infestations occur in and around this gully and along the margins of Tinderbox Road where it fronts the lot.

Spanish heath (*Erica lusitanica*)

A dense infestation occurs in regenerating cleared land in the north-west of the lot. Lower density infestations also occur within DGL woodland in the south-east corner of the lot (north of Tinderbox Road), and within DAS in the central west of the land, with spread through these areas apparently facilitated by rough vehicle tracks. Scattered individual plants and small infestations were also recorded at widely dispersed intervals within the DGL forest and woodland. It is almost certain that isolated specimens/patches also occur elsewhere on the lot.

Winged thistle (*Carduus tenuiflorus*) and **saffron thistle** (*Carthamus lanatus*)

These species were not recorded in this survey but have previously been recorded on adjoining land (Enviro-dynamics, 2018) and it is probable they occur in cleared land and native vegetation that has been previously disturbed during farming operations.

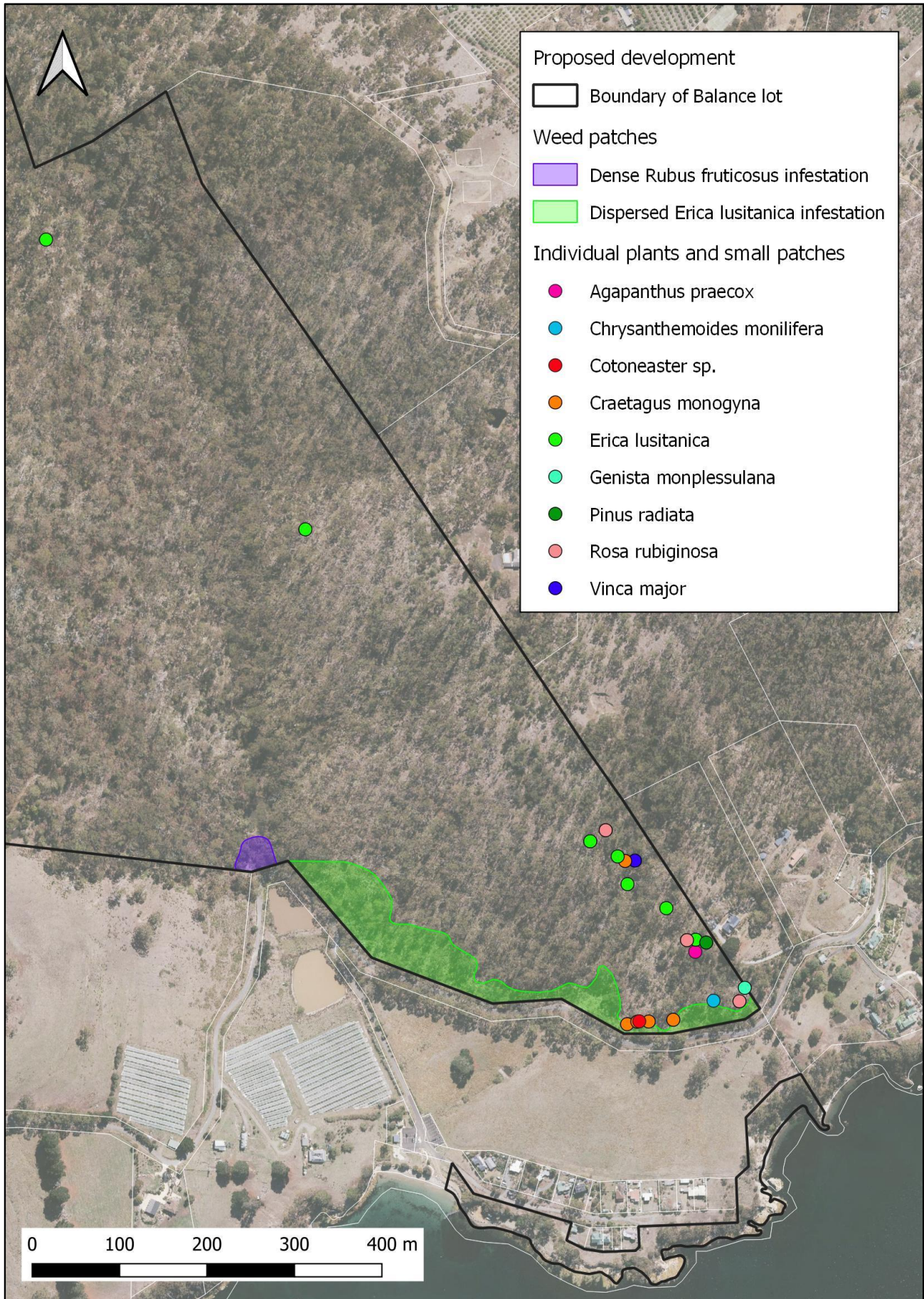


Figure 4 – Weeds recorded in the south-east of the Balance lot

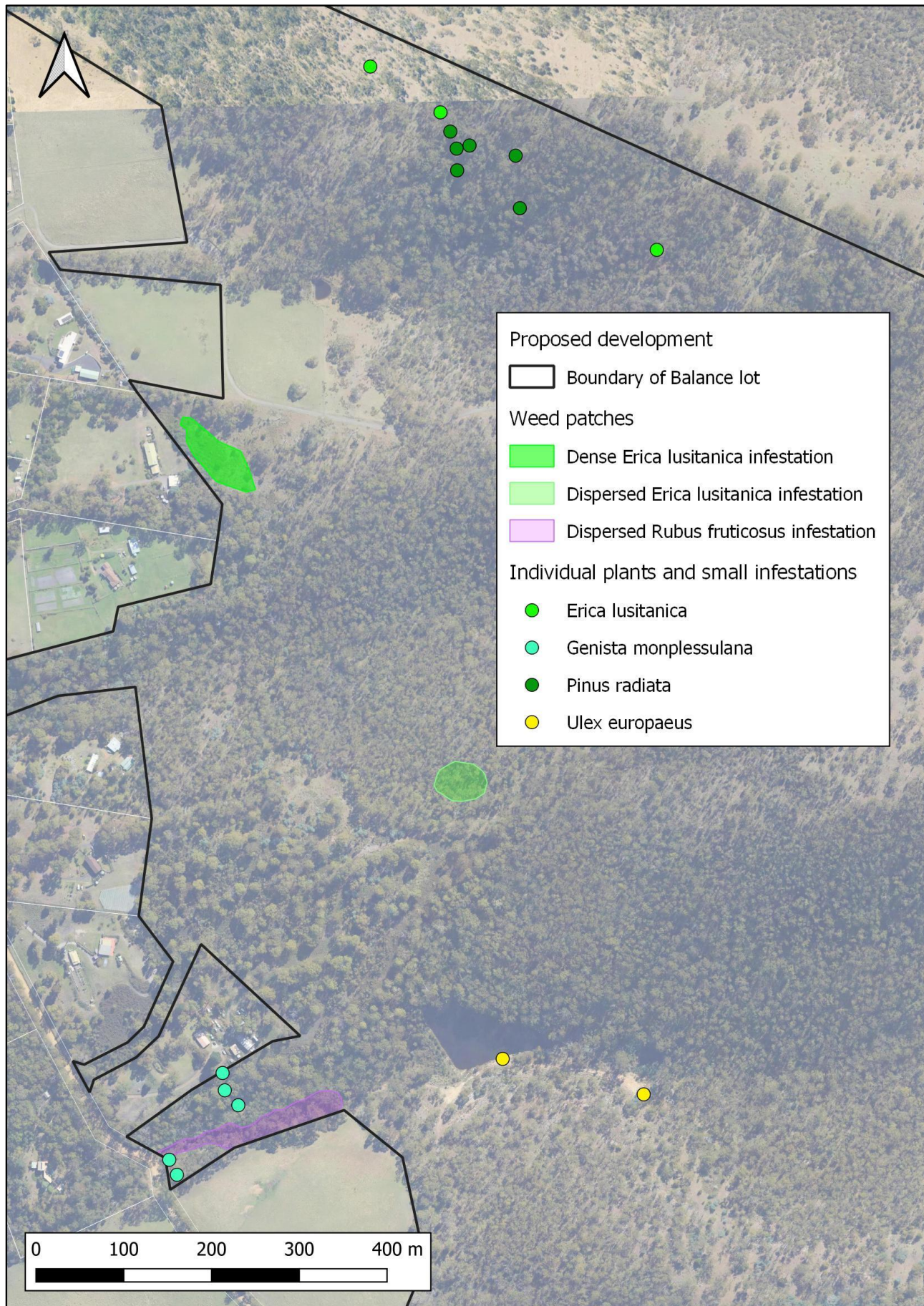


Figure 4 – Weeds recorded in the west of the Balance lot

4.3.2 Environmental weeds

Blue periwinkle (*Vinca major*)

A dense patch of periwinkle was recorded above a small dam in a drainage line the south-east corner of the lot.

Cotoneaster (*Cotoneaster sp.*)

Scattered individual plants were recorded in the south-east corner of the lot.

Hawthorn (*Crataegus monogyna*)

Scattered individual plants were recorded in the south-east corner of the lot close to Tinderbox Road.

Radiata pine (*Pinus radiata*)

Several young trees were located along the south-eastern corner of the lot. Scattered individual trees also occur in the north of the lot, including several large, mature trees.

4.4 Fauna

