Tarraleah Redevelopment Project
Development Application

Appendix A

Terrestrial Ecology Assessment

Hydro Tasmania

Acknowledgements

The authors of this report pay our respects to the rich, long and ongoing history of the Traditional Owners and Custodians of the lands and waterways that we study. We acknowledge that the mountains, lakes and rivers that capture and channel water for hydropower are rich in Aboriginal history, culture, and tradition. We acknowledge ongoing Aboriginal connection to culture and custodianship of the lands and waters of places we share. We pay our respects to Elders past and present, and we extend that respect to all Aboriginal and Torres Strait Islander peoples today.

The field survey efforts for this assessment included those of Stephen Casey of Stephen Casey Ecology, an expert field botanist. His efforts and knowledge of Tasmanian flora supported the verification of vegetation community mapping and the search for threatened species.

Biodiversity Maintenance Australia was engaged to ensure that the targeted survey methods for the Tasmanian masked owl were consistent with the most current knowledge and made use of the latest technologies. The authors of this report thank Dr Phil Bell, founder and principal of Biodiversity Maintenance Australia, for his contributions as a respected species expert.

Executive summary

Hydro Tasmania is proposing to redevelop the Tarraleah Hydropower Scheme to replace end of life assets and provide a more flexible and efficient scheme to ensure a reliable and safe renewable energy source into the future. Entura has been engaged to undertake a comprehensive terrestrial ecology assessment, which includes desktop and field studies to survey and verify the vegetation communities, flora, weed species, fauna and habitat values within and surrounding the proposed disturbance footprint associated with the Tarraleah Redevelopment Project (the Project). The survey results informed the reference design developed by the proponent such that known natural values were avoided to the greatest extent practicable. Entura has also been engaged to identify and assess potential Project impacts on the identified terrestrial natural values using the precautionary principal. This report also recommends mitigation and management measures that prioritise avoiding then minimising impacts, with offsetting recommended only where impacts cannot be avoided or sufficiently reduced.

Field surveys were carried out between 2018 and 2025 and included comprehensive flora surveys; targeted searches for threatened raptor nests; targeted camera trapping for the eastern barred bandicoot; passive acoustic monitoring for Tasmanian masked owl detection; and vegetation condition assessments of two threatened vegetation communities. The survey area included the 100 m surrounding the construction disturbance footprint of the proposed redevelopment infrastructure and the 100 m surrounding the two 220 kV transmission line options.

There are currently two transmission line options being considered: a 14 km double circuit line from the existing Tungatinah Switchyard to the existing Dee Lagoon substation (northern option), or a 15 km double circuit line from the proposed Tarraleah Switchyard to the existing Liapootah substation (southern option). Both options have been included in the assessment, but only one will be selected for construction.

Vegetation communities

Field surveys verified 15 native vegetation communities (including *Sphagnum* peatland outside of the direct disturbance footprint) and 7 modified vegetation communities within the survey area, including both transmission line alignments. The total area of native vegetation within the main conveyance infrastructure disturbance footprint (i.e. excluding the transmission line disturbance footprint) is **161.1 ha**, primarily comprised of wet eucalypt forest (**43.4 ha**) and dry eucalypt forest (**89.8 ha**). Of the wet forest within the redevelopment main infrastructure disturbance footprint, **10.8 ha** are mature, and the remaining **32.5 ha** are regrowth wet forests that have been harvested for timber or otherwise cleared for hydropower infrastructure in recent decades. Of the dry forest within the redevelopment main infrastructure disturbance footprint, **50.4 ha** are mature, and the remaining **39.4 ha** are regrowth dry forests that have been harvested for timber or otherwise cleared in recent decades.

The northern transmission line option disturbance footprint contains **40.1 ha** of wet eucalypt forest (of which **17.9 ha** are mature) and **22.5 ha** of dry eucalypt forest (of which **13.1 ha** are mature). The southern transmission line option disturbance footprint contains **46.6 ha** of wet eucalypt forest (of which **7.8 ha** are mature) and **2.2 ha** of dry eucalypt forest (of which **0.5 ha** are mature).

There is approximately half of one hectare of subalpine *Diplarrena latifolia* rushland within the headrace pipeline alignment. This community is listed as a threatened vegetation community under the Tasmanian *Nature Conservation Act 2002* (NC Act), and a vegetation condition assessment undertaken in July 2022 identified this patch as being in excellent condition. The area of subalpine *Diplarrena* *latifolia* rushland that would be disturbed by the construction of the pipeline (0.5 ha) represents 0.08% of the mapped 600-ha extent of the community in Tasmania.

There is one listed geoconservation feature within the disturbance footprint: the Western Tasmania Blanket Bogs (ID 2527). These bogs underlie approximately **20.7 ha** of the disturbance footprint, primarily within the western portal and pipeline alignment, and are comprised of two vegetation communities: pure buttongrass moorlands and buttongrass moorlands with emergent shrubs. This geoconservation feature is recognised as being the most extensive organosol (i.e. peat) terrain in Australia and in the Southern Hemisphere. There are approximately one million hectares of buttongrass moorlands in Tasmania. The organosols underlying the disturbance footprint are unlikely to be substantially impacted by construction or operation of the Project.

It is recommended that the construction contractor develop the final detailed design to minimise disturbance to native vegetation communities to the greatest extent practicable, especially for the subalpine *Diplarrena latifolia* rushland and buttongrass moorlands (below which lie the Western Tasmania Blanket Bog peat soils). It is further recommended that, where practicable, *Diplarrena latifolia* (western flag-iris) within the subalpine *Diplarrena latifolia* rushland within the pipeline corridor, and buttongrass (*Gymnoschoenus sphaerocephalus*) rushes within buttongrass moorlands in the disturbance footprint, be stockpiled as close as possible to their original location and, after construction, be spread over areas no longer required for operation.

A *Sphagnum* peatland in good condition is located to the northwest of Mossy Marsh Pond, an artificial impoundment. Although this peatland is outside of the direct disturbance footprint, it may be indirectly impacted by the Project due to hydrological changes associated with the decommissioning of part of Canal No. 2 and construction of the headrace tunnel. *Sphagnum* peatland is listed as a threatened native vegetation community under the Tasmanian NC Act, and this 3-ha peatland also qualifies as the *Alpine Sphagnum Bogs and Associated Fens* ecological community, which is listed as endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). It is recommended that this endangered ecological community be monitored throughout the construction phase and for five years following construction and that the proponent precautionarily secures a suitable offset prior to commencement of construction. The proposed offset program must be developed in accordance with the Commonwealth *EPBC Act Environmental Offsets Policy* (2012) and the associated *Offsets Assessment Guide* (2012). A suitable offset property containing **9.5 ha** of *Sphagnum* peatland in excellent condition has been identified and was assessed by Entura ecologists. Hydro Tasmania has contracted to purchase the property on particular conditions. Registration of a conservation covenant will be pursued by Hydro Tasmania in consultation with Natural Resources and Environment Tasmania (NRE Tas). ***Flora***

Field surveys recorded a total of 325 flora species within the Project survey area, of which 271 were native species and 54 were introduced species. Surveys targeted all 25 flora species listed as threatened under either Commonwealth or Tasmanian legislation that have been recorded as occurring within 5 km of the disturbance footprint or for which there is suitable habitat within the survey area, and/or were indicated by the EPBC Act Protected Matters Search Tool as potentially occurring. A permit from the Department of Natural Resources and Environment Tasmania will be required if any threatened flora species cannot be avoided.

Barbarea australis (native wintercress) is endemic to Tasmania and listed as endangered under both the EPBC Act and the Tasmanian *Threatened Species Protection Act 1995* (TSP Act). The riparian, flow-dependent plant species is known to occur in the River Derwent downstream Wayatinah Lagoon. *B. australis* also occurs in the Nive River upstream and downstream of Lake Liapootah, including where the southern transmission line option would span the Nive River. There is also a small population of *B. australis* on the face of the Tarraleah Pump Pond No. 2 dam wall above the existing outflow pipe, close to the proposed pumping station. It is recommended that *B. australis* plants be marked out including a 5 m buffer area prior to work commencing to avoid impacts. Other than *B. australis*, no threatened terrestrial flora species listed under the EPBC Act were recorded or are considered likely to occur within the survey area.

Threatened flora species listed only under the TSP Act, and not under the EPBC Act, that are known to occur within the survey area include:

- *Pomaderris elachophylla* (small-leaf dogwood - vulnerable) occurs along the Lake King William to Derwent Pumps distribution line alignment and on the edge of the western portal and pipeline footprint. It is recommended that *P. elachophylla* plants be marked out including a 5 m buffer area prior to work commencing to avoid impacts. The number of affected plants that cannot be avoided should be counted and an application made for a '*Permit to Take Threatened Species*' under the TSP Act.
- *Westringia angustifolia* (narrowleaf westringia - rare) occurs in riparian areas along the River Derwent and at two locations along the northern transmission line option alignment (near Tower 3 and Tower 14). If the northern transmission option is selected for construction, it is recommended that the final design of the infrastructure minimise impacts on *W. angustifolia* plants. It is further recommended that *W. angustifolia* plants be marked out on site and the number of affected plants that cannot be avoided be counted and an application made for a '*Permit to Take Threatened Species*' under the TSP Act.
- *Pherosphaera hookeriana* (Mount Mawson pine - vulnerable) occurs in riparian areas along the River Derwent.
- *Muehlenbeckia axillaris* (matted lignum - rare) occurs in riparian areas along the River Derwent and along the Nive River.

The indirect impacts of predicted changes in the spill regime on the River Derwent and Nive River on riparian threatened flora species (e.g. *B. australis*, *W. angustifolia*, *P. hookeriana*, and *M. axillaris*) is addressed in Entura's 2025 Tarraleah Redevelopment Aquatic Ecology Assessment.

Ten declared weeds listed on the schedules of the *Biosecurity Act 2019* (Tas) are known to occur within the survey area: *Cirsium arvense* var. *arvense* (Californian thistle), *Cytisus scoparius* (English broom), *Digitalis purpurea* (foxglove), *Erica lusitanica* (Spanish heath), *Genista monspessulana* (Montpellier broom), *Nassella trichotoma* (serrated tussock), *Pilosella aurantiaca* subsp. *aurantiaca* (orange hawkweed), *Rubus fruticosus* agg (blackberry), *Senecio jacobaea* (ragwort), and *Ulex europaeus* (gorse). There are significant infestations of English broom within the Tarraleah Conservation Area, at the Tarraleah Golf Course and at Tarraleah Village.

The plant pathogen *Phytophthora cinnamomi* was not recorded during field surveys and is unlikely to occur within the survey area, which is at the upper limit of the fungus' altitudinal range.

Terrestrial fauna

The Project disturbance footprint encompasses three main fauna habitat types: dry eucalypt forest, wet eucalypt forest and buttongrass moorland. Buttongrass moorland generally supports a low diversity of fauna due to its simple structure resulting in a lack of habitat heterogeneity. The two forest habitats are likely to provide habitat for a range of fauna species.

Nine fauna species listed as threatened and two bird species listed as migratory under the EPBC Act, and thus are Matters of National Environmental Significance (MNES), are known to occur or have potential to occur within the survey area:

- Tasmanian devil (*Sarcophilus harrisii* - Endangered) – known to occur
- Tasmanian population of the spotted-tailed quoll (*Dasyurus maculatus maculatus* - Vulnerable) – potential to occur
- eastern quoll (*Dasyurus viverrinus* - Endangered) – potential to occur at southern terminus of southern transmission line option within suitably open dry eucalypt forest and existing power line easements.
- eastern barred bandicoot (*Perameles gunnii gunnii* - Vulnerable) – known to occur at low density at the Tarraleah Golf Course
- Tasmanian wedge-tailed eagle (*Aquila audax fleayi* - Endangered) – known to nest within 1 km of both transmission line options
- Tasmanian masked owl (*Tyto novaehollandiae castanops* - Vulnerable) – known to occur but unlikely to nest within 150 m of the disturbance footprint
- swift parrot (*Lathamus discolor* - Critically Endangered) – known to occur in the local region, unlikely to nest given the Project is outside of breeding range for the species
- Latham’s snipe (*Gallinago hardwickii* - Vulnerable, migratory) – potential to occur
- white-throated needletail (*Hirundapus caudacutus* - Vulnerable, migratory) – potential to fly over survey area

None of the Tasmanian devil images captured by the camera traps deployed near the edges of native vegetation and managed turf throughout the Tarraleah Golf Course showed any evidence of Devil Facial Tumour Disease; however, the disease is known to occur within the Project area. Cats (*Felis catus*) are known to occur within the survey area and are a known threat to Tasmanian devils, quolls, bandicoots, birds, and a range of other native wildlife. Cats are likely to compete with native carnivores and reduce their abundance in these areas. It is not expected that the Project will cause an increase in the cat population in the local region.

Impact assessments for EPBC Act listed species known or with potential to occur within the survey area were undertaken against the *Matters of National Environmental Significance - Significant Impact Guidelines* described in the 2015 EPBC Act Policy Statement 1.1. It was concluded that the two Tasmanian eagle species (Tasmanian wedge-tailed eagle and white-bellied sea-eagle), Tasmanian devils and spotted-tailed quolls may be impacted if appropriate mitigations are not implemented during the construction phase. The significant impact assessments concluded that it is unlikely that there will be any significant post-mitigation impact to any of the EPBC Act listed flora or fauna species.

If appropriate mitigations are not implemented, the two Tasmanian eagle species may be impacted by construction of the 220 kV transmission line, as they are sensitive to disturbance during the breeding season. Construction of the northern transmission line option has potential to disturb nest #2298 and #3577 within 500 m of its disturbance footprint; nests #3176 and #1700 are both within 1 km but not in line-of-sight due to vegetation screening thus are unlikely to be disturbed. Construction of the southern transmission line option has the potential to disturb one known eagle nest (#738), which is within 500 m of its disturbance footprint. These five nests may be used by either the Tasmanian wedge-tailed eagle or the white-bellied sea-eagle. It is recommended that construction activities within 500 m or within 1 km line-of-sight of an eagle nest be avoided during the eagle breeding season, unless the relevant nest is proven to be inactive during that breeding season. There are no known eagle nests within 1 km of the main conveyance infrastructure west of the Nive River. It is further recommended that eagle nest searches of the 2 km surrounding the disturbance footprint be conducted by suitably qualified ecologists annually outside of the breeding season until the completion of construction and cessation of potentially disturbing activities.

The Tasmanian devil and spotted-tailed quoll may also be impacted during the construction phase if appropriate mitigations are not implemented. There is likely to be increased roadkill risk associated with a 10% or greater increase in night-time traffic volume (relative to typical night-time traffic volumes) on 29 road segments during the construction phase, including Butlers Gorge Road, Fourteen Mile Road, Oldina Drive and sections of the Lyell Highway. These two species may also be impacted by maternal den disturbance during the construction phase of the Project if construction noise and vibration occurs within 50 m of an active den. No dens were recorded during field surveys. Although the population of spotted-tailed quolls in this area is not considered an important population in the species' *National Recovery Plan* (2016), the mitigations relevant to the Tasmanian devil will also mitigate the same potential impacts to the spotted-tailed quoll. Specifically, it is recommended that:

- pre-construction den surveys be undertaken within the mature eucalypt forest and woodland within the disturbance footprint prior to construction to locate possible Tasmanian devil and quoll den sites in accordance with the Tasmanian Department of Natural Resources and Environment's *Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil (Sarcophilus harrisii)*.
- a roadkill management plan be developed and implemented that includes measures to minimise construction-related vehicle movements and to reduce construction vehicle speeds on Project transport routes during the period from one hour before sunset until one hour after sunrise, and to remove roadkill from roads to reduce the likelihood of attracting scavenging carnivores.

Habitat loss and degradation was not assessed as a significant impact for either of the threatened native mammalian carnivores when assessed against the relevant significant impact guidelines. The up to **92.2 ha** of mature eucalypt forest within the disturbance footprint may contain suitable Tasmanian devil and/or spotted-tailed quoll denning habitat, although no evidence of devil nor quoll dens was observed during field surveys of these areas. The largest contiguous area of mature eucalypt forest within the disturbance footprint is at the proposed sites of the western portal and pipeline; targeted assessment of the mature habitat availability found only low and medium availability of mature forest features in these areas, with only wombat burrows as features that could be potentially used by marsupial carnivores as maternal dens. The proposed clearance of up to **92.2 ha** of non-contiguous forest habitat is not considered to be significant given the large size of Tasmanian devil and spotted-tailed quoll home ranges. These two threatened mammalian carnivores may forage over dry and wet eucalypt forest and woodland, non-eucalypt forest and woodland, scrub, easement, plantation for silviculture and on the fringes of regenerating cleared land within the disturbance footprint. Conversion of native vegetation and plantation to permanent above-ground infrastructure will constitute permanent loss of suitable Tasmanian devil foraging habitat, and conversion of forests and plantation to above-ground infrastructure will constitute permanent loss of spotted-tailed quoll foraging habitat. Overall, it was determined that the proposed vegetation clearance and infrastructure installation will not modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that either species is likely to decline.

