



North West Bay River  
Multi-use Trail:  
Miandetta Drive to  
Channel Highway  
Natural Values Report &  
Environmental Management Plan

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14 MAY 2024

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# 1. Introduction

This natural values report has been prepared as a requirement of a development application under the *Kingborough Interim Planning Scheme 2015* (KIPS) for a 2.9km multi-use trail following the North West Bay River between Miandetta Drive and the Channel Highway at Margate.

Enviro-dynamics in conjunction with Mtn Trails Pty Ltd was engaged by the Kingborough Council in 2019 to undertake a feasibility study of the North West Bay River multi-use trail between Longley and Margate. The feasibility study identified potential route options with consideration of land tenure, natural and cultural values, trail design and costing, and community feedback from public consultation. The proposed trail will mostly be on public land but will require access agreements for sections of private land.

Enviro-dynamics has been engaged to undertake a detailed natural values assessment of the second stage of the trail (the easternmost section, from Miandetta Drive to Channel Highway) on behalf of Kingborough Council. The assessment aims to identify the natural values of the site, including determining the type and extent of vegetation communities, and presence of threatened species and threatened fauna habitat. It also aims to map weed infestations and identify any other threats present. Any potential impacts to natural values posed by the development are then considered and management recommendations are provided to mitigate these impacts. Planning requirements under the *Kingborough Interim Planning Scheme 2015* (e.g. Biodiversity Protection Area and Waterway and Coastal Protection Area) and Tasmanian and Commonwealth environmental legislation are addressed with regard to natural values impacts.

## 2. Background

### 2.1. Site description

The North West Bay River is the largest river system in the Kingborough Municipality with a catchment area of over 9,600 hectares and a length of approximately 25 km. It originates on the western side of kunanyi/Mount Wellington and winds its way through the landscape of mostly Jurassic dolerite geology to North West Bay at Margate.

The river meanders through a series of dolerite hills, featuring steep slopes and cliffs interspersed with alluvial flats. The riverbanks are solid rock or alluvial deposits, often steeply incised below an alluvial terrace. The riverbed is dolerite bedrock or cobbles. In addition to dolerite, basalt also occurs in the lowest reaches of the river but is mostly overlain with alluvial deposits.

The section of river considered here has mostly intact riparian vegetation between Miandetta Drive and Hopfields Road, with cleared land on the alluvial flats below Hopfields Road. This section of river has a gentle gradient, descending from 25 m a.s.l. at the Miandetta Drive access to below 5 m a.s.l. at the Channel Highway bridge.

Land tenure along this section is a mostly a mix of Crown Land and Council Reserve (Figure 1), zoned either Environmental Management or Environmental Living under the *Kingborough Interim Planning Scheme 2015* (Figure 2). Private land zoned Rural Resource on the Brookfield property accommodates 400 m of trail. The trailhead at Margate is in the Recreation zone and a short section under the Channel Highway is in the Utilities zone. Most of the proposed trail is within a Waterway and Coastal Protection Area and the entire project is covered by a Biodiversity Protection Area overlay.

## 2.2. Development proposal

The proposed trail will be constructed to standards consistent with the IMBA TDRS (International Mountain Bicycling Association, Trail Difficulty Rating System) Land Managers Guide and the *Australian Walking Track Standards* (AS2156.1-2001 and AS2156.2-2001). Full bench construction is needed on steeper terrain, with a typical trail width of 1.2 m. Trail width may be wider on flatter ground, to allow for easier passing. Track construction will involve clearance of understorey and shrub vegetation and minor earthworks for benching and drainage, including use of mechanical equipment. The trail will avoid trees with a diameter at chest height (DBH) greater than 25 cm and as such no large trees will be removed.

### Trail Route

Stage 2 of the North West Bay River Trail will link Miandetta Drive to the Channel Highway and is around 2,900 m long. This equates to Section 4 in the Feasibility Study (2020): segments 17, 18, 19, 19a, 20a, 20b and 21.

The proposed trail commences at an existing access point to the North West Bay River from Miandetta Drive in Margate. An existing 290m long public walking track from the end of Miandetta Drive will provide access to the south side of the river, from which point a new route will cross the river where a broad rocky riverbed allows crossing at low flows without any infrastructure required.

The route then follows an existing 4wd track on the north side of the river on Crown and Council land for around 200 m (Segment 17), where works will be limited to resurfacing. It then continues eastward partly on existing singletrack to cross a minor drainage line, where some minor clearing of understorey vegetation and hardening of the watercourse crossing will be required (Segment 18).

Segment 19 initially climbs a steep bank, partly utilising existing singletrack, then follows the river on Council land in a southwesterly direction, gradually descending from the high riverbank to a floodplain on the inside of the next riverbend, where it heads northeast for around 180m to the next crossing point. This section is open forest, allowing the trail to be developed with minimal clearing of understorey vegetation and no removal of trees. Some benching will be required for short steep sections.

Instream boulders allow crossing to the south side of the river, where a new section of trail on Crown Land will climb up a bank onto private land at the end of Hopfields Road (Segment 19a). Some benching and clearing of dense shrubby growth will be necessary.

The trail will follow a levee bank and alluvial flats for 400m along the margin of a farming property, then entre Crown Land and trend south along the river (Segment 20b) to the final crossing point at a ford on an existing vehicular track (Segment 20a). This segment utilises cleared land fringing paddocks and will not require clearing of native vegetation, although some large native trees are in close proximity to the route. Some minor instream rock work may be necessary to improve the existing river crossing.

The final section of trail (Segment 21) is on Council land and follows the eastern side of the river, initially on a flat gravel road, before climbing a steep bank and descending to the highway where it passes under the bridge on Crown Land and terminates on the south side of the bridge at the Kingborough Bowls Club carpark. This segment is mostly cleared land, including rough pasture and weed infestations with some large remnant eucalypt trees along the riverbank. Clearing of native vegetation will be limited to a small patch of dense regrowth eucalypt on the floodplain north of the highway bridge. Some benching will be required for the steeper sections of trail.

### 3. Methods

On-ground surveys were undertaken along the length of the river during the feasibility study to assess the terrain, natural values, access and location of features such as waterholes, potential crossing points and weeds. Prior to the surveys all private landholders who own land along the river were contacted to seek permission to enter their land or cross their land to access the public land along the river.

Once the physical trail route and potential river crossing points were identified, the natural values along and surrounding the identified routes were assessed to identify any high conservation values. The natural values surveyed and mapped included vegetation communities, flora species of significance, important habitat features such as den sites and trees with hollows and environmental threats such as weed infestations.

Natural values surveys for several potential route options were undertaken in November 2019 and March 2021. Trail routes and important features were recorded using handheld GPS units or smartphone GPS. Photos of features such as potential crossing points, threatened flora and willow locations were also taken.

An additional natural values survey was undertaken for the proposed Stage 2 works (trail section 4) on 16<sup>th</sup> February 2024, following finalisation of the route for this section. This survey was based on a GPS file of the proposed route provided by Mtn Trails.

### 3.1. Limitations of the surveys

The surveys focussed on the trail corridor options, with a width of approximately 20–30 m wide. Vegetation mapping was ground-truthed in these survey areas, while the existing Tasveg mapping has been retained elsewhere.

Some plants could not be identified to a species level due to a lack of flowers (e.g. grasses) and others may have been overlooked due to a lack of fertile material. It is also possible that additional species are present but were dormant at the time of survey (e.g. annuals, ephemerals).