The site provides a wide range of habitat for native fauna species, including dry grassy woodland and forest, open grassland, riparian vegetation, rocky outcrops, sandstone cliffs and artificial wetlands (dams). A diverse range of birds, reptiles, mammals and invertebrate species are likely to occur across the multiple habitat types, including a number of threatened species. No specific fauna surveys were undertaken except confirming the ongoing presence and activity status of previously recorded wedge-tailed eagle nests.

4.4.1 Threatened fauna

Evidence of two threatened fauna species was recorded during the survey:

- individual wedge-tailed eagles were observed flying across the site, roosting in large trees and sitting on a nest in the north of the site (see detail below); and
- reasonably fresh Tasmanian devil scats were observed in a sandstone overhang in the south-east of the lot.

The searches of the Natural Value Atlas (DPIPWE, 2021; DNRE, November 2023) revealed that nine threatened species have been recorded within 500 m of the site and one additional threatened species has been recorded within a 5 km radius of the site that may occur based on habitat preferences. These species are listed in Table 3, including a comment on the likelihood of them occurring at this site.

One new threatened fauna species has been recorded in the vicinity since the survey of the site in 2021.

Specimens of the critically endangered ammonite pinwheel snail (*Ammoniropa vigens*) were recorded in a gully on the adjoining property to the northeast in December 2022 (a private reserve owned by the Tasmanian Land Conservancy).

Table 3 – Threatened fauna recorded within a 5km radius of the site and potential habitat occurs on the lot

Species	Status TSPA	Status EPBCA	Comments
Species recorded within 500 m			
<i>Accipiter novaehollandiae</i> grey goshawk	e		Unlikely to provide nesting habitat but provides good foraging habitat.
<i>Ammoniropa vigens</i> Ammonite pinwheel snail	e	Cr EN	There is suitable habitat on the property and the recent record 300 m to the northeast suggests that there is a good chance the species occurs on the property.