Seven terrestrial fauna species listed as threatened under the TSP Act were identified as known, likely, or potentially occurring within the survey area, including two mammal species and five bird species including:

- Tasmanian devil (*Sarcophilus harrisii* - endangered, also EPBC Act listed)
- spotted-tailed quoll (*Dasyurus maculatus maculatus* - rare, also EPBC Act listed)
- Tasmanian wedge-tailed eagle (*Aquila audax fleayi* - endangered, also EPBC Act listed)
- white-bellied sea-eagle (*Haliaeetus leucogaster,* only TSP Act listed as vulnerable) – no nests within the disturbance footprint but may nest within 1 km.
- Tasmanian masked owl (*Tyto novaehollandiae castanops* - endangered, also EPBC Act listed)
- swift parrot (*Lathamus discolor* - endangered, also EPBC Act listed)
- grey goshawk (previously *Accipiter novaehollandiae,* now *Tachyspiza novaehollandiae*, only TSP Act listed as endangered) – known to forage over the Project area; there is no suitable nesting habitat within 100 m of the disturbance footprint.

The impacts and recommended mitigation measures that are relevant for the Tasmanian wedge-tailed eagle are also relevant for the white-bellied sea-eagle. There are unlikely to be any impacts to the grey goshawk due to the absence of suitable nesting habitat and no known nests within 100 m of the disturbance footprint.

There are products of wildlife (e.g. wombat burrows) within the disturbance footprint that will require a permit to decommission. An unexpected den, burrow and nest find protocol (e.g. for wombat burrows, platypus burrows, devil dens, quoll dens, and raptor nests discovered during construction works) are recommended to be developed and implemented in accordance with guidance from the Department of Natural Resources and Environment Tasmania, whereby a permit must be secured prior to disturbance of any products of wildlife protected under the Tasmanian *Nature Conservation (Wildlife) Regulations 2021*.

Protected areas

The Project is located within close proximity to the Tasmanian Wilderness World Heritage Area (TWWHA), which is a MNES listed under the EPBC Act. At its closest point, the disturbance footprint is approximately 25 m from the TWWHA boundary on the opposite side of Canal No. 1. The Project is not expected to have any direct impact on the TWWHA, as no construction activities are proposed within the TWWHA and potential construction pollution sources from nearby worksites can be effectively managed through the implementation of standard environmental management practices. Project-related changes to the flow regime in the reaches of the River Derwent within the TWWHA are discussed in detail in Entura’s 2025 Tarraleah Redevelopment Aquatic Ecology Assessment.

The disturbance footprint overlaps a section of the Tarraleah Conservation Area, an approximately **970 ha** International Union for Conservation of Nature (IUCN) category IV reserve established under the NC Act. The permanent surge facility and associated infrastructure such as a rising main, surge tower, access track and distribution line from Pump Pond No. 2, are proposed within the reserve. Additionally, the eastern temporary explosive magazine is proposed within this reserve. The surge facility must be located as close to the proposed new power station as possible but is constrained by geology and topography to this location 2.4 km west of the new power station site. Wet forest dominated by *Eucalyptus tasmaniensis* (gum-topped stringybark) is proposed for clearance to accommodate the infrastructure within the reserve. The Project, therefore, will have a direct impact on the Tarraleah Conservation Area. The proposed works within the reserve are subject to assessment by Tasmania Parks and Wildlife Service (PWS) in accordance with the Tasmanian *National Parks and Reserves Management Act 2002*. The PWS has opted to conduct a parallel Reserve Activity Assessment (RAA) alongside the Environmental Impact Statement (EIS) assessment by the Tasmanian Environment Protection Authority.

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1. Introduction

1.1 Project background

Hydro Tasmania is proposing to redevelop the Tarraleah Hydropower Scheme to replace end of life assets and provide a more flexible and efficient scheme to ensure a reliable and safe renewable energy source into the future. The key permanent components of the Tarraleah Redevelopment Project are outlined below, and the layout is shown in Figure 1.1.

- An approximately 4.2 km **headrace pipeline** and associated service roads connecting the Lake King William tunnel (under construction) to the headrace tunnel.
- An approximately 9.8 km low pressure **headrace tunnel.**
- An approximately 2.3 km long high-pressure **power tunnel** that splits into two short penstocks before entering the power station.
- A partially underground **power station** with an installed capacity of approximately 180 MW and rated flow of 60 cumecs (cubic metres per second) located adjacent to the existing Tarraleah Power Station.
- A **surge facility** consisting of a 70 m high (above ground level) surge tower and associated underground approximately 140 m high surge shaft to control water pressure in the headrace and power tunnels.
- An approximately 6 cumecs **pumping station** and approximately 0.8 km **rising main** to transfer water from the existing No. 2 Pond to the power and headrace tunnels via the surge tower.
- A **transformer yard** and **switchyard** located close to the power station connecting the power station to the proposed transmission line.
- A new 22 kV **power supply** from the existing 22 kV network to the western, mid access and Paddy’s Quarry portals, pump station, surge tower and power station will provide power during construction and operation.
- A new 220 kV **transmission line**. There are currently two transmission line options being considered, with only one to be constructed:
  - A 14 km double circuit line from the existing Tungatinah Switchyard to a new tee at Dee Lagoon (northern option), or
  - A 15 km double circuit line from the proposed Tarraleah Switchyard to the existing Liapootah substation (southern option).
  - Thirty metres either side of a transmission line centreline is the TasNetworks standard for an easement housing 220 kV infrastructure (TasNetworks, 2025).
- **Access tunnels**, **tunnel portals** and **access roads** to provide access to the headrace and power tunnels. Excess spoil from tunnel, power station and portal excavations will be stored in one of three **permanent spoil emplacement areas** located at the western portal, mid tunnel access portal and Paddy’s Quarry portals.

Construction of the Tarraleah Redevelopment Project (hereafter referred to as the Project) underground works will be completed using drill and blast techniques and may be supported by a tunnel boring machine. Above-ground works will be completed by conventional earth moving and mechanical excavation. To support construction the following key temporary infrastructure is proposed:

- A **construction compound** at Tarraleah Village supported by smaller construction compounds located at each of the tunnel portals and the power station. Construction compounds will include site administration facilities and workshops, handle and store materials and equipment imported to site and concrete batching and crushing and screening plant.
- Explosives for excavation work are required to be stored in a dedicated facility. Two **explosive magazines** are proposed to be located off Butlers Gorge Road.
- To facilitate construction of the power station, a **temporary bridge** will be built over the Nive River.
- A **temporary workforce accommodation facility** will be constructed on land adjacent to Tarraleah Village. The facility will consist of prefabricated accommodation units (up to 300 beds) along with recreation facilities, dining hall, canteen, laundry facilities and associated utilities (power, water and sewer).

Upon the completion of works, all temporary construction sites will be rehabilitated.

Hydro Tasmania provided Entura with spatial data for the approximately **4,800 ha** Project area, the approximately **295.2 ha** proposed disturbance footprint (direct surface impact area during the construction phase) for the main conveyance infrastructure excluding the transmission line, the **115.1 ha** disturbance footprint for the northern transmission line option, the **146.2 ha** disturbance footprint for the southern transmission line option. The disturbance footprints for each of the two transmission line options both include the construction access track and laydown area. The disturbance footprint includes all area temporarily disturbed to facilitate construction.

If the northern transmission line is constructed, the total extent of the proposed disturbance footprint would be **410.5 ha**; if the southern transmission line in constructed instead, then the total proposed disturbance footprint would be **441.4 ha**.

The horizontal coordinate system used for all spatial analyses and mapping is the Geocentric Datum of Australia 2020 Map Grid of Australia Zone 55 (GDA2020 MGA55). The vertical coordinate system used is the Australian Height Datum (Tasmania) (AHD83).

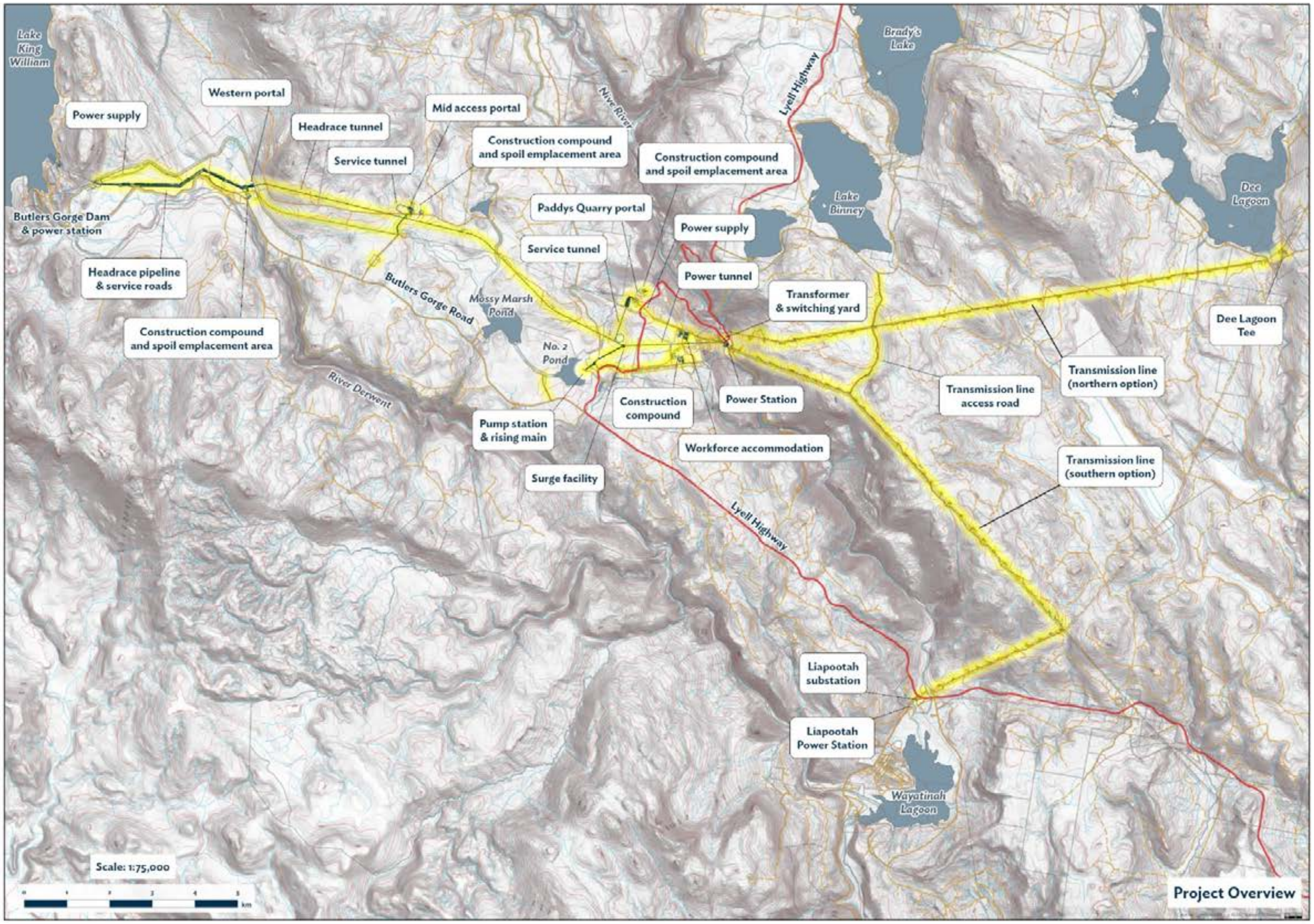

Figure 1.1: Tarraleah Redevelopment Project layout

1.2 Scope of works

Entura was engaged by Hydro Tasmania to undertake an assessment of the terrestrial ecology for the Tarraleah Redevelopment Project. The survey area for the terrestrial assessment included an approximately 100 m buffer around the pipeline alignment, tunnel portals, spoil dumps, surge tower, downstream riverine reaches and up to 12 km of transmission line upgrades.

For the required new transmission line, a 220 kV line is proposed to be built in addition to the existing 110 kV transmission lines in one of two identified alignment options:

1. An approximate 30 m enlargement to the width of the northern option's existing easement to Dee Lagoon, on the southern side of the existing Waddamana to Tungatinah transmission line.

2. A 30 m to 60 m variable enlargement to the width of the southern option's existing easement to the Liapootah Power Station on the southern side of the Tarraleah to New Norfolk transmission line.

Thirty metres either side of a transmission line centreline is the TasNetworks standard for 220 kV infrastructure (TasNetworks, 2025). Each of the two transmission line options will require new access tracks and upgrades to existing tracks for construction of the towers/poles and for conductor line stringing, as well as for easement maintenance purposes during the operational stage of the transmission infrastructure. The survey area for both transmission alignment options constituted a 100 m wide corridor centred on the proposed route centreline.

The survey area also included associated waterbodies of the Tarraleah Redevelopment Project which targeted the threatened flora species *Barbarea australis* (native wintercress) in riverine habitats along the River Derwent downstream of Clark Dam to Lake Catagunya , Nive River upstream of Pine Tier Lagoon, Nive River upstream of Lyell Highway to Pine Tier Lagoon, Nive River downstream of the Lyell Highway, Nive River upstream of Tungatinah Power Station and Nive River downstream of Liapootah Dam to Wayatinah Lagoon. The aquatic survey area is described in greater detail in the Tarraleah Redevelopment Aquatic Ecology Assessment (Entura, 2025).

The terrestrial ecology assessment included desktop and field studies to identify vegetation communities, flora and fauna species and habitat values associated with the Project. The aim of the report is to provide a description of the baseline terrestrial ecology for the Tarraleah Redevelopment Project.

This terrestrial ecology assessment has been undertaken in accordance with the *Guidelines for Natural Values Surveys – Terrestrial Development Proposals* (Natural and Cultural Heritage Division, 2015), and includes:

- A review of terrestrial and riparian flora and fauna data held on the Natural Values Atlas (NVA) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) Protected Matters Search Tool (PMST) to identify the potential for the occurrence of threatened flora and fauna species listed under the *Threatened Species Protection Act 1995* (Tas) (TSP Act) and the EPBC Act.
- Identification of the TASVEG (Tasmanian Vegetation Map) vegetation communities occurring in the survey area.
- Field surveys to investigate and verify the possible presence of natural values identified in the desktop assessment including:

  - ground-truthing and mapping of vegetation communities present, with focus on the above-ground disturbance areas.
  - identification of vegetation communities listed as threatened under the Tasmanian *Nature Conservation Act 2002* (NC Act).
  - survey of terrestrial and riparian, annual and perennial, flowering plants.
  - identification of declared weeds listed on the schedules of the *Biosecurity Act 2019* (Tas).
  - identification and assessment of potential habitat for threatened terrestrial fauna species.
  - incidental observations of fauna species (e.g. sightings, scats, diggings, dens, shelters).
- Targeted surveys for threatened fauna species and habitat features, including:
  - aerial eagle nest searches
  - *Tyto novaehollandiae castanops* (Tasmanian masked owl) passive acoustic monitoring and targeted nest searches in suitable habitat within 150 m of the disturbance footprint
  - camera trapping in potentially suitable habitat to determine the presence of eastern barred bandicoot (*Perameles gunnii gunnii*).
- Assessment of potential impacts associated with the disturbance footprint on terrestrial natural values considered likely or known to occur, including analysis of roadkill data on roads proposed for use during the construction phase of the Project.
- Assessment of potential impacts on geodiversity features, systems and processes of conservation significance listed on the Tasmanian Geoconservation Database 7.0.
- Assessment of potential impacts on the Comprehensive, Adequate and Representative (CAR) Reserve System, including Informal Reserves such as Protection Zones declared under the Management Decision Classification System (e.g. wildlife habitat strips, wildlife habitat clumps, and streamside reserves).
- Assessment of potential impacts to the Tasmanian Permanent Native Forest Estate, given that the Permanent Native Forest Estate Policy limits clearance and conversion “more than 20 hectares of native forest in any period of five consecutive years (based on calendar years) per property,” except where such clearance or conversion is for the construction of new significant infrastructure or is to facilitate any development that demonstrates substantial public benefit[1].
- Assessment of potential impacts on any high-quality wilderness areas as defined under the Tasmanian Regional Forest Agreement.