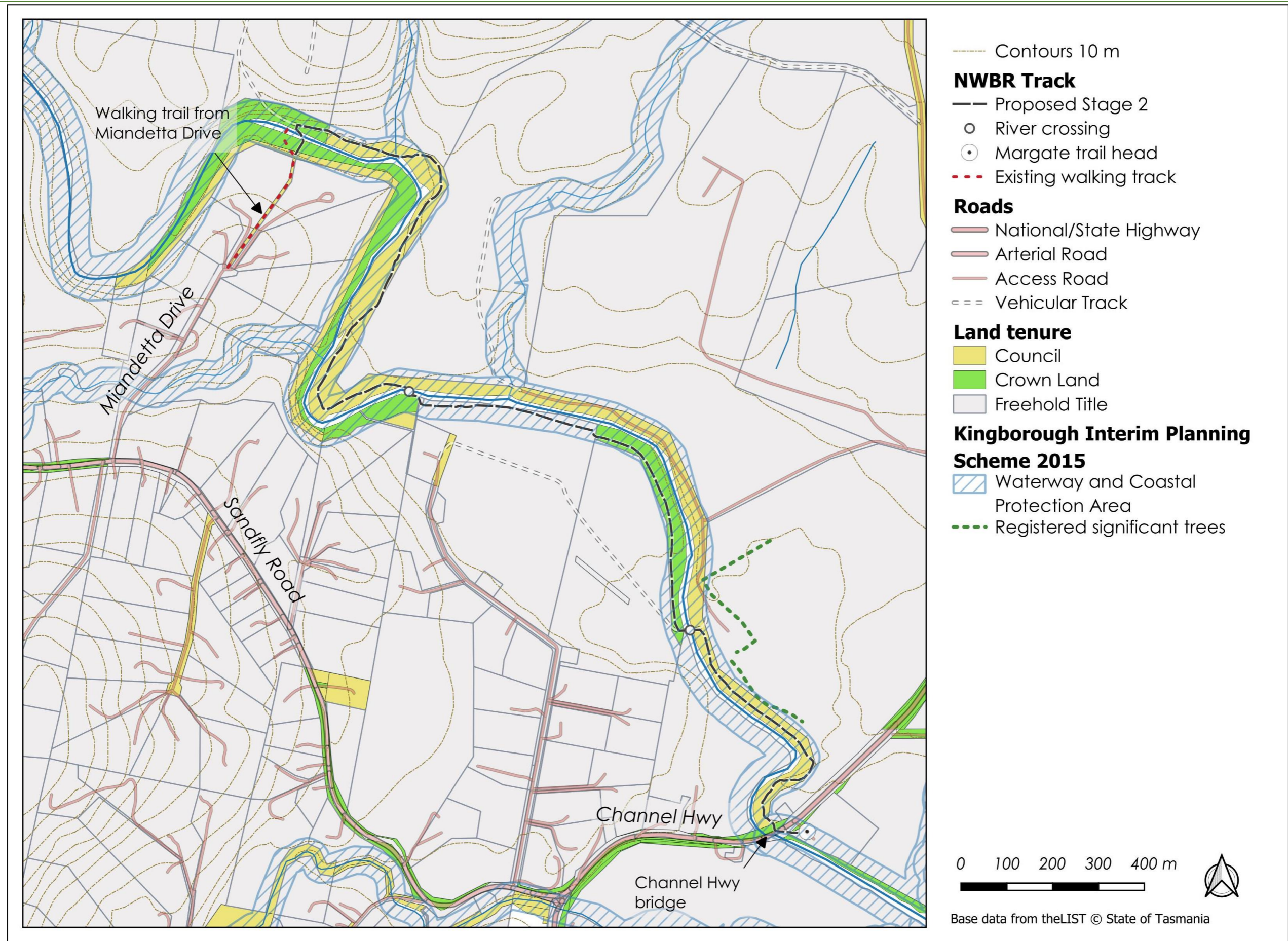


Figure 1. Land tenure and proposed trail route at Margate. KIPS Waterway and Coastal Protection Area shown, other overlays (including Biodiversity Protection Area) not shown for clarity.

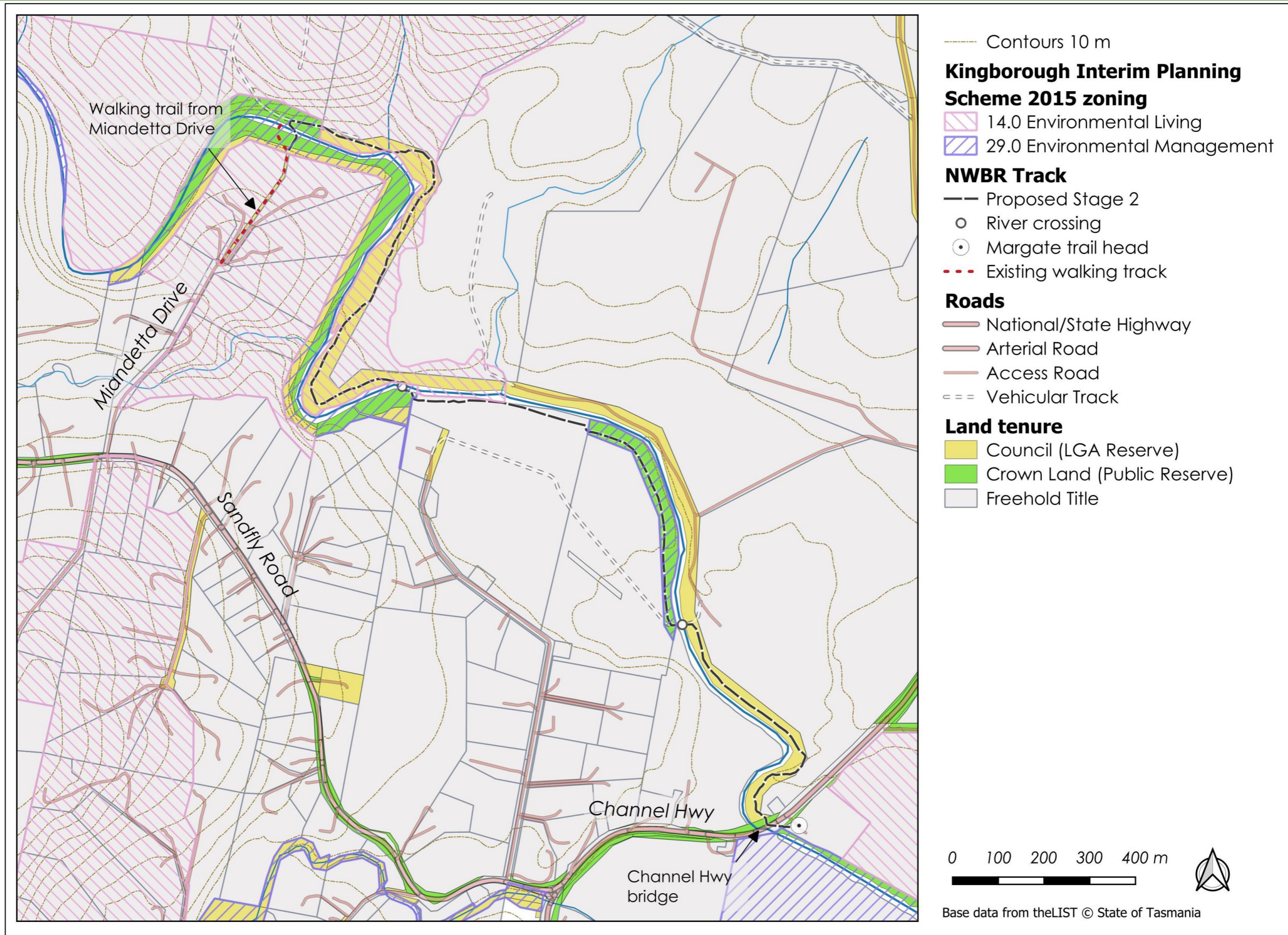


Figure 2. Location of Local Government and Crown Land reserves, shown with Environmental Living and Environmental Management Zones under the Kingborough Interim Planning Scheme 2015.

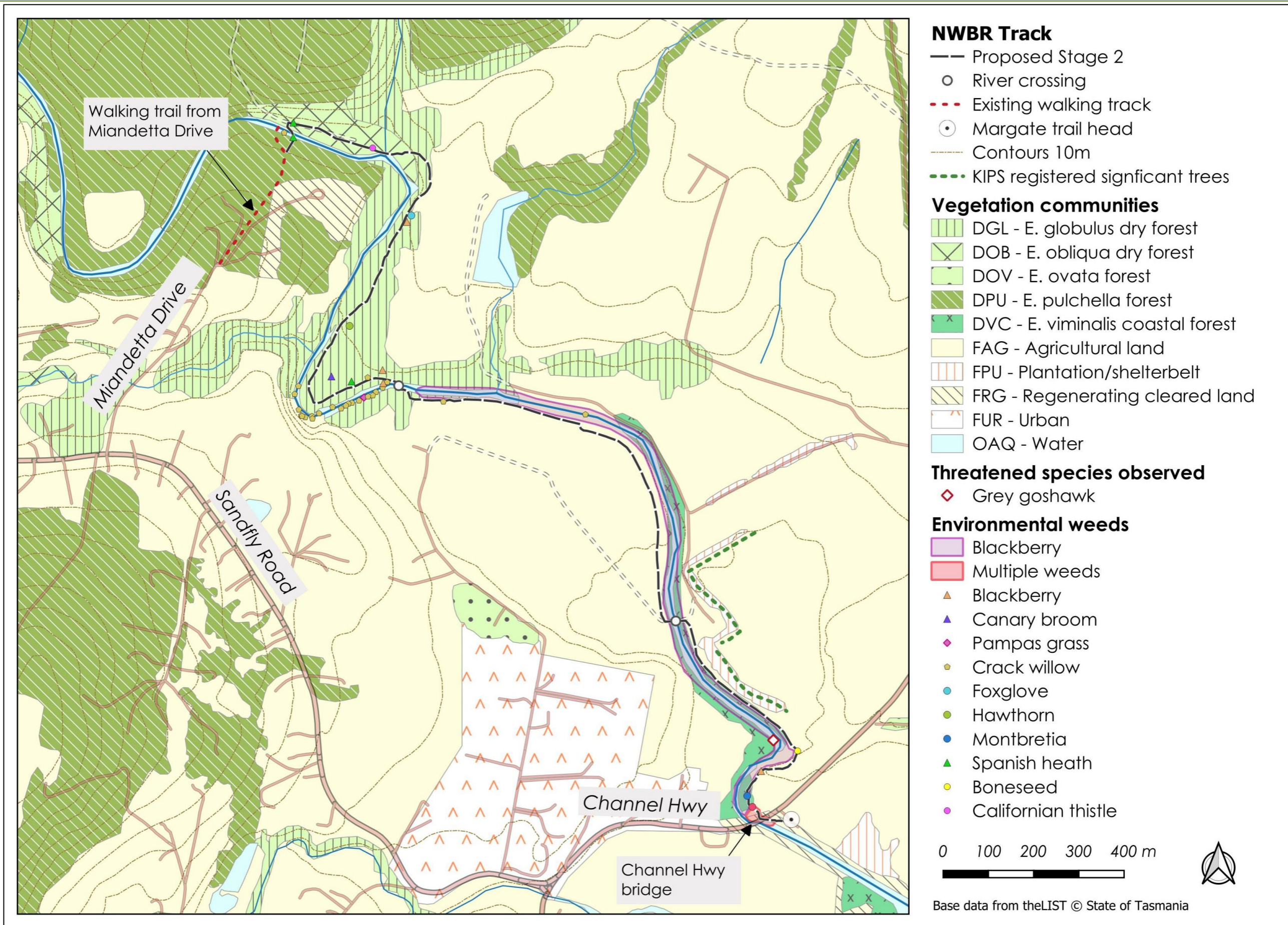


Figure 3. Vegetation communities and weeds mapped along trail route.