<i>Aquila audax fleayi</i> wedge-tailed eagle	e	EN	There are two known nests on the lot; the northern nest was found to be in use this breeding season, resulting in a re-design of the subdivision.
<i>Dasyurus viverrinus</i> eastern quoll		EN	The lot provides excellent foraging and denning habitat for this species and it is likely to occur.
<i>Haliaeetus leucogaster</i> White-bellied sea-eagle	v		Potential nest habitat occurs but is an unlikely outcome given the resident wedge-tailed eagles.
<i>Lathamus discolor</i> swift parrot	e	Cr EN	Species has strong association with blue gum and black gum close to the coast; the lot contains large areas of blue gum forest and a small patch of black gum forest and provides prime foraging habitat and potential nesting habitat.
<i>Pardalotus quadragintus</i> forty-spotted pardalote	e		This species has an intrinsic link with white gums; the lot contains some white gum woodland, as well as numerous white gums trees scattered through other vegetation communities; there are numerous records of the species from the Tinderbox Hills and it is almost certain to occur.
<i>Perameles gunnii</i> Eastern barred bandicoot		VU	Prefers open grassy areas but requires thick groundcover for shelter and nesting; the lot provides excellent habitat for this species and it is likely to occur.
<i>Sarcophilus harrisii</i> Tasmanian devil	e	EN	The lot provides excellent foraging and denning habitat for this species and it is likely to occur.
<i>Tyto novaehollandiae castanops</i> Masked owl (Tasmanian)	e		Found in dry forest and woodland near open country and requires large hollows in old growth trees for nesting; there are limited old growth trees suitable for nesting on the lot but the species may occur.
Species recorded within 5 km			
<i>Alcedo azurea diemenensis</i> Azure kingfisher	e	EN	Occurs in riparian forest along water edges; potential habitat around the large dam in the central west of the lot.