The decommissioning of current infrastructure such as Butlers Gorge Power Station, No. 1 Canal, the hillside penstocks and the Tarraleah Power Station does not form part of the proposed action for which the proponent is seeking environmental approvals. As such, the impacts of the associated decommissioning of this existing infrastructure are not assessed in this report.

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[1] “Significant infrastructure” includes powerlines, public roads and the easements within which they are contained and infrastructure associated with Projects of State or Regional Significance. “Substantial public benefit” is determined by the Minister administering the *Forest Practices Act 1985* following consideration of a socio-economic analysis of the proposal prepared by an independent third party, the conservation benefits arising from the proposal, and consideration of comments received on the socio-economic analysis and any conservation benefits by relevant agencies and authorities within the Tasmanian Government.

1.2.1 Criteria for determining flora and fauna species of conservation significance

The significance of the flora and fauna within the survey area was assessed according to whether they were a:

- Matters of National Environmental Significance (MNES) under the EPBC Act, namely whether they were a listed threatened species, ecological community or migratory species
- terrestrial and riparian flora and fauna species listed under the TSP Act
- threatened TASVEG vegetation community listed under the NC Act
- declared weed listed on the schedules of the *Biosecurity Act 2019* (which superseded the *Weed Management Act 1999*).

The requirements of each of the Acts that relate to the flora, fauna and vegetation potentially affected by the Tarraleah Redevelopment Project are outlined below.

1.2.1.1 Threatened Species Protection Act 1995 (Tas)

Under the Tasmanian *Threatened Species Protection Act 1995* (TSP Act) a person must not knowingly kill, injure or collect a listed species without a permit. Similarly, a person must not disturb a listed species on land subject to an interim protection order or subject to a land management agreement without a permit. Fauna and flora species listed under the TSP Act were identified as potentially occurring within the survey area.

1.2.1.2 Nature Conservation Act 2002 (Tas)

The Tasmanian *Nature Conservation Act 2002* (NC Act) provides for the conservation and protection of the fauna, flora and geological diversity in Tasmania and for the declaration of national parks and other reserved land. Schedule 3A of the NC Act lists the native vegetation communities in Tasmania that are considered to be threatened. These communities are protected from clearance and conversion under the *Forest Practices Act 1985* and are also afforded higher levels of protection under the biodiversity code of local government planning schemes. There are two vegetation communities listed under the NC Act that were verified as occurring within the survey area.

The NC Act also provides for the protection of wildlife and their products, where products of wildlife include nests, dens and burrows. Bare-noted wombat (*Vombatus ursinus tasmaniensis*) burrows were recorded within the survey area for the Tarraleah Redevelopment Project. The wombats and their burrows are protected under the *Nature Conservation (Wildlife) Regulations 2021*, under the NC Act. These regulations require that the proponent acquire a permit from NRE Tas to destroy wombat burrows or dens of other native fauna species.

1.2.1.3 Biosecurity Act 2019 (Tas)

Since 1999, the *Weed Management Act 1999* regulated the declaration, management, compliance requirements, and powers of inspectors appointed under the Act to prevent the spread of weeds in Tasmania. The *Weed Management Act 1999* was replaced by *Biosecurity Act 2019.* The *Biosecurity Regulations 2022* allow for the full implementation of the *Biosecurity Act 2019*, following repeal of the *Weed Management Act 1999*.

The *Biosecurity Act 2019* includes provisions:

- that prohibit the introduction of declared weeds into Tasmania
- to undertake the eradication of declared weed species
- to take action aimed at preventing the spread of declared weeds within Tasmania
- that require that action be taken against declared weed species where this is necessary to alleviate or prevent a particular problem.

The major regulatory tool under the *Weed Management Act 1999*, the Statutory Management Plans, have been replaced by Biosecurity Management Plans under the *Biosecurity Act 2019*. The contents of these plans relating to the management of declared weed species are largely identical to the corresponding Statutory Management Plans.

Under the *Biosecurity Act 2019*, it is a requirement to fulfill the General Biosecurity Duty. With respect to declared weeds, this requires that actions are taken to prevent the introduction or spread of weeds in accordance with the Biosecurity Management Plans. There are nine declared weed species within the disturbance footprint of the Tarraleah Redevelopment Project; therefore, there is a requirement to prevent the spread of these weeds as well as a requirement to prevent the introduction of other declared weed species.

1.2.1.4 Environment Protection and Biodiversity Conservation Act 1999 (Cth)

Matter of National Environmental Significance (MNES) are protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act provides for Commonwealth (Cth) involvement in development assessment and approval in circumstances where MNES could potentially be affected. MNES include:

- World Heritage properties
- National Heritage places
- Ramsar Wetlands
- Nationally threatened species and ecological communities
- Migratory species
- Commonwealth marine areas
- Nuclear actions (including uranium mining)
- a water resource, in relation to coal seam gas development and large coal mining development.

A proponent who proposes to take an action that will have or is likely to have a significant impact on MNES must refer that action to the Federal Environment Minister for assessment. The Project has been referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for assessment of impacts on nationally threatened species and the Tasmanian Wilderness World Heritage Area.

1.2.1.5 Forest Practices Act 1985

In accordance with the *Forest Practices Regulations 2017*, the requirement for an approved Forest Practices Plan is not applicable to the Project given that the proposed clearing of trees and the clearance and conversion of a threatened native vegetation community are to enable the construction and maintenance of electricity infrastructure. However, the clearance and conversion must be undertaken in accordance with an environmental management system endorsed by the Forest Practices Authority.

Tasmania's Permanent Native Forest Estate Policy is also administered through the *Forest Practices Act 1985.* The policy regulates the extent to which native forests can be cleared and converted to other land uses across the State. The Policy limits "clearance and conversion of more than 20 hectares of native forest in any period of five consecutive years (based on calendar years) per property" except where it is for the construction of new significant infrastructure or is to facilitate any development that demonstrates substantial public benefit as determined by the Minister administering the *Forest Practices Act 1985*. There are two land parcels containing 20 ha or more of native forest within the disturbance footprint which may require a determination by the Minister administering the FP Act whether the Project constitutes "new significant infrastructure" that is of "substantial public benefit" prior to the proposed clearance and conversion.

2. Methods

The terrestrial ecology assessment was undertaken using methods that are consistent with the *Guidelines for Natural Values Surveys – Terrestrial Development Proposals* (Natural and Cultural Heritage Division, 2015). This involved a desktop review of available online databases and field surveys for flora and fauna over a period from late 2018 to January 2025.

The horizontal coordinate system used for all spatial analyses and mapping is the Geocentric Datum of Australia 2020 Map Grid of Australia Zone 55 (GDA2020 MGA55). The vertical coordinate system used is the Australian Height Datum (Tasmania) (AHD83).

The Tarraleah Redevelopment ecological surveys were led by Entura's senior ecologist Raymond Brereton with over 30 years' experience in the field. Mr Brereton served from 2011 to 2016 as the Chair of the Scientific Advisory Committee (threatened species) established under the Tasmanian *Threatened Species Protection Act 1995*, and he is currently Team Leader of the Environment and Planning team at Entura. Mr. Brereton is also a member of TASCAT (Tasmanian Civil and Administrative Tribunal). He is a biodiversity specialist for the Resource Planning Stream and the Forest Practices Stream. He has over three decades of experience in the field of fauna and flora survey and environmental impact assessment. He was also the Senior Zoologist at the Forest Practices Board between July 2002 and March 2003 and worked as the Threatened Species Zoologist in the Department of Primary Industry, Water and Environment, Tasmania between December 1999 and June 2002.

The surveys were supported by Entura terrestrial ecologists Rachael Wheeler with eight years' experience and Dr Carley Fuller with seven years' experience including a doctorate from the University of Tasmania in the field of conservation ecology.

The ecological surveys were also supported by external experts engaged by Entura as subconsultant, including Stephen Casey of Stephen Casey Ecology, an expert field botanist. His efforts and knowledge of Tasmanian flora supported the verification of vegetation community mapping and the search for threatened flora species and for habitat trees. Stephen Casey is an ecologist with over 25 years' experience in providing natural resource management advice to developers, government departments, landowners and land managers. He has undertaken flora and fauna habitat surveys across Tasmania as well as southeastern Australia. Stephen has worked with a range of government departments in addition to consulting.

Biodiversity Maintenance Australia was also engaged to ensure that the targeted survey methods for the Tasmanian masked owl were consistent with the most current knowledge and made use of the latest technologies. Biodiversity Maintenance Australia is a consultancy founded and led by Dr Phil Bell, who is respected as a leading species expert for the Tasmanian masked owl and other listed threatened species.

The Terrestrial Ecology Assessments have been externally reviewed by Dr Phil Barker, with over 30 years' experience in Tasmanian ecology and impact assessment. Dr Barker co-founded the North Barker Ecosystem Services consultancy in Tasmania in 2000 and was principal ecologist there until 2020. The Principal Ecologists at North Barker Ecosystem Services have provided significant input into the development of the *Threatened Species Protection Act 1995*, participated on various Ministerial Advisory Committees, contributed to reviews of regulations, the TASVEG Scientific Reference Group, and the Tasmanian Regional Forest Agreement CAR Scientific Advisory Group. Dr Barker sits on the board of the

Tasmanian Forest Practices Authority, contributing his expertise in biological science and nature conservation. He is also a biodiversity specialist for the Resource Planning Stream of TASCAT.

2.1 Survey area

The Project area covers approximately **4,800 ha** and extends from Lake King William via Tarraleah to either Dee Lagoon or Liapootah (Wayatinah Lagoon).

The ecological survey area covered an area approximately 100 m beyond the disturbance footprint to allow for changes during the design phase, which may affect the location of infrastructure and spoil disposal areas (Figure 2.1). The survey area was extended to 150 m beyond the disturbance footprint where forest was assessed as being potentially suitable for Tasmanian masked owl nesting. The survey area also includes the rivers and waterbodies associated with the Tarraleah Redevelopment Project including the River Derwent and Nive River. All areas of the native vegetation community *Sphagnum* peatland mapped on TASVEG within the modelled potential 0.20 m water table drawdown zone (Section 3.2; PSM, 2025) were also included in the survey area, in addition to the Tarraleah Golf Course (which is not itself included in the disturbance footprint).

This terrestrial ecological baseline characterisation is based on the survey area. The impact assessment considers the potential construction and operational impacts on ecological values that are considered likely or known to occur within the disturbance footprint both before and after the implementation of recommended mitigation measures.

2.2 Desktop review

A review of the available online databases was undertaken to identify vegetation communities and flora and fauna species that could potentially occur within the database search area (i.e. within 5 km of the disturbance footprint). The desktop review included a search of the following online datasets:

- Listing statements and recovery plans for respective species, where appropriate
- The EPBC Act Protected Matters Search Tool (PMST)
- Tasmanian Vegetation Map (TASVEG Live, TASVEG 4.0 and TASVEG 5.0)
- The Tasmanian Natural Values Atlas (NVA)
- The Tasmanian Geoconservation Database
- The Tasmanian ListMap layer of modelled wilderness value
- The Tasmanian Forest Practices Authority models of potentially suitable eagle nesting habitat
- The search area for the NVA and PMST searches used a buffer of 5 km around the disturbance footprint to generate a list of threatened flora and fauna species and ecological communities that could occur associated with the Project. The database searches were most recently undertaken in February 2025 over the area shown in Figure 2.1.

A desktop review was undertaken for roadkill on the proposed transport routes, with focus on roads for which there was an anticipated 10% or greater increase in night-time traffic associated with the Project as indicated in the Pitt & Sherry (2025) traffic report:

- Construction of the main conveyance infrastructure may cause a 10% or greater increase in night-time traffic on the Lyell Highway, Butlers Gorge Road, Fourteen Mile Road, Oldina Drive, Palana Crescent, Exton Road, Bogan Road, Golden Valley Road, and Highland Lakes Road.

- Construction of the northern transmission line may cause a 10% or greater increase in night-time traffic on the Victoria Valley Road, Portal Road, Lake Echo Road, and an unnamed access road.
- Construction of the southern transmission line option may cause a 10% or greater increase in night-time traffic on Black Bobs Road, Wayatinah Road, and unnamed access roads.

This review was undertaken in May 2025 and used NVA data of fauna observations for which the observation type was 'carcass', and the record was located within 10 m from the road centrelines of the transport routes. Further, roadkill data collected by Hydro Tasmania between 3 June 2024 and 7 May 2025 on Butlers Gorge Road was used in the review. Assumptions applied to the selection of records within 10 m of these roads included carcass records were as a result of roadkill, and 10 m was sufficient to account for the widths of the transport routes plus potential variability in the road centrelines in the GIS layer LIST Transport Segments to those on-the-ground.

Further, only records on the NVA with a positional accuracy of 100 m or less were included in the review, as this was considered sufficient accuracy at a site location level using technology such as GPS or mobile device location services. It was assumed that the Hydro Tasmania roadkill data collected on Butlers Gorge also had a less than 100 m positional accuracy. Note that the majority (63%) of the carcass records selected in this review were collected and submitted to the NVA from the Roadkill Tas App, and 19% from the Save the Tasmanian Devil Program roadkill public reporting. Moreover, for the purposes of this review, the carcass records from the NVA discussed in Section 4.6 are referred to as roadkill records.

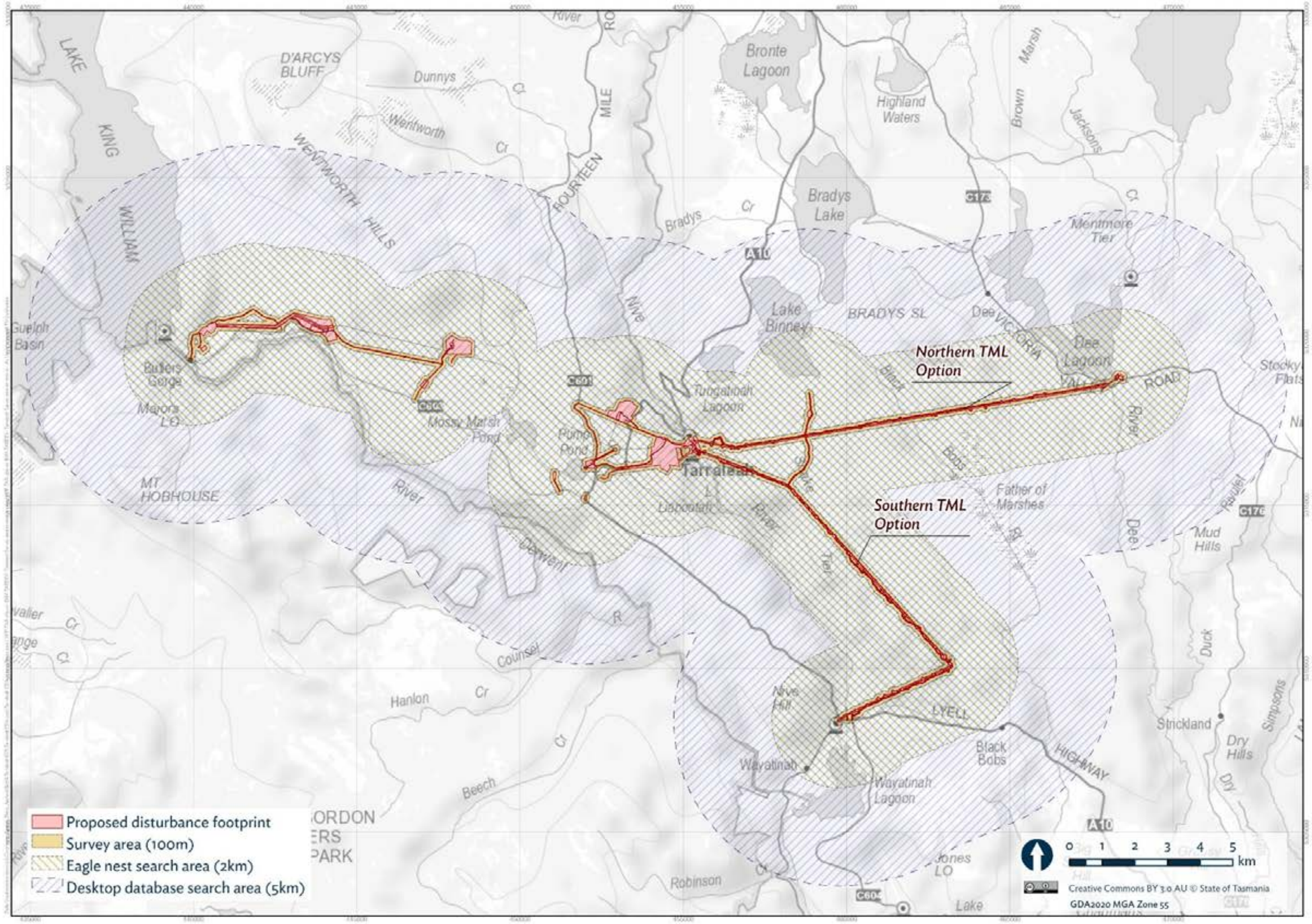

Figure 2.1: Map of the Tarraleah Redevelopment database search area and field survey areas

2.3 Field surveys

Flora and fauna surveys covering the survey area were carried out over a period between late 2018 and May 2025. Field surveys were undertaken to investigate and verify the potential fauna and flora issues identified in the desktop assessment. The field surveys included:

- aerial survey, ground-truthing and mapping of the TASVEG vegetation communities within the survey area
- survey of terrestrial and riparian flora
- identification of declared weeds listed on the schedules of the Tasmanian *Biosecurity Act 2019*
- identification of habitats and habitat components (e.g. habitat trees, dens) that may potentially support threatened fauna.