## 4. Natural Values Assessment

### 4.1. Vegetation communities

#### 4.1.1. Summary of vegetation communities and conservation status

Four native vegetation communities and one modified vegetation type (cleared land) were mapped along the proposed trail route as per the TASVEG (v4.0) vegetation classification system (Figure 3). Vegetation mapping was restricted to the trail corridor (approximately 40 m wide).

The following communities were mapped on the trail alignment and are described in more detail below:

1. ***Eucalyptus pulchella* forest and woodland (DPU)** – along access track from Miandetta Drive to North West Bay River.
2. ***Eucalyptus obliqua* dry forest (DOB)** – on south-facing slope along river.
3. ***Eucalyptus globulus* dry forest and woodland (DGL)** – widespread on riverbanks and flats between Miandetta Drive and Hopfields Road.
4. ***Eucalyptus viminalis* – *E. globulus* coastal forest (DVC)** – remnant riparian vegetation surrounded by agricultural land on flats in lowest reaches of the river.

The DGL and DVC communities are listed under Schedule 3A of the *Nature Conservation Act 2002* (NCA) and classified as ‘High Priority Biodiversity Value’ under Table E10.1 of the *Kingborough Interim Planning Scheme 2015* (KIPS).

The other two communities are common and well represented in reserves and hence not listed under the NCA. Where these communities contain threatened flora species or threatened fauna habitat they are considered to have ‘Moderate Priority Biodiversity Value’ under the KIPS.

#### 4.1.2. Description of vegetation communities occurring along trail section.

##### ***Eucalyptus pulchella* forest and woodland (DPU)**

This forest dominated by white peppermint (*E. pulchella*) occurs on a dry north-facing dolerite slope. A tall shrub layer and featuring drooping sheoak (*Allocasuarina verticillata*), prickly box (*Bursaria spinosa*) and native cherry (*Exocarpos cupressiformis*) is well developed

on rocky sites (Photo 1). A diverse groundcover of sedges, sagg (*Lomandra longifolia*), grasses, herbs and prostrate shrubs occurs throughout most of this community. Native grasses and sedges are particularly abundant in more open situations where the shrub layer is sparse and on flat and seasonally damp sites, where black gum (*E. ovata*) is the major canopy tree. In contrast, the groundcover is sparse under dense sheoaks or on rocky ground.



Photo 1. DPU forest with mix of dense shrubs and open grassy understorey. Miandetta Drive trail on LHS.

### ***Eucalyptus obliqua* dry forest (DOB)**

The forest type has a canopy dominated by stringybark (*Eucalyptus obliqua*) and white gum (*E. viminalis*). The riverbanks and alluvial flats support a dense tall shrub layer dominated by dogwood (*Pomaderris apetala*), except where the understorey has been cleared along the vehicular track and fenceline (Photo 2). Grasses and sedges are prominent in the groundcover layer, often forming a dense sward. Like most of the stringybark forest along the lower reaches of the river, this forest is transitional between wet and dry *E. obliqua* communities, with structural and floristic components typical of both DOB and WOB.



Photo 2. DOB forest on river flats on Crown Land. Proposed trail follows existing informal trail on RHS of fence.

### ***Eucalyptus globulus* dry forest and woodland (DGL)**

This forest is characterised by a canopy of blue gum (*E globulus*) and an understorey of dry forest shrubs and grasses. White gum occurs as a subdominant canopy species. Trees are multi-aged but old-growth trees are absent.

On higher ground where surface rock indicates shallow soils the forest is open with few trees and shrubs and a dense grassy groundcover of kangaroo grass (*Themeda triandra*) and other native grasses along with some exotic grasses (Photo 3). Scattered shrubs, such as prickly box, become more prominent on the lower slopes and steep riverbanks.

Dogwood, native cherry and pinkwood (*Beyeria viscosa*) are abundant on the floodplain in the southern extent of this community, where they form a dense tall shrub layer. Sagg and sword sedges (*Lepidosperma* spp.) are prominent in the groundcover layer, along with grasses.



Photo 3. DGL forest with open grassy understorey on bank above river bend.

#### ***Eucalyptus viminalis* – *E. globulus* coastal forest (DVC)**

This forest dominated by white gum, with occasional stringybark trees, is restricted to a narrow riparian strip along the lower reaches of the river (Photo 4). It occupies the steep riverbanks between the river and the extensive alluvial flats, which are entirely cleared for agriculture. Mature eucalypt trees of significant size are present in this community. Smaller trees such as dogwood and silver wattle (*Acacia dealbata*) are common. Exotic species such as willows and blackberry are common and often dominate the understorey. Pasture grasses, particularly cocksfoot (*Dactylis glomerata*), are prominent at the top of the riverbank and on the adjacent flats.

While the tree strata are generally healthy and intact, the overall condition of this community is poor due to the extent of weed invasion in the understorey and the narrow remnant landscape context.

The classification of this community as DVC is consistent with the Tasveg 4.0 mapping of the site. However, this forest does not neatly fit either the DVC community or *E. viminalis* grassy forest (DVG) and also displays affinities with *E. ovata* forest (DOV). DVC typically occurs on Pleistocene coastal sands, such as old sand dunes. In this case the forest is on Pleistocene

alluvial sediments with little sand content. Both communities typically occur on drier sites and have a relatively shorter canopy. Classification is further complicated by the extensively modified understorey, where weeds have largely replaced native species.



*Photo 4. DVC forest along river (LHS) with agricultural land on alluvial flats. Proposed trail route in centre of photo, following levee bank and fenceline.*



## 4.2. Flora Values

A wide range of native plants were recorded in the vegetation communities along the trail corridor. A full list of vascular plant species is provided in the Appendix.

No threatened flora species were observed during site surveys of Section 4 of the proposed trail. One threatened species was recorded during site surveys of other sections of the trail: *Epacris virgata* (pretty heath). Recent taxonomic work has determined that *Epacris virgata* is restricted to a small area within the Tamar Valley of northern Tasmania (see <https://www.threatenedspecieslink.tas.gov.au/Pages/Epacris-virgata.aspx>). Plants in southern Tasmania previously considered to be *E. virgata* are now classified as *E. tasmanica*, which is not a threatened species (Crowden *et al.* 2023).

A search of the Natural Values Atlas (NRE database) revealed that nine threatened flora species have been recorded within 5 km of the proposed trail (excluding old records and plants in cultivation) (Table 1). Only one threatened flora species, *Senecio squarrosus*, has been recorded within 1000 m of the trail corridor. While not observed during the present surveys, it is possible that this species is present in dry forest in the survey area.

## 4.1. Fauna Values

Broad fauna habitat surveys were carried out along the trail routes to assess the likelihood that the trail will impact threatened fauna species. A search of the Natural Values Atlas revealed that 11 threatened fauna species have been recorded within 1000 m of the trail corridor (Table 2). Most of these species are likely to occur in the survey area at times, however the Australian grayling and azure kingfisher have not been observed in the area for over 40 years. One threatened fauna species was observed during the surveys, a grey goshawk perched in riparian vegetation near the Channel Highway.

Table 1. Threatened flora species recorded within 5 km of trail corridor, Section 4.

Scientific name	Common name	TSPA	EPBCA	Comments
<i>Allocasuarina duncanii</i>	conical sheoak	r		Endemic to south-eastern Tasmania, with a restricted distribution on shallow dolerite soils at moderate elevation. Records from Sandfly area from late 1800s. Recent searches have not found species. Survey area is below known altitudinal range.
<i>Austrostipa bigeniculata</i>	doublejointed speargrass	r		Habitat is open woodlands and grasslands. Potential habitat occurs in open grassy woodland parts of DGL community. Ideal survey timing is summer, when plants are flowering or seeding.
<i>Comesperma defoliation</i>	leafless milkwort	r		<i>Comesperma defoliatum</i> occurs on nutrient poor soils in wet heathland/sedgeland, buttongrass moorland, coastal scrub and dunes. No suitable habitat present.
<i>Lepidosperma tortuosum</i>	twisting rapiersedge	r		Found on mainland Australia and in south-eastern Tasmania. Habitat is open heathlands and woodlands. Not recorded during surveys. Limited suitable habitat within corridor.
<i>Pomaderris elachophylla</i>	small-leaf dogwood	v		Found on mainland Australia and in Tasmania in wet forests. Leslie Vale is a key site for this species. No records within 4km of survey area. Not recorded during surveys. Limited suitable habitat present.
<i>Pterostylis squamata</i>	ruddy greenhood	v		Occurs in grassy open forest, woodland and heathland on well-drained loam soils. Flowering December-March. Not recorded during surveys. Suitable habitat limited to DGL forest.
<i>Senecio squarrosus</i>	leafy fireweed	r		Found on mainland Australia and Tasmania in dry woodland communities. Single record within catchment in Margate area. Requires fire every 5-15 years, or other disturbance such as track edges. Not recorded during surveys. Suitable habitat within corridor and may occur.
<i>Thelymitra atronitida</i>	blackhood sun-orchid	e		Tasmanian endemic. Occurs in heathland, sedgeland and heathy/sedgey eucalypt woodland on poorly-drained soils. Flowering October-November. Not recorded during surveys. No suitable habitat in trail corridor.
<i>Thelymitra malvina</i>	mauvetuft sun-orchid	e		Occurs in coastal heathland and sedgeland. Flowering October-November. Not recorded during surveys. No suitable habitat in trail corridor.