TTSPA = Tasmanian *Threatened Species Protection Act 1995*.

EPBCA = Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

4.4.2 Threatened Fauna Habitat

The site is known to support important habitat for several threatened fauna species, particularly the forty spotted pardalote, wedge-tailed eagle and swift parrot.

Forty-spotted pardalote

The Tinderbox Hills contains one of the six known broad colonies of forty-spotted pardalotes in Tasmania, with numerous small colonies recorded on the lot and adjoining properties in the past. A 2009/10 survey determined that the population of forty-spotted pardalotes in the Tinderbox Hills has declined, mainly due to loss or decline of habitat due to drought conditions (Bryant, 2010), but a significant number of breeding birds were recorded on adjoining land in 2017 (Enviro-dynamics, 2018).

The lot contains small areas of white gum woodland and there are also numerous individual white gums amongst other forest and woodland communities, with white gum locally dominant and often co-dominant in the wetter facies of DAS associated with gullies and south-facing slopes and in some of the DGL woodland and forest in the south-east of the lot. Areas containing a high proportion of white gums in the canopy provide prime habitat for the forty-spotted pardalote and are critical for the continued survival of this species.

Wedge-tailed eagle

There are two known wedge-tailed eagle nests on the property - one at the head of a gully in the south-east and one on the south-facing slope of a gully in the north (see Figure 5). There are also two known nests on the adjoining property to the north-east. The owner of the adjoining property (the Tasmanian Land Conservancy) was able to confirm that neither of the nests on their property was in use for the 2020/2021 breeding season.

Both nests on the subject land were recorded as inactive on the Natural Values Atlas at the time they were last surveyed by DPIPW. Extreme care was taken in the vicinity of these nests during the survey because it was conducted toward the end of the breeding season and nesting wedge-tailed eagles are known to be sensitive to disturbance. Based on the activity and behaviour of birds observed during the survey and evidence at the base of the nest in a follow up visit after the breeding season, it appears likely that the northern nest was in active use for the 2020/2021 breeding season.

Standard advice from DPIPW in relation to eagle nests, whether active or inactive, is that a 500m buffer and a 1km line-of-sight buffer should be applied from any development. Line of sight calculations must be modelled on topography alone and assume no vegetative screening. In this case, significant vegetative screening exists between the nests and the proposed development. This screening would probably only be lost if there was a significant bushfire event resulting in temporary defoliation of trees.

A viewshed analysis was undertaken using the Visibility Analysis tool within QGIS 3.10 to model line-of-sight from the nests. No data on the height of the nests is available in the NVA. A default height of 25m was applied to the nest in the south of the property and to the two nests on the adjoining property. The author was able to estimate the height of the nest in the north of the property at 13-14m in a follow up visit after the breeding season and a 15m nest height has been applied for modelling purposes. In all cases, a target height of 2m has been applied, being a height that captures most human activity. The nest locations, 500m buffers and line-of-sight modelling are shown in Figure 5.

The original subdivision layout has been re-designed to ensure that all proposed building areas are outside the 500m and 1km line-of-sight buffers from eagle nests.