The field surveys targeted potential habitats and locations of flora, fauna and ecological communities that are listed under the EPBC Act and TSP Act.

All flora and fauna species observation records have been supplied to the NVA for review and upload.

Following the database searches and field surveys, likelihood of occurrence assessment was undertaken based on database records, field survey results and verified habitat suitability (see Appendix D).

2.4 Flora and vegetation surveys

A systematic ground survey method was used to undertake the flora surveys. This involved systematically walking over the survey area and recording all flora species encountered. The flora surveys focused on vegetation communities and habitats that could potentially support threatened species. All flora species encountered during the survey were recorded on a computer tablet with GPS capability using Entura's EFOS (Environmental Field Observation System) which records data using fields that are consistent with the NVA. Nomenclature for flora follows the current *Census of Tasmanian Vascular Plants* (de Salas & Baker, 2024).

Dominant and co-dominant flora species and their cover abundance were recorded in all vegetation communities that were encountered so that the community could be attributed to the appropriate TASVEG Mapping Units (Kitchener & Harris, 2013) as well as recording the presence of any vegetation communities listed under the NC Act or the EPBC Act. The boundaries and extent of the TASVEG communities were mapped on GIS.

A list of the flora surveys and vegetation verification surveys undertaken for the Tarraleah Redevelopment survey area is provided in Table 2.1. Details of the *Barbarea australis* surveys are described in the Tarraleah Redevelopment Aquatic Ecology Assessment (Entura, 2025)[2].

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[2] Targeted *Barbarea australis* on-ground field surveys were undertaken from December 2018 to March 2022 and covered the entire reaches within the potential zone of impact from the project which comprise the riverine habitats along the River Derwent downstream of Clark Dam to Lake Catagunya , Nive River upstream of Pine Tier Lagoon, Nive River upstream of Lyell Highway to Pine Tier Lagoon, Nive River downstream of the Lyell Highway, Nive River upstream of Tungatinah Power Station and Nive River downstream of Liapootah Dam to Wayatinah Lagoon. The surveys involved a 2-person team walking the river margins looking for specimens by eye. All surveys were undertaken within the main growing and flowering season for *B. australis* (November to March), although

Table 2.1: Terrestrial flora, vegetation and fauna habitat surveys undertaken for the Tarraleah Redevelopment ecology assessments

Survey	Date
Flora, vegetation surveys and habitat surveys	5 October 2018
Flora, vegetation surveys and habitat surveys	20 November 2018
Barbarea australis survey	11 December 2018
Barbarea australis survey	18 December 2018
Barbarea australis survey	23 January 2019
Barbarea australis survey	29-31 January 2019
Flora, vegetation surveys and habitat surveys	13 February 2019
Flora, vegetation surveys and habitat surveys	26 August 2019
Barbarea australis survey	29 March 2021
Flora, vegetation surveys and habitat surveys	22 September 2021
Flora, vegetation surveys and habitat surveys	15-16 November 2021
Barbarea australis survey	15 November 2021
Flora, vegetation surveys and habitat surveys	8 December 2021
Barbarea australis survey	4 March 2022
Flora, vegetation surveys and habitat surveys	11-12 April 2022
Flora, vegetation surveys and habitat surveys	16 June 2022
Flora, vegetation surveys and habitat surveys	17 July 2022
Flora, vegetation surveys and habitat surveys	15 September 2022
Flora, vegetation surveys and habitat surveys	4 October 2022
Flora, vegetation surveys and habitat surveys	19 October 2022
Aerial survey validation of vegetation communities	13-14 April 2023
Aerial survey validation of vegetation communities	6 June 2024
First winter aerial imagery capture of *Sphagnum* peatland near Mossy Marsh	19 August 2024
Flora, vegetation surveys and habitat surveys of southern transmission line option	13 November 2024
Masked owl nest tree habitat and flora survey	16 January 2025
First summer aerial imagery capture of *Sphagnum* peatland near Mossy Marsh	14 February 2025
Aerial survey validation of vegetation communities	13 May 2025
Second winter aerial imagery capture of *Sphagnum* peatland near Mossy Marsh	10 September 2025

mature and juvenile specimens have been observed in these reaches (and elsewhere in Tasmania) into late April. In addition to the geolocation of each specimen and recording on Entura's EFOS, photos and observations of surrounding substrate characteristics were noted. All observations of *B. australis* were uploaded to the NVA.

Survey	Date
Second summer aerial imagery capture of *Sphagnum* peatland near Mossy Marsh	15 January 2026
Ground-based assessment of mature habitat availability categories	28 January 2026

2.4.1 *Sphagnum* peatland surveys

There have been a range of targeted surveys to map and understand the groundwater conditions at the *Sphagnum* peatland that may be impacted by groundwater changes associated with the Redevelopment. These efforts include:

- An on-ground field survey was undertaken on the 27 September 2018 and a drone survey was undertaken on the 5 November 2018 to verify and map the extent of the *Sphagnum* peatland near Mossy Marsh. The boundaries of the patch of *Sphagnum* peatland were mapped using drone imagery high resolution aerial photography.
- A land survey was also undertaken on the 22 April 2022 to determine the slope and aspect of the *Sphagnum* peatland near Mossy Marsh.
- A desktop assessment was also undertaken of the groundwater conditions was undertaken using available information including the topography, geological and situational environment of the *Sphagnum* moss peatland to gain an understanding of the extent that groundwater contributes to the maintenance of the community by Groundwater Consulting Australia in 2022.
- A piezometer was installed adjacent the north-western end of the *Sphagnum* peatland near Mossy Marsh in January 2023 to measure groundwater changes. The piezometer data was used to assess what were the main influences on groundwater, rainfall or water flowing past the peatland from No. 2 canal. Borehole (TA-DC252) adjacent to the Mossy Marsh *Sphagnum* peatland has been used to monitor groundwater changes.
- Vegetation condition assessments at Mossy Marsh were carried out on 25 January 2024 using the Tasmanian Vegetation Condition Assessment (VCA) method (Michaels et al., 2020), whereby all flora species were recorded within each of five random 0.25-ha *Sphagnum* peatland sample sites.
- Vegetation condition assessments of the *Sphagnum* peatland at the proposed offset property were carried out on 19 March 2024, also using the Tasmanian Vegetation Condition Assessment (VCA) method (Michaels et al., 2020).
- On ground survey undertaken on the 25 June 2024 to verify the and map the extent of the *Sphagnum* peatland located approximately 1 km north of the tunnel alignment.
- A detailed hydrogeological assessment of the groundwater conditions at the Mossy Marsh *Sphagnum* peatland (PSM, 2025).
- The boundaries of the patch of *Sphagnum* peatland were further confirmed using drone imagery captured in 2024,2025 and 2026, and the patch was found to be 3.0 ha in size when mapped using this high-resolution aerial imagery.

2.4.2 Vegetation condition assessment method

The TASVEG Vegetation Community Assessment (VCA) method (Michaels et. al, 2020) requires a reference point or 'benchmark' so that the vegetation condition at specific sites can be assessed. Components of the vegetation at a site are scored against the benchmark to arrive at a condition value.

The ASP *Sphagnum* peatland benchmark (https://nre.tas.gov.au/Documents/VCA-ASP.pdf) and MDS Subalpine *Diplarrena latifolia* rushland (https://nre.tas.gov.au/Documents/VCA-MDS.pdf) were used. While the Natural Values Atlas now automates the calculation of VCA scores from entered field observations, an independent calculation of scores was also undertaken using the revised *Manual for Assessing Vegetation Condition in Tasmania - Appendix 2: Guide to Manual Scoring*, and the standalone TASVEG VCA Manual Scoring Tables provided by NRE Tasmania.

The vegetation condition assessments at the Mossy Marsh *Sphagnum* peatland were carried out on 25 January 2024. The vegetation condition assessments at the proposed offset property were carried out on 19 March 2024. Each species and the lifeform category to which it belongs was recorded in the data collection sheets; nomenclature for the flora recorded follows the current Census of Tasmanian Vascular Plants (de Salas & Baker, 2024). Cover of organic litter, the percentage of native organic litter, and cover of weeds and high-threat weeds were also recorded. In addition, all fauna species encountered during the survey were recorded using the EFOS, including indirect evidence of fauna presence (e.g. scats, pellets, diggings, dens, shelters). Specific effort was made to ensure that the locations of all wombat burrows encountered were recorded and photographed.

2.4.3 On-ground mature habitat availability classification

On 28 January 2026, Entura ecologists undertook on-ground mature habitat availability classifications within the known areas of mature eucalypt forest within the disturbance footprint using the methods described in the Tasmanian Forest Practice Authority's (FPA's) *Fauna Technical Note No. 2: Assessing mature habitat availability – version 2.1* (2017). This method is based on the assumption that the likelihood of a tree containing the mature forest features likely to be targeted for fauna habitat management increases with tree age and diameter. Twelve transects, along which trees were counted and tress' diameter at breast height measured, were surveyed within the areas of the disturbance footprint containing mature forest. Areas were classified as having "high" availability of mature habitat features if they were dry forest containing at least 8 trees over 100 cm diameter at breast height (DBH) per hectare, and if they were wet forest containing at least 15 trees over 100 cm DBH per hectare or at least 8 trees over 150 cm DBH per hectare. Areas were classified as having "medium" availability of mature habitat features if they were dry forest containing at least 8 trees over 70 cm diameter at breast height (DBH) per hectare, and if they were wet forest containing at least 8 trees over 100 cm DBH per hectare. Areas were classified as having "low" availability of mature habitat features if they were dry forests containing trees over 70 cm DBH but fewer than 8 of them per hectare; and if they were wet forests containing trees over 100 cm DBH but fewer than 8 of them per hectare. Areas were classified as having "negligible" availability of mature habitat features if they were dry forests that did not contain eucalypt trees over 70 cm DBH and if they were wet forests that did not contain eucalypt trees over 100 cm DBH. The classifications differ between wet and dry forest due to the difference in growth rates between these forest types.

Not all areas of mature forest within the disturbance footprint were classified according the FPA protocols. Transects were prioritised in the areas containing the largest contiguous areas of mature eucalypt forest within the disturbance footprint.

2.4.4 Limitations

It is possible that not all flora species that occur at the site were identified in the flora surveys because of varying flowering times and seasonality of occurrence. Short-lived annuals, orchids and lilies that may be present at the site may have been missed because they were not able to be identified (i.e. they were not flowering at the time of the survey). However, surveys were carried out over all seasons over many years, and any novel species encountered during any survey was recorded; as such, the flora list is likely to be comprehensive.

2.5 Fauna surveys

The fauna surveys included the recording of important fauna habitat components during the flora surveys when they were encountered, including large trees with hollows (habitat trees). In addition, all fauna species encountered during the survey were recorded using EFOS including indirect evidence of fauna presence (e.g. scats, diggings, dens, shelters). Threatened fauna species locations or habitats, if observed, were also recorded using EFOS.

In addition to the general fauna surveys, targeted surveys were undertaken for eagle nests through aerial nest searching, for masked owl nests through passive acoustic monitoring, and for eastern barred bandicoot through camera trap monitoring.

2.5.1 Eagle nest surveys

The wedge-tailed eagle (*Aquila audax fleayi*) is listed as endangered under the TSP and EPBC Act, and the white-bellied sea-eagle (*Haliaeetus leucogaster*) is listed as vulnerable under the TSP Act. The white-bellied sea-eagle is listed as a Marine species under the EPBC Act. The listing of species as Marine under the EPBC Act applies to those species where they occur in a Commonwealth marine area that is not in State waters (Department of Sustainability, Environment, Water Populations and Communities, 2013; DAWE, 2022). The survey area does not intersect a Commonwealth marine area, therefore the listing of the white-bellied sea-eagle as a Marine species under the EPBC Act does not apply and the species is not included in the assessment of MNES.

Both the wedge-tailed eagle and the white-bellied sea-eagle are sensitive to disturbance during the breeding season (Threatened Species Section, 2006). Disturbance can result in nest desertion at any stage during the breeding season (Forest Practices Authority, 2023). Construction activities within 500 m or 1 km line-of-sight of nests – such as vegetation clearance, transmission tower assembly, building construction and overhead line stringing with the use of helicopters – are all disturbances with the potential to disrupt breeding. Therefore, a desktop nest search of the Tasmanian Natural Values Atlas identified known nests within 5 km of the disturbance footprint (Figure 2.2), which in turn informed aerial raptor nest surveys undertaken 13-14 April 2023, 6 June 2024, 13 May 2025 and 21 May 2025. The aerial nest search of the 2 km surrounding the southern transmission line option was first undertaken on 13 May 2025, as this option was identified and added to the potential disturbance footprint in late 2024.

The aim of the aerial nest searches was to identify any previously unrecorded eagle or other raptor nests within 2 km of the disturbance footprint, including both potential transmission line alignments, and to check the condition of known raptor nests identified by the database search located within 2 km of the disturbance footprint (Figure 2.2). The aerial raptor nest searches were undertaken in accordance with the protocols described in the Tasmanian EPA's *Guide to Eagle Nest Searches and Activity Checks* (EPA, 2023) and the Tasmanian Forest Practices Authority (FPA)'s *Fauna Technical Note No. 1: Eagle nest searching, activity checking and nest management* (Forest Practices Authority 2024) and the Commonwealth's *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment, Water, Heritage and the Arts, now DCCEEW, 2010). It is recommended that these aerial raptor nest searches be repeated annually until the completion and cessation of construction works, and that they always be undertaken outside of the eagle management constraint period, which runs from July to January in most years and from July to February inclusive in late season years (normal or late season is advised by the Tasmanian FPA each year).

An Airbus AS350 B3e helicopter was used with two observers and a recorder/observer, in addition to the pilot from Helicopter Resources. All observers were suitably qualified in eagle nest helicopter surveys; each had previously completed an FPA/NRET-approved eagle management course. The Wedge-tailed Eagle Nesting Habitat Models (Forest Practices Authority, 2014) were used to identify potential high-quality nesting habitat, which was then considered focus areas for the searches. The variables used to develop this model largely related to the presence of mature crowns (which provide a structure in which nests can be built) and shelter from wind (e.g. aspect, wind protection index, and morphological protection index). In addition to the FPA modelled suitable habitat, the publicly available forest canopy tree height layer (derived from LiDAR data) was used to target focal areas containing large eucalypt trees. These spatial layers were pre-loaded over high-resolution basemap imagery on the offline FieldMaps app on a computer tablet, which was also used to help direct the pilot whilst navigating within the survey area. However, all habitat within the survey area was thoroughly searched to ensure the model had not misrepresented available habitat and to establish if nests are present outside the modelled potentially high-quality nesting habitat.

Parallel transects following contours were flown over the entire survey area, with gullies preferentially investigated by flying up the gully from its lowest point where it was safe to do so. The pilot endeavoured to fly slowly (5-10 knots) above the tree canopy or where possible and safe, below the adjacent canopy level. A handheld GPS was used for real-time recording of the helicopter flight path during the searches. If an eagle was observed during the flight, it was monitored closely, as the search should be abandoned immediately for safety reasons if an eagle shows interest or aggressive behaviours or remains in the vicinity for more than a few minutes. Each known nest, including newly located nests, was photographed through an open window (without hovering over nests, due to the potential for the rotor wash to damage the nest) to obtain the best quality photographic record of the nest site. An accurate GPS location of each nest site was recorded using both Entura's EFOS using the computer tablet as well as a backup handheld GPS unit. Photographs and records of the raptor nest search findings were reported to the Tasmanian Natural Values Atlas (NVA) database as soon as practicable after the flight.