Table 2. Threatened fauna species recorded within 1 km of trail corridor.

Scientific name	Common name	TSPA	EPBCA	Comments
<i>Accipiter novae-hollandiae</i>	grey goshawk	e		Nests in wet forest, typically in riparian areas. Suitable nesting habitat occurs in and near the survey area in dense intact forest such as in creek gullies. No known nest sites in survey area. Likely to forage over site.
<i>Alcedo azurea</i> subsp. <i>diemenensis</i>	azure kingfisher	e	EN	The species is not known to breed in south-east Tasmania and is an occasional visitor to the region. There few observations of this species in the Kingborough area, include near the mouth of the North West Bay River in 1978. Key habitat is intact riparian vegetation.
<i>Aquila audax</i> subsp. <i>fleayi</i>	Wedge-tailed eagle	e	EN	No known nest sites occur within 1 km of this section of proposed track. Few suitable nesting trees occur near the proposed track. Likely to forage over entire site.
<i>Dasyurus viverrinus</i>	eastern quoll		EN	Suitable foraging and denning habitat present. Den sites most likely to be in densely vegetated or rocky areas.
<i>Haliaeetus leucogaster</i>	white-bellied sea eagle	v		No known nest sites occur within 1 km of this section of proposed track. May forage over the area occasionally, although preferred foraging habitat is coastal environments and larger rivers.
<i>Hirundapus caudacutus</i>	white-throated needle-tail		VU	Breeds in the Northern Hemisphere and migrates to Australia during austral summer. Species is mostly aerial in the non-breeding season, but also roosts in trees. No significant habitat present.
<i>Lathamus discolor</i>	swift parrot	e	CR	Species has strong association with blue gum and black gum. These trees provide potential foraging habitat. Potential foraging and nesting trees are present in the survey area, particularly in blue gum forest (DGL).
<i>Perameles gunnii</i>	eastern barred bandicoot		VU	Prefers grassy vegetation such as grasslands, pastures and lawns for foraging. Dense understorey vegetation provides suitable shelter for this species. Likely to be breeding populations within the survey area.
<i>Prototroctes mareana</i>	Australian grayling	v	VU	In Tasmania, the diadromous Australian Grayling has been found in northern, eastern, and western rivers. Little is known of the population size. The major threat to the species is the construction of barriers that prevent adult fish moving upstream and juveniles downstream. Last recorded in North West Bay River in 1972.
<i>Sarcophilus harrisii</i>	Tasmanian devil	e	EN	Wide-ranging species which utilises a variety of habitats including native forest and agricultural land. Den sites most likely to be in densely vegetated or rocky areas.  Suitable foraging habitat throughout survey area. Unlikely to be suitable denning habitat near trail alignment.
<i>Tyto novaehollandiae</i>	Tasmanian masked owl	e	VU	This species occupies a range of habitats which contain some mature forest, usually below 600 m altitude - these include native forests and

				<p>woodlands as well as agricultural areas with a mosaic of native vegetation and pasture.</p> <p>Likely to forage across the survey area. Old growth trees may contain suitable large tree hollows for nesting, but few trees of sufficient age or size occur close to the trail alignment.</p>
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### Threatened species habitat

The trail corridor contains a small number of mature trees with potential hollows suitable for swift parrot breeding. Mature trees are unlikely to be sufficiently large or old to provide masked owl breeding sites. Swift parrot foraging habitat is limited to the DGL forest, which contains low to medium quality foraging habitat due to a lack of large mature blue gums.

Potential denning habitat for species such as Tasmanian devils, eastern and spotted-tailed quolls occurs within the survey area in fallen logs and rocky outcrops. However, these features are limited within the trail corridor, with better quality habitat occurring nearby in more intact vegetation and rugged terrain.

The nearest mapped raptor nest to the proposed trail is a wedge-tailed eagle nest on Mafeking Creek 1900 m from the works proposed in this section. Suitable nesting habitat for grey goshawk is present.

Eastern-barred bandicoot habitat occurs throughout the survey area, including in weedy and cleared areas.

## 4.2. Weeds and Disease

Weed species including Spanish heath, canary broom, willows, blackberry, boneseed, pampas grass and foxglove were recorded during the surveys. Weeds were recorded predominantly along the river and on river flats where fine soil and seed has been deposited from upstream during flood events (Photo 5-6). The abundance and diversity of weeds generally increases further downstream as native vegetation is increasingly disturbed and fragmented. Areas of intact vegetation away from the river and not adjacent to cleared land were generally free of weeds, such as most of the DGL forest.

There were no obvious signs of the plant pathogen *Phytophthora cinnamomi* (PC) recorded during the surveys. The dominant vegetation communities within the corridor are generally

considered to be of moderate susceptibility to PC, with few highly susceptible plant species present.



*Photo 5. Disturbed area with numerous weed species in riparian zone near Channel Highway. Proposed trail route in centre of photograph, continuing under the highway bridge to Margate trailhead.*



*Photo 6. Dense blackberry dominating understorey of regrowth DVC forest on river flats near Channel Highway.*

### 4.3. Significant Trees

Significant trees are listed under Kingborough Council's *Significant Tree Policy* in Table E24.1 of the KIPS. Significant trees include planted exotic trees, individually or in groups. One significant tree listing occurs in the survey area, comprising several rows of poplar (*Populus nigra*) trees planted on private land at 1520 Channel Highway (listing TRN 2012-7). The nearest of these listed trees are approximately 20 m from the proposed trail.

## 5. Impacts on Natural Values

### 5.1. Development impacts

The construction of Stage 2 (Miandetta Drive to the Channel Highway) of the multi-use trail along the river can be undertaken while minimising impacts to important natural values.

The total length of trail construction in native vegetation, excluding the existing vehicular track, is around 1050 m. An estimated 1575 m<sup>2</sup> of native vegetation will be cleared or modified to construct the trail, assuming a cleared width of 1.5m (trail width is 1.2m).

The total length includes 900m of trail within the threatened DGL community and 25m in DVC. In around half of the DGL route the open woodland structure of the vegetation will require removal of only a small number of understorey trees or shrubs. Impacts on DVC are minimised by utilising an existing track to cross the river. Impacts on potential habitat trees (eucalypt trees >25 cm DBH) can be avoided in most cases by locating the trail so as to not require removal or pruning of trees, or earthworks within the tree protection zone. Where impacts are unavoidable an arborist assessment will be required to determine the scope of impacts and implement mitigation measures.

Most of this section of proposed trail will be on flat terrain, with nearly half the length of trail located on cleared land or existing tracks. Excavation work to bench the track surface – with consequent impacts on tree roots, soils and drainage – will be very limited (Photo 7). The small footprint of the works and the largely intact surrounding native vegetation will allow natural revegetation to occur along the margins of the trail. Active revegetation by planting of native plant species and erosion control may be required in limited areas. River crossings (Photo 8) will not alter the hydrology or ecology of the river. The risk of riverbank erosion can be mitigated by appropriate location and design of track access to river crossings.

No threatened flora species were recorded within the proposed trail alignment and the likelihood of any being present is low. The most likely threatened flora species to occur in the area, *Senecio squarrosus*, would probably not be negatively impacted by trail development since this species responds favourably to soil disturbance and is known to colonise edges of tracks.



*Photo 7. Steep bank in DGL forest. Trail construction in this section will require earthworks and vegetation clearing.*



*Photo 8. Location of river crossing near Hopfields Road.*

Significant fauna habitats will be avoided to minimise fauna impacts. Potential impacts on threatened fauna habitat – such as nest sites, trees with hollows and potential den sites – will be managed by avoiding known or potential habitat features and stopping work if any significant habitat is encountered during construction. Retaining all trees with a diameter at



breast height of >25 cm will avoid any impacts on swift parrot foraging habitat and will protect all nesting habitat for hollow-nesting species such as swift parrot and masked owl (which are typically trees >70 cm DBH), as well as grey goshawk. The trail will also avoid any potential denning habitat for devils and quolls such as large hollow logs by a minimum of 10 m to minimise potential impacts on fauna species.

No known eagle nests occur within 1000 m of the proposed trail section, so no mitigation measures are required unless a new nest is discovered. There is potential for grey goshawk nests in the area and a dedicated survey for nests within 150 m of the proposed trail route is recommended because trail construction and usage within 150 m of a nest is advised to minimise disturbance (David Young, Utas, pers. comm.).