Swift parrot

No swift parrots were recorded during the survey, but there are numerous existing records from the Tinderbox Hills, including nest records. There are extensive areas of blue gum forest and woodland on the Balance lot, and it is likely to support a significant population of birds during the breeding season whenever blue gums are flowering in the Tinderbox Hills or surrounding areas.

Tasmanian devil, eastern barred bandicoot, eastern quoll, grey goshawk and masked owl

Given the size of the lot and the quality of the habitat available to these species on the Tinderbox Hills, at the very least it is likely to be part of a broader foraging range for individuals or populations. Individuals of all of these species may come and go from the site and population densities will vary depending on natural fluctuations, seasonal conditions and other factors.

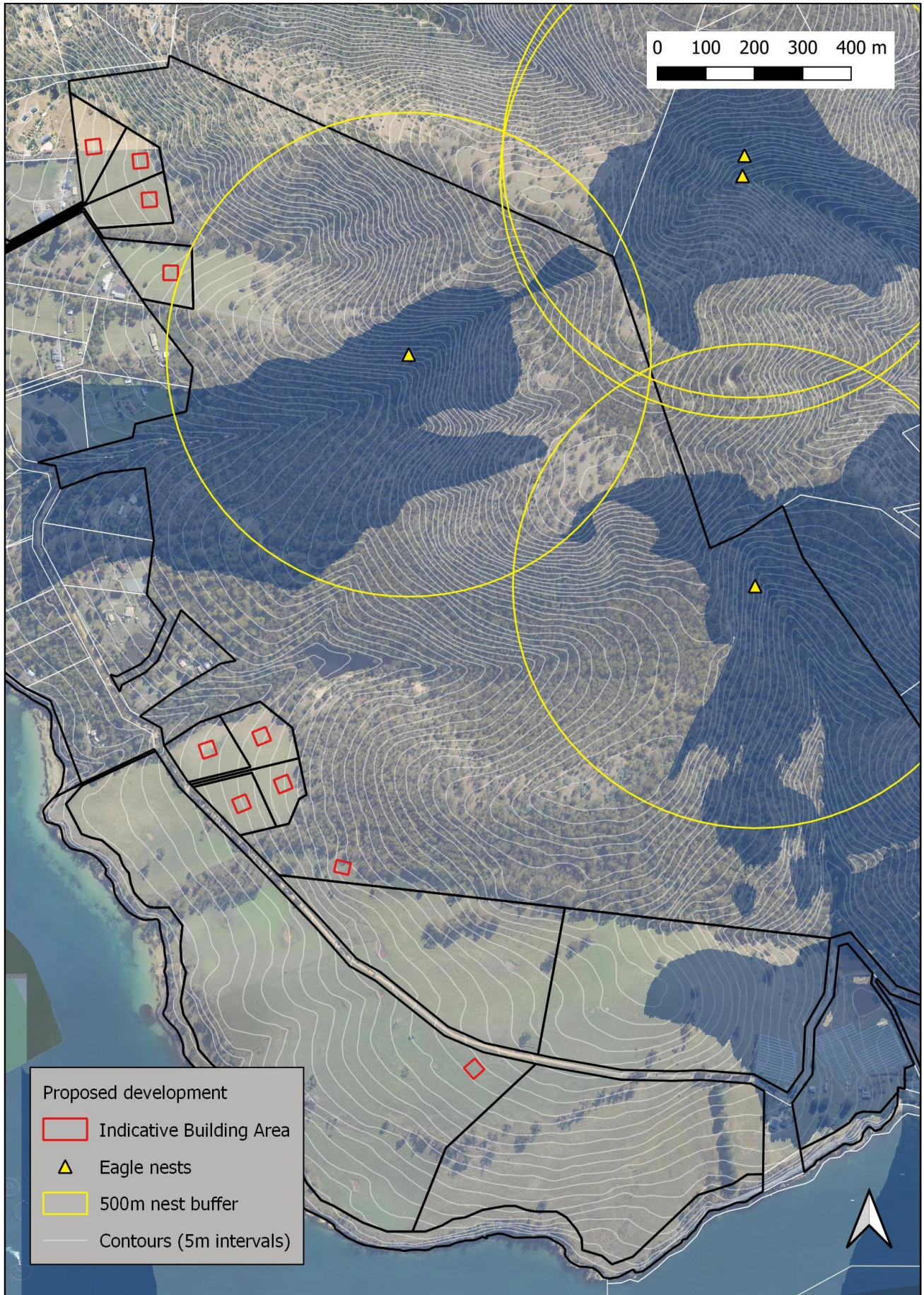


Figure 5 – Line of sight from eagle nests modelled using QGIS viewshed analysis (blue shading)