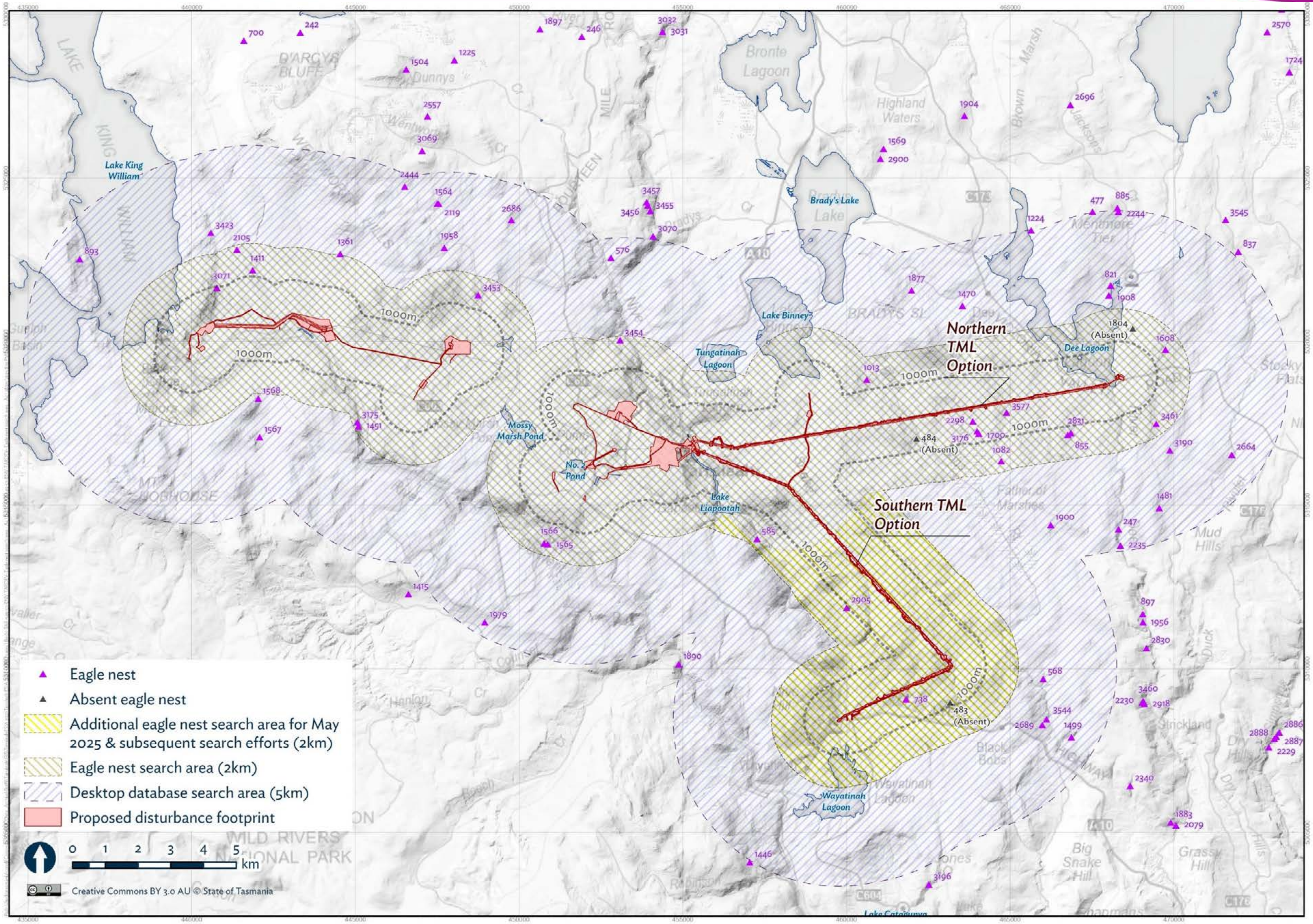

Figure 2.2: Aerial raptor nest search area

2.5.1.1 Eagle nest line-of-sight assessment

Line-of-sight analyses were undertaken for nests located between 500 m and 1 km radius of the disturbance footprint to determine if nests are within in line-of-sight of any portion of the proposed disturbance footprint and therefore potentially subject to disturbance during the breeding season. The line-of-sight analysis was undertaken using the known recorded nest heights. The line-of-sight analysis used both a Digital Elevation Model (DEM) representing the bare-ground topography and a Digital Surface Model (DSM) representing the ground surface including extant vegetation (e.g. the tree canopy). The DEM and DSM were derived using LiDAR data provided by Sustainable Timber Tasmania. The LiDAR data was captured by Airborne Laser Scanning from a fixed-wing aircraft in 2013 with a data density of approximately three points per square metre. The outputs are presented as a series of maps representing the line-of-sight based on the DEM and DSM at the nest height for each potentially affected nest. Note, however, requirement for the relevant land manager, currently Sustainable Timber Tasmania, to maintain native vegetation surrounding each eagle nest as an eagle nest reserve.

The habitat assessment and the subsequent identification of nests within 500 m or 1 km line-of-sight of the final development footprint will inform the application of seasonal breeding period management constraint period (1 July to 31 January in most seasons, 1 July to 28 February in late seasons) required during any works. Specifically, all nests within 500 m of the disturbance footprint (i.e. the new nest #3577 discovered on 21 May 2025 near the northern transmission alignment, nest #2298 and #738) and all nests within 1 km line-of-sight will trigger application of the seasonal breeding period management constraints outlined in the FPA's *Fauna Technical Note No. 1: Eagle nest searching, activity checking and nest management*.

For nests within 500 m (e.g. nest #2298, nest #738 and nest #3577 or nests within 1 km line-of-sight of proposed works (none known due to screening by extant vegetation), nest activity checks may be undertaken during the breeding season by a suitably qualified expert prior to the commencement of works and repeated annually until the completion of works, in accordance with the FPA's *Fauna Technical Note No. 1: Eagle nest searching, activity checking and nest management* and the Tasmanian EPA's *Guide to Eagle Nest Searches and Activity Checks.* The constraint management period will apply for all nests within 500 m or 1 km line-of-sight of proposed works unless the nest is determined by suitably qualified person to be inactive during the breeding season during which works are proposed.

2.5.2 Passive acoustic monitoring for masked owl nesting

The Tasmanian masked owl (*Tyto novaehollandiae castanops*) is listed as vulnerable by the EPBC Act and endangered by the TSP Act, and it is a 'priority species requiring consideration' under the *Tasmanian Regional Forest Agreement 1997*. There is no critical habitat defined in the Conservation Advice for the Tasmanian masked owl, nor is there a recovery plan for the subspecies and there is no habitat for masked owls listed on the Commonwealth Register of Critical Habitat. However, nest hollows constitute habitat features that are considered critical to the survival of the species. The combination of low abundance, cryptic hollow nesting and nocturnal foraging make it difficult to survey for and to locate nesting sites of the Tasmanian masked owl (Dr Phil Bell, pers. comm.).

Potential nesting trees for the masked owl include those with large hollows with an entrance usually at least 15 cm diameter. Large hollows are found in large trees, and trees over 100 cm diameter-at-breast height (DBH) have been found to have a higher probability of containing hollows than smaller diameter trees (Forest Practices Authority, 2016). It can be difficult to detect suitable hollows from the ground, so tree size can be used as a substitute to estimate hollow availability (Koch, 2008; Koch et al., 2008).

As part of the field surveys undertaken between 2018 and 2024 for the Tarraleah Redevelopment Project, vegetation within the survey area was verified and attributed to the appropriate TASVEG Tasmanian Vegetation Mapping Units (Kitchener & Harris, 2013), and these spatial data were used for the assessment of potential suitable nesting habitat for masked owls within the survey area. The desktop analysis to identify patches of tall (and thus possibly large-diameter) trees to investigate in the targeted on-ground survey drew on a suite of available information, including aerial imagery, verified TASVEG forest type data, forest canopy tree height data (derived from LiDAR) and tree DBH data recorded during previous ecological field surveys in the area. Modified land, non-forested areas, and regrowth wet forest and woodland that has been recently harvested are unlikely to contain trees with large (at least 15-cm entry diameter) hollows; thus, these vegetation types were not included in the surveys to identify potential Tasmanian masked owl nesting habitat.

All potentially suitable native forest for Tasmanian masked owl nesting within 150 metres[3] of the disturbance footprint that was identified by the desktop analysis was surveyed on foot on 27 September 2023 in accordance with the Tasmanian Forest Practices Authority (2016a) *Fauna Technical Note No. 17: Identifying masked owl habitat* and in accordance with more current advice from species experts. All habitat trees (hollow-bearing trees, typically eucalypts) were photographed and recorded as geolocated observations; details such as the tree's DBH, the approximate entry diameter of hollows, and the presence of 'spouts' (broken branches potentially containing hollow interiors) were recorded. Any trees of approximately 100 cm DBH or above were inspected on the ground from all possible angles, and, if located on a slope, also from the parallel ridges using binoculars.

Although no suitably large hollows were identified from the ground during the on-ground targeted nest tree surveys, four patches of large, old eucalypts were nonetheless considered to potentially contain large hollow-bearing trees with hollows not visible from the ground. The patches of large, old eucalypts were located:

- adjacent to the existing easement near the Tarraleah Power Station
- adjacent to Butlers Gorge Road
- in the Tarraleah Conservation Area near the proposed surge tower
- adjacent to the access track to the canal between Mossy Marsh Pond and Pump Pond No. 2.

Passive acoustic monitoring (PAM) was undertaken between 27 September 2023 and 12 December 2024 using Frontier Labs BAR-LT acoustic recorders (Figure 2.3). PAM has been shown by recent research by Gros et al. (2023) to be a suitable method for detecting masked owl presence in Tasmania and used in conjunction with traditional call playback methods. Detection of calls during the hour before sunrise and the hour after sunset is considered to be indicative of possible nearby masked owl roosting and/or nesting activity. If possible nearby roosting or nesting is interpreted from the recording data, follow-up targeted nest tree searches are to be subsequently undertaken by suitably qualified species experts[4] with tree-climbing equipment and qualifications to determine if there are any suitable masked owl nest trees within 150 m of the disturbance footprint, and if so, whether any nest trees are active (in use by a breeding pair). The probability of detection of a nest tree is higher during the October to February

[3] A distance of 150 m is considered the distance at which noisy or vibration-causing activities are likely to disturb masked owl nests, according to species expert advice. As such, potentially suitable nesting habitat within 150 m of the disturbance footprint was targeted in the Tasmanian masked owl nest survey. Note that this is a greater distance than the 100 m distance around the disturbance buffer that comprised the general ecological survey area.

[4] Dr Phil Bell was engaged to support the masked owl surveys based on his 30 plus years of research on raptors in Tasmania including the Tasmanian masked owl.

inclusive period compared to the rest of the year, due to increased likelihood of nest activity and juvenile presence.

Acoustic recorders were deployed in seven locations around the Project area (Figure 2.4). Two acoustic recorders were deployed on 27 September 2023 and set to record between dusk and dawn each night. The first recorder was deployed in *Eucalyptus dalrympleana - Eucalyptus pauciflora* (DDP) forest and woodland at a location along Butlers Gorge Road 4 km east of Clarke Dam between 27 September 2023 and 17 January 2024. No masked owl calls were detected on any night at this location. The second recorder was deployed northeast of the Tarraleah Power Station on the other side of the River Derwent, between the two existing power line easements in the following locations:

- between 27 September and 27 October 2023 in the middle of the power line easement near the tower, pointed towards in *Eucalyptus tasmaniensis* [5] forest with broad-leaf shrubs
- between 8 November and 8 December 2023 at the edge of the easement and the *Eucalyptus tasmaniensis* forest with broad-leaf shrubs pointed in towards the forest.
- period between 8 December 2023 and 23 May 2024 within the *Eucalyptus tasmaniensis* forest with broad-leaf shrubs (Figure 2.3).
- The recorder immediately to the east of the Nive River in the forest between the two power line easements detected a sufficient number of masked owl screeches close to dusk and dawn to trigger a spotlighting and call-playback survey of this site, which was undertaken on 22 September 2024 (Appendix E).

A third recorder was installed in *Eucalyptus tasmaniensis* forest with broad-leaf shrubs (WDB) near the proposed site of the surge tower in the Tarraleah Conservation Area. This recorder was deployed for 53 nights (dusk to dawn) over the period 21 October-12 December 2024. Sufficient masked owl calls were detected close to dusk and dawn to warrant a more detailed on-ground survey of the area within 150 m of the surge tower site and associated access track. This nest tree search was undertaken on 16 January 2025 to search for trees with potential to bear large hollows and to search for any direct evidence of use by masked owls such as pellets, whitewash, or feathers (Appendix E).

[5] The Tasmanian subspecies of *Eucalyptus delegatensis* (formerly known as *Eucalyptus delegatensis* subsp. *tasmaniensis*) was taxonomically elevated to species level (*Eucalyptus tasmaniensis*) in the Census of Vascular Plants of Tasmania in 2023. In TASVEG5.0, the names of *Eucalyptus delegatensis* communities have been changed to reflect the renaming of the species; however, the three-letter TASVEG Codes for each community have not changed.

Figure 2.3: Frontier Labs BAR-LT acoustic recorders deployed near the existing Tarraleah Power Station

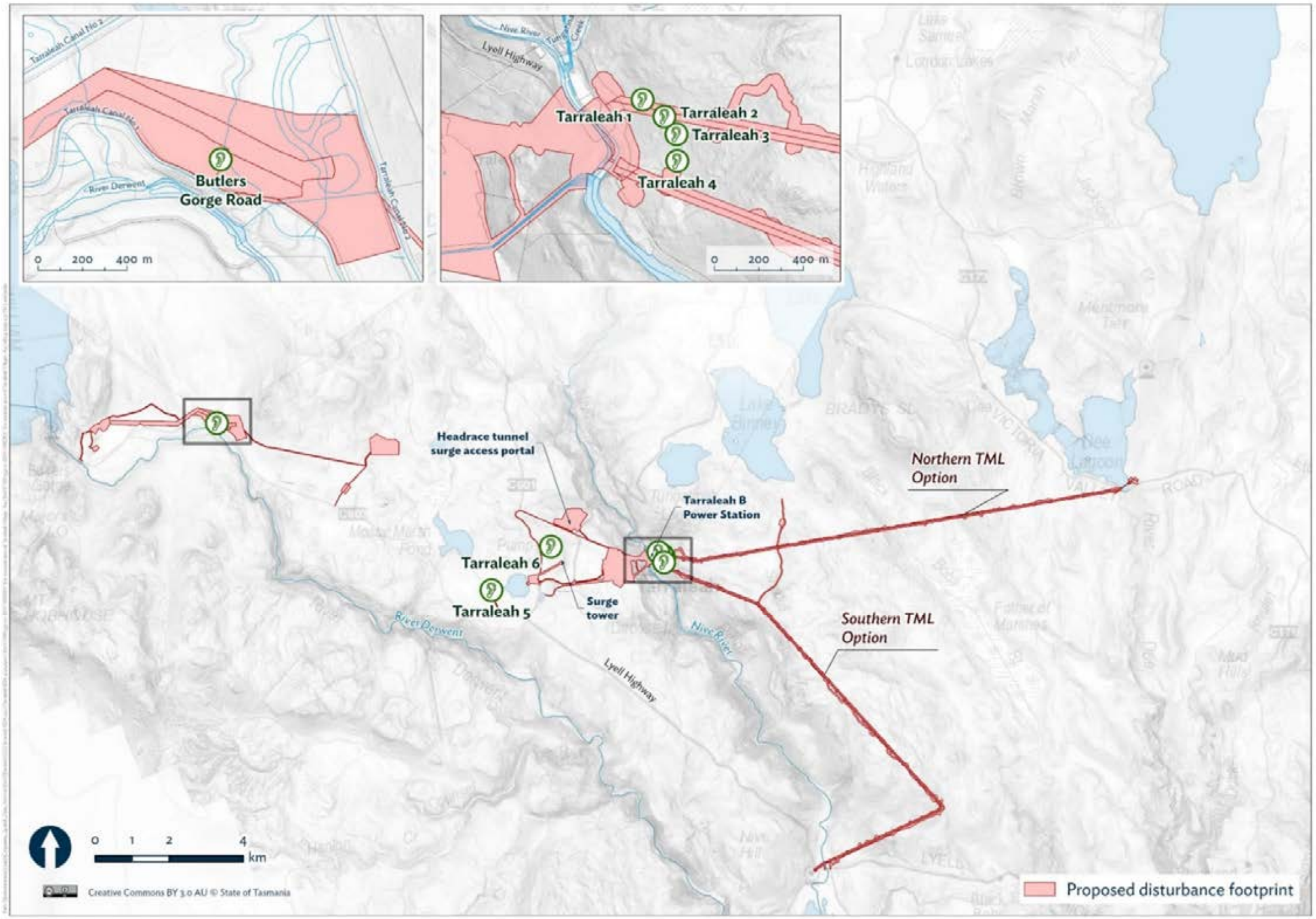

Figure 2.4: Passive acoustic recorder deployment locations within potentially suitable masked owl nesting habitat within 150 m of the disturbance footprint

2.5.3 Camera trapping for the eastern barred bandicoot

A targeted camera trap monitoring program, specifically for the detection of eastern barred bandicoots (*Perameles gunnii gunnii*), was undertaken between 8 December 2023 and 9 May 2024. Seven motion-triggered camera traps were deployed near the edges of native vegetation and managed turf throughout the Tarraleah Golf Course (Figure 2.5), facing in towards the open grassy area and preferentially located on game trails. Camera trap 6 (TA06) was stolen after 17 January 2024; all other cameras captured images throughout the day and night during the entire monitoring campaign period. A total of 1,163 camera trap days and nights were captured over the five-month camera trapping campaign.