Vegetation clearing, earthworks, machinery use and importation of materials such as gravel pose a risk of introducing weeds to the area or spreading existing weeds. Weed control prior to any trail construction and adherence to weed and disease hygiene protocols during constructing are critical to ensure weeds are not spread. Given the current spread of weeds along the river through natural processes (including movement in flood water and from roads and via animals) the development of a trail network along the river does not represent a significant increase in the risk to the natural values. Undertaking weed control works within the track corridor in association with track construction can achieve a net reduction in weeds.

The limited risk of the spread of *Phytophthora* as a result of trail construction can be managed through the implementation of hygiene protocols for the use of equipment and importation of soils.

The existing walking trail from the end of Miandetta Drive to the River on Council Land will require minor improvement works such as widening or removal of rocks to make the trail compliant with standards. No major erosion or drainage issues are apparent in this area. Utilising the existing trail alignment will minimise vegetation clearing. Approximately 30 m of new trail on Crown Land will be constructed to connect the northern end of the existing trail to the river crossing. The riparian forest in this area has a dense understorey of shrubs and sedges and so will require clearing of the trail footprint (Photo 9).



*Photo 9. Dense understorey and existing Miandetta Road trail in riparian DPU forest.*

## 5.2. Trail Use Impacts

Trail users will generally stay on the formed track and therefore impacts on flora and vegetation will be minimal. Direct impacts on fauna species from the trail usage by riders and walkers will be minimal with most usage likely to occur during the day when many species are inactive. Most of this section of trail is close to existing human activity, including the Miandetta Drive walking track, residential areas, farmland and the Channel Highway.

Due to the abundance of habitat for fauna species such as wallabies, bettongs, bandicoots and other mammal species and the number of fauna species observed during the surveys the trail is not suitable for dog walking.

Trail users have the potential to spread weed species (e.g. on bikes, shoes and in horse droppings). Weed infestations are already present in many sections, particularly on margins of paddocks and in areas subject to floods. Given the existing extent of weeds in the area and the role of the river in spreading and enabling weeds, the potential impact of trail users is very minor. Given the abundance of weeds in the area, weed management along the trail should aim to prevent spread of weeds to weed-free areas. The main risk associated with trail

users is spread of weeds into the largely weed-free DGL threatened forest community. The spread of weeds by trail users can be managed through installation of wash down stations at trailheads, educational signage, and monitoring of the trail for weed infestations.

Monitoring and maintenance of weed and disease along the trail will be required on an ongoing basis and must be appropriately funded. The aim of weed monitoring should be to detect and control the spread of weeds outside existing infestations. If there is capacity to control larger existing weed infestations, e.g. through community group working bees, this would be beneficial.

## 6. Legislative and Planning Requirements

The following section outlines the impacts of the proposed trail development on natural values and provides an assessment of the proposal against the relevant environmental codes in the planning scheme. The proposal involves construction of multi-use trail for walking, bicycling and horse riding.

### Impact on native vegetation

The proposed trail development is mostly located in native forest and will require some clearing and modification of understorey vegetation, with up to 1575 m<sup>2</sup> of native vegetation to be impacted.

### Impact on threatened species

No significant impact on threatened fauna species or important breeding habitat are anticipated, including potential foraging and nesting habitat for swift parrots. Trees >25 cm DBH will be retained.

### 6.1. Kingborough Interim Planning Scheme 2015

The proposed trail development is within both a Biodiversity Protection Area (BPA) and a Waterway and Coastal Protection Area (WCPA). Any impacts on natural values associated with the development must comply with the Biodiversity Code (E10.0) and the Waterway and Coastal Protection Code (E11.0) as outlined below.

#### 6.1.1. Requirements of the Biodiversity Code (E10.0)

The objective of the code is to ensure that works resulting in clearance and conversion or disturbance will not have an unnecessary or unacceptable impact on priority biodiversity values.

### Priority Biodiversity Values

The native vegetation on the proposed trail route is classified under the KIPS as high priority biodiversity values in the case of threatened communities (DGL, DVC), or medium priority for non-threatened communities with potential threatened fauna habitat (DPU, DOB).

The development proposal is considered here against the criteria for high priority biodiversity values, which applies to around half the length of proposed trail:

*(b) if high priority biodiversity values:*

*(i) development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;*

Impacts on DGL forest are unavoidable due to land tenure constraints – avoidance of this threatened community would require a route in paddocks on private land. The route in DGL forest utilises areas of open vegetation and sections of old track in parts to reduce impacts.

Impacts on DVC forest are minimised by utilising an existing vehicular track to cross the river. Unavoidable disturbance of DVC is limited to around 25 m of trail near the Channel Highway where dense regrowth of small white gums with a weedy understorey occurs on a floodplain and private land precludes an alternative alignment.

The proposed trail is designed to minimise impacts on high priority biodiversity values. Tree canopy will be retained and there will be no reduction in extent of native vegetation.

Disturbance of biodiversity values is limited to the footprint of the trail, which impacts a very small proportion of the high priority biodiversity value vegetation in which it is located (totalling under 1600 m<sup>2</sup> of native vegetation).

*(ii) impacts resulting from bushfire hazard management measures are minimised as far as reasonably practicable through siting and fire-resistant design of habitable buildings;*

Not applicable.

*(iii) remaining high priority biodiversity values on the site are retained and improved through implementation of current best practice mitigation strategies and ongoing management measures designed to protect the integrity of these values;*

Remaining high priority biodiversity values on Crown Land and Council land will be retained. Weed management conducted during construction works and ongoing weed monitoring will help protect these areas from further degradation.

*(iv) special circumstances exist;*

Two special circumstances defined in the Biodiversity Code apply in this case:

- a) the use or development will result in significant long term social or economic community benefits and there is no feasible alternative location;
- (c) the extent of proposed removal of high priority biodiversity values on the site is insignificant relative to the extent of that community elsewhere in the vicinity.

*(v) residual adverse impacts on high priority biodiversity values not able to be avoided or satisfactorily mitigated are offset in accordance with the Guidelines for the use of Biodiversity Offsets in the local planning approval process, Southern Tasmanian Councils Authority, April 2013 and Kingborough Biodiversity Offset Policy 6.10, November 2016*

An offset proposal is not required due to the minimal residual adverse impacts. If habitat trees were to be removed or threatened vegetation reduced in extent an offset may be appropriate. The control of weeds along the trail prior to, during and after construction has the potential to lead to an environmental benefit from the project.

*(vi) clearance and conversion or disturbance will not substantially detract from the conservation status of the biodiversity value(s) in the vicinity of the development.*

No clearance and conversion is proposed. Disturbance is limited in extent and magnitude such that it will not substantially detract from the conservation status of biodiversity values due to the small footprint of the trail, avoidance of impacts on significant habitat features and the existing poor condition of the DVC forest..

#### 6.1.2. Requirements of the Waterway and Coastal Protection Code (E11.0)

The purpose of the code is to minimise impacts on water quality, riparian vegetation, river condition and ecological function.

The proposed trail construction works are assessed here against the criteria under the performance criteria (P1) for Buildings and Works (E11.7.1):

*(a) avoid or mitigate impact on natural values;*

Impacts on moderate and high priority biodiversity values will be avoided as outlined in 6.1.1. The footprint of the trail impacts a very small proportion of the native vegetation in which it is located. Tree canopy will be retained. The exact route of the trail will be selected to minimise impacts either directly from vegetation removal or indirectly from erosion and sedimentation. The works will be carried out by a highly experienced trail builders.

*(b) mitigate and manage adverse erosion, sedimentation and runoff impacts on natural values;*

All earthworks will be carried out using best practice methods to minimise disturbance and prevent erosion and sedimentation. Appropriate drainage features will be installed to direct runoff, capture sediment and protect water quality. Trail design features such as rolling contour alignment, rock armouring and top and side drains will be used to reduce erosion and sedimentation impacts within the WCPA. Sediment traps will be installed where required during construction activities where there is a risk of sedimentation. These traps will be removed once the track has stabilised and erosion risk is low.

*(c) avoid or mitigate impacts on riparian or littoral vegetation;*

The trail will be located away from the bank of the river where possible to ensure riparian vegetation is maintained. Clearance for the trail will be kept to a minimum with only small trees and understorey vegetation modified where necessary to create the trail. Vegetation removal will be unnecessary in substantial areas, where the trail follows existing tracks or cleared land.

*(d) Maintain natural streambank and streambed condition, (where it exists);*

River crossings will utilise natural rock features. River crossings will maintain natural streambed condition by utilising natural streambed rocks. Access to river crossings will be designed to minimise impacts on streambanks, such as erosion. Apart from river crossings, the remaining trail will avoid riverbanks. The crossing of a minor (impermanent) watercourse will involve hardening of the existing channel.

*(e) maintain in-stream natural habitat, such as fallen logs, bank overhangs, rocks and trailing vegetation;*

River crossings will utilise natural riverbed rock surface. No in stream vegetation or habitat will be disturbed, apart from some potential placement of naturally occurring rock at the existing ford where the streambed is already somewhat modified.

*(f) avoid significantly impeding natural flow and drainage;*

Works will not impede natural drainage. River crossing will utilise riverbed rocks only and will not impede flow.

*(g) maintain fish passage (where applicable);*

River crossings will utilise natural riverbed rock surface, with no impact on fish passage.

*(h) avoid landfilling of wetlands;*

Not applicable.