5. Impacts of proposed subdivision

This section of the report outlines the impact of the proposed 11 lot subdivision (10 lots and Balance) on the natural values of the site.

5.1 Impact on native vegetation

The building areas and associated bushfire hazard management areas for all proposed lots can be contained within cleared agricultural land (FAG). As a result, no clearance of native vegetation is required for the proposed subdivision, except the potential loss of vegetation for establishment of safe and compliant access and services (see below).

5.2 Impact on threatened species

Given the placement of building areas within cleared agricultural land, no impacts on threatened flora species are anticipated as part of the subdivision. As building areas are also free of any trees, their development is also unlikely to directly impact any threatened fauna habitat, except through the potential loss of individual white gums, blue gums or black gums for establishment of safe and compliant access and services. These issues have been addressed in the documentation already submitted to Council as part of the Development Application.

Eagle Nest Sites

The current subdivision proposal arises from a re-design to ensure that no building areas or subdivision works will be located within 500 m or 1 km line-of-sight of an eagle nest.

Bird Strike Risk

Future dwellings on the proposed lots will be in proximity to DGL and DOV forest and woodland, which presents a potential future strike risk to swift parrots. Design measures can be incorporated into future dwellings on these lots to minimise the risk of bird strike, including the following.

1. Avoid corner windows or windows that align and allow birds to see through the dwelling.
2. Use low reflective glass or visual noise on large windows to reduce the bird strike risk. Visual noise can be achieved in numerous ways:
 - attaching external screens to operable windows;
 - designing façades with elements that are visually interesting and create a physical barrier; and

- installing external or internal blinds or other temporary visual barriers that can be lowered or installed during the breeding season to minimise strike risk (November to March).

6. Conclusion and recommendations

The vast majority of the high priority biodiversity values associated with the proposed subdivision are captured and will be protected on the Balance lot, the only exceptions being occasional 'high conservation value trees' pursuant to the Kingborough Interim Planning Scheme 2015. Issues in relation to these trees have been addressed in the documentation already submitted to Council as part of the Development Application.

The following recommendations are made in relation to the proposed subdivision.

- A weed management plan should be prepared prior to any development on the site.
- Machinery and vehicles used for subdivision works should adhere to vehicle hygiene protocols and be washed down prior to entering the site to prevent the introduction of declared weeds into the site or export from the site.
- Any soil or gravel imported to the site for construction or landscaping purposes should be from a weed-free source to prevent the establishment of further introduced species on the site.
- Future development of dwellings on new lots should be subject to measures to minimise bird strike.

Appendix 1- Species list for 441 Tinderbox Road, Tinderbox.

Recorder: J. Mulcahy Date: 8 January 2021

e = endemic i = introduced d = declared weed

Family name	Species name	Common name
Dicotyledonae		
APIACEAE		
	<i>Daucus glochidiatus</i>	Australian Carrot
APOCYNACEAE		
i	<i>Vinca major</i>	Blue Periwinkle
ASTERACEAE		
i	<i>Arctotheca calendula</i>	Cape Weed
	<i>Argentipallium dealbatum</i>	White Everlasting
e	<i>Bedfordia salicina</i>	Tasmanian Blanket Leaf
	<i>Brachyscome decipiens</i>	Field Daisy
	<i>Cassinia aculeata</i>	Dolly Bush
i, d	<i>Chrysanthemoides monilifera</i>	Boneseed
i	<i>Cirsium vulgare</i>	Spear Thistle
	<i>Euchiton involucratus</i>	Common Cudweed
	<i>Lagenophora sp.</i>	Bottle Daisy
i	<i>Leontodon taraxacoides</i>	Hawkbit
	<i>Leptorhynchos squamatus</i>	Scaly Buttons
	<i>Olearia viscosa</i>	Viscid Daisy Bush
	<i>Ozothamnus ferrugineus</i>	Tree Everlasting
	<i>Senecio spp.</i>	Fireweeds