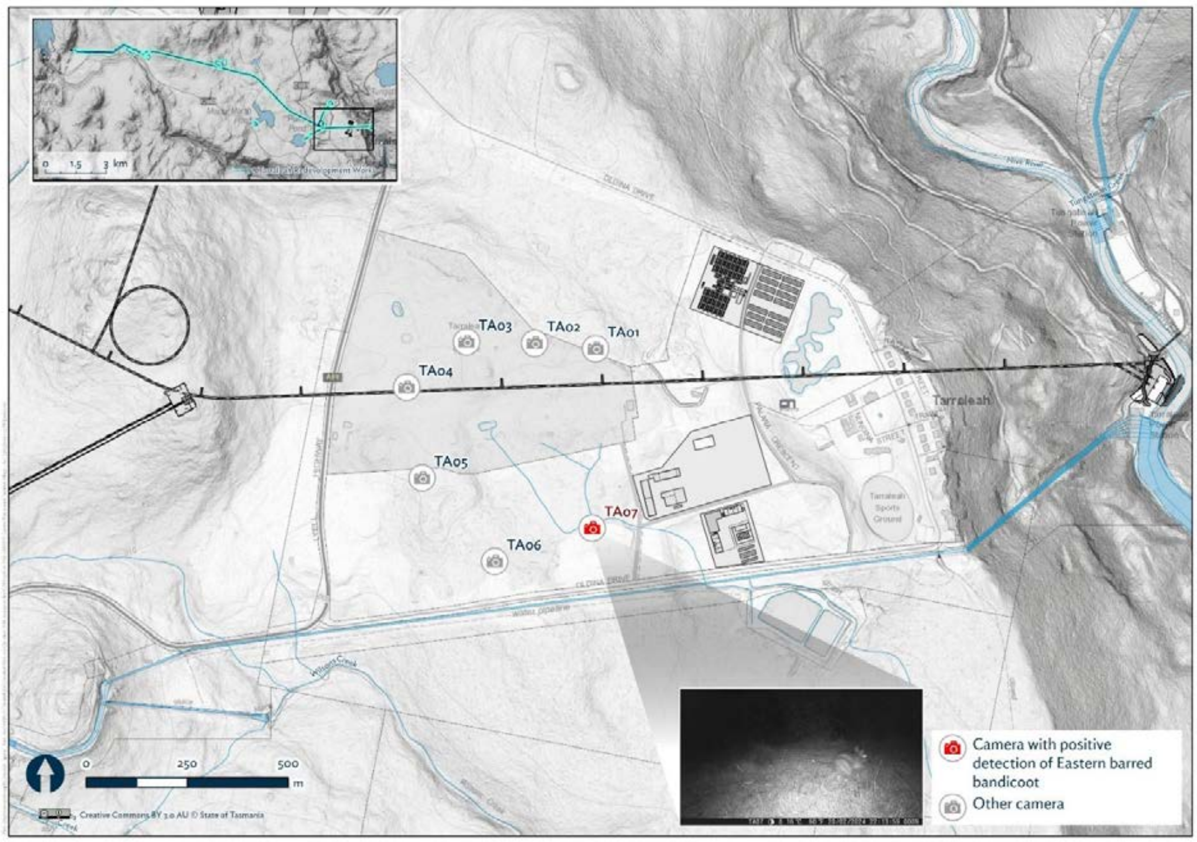

Figure 2.5: Map of camera trap deployments at Tarraleah Golf Course as part of targeted eastern barred bandicoot surveys

2.5.4 Camera trapping within the mature dry eucalypt forests for marsupial carnivores

Between August and November 2025, a camera trapping campaign undertaken within the mature dry eucalypt forest of the disturbance footprint. Fifteen motion-triggered camera traps were deployed targeted game trails in order to sample the terrestrial mammalian diversity of this habitat type. There were no potential denning features found that warranted camera trapping. A total of 4,506 animal images were captured over 1,318 camera trapping nights. The purpose of this campaign was to gather evidence of the presence of any of the three threatened native mammalian carnivore species (Tasmanian devil, spotted-tailed quoll and eastern quoll) within this preferred habitat type within the disturbance footprint.

3. Results

This section reports on the results of desktop and field-based studies of the survey area, which extends 100 m beyond the disturbance footprint. The vegetation community extents (in hectares) are reported as they are mapped within the main conveyance disturbance footprint, the northern transmission option disturbance footprint, the southern option disturbance footprint, and the maximum possible extent calculated by added the area within the main conveyance footprint to the greatest area value for the transmission option.

It is important to recognise the landscape context of the survey area, which is heavily characterised by large-scale production forestry (Figure 3.1).

Figure 3.1: Landscape within and surrounding the survey area showing forestry activity

3.1 Vegetation communities

The 21 vegetation communities within the survey area have been largely influenced by geology as well as past disturbance particularly from hydropower development, timber harvesting and plantation development for production forestry.

Table 3.1: Summarised habitat type areas within each component of the disturbance footprint summarises the total extent of each habitat type within each of the three components of the disturbance footprint: the main conveyance infrastructure west of the Nive River, the northern transmission alignment option, and the southern transmission alignment option. The vegetation communities mapped within these three components of the disturbance footprint is shown in Figure 3.2, Figure 3.3, and Figure 3.4 respectively.

The proposed disturbance footprint for the main redevelopment (i.e. conveyance) infrastructure west of the Nive River (including the temporary bridge required for construction of the new power station) is **293.7 ha** in total extent. Of this, **161.1 ha** are native vegetation, of which **61.2 ha** are mature eucalypt forest.

One of the two 220 kV transmission alignment route options will be selected for construction. The total extent of the proposed disturbance footprint for the northern transmission alignment option to Dee Lagoon is **122.0 ha**; of this, **63.2 ha** are native vegetation, of which **31.0 ha** are mature eucalypt forest. Approximately **0.3 ha** of Dee Lagoon that will be overflown by the transmission line is included in its disturbance footprint, although there will be no impact to the lagoon. The proposed disturbance footprint for the southern transmission alignment option to Liapootah is **146.1 ha**; of this, **48.8 ha** are native vegetation, of which **8.3 ha** are mature eucalypt forest. Approximately **0.5 ha** of the Nive River that will be overflown by the transmission line are included in its disturbance footprint.

If the northern transmission line is constructed, the total extent of the proposed disturbance footprint would be **415.7 ha**; of this, **224.3 ha** are native vegetation, of which **92.2 ha** are mature eucalypt forest.

If the southern transmission line is constructed instead, then the total proposed disturbance footprint would be **439.8 ha**; of this, **209.9 ha** are native vegetation, of which **69.5 ha** are mature eucalypt forest.

There were 14 native vegetation communities and 7 modified (non-native) vegetation communities identified within the disturbance footprint, including the footprints for the two options for the 220 kV transmission line alignment. The 14 native TASVEG vegetation communities within the direct disturbance footprints are:

- *Acacia dealbata* forest (NAD)
- Broad-leaf scrub (SBR)
- *Eucalyptus amygdalina* forest and woodland on dolerite (DAD)
- *Eucalyptus dalrympleana–Eucalyptus pauciflora* forest and woodland (DDP)
- *Eucalyptus tasmaniensis* dry forest and woodland (DDE)
- *Eucalyptus tasmaniensis* forest over rainforest (WDR)
- *Eucalyptus tasmaniensis* forest with broad-leaf shrubs (WDB)
- *Eucalyptus tasmaniensis* forest over *Leptospermum* (WDL)
- *Eucalyptus obliqua* forest with broad-leaf shrubs (WOB)

- *Eucalyptus rodwayi* forest and woodland (DRO)
- *Leptospermum* forest (NLE)
- Pure buttongrass moorland (MBP)
- Buttongrass moorland with emergent shrubs (MBS)
- Subalpine *Diplarrena latifolia* rushland (MDS, a threatened vegetation community listed under the Tasmanian NC Act).

There is one additional native vegetation community that is not within the disturbance footprint but that may be indirectly affected by changes in hydrology associated with the Project: a 3.0 ha patch of *Sphagnum* peatland (ASP) approximately 400 m upstream (northwest) of Mossy Marsh, located on the western bank of an unconfined channel that conveys water from the No. 2 Canal to Mossy Marsh Pond.

The subalpine *Diplarrena latifolia* rushland and the *Sphagnum* peatland communities are both listed as threatened under the NC Act. The *Diplarrena latifolia* rushland community occurs on the pipeline alignment and there is a 3.0 ha patch of *Sphagnum* peatland northwest of Mossy Marsh Pond, approximately 1 km south of the tunnel alignment. While this community is not within the Project footprint, it may potentially be affected by hydrological changes as a result of changes in the operation of the redeveloped Tarraleah hydropower scheme. *Sphagnum* peatland is a component of the EPBC Act listed Alpine *Sphagnum* Bogs and Associated Fens ecological community. The remaining TASVEG vegetation communities are not listed as threatened under the NC Act.

There were four ecological communities listed under the EPBC Act identified as potentially occurring within 5 km of the disturbance footprint on the PMST search:

- Alpine *Sphagnum* Bogs and Associated Fens (Endangered)
- Tasmanian Forests and Woodlands dominated by black gum or Brookers gum (*Eucalyptus ovata / E. brookeriana*) (Critically Endangered)
- Tasmanian white gum (*Eucalyptus viminalis*) wet forest (Critically Endangered)
- Lowland Native Grasslands of Tasmania.

Neither Tasmanian Forests and Woodlands dominated by black gum or Brookers gum *(Eucalyptus ovata / E. brookeriana)* or Tasmanian white gum *(Eucalyptus viminalis)* wet forest communities were recorded within the survey area. These communities do not occur in the Central Highlands or on the Central Plateau, and the survey area is outside the known range of these communities. The Lowland Native Grasslands of Tasmania also does not occur within the survey area, as it is a lowland ecological community that does not occur in upland or highland areas. However, the *Sphagnum* peatland located near Mossy Marsh Pond is a component of the Alpine *Sphagnum* Bogs and Associated Fens ecological community.

Table 3.1: Summarised habitat type areas within each component of the disturbance footprint Habitat type	Redevelopment main infrastructure west of the Nive River (ha)	Transmission alignment (north) to Dee Lagoon (ha)	Transmission alignment (south) to Liapootah (ha)	Maximum possible extent (ha)
Native vegetation	161.2	63.2	48.8	224.3
Modified (non-native) vegetation	129.9	58.5	96.8	226.7
Buttongrass moorlands	20.7	0	0	20.7
Non-eucalypt forest & scrub	6.9	0.6	0	7.5
Eucalypt forest	133.1	62.6	48.8	203.2
Dry eucalypt forest	89.8	22.5	2.2	112.3
Wet eucalypt forest	43.3	40.1	46.6	89.9
Mature eucalypt forest	61.2	31.0	8.3	92.2
Mature dry eucalypt forest	50.4	13.1	0.5	63.5
Mature wet eucalypt forest	10.8	17.9	7.8	28.7
Water (e.g. Dee Lagoon, Nive River)	2.7	0.3	0.5	3.2

Table 3.2: Area of native vegetation communities within the Tarraleah Redevelopment disturbance footprint

Vegetation community[6]	TASVEG Code	Redevelopment main infrastructure west of the Nive River (ha)	Transmission alignment (north) to Dee Lagoon (ha)	Transmission alignment (south) to Liapootah (ha)	Maximum possible total native vegetation (ha)	Maximum possible mature eucalypt forest area (ha)
Acacia dealbata forest (non-eucalypt forest)	NAD	0.4	0.6	0	1.0	N/A
Leptospermum forest (non-eucalypt forest)	NLE	5.5	0	0	5.5	N/A
Broad-leaf scrub (scrub)	SBR	1.0	0	0	1.0	N/A
Eucalyptus amygdalina forest and woodland on dolerite (dry eucalypt forest)	DAD	0	4.2 (all mature)	1.4 (none mature)	4.2	4.2 (if northern TL*)
Eucalyptus dalrympleana–E. pauciflora forest and woodland (dry eucalypt forest)	DDP	39.6 (38.3 ha mature)	0.2 (all mature)	0	39.8	38.5 (if northern TL)
Eucalyptus tasmaniensis dry forest and woodland (dry eucalypt forest)	DDE	38.1 (none mature)	13.0 (3.6 mature)	0.3 (none mature)	51.1	3.6 (if northern TL)
Eucalyptus rodwayi forest and woodland (dry eucalypt forest)	DRO	12.1 (all mature)	5.1 (all mature)	0.5 (all mature)	17.2	17.2 (if northern TL)
Eucalyptus tasmaniensis forest over rainforest (wet eucalypt forest)	WDR	13.0 (5.4 mature)	0	0	13.0	5.4

[6] Note that the 3-ha *Sphagnum* peatland (TASVEG code ASP) approximately 400 m northwest of Mossy Marsh Pond is not within the disturbance footprint of the project and therefore is not included in this table. This *Sphagnum* peatland will not be directly impacted by project activities. It may, however, be indirectly impacted by hydrological changes associated with decommissioning part of Canal No. 2 and/or changes to groundwater associated with construction of the tunnel.

Vegetation community[6]	TASVEG Code	Redevelopment main infrastructure west of the Nive River (ha)	Transmission alignment (north) to Dee Lagoon (ha)	Transmission alignment (south) to Liapootah (ha)	Maximum possible total native vegetation (ha)	Maximum possible mature eucalypt forest area (ha)
Eucalyptus tasmaniensis forest over *Leptospermum* (wet eucalypt forest)	WDL	1.2 (none mature)	0	0	1.2	0
Eucalyptus tasmaniensis forest with broad-leaf shrubs (wet eucalypt forest)	WDB	29.1 (5.4 mature)	40.1 (17.9 mature)	37.3 (6.8 mature)	69.2	23.3(if northern TL)
Eucalyptus obliqua forest with broad-leaf shrubs (wet eucalypt forest)	WOB	0	0	9.3 (1.0 mature)	9.3	1.0 (if southern TL)
Pure buttongrass moorland	MBP	18.4	0	0	18.4	N/A
Buttongrass moorland with emergent shrubs	MBS	2.3	0	0	2.3	N/A
Subalpine *Diplarrena latifolia* rushland (threatened)	MDS	0.5	0	0	0.5	N/A
	TOTAL	**161.2** (61.2 ha mature eucalypt forest)	**63.2** (31.0 ha mature eucalypt forest)	**48.8** (8.3 ha mature eucalypt forest)	**224.4** (if northern line)	**92.2** (if northern TL)

The 7 modified (i.e. non-native) vegetation communities identified within the survey area (Table 3.3) include:

- Agricultural land (FAL) are areas of cultivated, improved pasture or other developed land.
- Permanent easements (FPE) are areas of native vegetation that is permanently maintained in a modified state, such as for easements below electricity or telecommunications infrastructure (powerlines) or in the corridors adjacent to canals.
- Hardwood plantations for silviculture (FPH) includes monocultures of commercial hardwood tree farms on a variety of land tenures. The common commercial species used in Tasmania are *Eucalyptus nitens* above 600 m and *E. globulus* below 600 m altitude. Plantations established over cleared native forest have sparse understories of regenerating native species.
- Extra-urban miscellaneous (FUM) in TASVEG mapping represents areas where native vegetation has been replaced with human infrastructure in rural and remote areas.
- Regenerating cleared land (FRG) is used to map abandoned farmland or other degraded land (e.g. abandoned mines, quarries etc.) where there has been significant natural recolonisation by native species of rushes and shrubs.
- Urban areas (FUR) include urban and suburban landscapes. These areas are largely or wholly devoid of vegetation.
- The weed infestation (FWU) mapping unit is used for dense occurrences of any weeds. The weeds covered by this community generally form dense, mono-specific stands where the weed species has a dominant level of cover. Within the disturbance footprint, the weed infestation is the declared weed English broom (*Cytisus scoparius*).