*works are undertaken generally in accordance with Waterways and Wetlands Works*

*(i) Manual (DPIWE, 2003) and Tasmanian Coastal Works Manual (DPIPWE, December 2010), and the unnecessary use of machinery within watercourses or wetlands is avoided.*

Any use of machinery near watercourses will be in accordance with the Waterways and Wetlands Works Manual (DPIWE 2003).

#### 6.1.3. Requirements of the Significant Trees Code (E24.0)

The proposed works are exempt from this Code (E24.4) based on the following exemption:

*(a) Works outside the Tree Protection Zone of a listed tree, with no physical impact on any part of the tree.*

The proposed trail alignment is likely to be entirely outside the Tree Protection Zone (TPZ) for the poplar trees listed under TRN 2012-7. If the trail does coincide in part with the TPZ, works in this section of trail are expected to be limited to surfacing of the trail, with no earthworks or pruning required. If earthworks within the TPZ or damage to above-ground portions of the listed trees are required they would need to be assessed under the Performance Criteria (E24.6.1).



### *6.2. Nature Conservation Act 2002*

Two native vegetation communities on the site are listed communities under Schedule 3A of the *Nature Conservation Act 2002*. The clearance or conversion of a threatened forest community (considered vulnerable land) is administered under Forest Practice Regulations. Any clearing of native vegetation on the site would require an authorised Forest Practices Plan, since no exemptions apply to construction of recreational public tracks.

No clearing or conversion of threatened vegetation is proposed. Clearing of vegetation will be limited to understorey vegetation within the trail footprint, while maintaining the extent of the threatened vegetation communities. Therefore, the project will not require an assessment under the Forest Practice Regulations.

No burrows or dens or other wildlife protected under the NCA were recorded during the surveys.

### *6.3. Threatened Species Protection Act 1995*

In Tasmania, threatened species are protected under the Tasmanian *Threatened Species Protection Act 1995*. Under this Act, a permit is required to knowingly “take” (which includes kill, injure, catch, damage, destroy and collect) keep, trade in, or process any specimen of a listed species.

No threatened flora species are known from the site or likely to occur there.

Several threatened fauna species are likely to occur within the site at times. No breeding sites for threatened fauna are known to occur in the trail corridor. No direct impacts on threatened fauna species or significant impacts on habitat are anticipated.

### *6.4. Environment Protection and Biodiversity Conservation Act 1999*

Development proposals that have the potential to impact on Matters of National Environmental Significance, including threatened species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), may require Commonwealth approval. Potential impacts need to be assessed against the EPBC Act significant impact guidelines 1.1 (DEWHA 2013).

No fauna species listed under the EPBCA have been recorded from the site. No threatened flora species listed under the EPBCA have been recorded from the site, despite extensive surveys.

There is potential habitat for several listed fauna species:

- swift parrot,
- masked owl,
- eastern quoll,
- Tasmanian devil,
- eastern barred bandicoot.

It is anticipated that proposed minor vegetation clearing and other works will not have significant impacts on these species and their long-term survival, and therefore would not require Commonwealth assessment. In particular, impacts on swift parrot habitat will be avoided by retaining all potential habitat trees.

No threatened ecological communities are present.

### *6.5. Biosecurity Act 2019*

Eight declared pests (weeds) are recorded on the site. Two species are widespread and abundant in the area: crack willow and blackberry.

Landholders have legal obligations to prevent the spread of declared pests.

## 7. Environmental Management Plan

### 7.1. Scope

This Environmental Management Plan (EMP) has been developed to satisfy the provisions of Clause 14.4.5 P1 of the Environmental Living Zone of the *Kingborough Interim Planning Scheme 2015* (the Scheme):

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

The EMP also satisfies the Use standards for Reserve Land (D29.3.1) performance criteria for the Environmental Management Zone, which applies to Public Reserves (Crown Land) and parts of Local Government Act Reserves (Council land) within the project area (Figure 2).

### 7.2. Nature Conservation Values of the Site

#### 7.2.1. Vegetation Communities

The site contains four native vegetation community and two disturbance induced communities (FAG, FPU) under the TASVEG (v4.0) classification system (see Table 3 and Figure 3). Vegetation communities are described in Section 4.1.

#### 7.2.1. Significant Fauna habitat

All native vegetation in the project area provides foraging and sheltering habitat suitable for several threatened fauna species, including the grey goshawk (*Accipiter novaehollandiae*), eastern-barred bandicoot (*Perameles gunnii*), the eastern quoll (*Dasyurus viverrinus*) and the Tasmanian devil (*Sarcophilus harrisi*). The DGL forest, located on Council land, provides suitable foraging habitat for the critically endangered swift parrot (*Lathamus discolor*).

The site contains a some mature eucalypt trees, some of which support hollows which may provide potential nesting habitat for the Tasmanian masked owl (*Tyto novaehollandiae castanops*) or swift parrot.

Significant species aside, the native forest provides suitable habitat for many common mammals, birds, reptiles and invertebrates. The riparian habitat is particularly important, being a highly productive part of the landscape.

Table 3. Summary of vegetation communities occurring on the site and conservation status (\*\* listed under Nature Conservation Act 2002)

Vegetation Community	TASVEG Code	Statewide Status**	Biodiversity Value Under E10.1 (KIPS)
<i>Eucalyptus globulus</i> dry forest and woodland	DGL	Threatened	High priority – threatened community and threatened fauna habitat
<i>Eucalyptus viminalis</i> – <i>E. globulus</i> coastal forest	DVC	Threatened	High priority – threatened community and threatened fauna habitat
<i>Eucalyptus obliqua</i> dry forest and woodland	DOB	Not threatened	Moderate Priority – due to potential threatened fauna habitat (grey goshawk, Tasmanian devil and other species)
<i>Eucalyptus pulchella</i> forest and woodland	DPU	Not threatened	Moderate Priority – due to potential threatened fauna habitat (grey goshawk, Tasmanian devil and other species)

### 7.2.2. Introduced species

Numerous introduced plant species occur in the area due to the fragmented and disturbed nature of the site and the proximity to urban and agricultural land. However, environmental weeds are infrequent in intact patches of native forest outside the flood zone of the North West Bay River. The river is a major source and sink for weeds.

Eight weeds recognised as environmental weeds and listed as declared pests in Tasmania are known from the site. Introduced animals were not recorded, but are likely to include rabbits and feral cats, both of which have a significant negative impact on natural values.

### 7.3. Management Objectives

The following management objectives apply to the native vegetation across the site:

- protect and conserve the natural systems and features including the diversity of species, habitats and communities;
- protect habitat and potential habitat for threatened fauna species;
- protect the natural values of the site from damage by introduced plants and animals, disease or inappropriate management regimes;
- maintain or improve the structure of the forest and allow for regeneration of native species;
- prevent the forest from being frequently burnt; and
- eradicate or control weeds and feral animals and prevent any further introduction(s) of exotic species.

### 7.4. Management Prescriptions

#### 7.4.1. Clearing of Vegetation

No clearing of vegetation (including shrubs and other understorey species) is to occur within the native vegetation on the property unless for the following approved purposes:

1. clearance required by the TFS or Kingborough Council for fire abatement;
2. emergency clearance for fire-fighting operations such as fire-breaks and back burns, as directed by the Tasmania Fire Service (Section 7.4.5);
3. removal of environmental weeds (Section 7.4.2);
4. clearing approved under a Development Application.

Vegetation cleared during the process of “approved clearing” operations (such as shrubs, branches, trunks etc.) may be removed from areas of native vegetation.

Mature trees which contain hollows or damaged crowns are not to be felled, removed or lopped unless they pose a threat to life or property, as they provide potential nesting habitat for bird and mammal species.

#### 7.4.2. Weed Control

As described above, eight declared pest (weed) species have been recorded from the site. Weed eradication is feasible for most of the declared species, although risk of reinvasion will persist.

Weed management actions required to be undertaken are outlined in Table 4. Beyond the timelines outlined in Table 4, the land managers must continue to monitor the property for the emergence of any declared or environmental weeds and any infestation should be treated promptly to prevent establishment or spread.

The following broad requirements apply to future weed control actions:

- the land manager must undertake weed management actions as prescribed in Table 4;
- only approved herbicides that are recommended for the control of a target species are to be applied and operators must apply and dispose of herbicides in accordance with the manufacturer's recommendations; and
- any plant debris that contains seeds or propagules should be piled and burnt (subject to required permits) or bagged up and disposed of at an approved waste management facility.

Table 4. Summary of weed control activities.