Family name	Species name	Common name
	<i>Solenogyne sp.</i>	Flat-herb
i	<i>Taraxacum officinale</i>	Dandelion
BORAGINACEAE		
	<i>Cynoglossum suaveolens</i>	Sweet Hound's Tongue
CAMPANULACEAE		
	<i>Wahlenbergia gracilentia</i>	Bluebell
CASUARINACEAE		
	<i>Allocasuarina littoralis</i>	Bulloak
	<i>Allocasuarina verticillata</i>	Sheoak
CLUSIACEAE		
	<i>Hypericum gramineum</i>	Small St. Johns Wort
CONVOLVULACEAE		
	<i>Convolvulus angustissimus</i>	Australian Bindweed
	<i>Dichondra repens</i>	Kidney-weed
CRASSULACEAE		
	<i>Crassula sp.</i>	Stonecrop
DROSERACEAE		
	<i>Drosera peltata</i>	Tall Sundew
EPACRIDACEAE		
	<i>Astroloma humifusum</i>	Native Cranberry
	<i>Epacris impressa</i>	Common Heath
	<i>Leucopogon virgatus</i>	Common Beard-heath
	<i>Leucopogon parviflorus</i>	Coast Beard-heath
	<i>Lissanthe strigosa</i>	Peachberry Heath

Family name	Species name	Common name
ERICACEAE		
i, d	<i>Erica lusitanica</i>	Spanish Heath
EUPHORBIACEAE		
	<i>Amperea xiphoclada</i>	Broom Spurge
FABACEAE		
	<i>Aotus ericoides</i>	Golden Pea
	<i>Bossiaea prostrata</i>	Creeping Bossia
	<i>Daviesia ulicifolia</i>	Gorse Bitter Pea
i, d	<i>Genista monspessulana</i>	Montpellier Broom
	<i>Indigofera australis</i>	Native Indigo
	<i>Pultenaea daphnoides</i>	Native Daphne
	<i>Pultenaea juniperina</i>	Prickly Beauty
i	<i>Trifolium dubium</i> sp.	Clover
i, d	<i>Ulex europaeus</i>	Gorse
i	<i>Vicia</i> sp.	Vetch
GENTIANACEAE		
i	<i>Centaurium erythraea</i>	Common centaury
GERANIACEAE		
	<i>Geranium solanderi</i>	Native Geranium
GOODENIACEAE		
	<i>Goodenia lanata</i>	Native Primrose
	<i>Goodenia ovata</i>	Parrot's Food
HALORAGACEAE		
	<i>Gonocarpus tetragynus</i>	Common Raspwort

Family name	Species name	Common name
LAMIACEAE		
	<i>Ajuga australis</i>	Austral Bugle
MIMOSACEAE		
	<i>Acacia dealbata</i>	Silver Wattle
	<i>Acacia genistifolia</i>	Spreading Wattle
	<i>Acacia longifolia</i>	Coast Wattle
	<i>Acacia mearnsii</i>	Black Wattle
	<i>Acacia melanoxylon</i>	Blackwood
	<i>Acacia stricta</i>	Hop Wattle
	<i>Acacia verticillate</i>	Prickly Moses
MYRTACEAE		
e	<i>Eucalyptus amygdalina</i>	Black peppermint
	<i>Eucalyptus globulus</i>	Tasmanian Blue Gum
	<i>Eucalyptus obliqua</i>	Stringybark
	<i>Eucalyptus ovata</i>	Black Gum
e	<i>Eucalyptus pulchella</i>	White Peppermint
	<i>Eucalyptus viminalis</i>	White Gum
	<i>Leptospermum scoparium</i>	Manuka
OXALIDACEAE		
	<i>Oxalis perennans</i>	Native Oxalis
PITTOSPORACEAE		
	<i>Bursaria spinosa</i>	Native Hop
	<i>Pittosporum bicolor</i>	Cheesewood