Table 3.3: Area of non-native vegetation communities within the Tarraleah Redevelopment disturbance footprint

Modified (non-native) vegetation community	TASVEG Code	Redevelopment (ha)	TL alignment to Dee Lagoon (north) (ha)	TL alignment to Liapootah (south) (ha)	Maximum possible total (ha)
Agricultural land	FAL	1.6	0	0	1.6
Extra-urban miscellaneous	FUM	72.2	1.9	3.8	76.0 (if S TL)
Permanent easement	FPE	25.7	54.4	82.1	107.8 (if S TL)
Hardwood plantations	FPH	0	2.0	10.9	10.9 (if S TL)
Regenerating cleared land	FRG	3.9	0.2	0	4.1 (if N TL)
Urban areas	FUR	27.1	0	0	27.1
Weed infestation	FWU	1.0	0	0	1.0
	TOTAL	**129.9**	**58.5**	**96.1**	**226.7** (if southern TL option built)

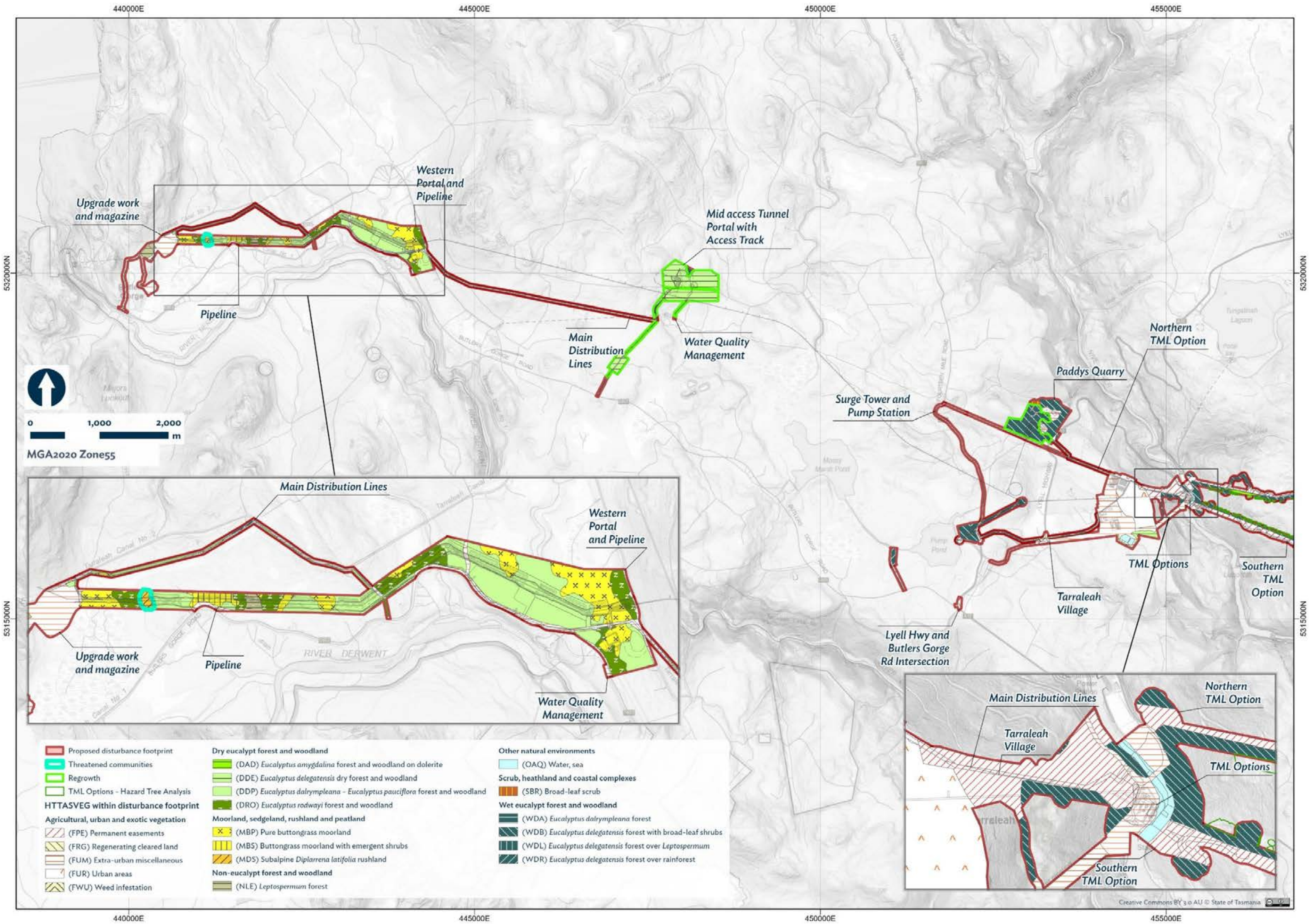

Figure 3.2: Vegetation communities mapped within the disturbance footprint of the Tarraleah Redevelopment Project west of the Nive River

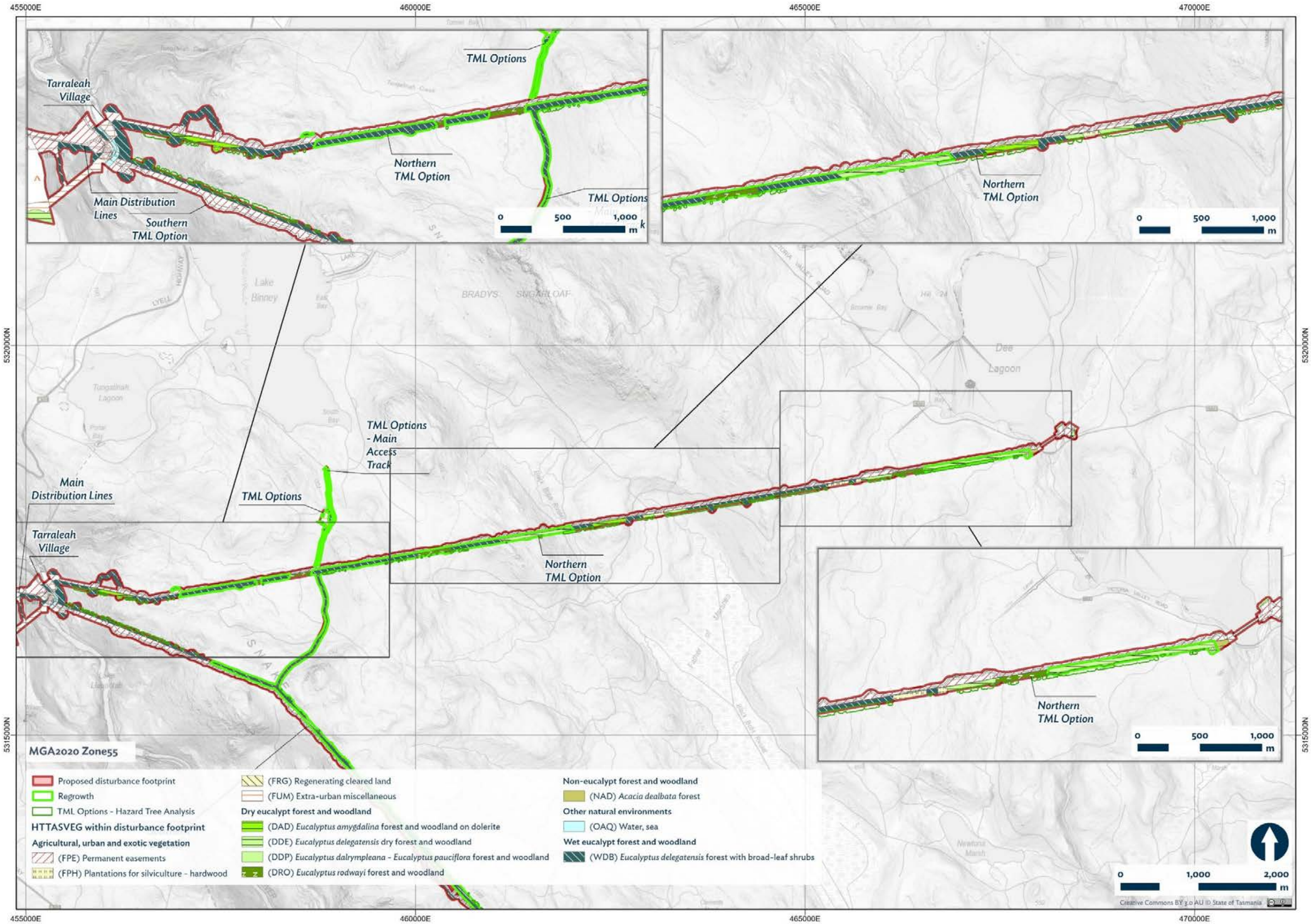

Figure 3.3: Vegetation communities mapped within the disturbance footprint of the new 220 kV transmission line northern option to Dee Lagoon

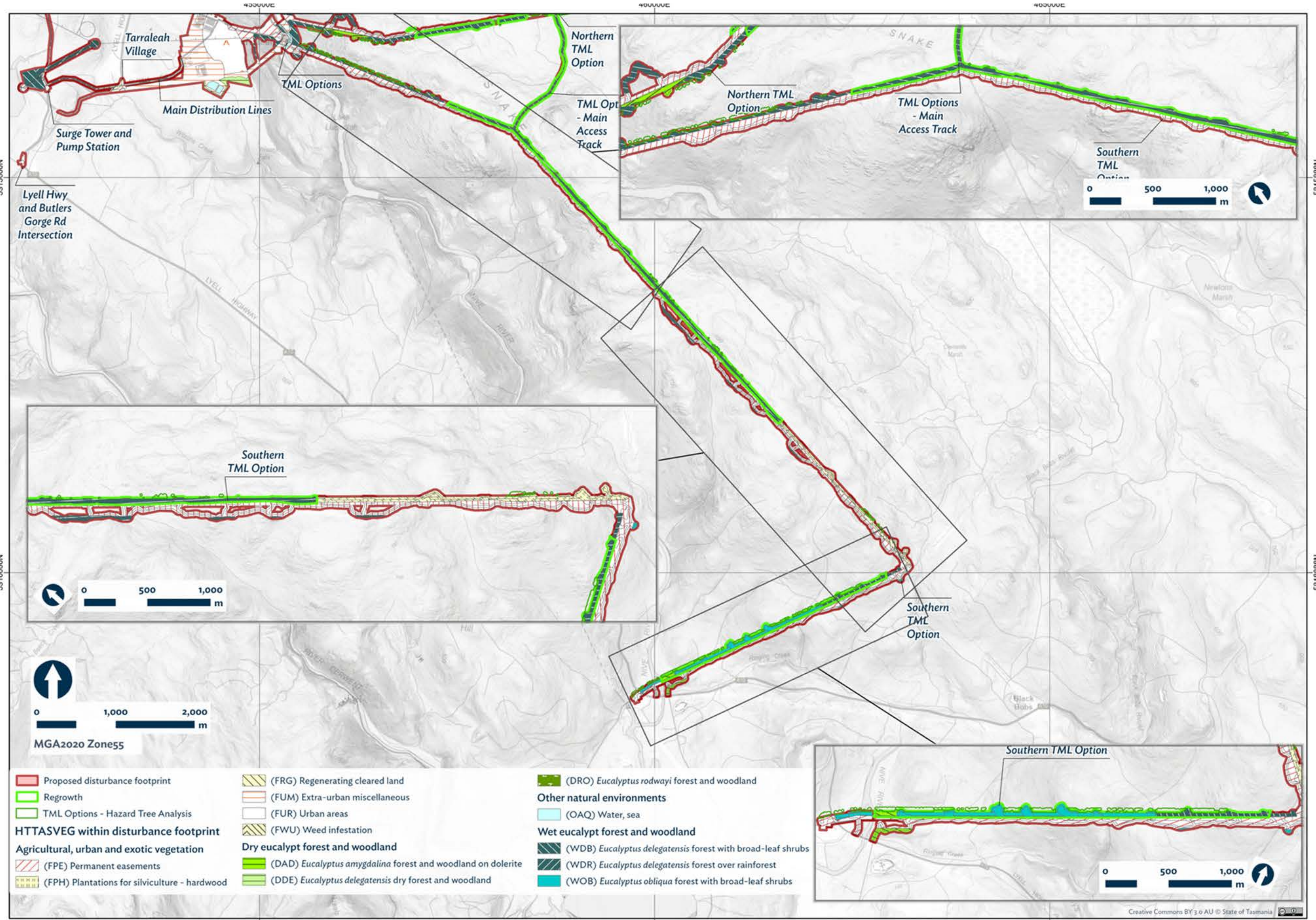

Figure 3.4: Vegetation communities mapped within the disturbance footprint of the new 220 kV transmission line southern option to Liapootah substation

***Eucalyptus amygdalina* forest and woodland on dolerite (DAD)**

There are up to approximately 4.2 ha of this dry forest community within the disturbance footprint associated with the northern transmission line, and there are 1.4 ha associated with the southern transmission line (Figure 3.3, Figure 3.4). There is no DAD within the main infrastructure disturbance footprint. All areas of DAD associated with the northern transmission line are mature forest (not regrowth), and none of the DAD associated with the southern transmission line is mature.

This community was dominated by *Eucalyptus amygdalina* (black peppermint) to a height of 25 m along the northern alignment (Figure 3.5). *Eucalyptus tasmaniensis* (gum-topped stringybark) and *E. dalrympleana* (mountain gum) were occasionally present as components of the canopy layer in the northern transmission line alignment. The understorey was open with the shrub *Pultenaea juniperina* (prickly beauty) being occasionally present. The threatened shrub *Westringia angustifolia* (narrowleaf westringia) was also recorded in the *Eucalyptus amygdalina* forest and woodland on dolerite community. This species is listed as rare under the TSP Act.

The 1.4 ha of *Eucalyptus amygdalina* forest on dolerite associated with the southern transmission line alignment will be impacted by access track upgrades. This forest community is an almost pure stand of *E. amygdalina* to 18 m over a moderately dense cover of the graminoid *Lomandra longifolia* (sagg) and the low shrub *Pultenaea juniperina*.

Figure 3.5: *Eucalyptus amygdalina* forest and woodland on dolerite on the northern transmission line alignment

Figure 3.6: *Eucalyptus amygdalina* forest and woodland on dolerite on the southern transmission line alignment

***Eucalyptus tasmaniensis* dry forest and woodland (DDE)**

There are up to approximately 51.1 ha of *Eucalyptus tasmaniensis* dry forest and woodland (DDE) within the disturbance footprint, including at the mid tunnel, portal and stockpile sites and within the northern transmission line alignment (Figure 3.2, Figure 3.3, Figure 3.7). The majority of this vegetation community within the disturbance footprint is regenerating from previous logging (Figure 3.8), although 3.6 ha of DDE within the northern transmission line disturbance footprint is mature (not regrowth). This community also occurs within the southern transmission line alignment.

This community is dominated by regrowth *Eucalyptus tasmaniensis* (gum-topped stringybark) trees up to 12 m with some taller retained trees to 20 m (Figure 3.8). *Eucalyptus dalrympleana* subsp. *lutruwita* (mountain white gum) also occurred as a dominant canopy tree in localised areas and *Acacia dealbata* (silver wattle) was commonly present as a small tree.

The shrub layer was dominated by *Pultenaea juniperina* and *Leptecophylla parvifolia* (common pinkberry). The ground layer was sparse with few native herbs present including *Galium australe* (tangled bedstraw), *Hydrocotyle hirta* (hairy pennywort), and *Viola hederacea* (ivyleaf violet). The ground fern *Pteridium esculentum* subsp. *esculentum* (bracken) was commonly present.