WEED	ACTION	TREATMENT/METHODOLOGY*	OUTCOME	TIMING	PRIORITY
<b>Boneseed, Canary broom, Spanish heath</b>	Undertake primary control of all plants	Foliage spray or 'cut and paint' larger plants and hand pull seedlings when soil is moist ensuring roots are removed.	Mature plants controlled preventing additional seed production.	Spring 2024	High
	Conduct follow-up control of treated areas	Conduct annual inspection of areas controlled and treat regrowth and/or missed plants.	Missed plants or regrowth controlled, areas are maintained.	Within 12 months of primary control	High
	Conduct annual inspection of site to locate isolated plants	Survey general area surrounding the identified infestations to locate any isolated plants and control using 'cut and paint' method or hand pull when soil is moist.	Woody weeds controlled across site to prevent further spread.	Annually in spring	High
<b>Pampas grass</b>	Undertake primary control of all plants (2 large plants)	Foliar spray with herbicide during growing season.	Mature plants controlled.	Spring 2024	High
	Conduct follow-up control of treated areas	Conduct annual inspection of areas controlled and treat regrowth and/or missed plants.	Missed plants or regrowth controlled.	Within 12 months of primary control	High
	Conduct annual inspection of site to locate isolated plants	Survey general area surrounding the identified infestations to locate any isolated plants and control using herbicide or manual removal of smaller plants.	Pampas grass controlled across site to prevent further spread.	Annually in spring	High
<b>Californian thistle</b>	Undertake primary control of all plants	Control by herbicide treatment.	Mature plants controlled.	Spring 2024	High
	Conduct follow-up control of treated areas	Conduct annual inspection of areas controlled and treat regrowth and/or missed plants.	Missed plants or regrowth controlled.	Within 12 months of primary control	High

	Conduct annual inspection of site to locate isolated plants	Survey general area surrounding the identified infestations to locate any isolated plants and control using herbicide.	Californian thistle controlled across site to prevent further spread.	Annually in spring	High
<b>Fennel</b>	Undertake primary control of all plants	Control by manual removal or herbicide treatment.	Mature isolated plants controlled preventing additional seed production.	Spring 2024	Medium
	Conduct follow-up control of treated areas	Conduct annual inspection of areas controlled and treat regrowth and/or missed plants.	Missed plants or regrowth controlled.	Within 12 months of primary control	Medium
	Conduct annual inspection of site to locate isolated plants	Survey general area surrounding the identified infestations to locate any isolated plants and control using 'cut and paint' method or hand pull when soil is moist.	Fennel controlled across site to prevent further spread.	Annually in spring	Medium
<b>Blackberry</b>	Undertake primary control of plants in trail corridor (within 2 m either side of trail footprint) and isolated plants in native vegetation	Foliage spray or 'cut and paint' larger plants and hand pull seedlings when soil is moist ensuring roots are removed.	Mature isolated plants controlled preventing additional seed production.	Spring 2024	High
	Conduct follow-up control of treated areas	Conduct annual inspection of areas controlled and treat regrowth and/or missed plants.	Missed plants or regrowth controlled, areas are maintained.	Within 12 months of primary control	High
	Conduct annual inspection of site to locate isolated plants	Survey general area surrounding the identified infestations to locate any isolated plants and control using 'cut and paint' method or hand pull when soil is moist.	Blackberry controlled across site to prevent further spread.	Annually in spring	High
<b>Crack willow</b>	Undertake primary control of all plants	Cut trunks and apply herbicide to stump or apply herbicide by stem injection.	Mature plants controlled.	Spring 2024	High



	Conduct follow-up control of treated areas	Conduct annual inspection of areas controlled and treat regrowth and/or missed plants.	Missed plants or regrowth controlled, areas are maintained.	Within 12 months of primary control	High
	Conduct annual inspection of site to locate isolated plants	Survey riverbanks to locate any new or regrowing plants and control using 'cut and paint' method.	Willows controlled across site to prevent further spread.	Annually in spring	High

#### 7.4.3. Herbicides, other chemicals and fertilisers

No fertilisers are to be applied in the native vegetation on the site.

No chemicals or herbicides are to be applied in the native vegetation unless it is part of weed eradication efforts.

Fertilisers, herbicides and chemicals may be applied as per label instructions for normal management of the cleared land on the property.

#### 7.4.4. Preventing the introduction of weeds or disease

Weeds and diseases such as root-rot pathogen (*Phytophthora cinnamomi*) can easily be transported between sites on boots, equipment, vehicle tyres, introduced soil or other foreign materials. Development works, other physical disturbance or recreational activities could potentially introduce other weeds or disease.

The proposed multi-use trail will involve soil disturbance, with consequent risk of weeds or disease being introduced or spread. This risk can be minimised through appropriate vehicle and equipment hygiene and management controls:

- all contractors engaged in development works must be required to thoroughly wash-down vehicles and equipment before coming on-site and after leaving the site;
- vehicles, equipment and materials should not be parked or stored within areas of native vegetation; and
- during and post-development, any areas of soil disturbance or introduced foreign materials (e.g. gravel) should be monitored regularly by the land manager for the presence of any environmental weeds and any infestations should be treated as soon as practicable after discovery.

#### 7.4.5. Fire

Fire(s) will be excluded from the native vegetation on the property unless:

- required by the Tasmania Fire Service (TFS) for emergency purposes (e.g. back-burning) or for fire hazard reduction;
- for ecological purposes (e.g. the maintenance of biodiversity) in accordance with written advice from a qualified fire ecologist; or
- when uncontrolled bushfire cannot be prevented from passing through the site.

#### 7.4.6. Protection of high conservation value trees

The Scheme provides protection to ‘high conservation value trees’, which are defined as trees ... *‘of a species that is listed in the Threatened Species Protection Act 1995 (TSPA) or the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBCA) and/or provide potential or significant habitat for a threatened species listed in either of those acts.’*

The Council typically applies a ‘working definition’ of *high conservation value trees* which identifies additional categories of tree. Track alignment and construction will avoid impacts on high conservation value trees, where possible, by avoiding earthworks within the Tree Protection Zone and other impacts including removal of branches. Where impacts are unavoidable they will be managed in accordance with a Tree Plan prepared by an arborist. The Tree Plan will identify high conservation value trees, mitigation measures and machinery exclusion zones.

#### 7.4.7. Deliberate introduction of exotic (non-native) flora or fauna

No exotic species are to be deliberately introduced into the native vegetation on the site unless approved by the General Manager of Kingborough Council (for example, as part of a rehabilitation, restoration or translocation strategy).

No stock are to be deliberately introduced into the native vegetation on the property aside from horses, which are restricted to the trail. No domestic pets are permitted on the site. Signage at trail heads will inform trail users that dogs are not permitted on the trail.

#### 7.4.8. Recreational Use

Low impact recreational activities that are not considered deleterious to the values of the site (e.g. walking, bird watching) may be carried out within native vegetation on the site. Bicycle riding and horse riding are permitted only on designated trails.

#### 7.4.9. Vehicle Use

Vehicle use in native vegetation on the property must be restricted to the following:

- for emergency fire-fighting operations; or
- where essential for management activities such as weed control and boundary fencing.

#### 7.4.10. Deleterious Activities Generally

No activities which may be considered deleterious to the natural values on the property (including but not confined to the removal of soil, gravel or other natural resources) will be carried out within native vegetation on the site unless approved by the General Manager of Kingborough Council.

#### 7.4.11. Monitoring and Maintenance

The site is to be monitored for the emergence of declared weed species (as listed under *Biosecurity Act 2019*) and environmental weed species or other issues detrimental to the site. Monitoring is to be undertaken annually by the land manager or an appointed representative.

If any new infestations of declared weeds or environmental weeds are recorded during monitoring they must be treated promptly to prevent establishment or spread.

## 8. Summary and Recommendations

An on-ground survey of the proposed North West Bay River Trail (Section 4 – Miandetta Drive to Channel Highway) identified and mapped the vegetation communities present along the proposed multi-use trail route. Flora species and significant fauna habitat were recorded and management issues such as environmental weeds were identified.

Four native vegetation communities occur along the trail alignment, including two listed as threatened under the *Nature Conservation Act 2002*. No Commonwealth-listed communities are present.

No threatened flora species were recorded within the trail corridor.

Potential and known habitat for threatened fauna species is present in the area, including foraging habitat for the critically endangered swift parrot. No known significant habitat for threatened fauna species will be impacted by the proposed works due to the small footprint of works and protocols to avoid habitat features, including retaining all trees >25 cm DBH.

No significant impacts on natural are anticipated from track construction or use by walkers, bike riders and horse riders. Track construction to established standards and with minimal earthworks will present a low risk of soil erosion. River crossings will utilise natural rock and not require significant modification of streambanks or streambed.

No Matters of National Environmental Significance are present and therefore no referrals under the *Environment Protection and Biodiversity Conservation Act 1999* are recommended.

There is no need to alter the proposed track alignment for protection of natural values aside from ensuring adequate horizontal separation between earthworks (soil disturbance) and tree trunks.

## 8.1. Recommendations

- Avoid removal or damage to any trees greater than 25 cm DBH.
- A qualified arborist is required to conduct an assessment of any potential habitat trees >25cm DBH during or after flagging of the proposed trail route in any cases where earthworks to greater than 10 cm depth are proposed within the Tree Protection Zone. If this is the case, a Tree Plan will be prepared in accordance with Council guidelines.
- Conduct a survey for grey goshawk nests within 150 m of the proposed trail route. A 150 m buffer should be established around any nest in which no vegetation disturbance is to occur and noise is to be minimised during the breeding season (September to January, inclusive).
- If evidence of raptor nesting, swift parrot nesting or marsupial den sites is observed or discovered work must stop immediately and contact NRE Threatened Species Section.
- Minimise use of imported foreign aggregates, if possible. If surfacing is required, it should be sourced from a weed-free source.
- Follow standard weed hygiene procedures during track construction.
- Where practical control weeds along the trail footprint and margins prior to construction. In area where dense infestations occur physical control as part of construction may be appropriate.
- Direction of trail construction to take into account location and density of weed infestations. Areas containing dense weed infestations should be constructed following works in weed free areas to reduce the opportunity for weed seed to spread along the trail.
- Washdown guidelines to be followed for all machinery and tools used on the project.
- Vegetation clearance and soil disturbance should be limited to the width of the track, except where required for sightlines, weed control or drainage works.
- Do not remove coarse woody debris from the site.
- Use only local river rock for river crossings and do not alter the riverbed profile.