Family name	Species name	Common name
PLANTAGINACEAE		
i	<i>Plantago sp.</i>	Plantain
POLYGALACEAE		
	<i>Comesperma volubile</i>	Blue Love Creeper
POLYGONACEAE		
i	<i>Acetosella vulgaris</i>	Sorrel
PROTEACEAE		
	<i>Banksia marginata</i>	Silver Banksia
e	<i>Lomatia tinctoria</i>	Guitar Plant
RANUNCULACEAE		
	<i>Clematis aristata</i>	Climbing Clematis
	<i>Ranunculus sp.</i>	Buttercup
RHAMNACEAE		
	<i>Pomaderris apetala</i>	Dogwood
ROSACEAE		
	<i>Acaena echinata</i>	Sheep's Burr
	<i>Acaena novae-zelandiae</i>	Buzzy
i	<i>Cotoneaster sp.</i>	Cotoneaster
i	<i>Crataegus monogyna</i>	Hawthorn
i	<i>Rosa rubiginosa</i>	Briar Rose
i, d	<i>Rubus fruticosus</i>	Blackberry
RUBIACEAE		
	<i>Coprosma quadrifida</i>	Native Currant

Family name	Species name	Common name
RUTACEAE	<i>Correa reflexa</i>	Maritime Correa
SANTALACEAE	<i>Exocarpos cupressiformis</i>	Native Cherry
	<i>Exocarpos strictus</i>	Dwarf Cherry
SAPINDACEAE	<i>Dodonaea viscosa</i>	Native Hop
SCROPHULARIACEAE	<i>Veronica gracilis</i>	Slender Speedwell
STACKHOUSIACEAE	<i>Stackhousia monogyna</i>	Candles
STYLIDIACEAE	<i>Stylidium graminifolium</i>	Trigger Plant
THYMELAEACEAE	<i>Pimelea drupacea</i>	Cherry Rice-flower
	<i>Pimelea humilis</i>	Dwarf Rice-flower
URTICACEAE	<i>Urtica incisa</i>	Stinging Nettle
VIOLACEAE	<i>Viola hederacea</i>	Ivy-leaf Violet
Gymnospermae		
PINACEAE		
i	<i>Pinus radiata</i>	Monterey Pine/Radiata Pine

Monocotyledonae

Family name	Species name	Common name
CYPERACEAE		
	<i>Carex spp.</i>	Sedges
	<i>Lepidosperma laterale</i>	Variable Sword-sedge
	<i>Lepidosperma sp.</i>	Sword Sedge
IRIDACEAE		
	<i>Diplarrena moraea</i>	White Flag Iris
JUNCACEAE		
	<i>Juncus spp.</i>	Rushes
LILIACEAE		
	<i>Arthropodium milleflorum</i>	Pale Vanilla-lily
	<i>Dianella brevicaulis</i>	Black Anther Flax-lily
	<i>Dianella tasmanica</i>	Flax-lily
	<i>Wurmbea uniflora</i>	-
POACEAE		
	<i>Rytidosperma spp.</i>	Wallaby Grasses
	<i>Austrostipa spp.</i>	Spear Grasses
	<i>Ehrharta stipoides</i>	Weeping Grass
	<i>Poa labillardierei</i>	Tussock Grass
	<i>Poa rodwayi</i>	Silver Tussock
	<i>Themeda triandra</i>	Kangaroo Grass
XANTHORRHOEACEAE		
	<i>Lomandra longifolia</i>	Sagg

Pteridophyta

Family name	Species name	Common name
ADIANTACEAE		
	<i>Adiantum aethiopicum</i>	Common maidenhair
ASPLENIACEAE		
	<i>Asplenium flabellifolium</i>	Necklace Fern
DENNSTAEDTIACEAE		
	<i>Pteridium esculentum</i>	Bracken
POLYPODIACEAE		
	<i>Microsorium pustulatum</i>	Kangaroo Fern