- Locate and construct access to river crossings to minimise risk of riverbank erosion.
- Works in the riparian zone and instream are to follow guidelines outlined in the *Waterways and Wetlands Works Manual* (DPIWE 2003).

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## Appendix – Vascular Plants Species List

Species recorded during surveys of proposed North West Bay River Trail – Section 4.

Nomenclature follows de Salas & Baker (2023).

Recorded by A. Welling and N. Fitzgerald.

Surveys: November 2019, March 2021, February 2024.

e = endemic                      i = introduced                      d = declared weed (*Biosecurity Act 2019*)

### *Dicotyledons*

#### APIACEAE

i                      *Conium maculatum*                      hemlock

i, d                      *Foeniculum vulgare*                      fennel

#### APOCYNACEAE

i                      *Vinca major*                      periwinkle

#### ASTERACEAE

i                      *Arctium minus*                      Lesser Burdock

e                      *Bedfordia salicina*                      Tasmanian Blanket Leaf

*Cassinia aculeata*                      Dolly Bush

i, d                      *Cirsium arvense*                      Californian Thistle

i                      *Cirsium vulgare*                      Spear Thistle

i                      *Dimorphotheca fruticosa*                      African daisy

*Lagenophora stipitata*                      Blue bottledaisy

*Ozothamnus ferrugineus*                      Tree Everlasting

*Senecio linearifolius*                      Groundsel

i                      *Sonchus* sp.                      Sow Thistle

#### BORAGINACEAE

i                      *Echium candicans*                      Pride of Madeira

i                      *Myosotis sylvatica*                      Forget-me-not

i                      *Symphytum officinale*                      Comfrey

#### BRASSICACEAE

i                      *Hirschfeldia incana*                      Buchan weed

i                      *Rhamphospermum nigrum*                      Black mustard

#### CAMPANULACEAE

*Wahlenbergia gracilis*                      Bluebell

#### CAPRIFOLIACEAE

i                      *Dipsacus fullonum*                      wild teasel

i                      *Leycesteria formosa*                      Himalayan honeysuckle

CASUARINACEAE

	<i>Allocasuarina littoralis</i>	Bulloak
	<i>Allocasuarina verticillata</i>	Drooping Sheoak

ERICACEAE

	<i>Astroloma humifusum</i>	Native Cranberry
	<i>Epacris impressa</i>	Common Heath
i, d	<i>Erica lusitanica</i>	Spanish Heath
e	<i>Leptecophylla divaricata</i>	Spreading pinkberry
	<i>Leucopogon collinus</i>	White Beard-heath
	<i>Lissanthe strigosa</i> subsp. <i>subulata</i>	Peachberry heath

EUPHORBIACEAE

	<i>Beyeria viscosa</i>	Pinkwood
i	<i>Euphorbia lathyris</i>	Caper Spurge
	<i>Poranthera microphylla</i>	Small poranthera

FABACEAE

	<i>Bossiaea prostrata</i>	Creeping Bossiaea
i, d	<i>Chrysanthemoides monilifera</i>	Boneseed
i, d	<i>Genista monspessulana</i>	Canary Broom
i	<i>Lupinus arboreus</i>	Tree Lupine
	<i>Pultenaea juniperina</i>	Prickly Beauty
i	<i>Trifolium</i> sp.	Clover
i	<i>Vicia</i> sp.	Vetch

GENTIANACEAE

i	<i>Centaurium erythraea</i>	Common centaury
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GERANIACEAE

	<i>Geranium potentilloides</i>	Mountain cranesbill
	<i>Geranium solanderi</i>	Grassland cranesbill

GOODENIACEAE

	<i>Goodenia lanata</i>	Native Primrose
	<i>Goodenia ovata</i>	Parrot's Food

HALORAGACEAE

	<i>Gonocarpus teucroides</i>	Raspwort
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LAURACEAE

	<i>Cassytha glabella</i>	Slender Dodder-laurel
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LINACEAE

	<i>Linum marginale</i>	Native flax
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MIMOSACEAE

	<i>Acacia dealbata</i> subsp. <i>dealbata</i>	Silver Wattle
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	<i>Acacia melanoxylon</i>	Blackwood
	<i>Acacia verticillata</i> subsp. <i>verticillata</i>	Prickly Mimosa
MYRTACEAE		
e	<i>Eucalyptus amygdalina</i>	Black peppermint
	<i>Eucalyptus globulus</i> subsp. <i>globulus</i>	Tasmanian Blue Gum
	<i>Eucalyptus ovata</i>	Black Gum
e	<i>Eucalyptus pulchella</i>	White Peppermint
	<i>Eucalyptus viminalis</i> subsp. <i>viminalis</i>	White Gum
	<i>Leptospermum lanigerum</i>	Woolly Tea-tree
	<i>Leptospermum scoparium</i>	Manuka
	<i>Melaleuca squarrosa</i>	Scented Paperbark
OLEACEAE		
	<i>Notelaea ligustrina</i>	Native Olive
OXALIDACEAE		
	<i>Oxalis perennans</i>	Native Oxalis
PITTOSPORACEAE		
	<i>Bursaria spinosa</i> subsp. <i>spinosa</i>	Prickly Box
	<i>Pittosporum bicolor</i>	Cheesewood
PLANTAGINACEAE		
	<i>Plantago varia</i>	Variable Plantain
i	<i>Veronica</i> sp.	
POLYGALACEAE		
	<i>Comesperma volubile</i>	Blue Love Creeper
PRIMULACEAE		
i	<i>Lysimachia arvensis</i>	Scarlet Pimpernel
PROTEACEAE		
	<i>Banksia marginata</i>	Silver Banksia
e	<i>Lomatia tinctoria</i>	Guitar Plant
RANUNCULACEAE		
	<i>Clematis</i> sp.	Clematis
RHAMNACEAE		
	<i>Pomaderris apetala</i> subsp. <i>apetala</i>	Dogwood
ROSACEAE		
	<i>Acaena novae-zelandiae</i>	Buzzy
i	<i>Cotoneaster glaucophyllus</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
RUTACEAE		
e	<i>Nematolepis squamea</i> subsp. <i>squamea</i>	Lancewood
SANTALACEAE		
	<i>Exocarpos cupressiformis</i>	Native Cherry
	<i>Exocarpos strictus</i>	Dwarf Cherry
SALICACEAE		
i, d	<i>Salix fragilis</i>	Crack willow
SCROPHULARIACEAE		
i	<i>Digitalis purpurea</i>	Foxglove
i	<i>Verbascum thapsus</i>	Great Mullein
THYMELAEACEAE		
	<i>Pimelea humilis</i>	Dwarf Rice-flower
	<i>Pimelea ligustrina</i>	Round-leaf Rice-flower
TREMANDRACEAE		
	<i>Tetradlea pilosa</i> subsp. <i>pilosa</i>	Hairy Pink-bells
VIOLACEAE		
e	<i>Viola hederacea</i> subsp. <i>hederacea</i>	Native Violet
<b>Monocotyledons</b>		
AMARYLLIDACEAE		
i	<i>Agapanthus praecox</i>	agapanthus
ASPARAGACEAE		
	<i>Lomandra longifolia</i>	Sagg
CYPERACEAE		
	<i>Carex appressa</i>	Common Sedge
i	<i>Cyperus eragrostis</i>	Umbrella Sedge
	<i>Gahnia grandis</i>	Cutting Grass
	<i>Isolepis inundata</i>	
	<i>Lepidosperma elatius</i>	Sword Sedge
e	<i>Lepidosperma inops</i>	Fan Sedge
	<i>Schoenus apogon</i>	Common Bog-rush
	<i>Tetraria capillaris</i>	Hair sedge
HEMEROCALLIDACEAE		
	<i>Dianella revoluta</i>	Spreading flaxlily
	<i>Dianella tasmanica</i>	Forest flaxlily
IRIDACEAE		
i	<i>Crocasmia X crocosmiiflora</i>	Montbretia
	<i>Diplarrena moraea</i>	White Flag Iris

JUNCACEAE

	<i>Juncus pallidus</i>	Pale rush
i	<i>Juncus planifolius</i>	Broad-leaf rush
	<i>Juncus</i> sp.	Rush

POACEAE

i	<i>Aira</i> sp.	Hairgrass
i	<i>Agrostis capillaris</i>	Browntop bent
i	<i>Anthoxanthum odoratum</i>	Sweet vernal
i	<i>Arrhenatherum elatius</i> ssp. <i>bulbosum</i>	Bulbous oat-grass
	<i>Austrostipa</i> sp.	Speargrass
d	<i>Cortaderia</i> sp.	Pampas grass
i	<i>Dactylis glomeratus</i>	Cock's Foot
i	<i>Lolium</i> sp.	Ryegrass
	<i>Poa</i> sp.	
	<i>Rytidosperma laeve</i>	Smooth wallaby-grass
	<i>Themeda triandra</i>	Kangaroo Grass

***Pteridophytes***

ADIANTACEAE

	<i>Adiantum aethiopicum</i>	Common maidenhair
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BLECHNACEAE

	<i>Blechnum nudum</i>	Fishbone Water-fern
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DENNSTAEDTIACEAE

	<i>Pteridium esculentum</i>	Bracken
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