Figure 3.7: *Eucalyptus tasmaniensis* dry forest and woodland along the northern transmission line alignment

Figure 3.8: Regenerating *Eucalyptus tasmaniensis* dry forest and woodland

***Eucalyptus tasmaniensis* forest with broad-leaf shrubs (WDB)**

There are up to approximately 69.2 ha of this vegetation community and up to 23.3 ha of mature (not regrowth) WDB within the disturbance footprint at the surge shaft site and within the transmission line alignments (Figure 3.2, Figure 3.3, Figure 3.4).

At the surge tower site, *Eucalyptus tasmaniensis* formed the canopy to a height of 40 to 45 m (Figure 3.9). *Pomaderris apetala* (common dogwood) formed a dense small tree layer to 8 m. The ground layer was sparse with few native herbs present including *Geranium potentilloides* (mountain cranesbill), *Drymophila cyanocarpa* (turquoise berry*), Viola hederacea* and *Hydrocotyle hirta*. There are approximately 4.5 ha of *Eucalyptus tasmaniensis* forest with broad-leaf shrubs within the disturbance footprint associated with the surge tower.

The largest areas of *Eucalyptus tasmaniensis* forest with broad-leaf shrubs within the disturbance footprint was along the transmission line alignments and at Paddy's Quarry. The areas within the transmission line disturbance footprint were regenerating forest with a shrub layer dominated by the tall shrub *Bedfordia salicina* (blanket leaf) (Figure 3.10), and the areas around Paddy's Quarry were largely regenerating however there was a small area of mature forest present.

Figure 3.9: *Eucalyptus tasmaniensis* forest over broad-leaf shrubs

Figure 3.10: Regenerating *Eucalyptus tasmaniensis* forest over broad-leaf shrubs

***Eucalyptus tasmaniensis* forest over rainforest (WDR)**

There are approximately 13.0 ha of *Eucalyptus tasmaniensis* forest over rainforest is present within the disturbance footprint, 5.4 ha of which are mature (not regrowth) and none of which is within either transmission line footprint. This vegetation community occurred adjacent to the existing access track to the No. 3 tunnel downstream portal and along the access to the surge shaft (Figure 3.2 Figure 3.11).

Eucalyptus tasmaniensis formed the canopy to a height of 35 to 50 m, with tree species *Acacia dealbata* subsp. *dealbata, Phyllocladus aspleniifolius* (celerytop pine) and *Nothofagus cunninghamii (*myrtle) forming the sub-canopy (Figure 3.11). The understorey was comprised of the shrubs *Tasmannia lanceolata* (Tasmanian pepper)*, Pimelea drupacea* (cherry riceflower) and *Telopea truncata* (Tasmanian waratah)*,* with herbs such as *Hydrocotyle hirta, Galium australe, Libertia pulchella* (grassflag) and *Clematis aristata* (mountain clematis) present in the groundcover. Ferns including *Dicksonia antarctica* (soft treefern)*, Polystichum proliferum* (mothershield fern)*, Histiopteris incisa* (batswing fern)*, Blechnum nudum* (fishbone fern) and *B. wattsii* (hard waterfern) were common.

Figure 3.11: *Eucalyptus tasmaniensis* forest over rainforest

***Eucalyptus tasmaniensis* forest over *Leptospermum* (WDL)**

This community was recorded in 1.2 ha of the mid-access tunnel portal disturbance footprint, and it was distinguished from the surrounding vegetation by its impeded drainage and wetter forest type (Figure 3.2). WDL was not recorded anywhere else in the disturbance footprint. Regrowth *Eucalyptus tasmaniensis* trees dominated the canopy to 25 m. The understorey was dominated by *Leptospermum lanigerum* (woolly tea tree) with the occasional occurrence of the sedge *Gahnia grandis* (cutting grass) in the ground layer (Figure 3.12).

Figure 3.12: *Eucalyptus tasmaniensis* forest over *Leptospermum*

***Eucalyptus dalrympleana–Eucalyptus pauciflora* forest and woodland (DDP)**

There are up to approximately 39.6 ha of *Eucalyptus dalrympleana - Eucalyptus pauciflora* forest and woodland within the disturbance footprint. This community was recorded in survey areas associated with the main distribution lines; the pipeline; the western portal and pipeline; upgrade works and magazine; and 0.2 ha in the northern transmission line option (Figure 3.2, Figure 3.3). There is no DDP in the southern transmission line alignment. The majority of the DDP in the disturbance footprint is mature, not regrowth.

This subalpine vegetation community where *Eucalyptus dalrympleana* subsp. *lutruwita* and *E. pauciflora* subsp. *pauciflora* (cabbage gum) co-occur was recorded along the proposed pipeline alignment. *Eucalyptus dalrympleana* subsp. *lutruwita* comprised the canopy to 20-30 m, with *E. pauciflora* the subdominant canopy species to a similar height (Figure 3.13). Other occasional canopy species included *Acacia dealbata* (silver wattle), and *E. rodwayi* (swamp peppermint).

The sub-canopy consisted of small trees including *Melaleuca virens* (prickly bottlebrush), *Notelaea ligustrina* (native olive), *Pittosporum bicolor, Pomaderris apetala*, *Banksia marginata* (silver banksia) and *Monotoca glauca (*goldy wood*)*. The understorey was generally comprised of sparse shrubs including *Richea sprengelioides*, *Lomatia tinctoria*, *L. polymorpha* (mountain guitarplant), *Hakea lissosperma* (mountain needlebush)*, Oxylobium ellipticum* (golden shaggypea), and *Tasmannia lanceolata* in the tallest layer, with shorter shrubs including *Pultenaea juniperina* and *Leptecophylla parviflora* (mountain pinkberry) also common. The understorey also comprised graminoids such as *Dianella tasmanica* (forest flaxlily), *Diplarrena latifolia*, *Gahnia grandis* (cutting grass) and *Baloskion australe* (southern cordrush). The groundcover included ferns, namely *Pteridium esculentum* and *Gleichenia alpina* (alpine coralfern), and a sparse cover herb such as *Lagenophora stipitata* (blue bottledaisy), *Drymophila cyanocarpa* and *Viola hederacea*. Grasses including *Microlaena tasmanica* (Tasmanian ricegrass) and *Poa tenera* (scrambling tussockgrass) were less common in the groundcover.

Figure 3.13: *Eucalyptus dalrympleana - Eucalyptus pauciflora* forest and woodland

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

There are approximately 9.3 ha of *Eucalyptus obliqua* forest with broad-leaf shrubs within the southern transmission line option disturbance footprint, 1.0 ha of which is mature (not regrowth); the easement passes through this vegetation community for approximately 2.3 km (Figure 3.4). The forest community was characterised by a tall *E. obliqua* tree layer with a canopy to 40 m in height (Figure 3.14). *Eucalyptus viminalis* was present as a minor component of the community. *Acacia dealbata, Pittosporum bicolor* and *Leptospermum lanigerum* were present as small trees.

Ferns were the predominant component of the understorey including the tree fern *Dicksonia antarctica* and the ground ferns *Blechnum nudum, B. wattsii*, and *Polystichum proliferum*.

Figure 3.14: *Eucalyptus obliqua forest* with broad-leaf shrubs

***Eucalyptus rodwayi* forest and woodland (DRO)**

There are up to approximately 17.2 ha of *Eucalyptus rodwayi* forest and woodland within the disturbance footprint, all of which is mature (not regrowth). This vegetation community was recorded across survey areas including the northern transmission line option; the pipeline; the access track associated with the southern transmission line option; the western portal and pipeline; and the upgrade work and magazine (Figure 3.2, Figure 3.3, Figure 3.4).

This vegetation community was dominated by *Eucalyptus rodwayi* to a height of 25 m and was recorded along the pipeline and along the northern transmission line alignment on low lying poorly drained flats. *Eucalyptus pauciflora* subsp. *pauciflora* was also occasionally present in the canopy in areas of better drainage. There was a range of facies of this community observed within the survey area including grassy *E. rodwayi* forest with a dominant groundcover of *Poa* species, sedgy facies (Figure 3.15) with *Lepidosperma filiforme* (common rapiersedge), *Gahnia grandis* and *Diplarrena latifolia* dominating the understorey, and shrubby facies with *Leptospermum lanigerum* and *Melaleuca virens* dominating the understorey. Other common shrubs recorded within this community included *Pultenaea juniperina, Oxylobium ellipticum, Leptecophylla parviflora* and *Richea sprengelioides*. Herbs recorded in the groundcover commonly included *Hydrocotyle hirta, Gonocarpus tetragynus* (common raspwort) and *Galium australe*. Ferns including *Blechnum pennamarina* subsp. *alpina* (alpine waterfern), *B. nudum, Dicksonia antarctica*, *Polystichum proliferum* and *Pteridium esculentum* subsp. *esculentum* were occasional in damper areas.

Figure 3.15: *Eucalyptus rodwayi* forest and woodland

***Acacia dealbata* forest (NAD)**

There are approximately 1.0 ha of *Acacia dealbata* forest within the disturbance footprint, which occurs in one location near the new power station site and in one location associated with the northern transmission line option at the proposed substation site at the Dee Lagoon end (Figure 3.3, Figure 3.16). *Acacia dealbata* was the dominant canopy tree to 12 m with the occasional *Eucalyptus dalrympleana* tree. The understorey was similar to the adjacent *Eucalyptus tasmaniensis* dry forest with a sparse shrub layer comprised of *Pultenaea juniperina, Leptecophylla parvifolia* and *Lomatia tinctoria*. The ground fern *Pteridium esculentum* was also commonly present.

Figure 3.16: *Acacia dealbata* forest

***Leptospermum* forest (NLE)**

There are up to approximately 5.5 ha of *Leptospermum* forest within the disturbance footprint. This vegetation community was also recorded in survey areas associated with the eastern explosive magazine and access track and the pipeline (Figure 3.2). This community is not found in the either option for the transmission line alignment. *Leptospermum* forest was verified from one location of the pipeline alignment on a poorly drained site on the northern side of an existing easement north of Butlers Gorge Road (Figure 3.2, Figure 3.17). *Leptospermum lanigerum* formed a dense closed canopy to about 3 m tall, with sparse mid and ground layers and a deep litter layer. There was the occasional *Eucalyptus rodwayi* present as well as occurrences of the small trees *Melaleuca virens, Pomaderris apetala* subsp. *apetala* and the graminoid *Gahnia grandis*.

Figure 3.17: *Leptospermum* forest

Broad-leaf scrub (SBR)

There is a small area (up to 1.0 ha) of broad-leaf scrub within the disturbance footprint, which was recorded in the northeastern corner of the Paddy's Quarry construction footprint (Figure 3.2). It is not found in either transmission line alignment. *Pomaderris apetala* and *Melaleuca pallida* (yellow bottlebrush) formed a tall shrub layer to 4 m with the occasional *Eucalyptus dalrympleana* tree to 10 m present (Figure 3.18). The understorey was open with a sparse cover of the low shrubs *Coprosma quadrifida* (native currant) and *Olearia viscosa* (viscid daisybush) and the grasses *Australopyrum pectinatum* and *Microlaena stipoides* (weeping grass). There was also a diverse but sparse cover of herbs including *Geranium potentilloides*, *Veronica calycina* (hairy speedwell), *Viola hederacea* subsp. *hederacea* (ivyleaf violet), and *Lagenophora stipitata* (blue bottledaisy).

Figure 3.18: Broad-leaf scrub

Buttongrass moorland with emergent shrubs (MBS)

There are approximately 2.3 ha of buttongrass moorland with emergent shrubs within the disturbance footprint. This community is not found in either transmission line alignment. This vegetation community was recorded in two locations associated with the headrace pipeline and the upgrade work and magazine Project components (Figure 3.2) and was a late successional stage within buttongrass moorland with a higher coverage of shrubs that were sparsely observed in pure buttongrass moorland in the area (Figure 3.19). This community had scattered occurrences of *Eucalyptus rodwayi,* with small trees such as *Leptospermum lanigerum, Melaleuca virens* and *Monotoca empetrifolia* (mat broomheath) forming the tall overstorey layer. Other shrubs such as *Sprengelia incarnata* (pink swampheath)*, Ozothamnus rosmarinifolius, Olearia algida, O. phlogopappa, Hakea microcarpa* (small fruit needlebush)*, Acrothamnus hookeri* (mountain beardheath)*, Baeckea gunniana* and *Almaleea subumbellata* were common.

Underlying this vegetation community are the Western Tasmania Blanket Bogs, the largest organosol (i.e. peat) terrain in the southern hemisphere.

Figure 3.19: Buttongrass moorland with emergent shrubs

Pure buttongrass moorland (MBP)

There are approximately 18.4 ha of pure buttongrass moorland within the disturbance footprint**.** This vegetation community was commonly recorded in areas associated with the main distribution lines; the headrace pipeline; the upgrade work; and magazine and the western portal and pipeline (Figure 3.2). This community is not found in either transmission line alignment.

This vegetation community is distinguished by the dominance of the sedge *Gymnoschoenus sphaerocephalus* (buttongrass) where it comprises more than 75% cover, and characteristically has a very low species diversity (Figure 3.20). Other sedges present in the community commonly included *Baloskion australe, Empodisma minus* (spreading roperus), *Lepidosperma filiforme,* with species like *Diplarrena moraea* (white flag-iris) and *Carpha alpina* (alpine strawsedge) less common. Ferns including *Blechnum pennamarina* subsp. *alpina* and *Gleichenia alpina* were sparse, as were the herbs *Hydrocotyle muscosa* (mossy pennywort), *H. hirta, Hypericum japonicum* (matted St Johns-wort), *Gonocarpus micranthus* subsp. *micranthus* (creeping raspwort), and *Geranium potentilloides.* Grasses were occasionally present including *Poa labillardierei* (silver tussockgrass) and *Hierochloe redolens* (sweet holygrass). Shrubs were typically scattered through the buttongrass moorland such as *Ozothamnus rosmarinifolius* (swamp everlastingbush), *Olearia algida* (alpine daisybush), *Almaleea subumbellata* (wiry bushpea) and *Baeckea gunniana* (alpine heathmyrtle).

Underlying this vegetation community are the Western Tasmania Blanket Bogs, the largest organosol (i.e. peat) terrain in the southern hemisphere.

Figure 3.20: Pure buttongrass moorland

Subalpine *Diplarrena latifolia* rushland (MDS, NC Act listed as threatened)

Subalpine *Diplarrena latifolia* rushland is listed as threatened under Schedule 3A of the Tasmanian NC Act. It is not listed under the EPBC Act. There was a 0.5 ha area of subalpine *Diplarrena latifolia* rushland recorded during the surveys, almost all of which falls within the disturbance footprint (Figure 3.2) associated with the pipeline alignment. This community is not found in either transmission line alignment.

This community was recorded in one location within the pipeline alignment between *Eucalyptus rodwayi* forest and *Eucalyptus dalrympleana - Eucalyptus pauciflora* forest and woodland (Figure 3.2), which grades into buttongrass moorland with emergent shrubs to the south as drainage becomes impeded It is a graminoid rushland dominated by the graminoid *Diplarrena latifolia* with a sparse cover of shrubs (Figure 3.21). The patch had a sparse cover of *E. rodwayi* and *E. pauciflora*, which is typical of this community on well-drained sites (Kitchener and Harris 2013). Small trees and shrubs recorded in this patch included *Melaleuca virens, Leptospermum lanigerum, Almaleea subumbellata, Epacris gunnii, E. lanuginosa, Olearia erubescens* (moth daisybush), *Oxylobium ellipticum, Hakea microcarpa* and *Leptecophylla parvifolia.* Other graminoid species including *Gymnoschoenus sphacelata, Lepidosperma filiforme* and Restionaceae species formed incursions from the lower, poorly drained areas to the south of the patch.

Grasses were occasional, including *Microlaena tasmanica, Australopyrum pectinatum* (prickly wheatgrass), and *Poa* species, as were the ground fern species *Asplenium flabellifolium* (necklace fern) and *Blechnum pennamarina* subsp. *alpina.* Herb species were present in the groundcover including *Hydrocotyle muscosa, H. hirta, H. sibthorpioides* (lawn marshpennywort), *Acaena novae-zelandiae* (common buzzy), *Rubus gunnianus* (alpine raspberry), *Gonocarpus tetragynus,* and *Galium australe.*

A vegetation condition assessment was undertaken for this patch on 12 July 2022 which assessed the patch as being in excellent condition (VCA score 89). The dominant life form cover of *Diplarrena latifolia* scored highly against the benchmark, as did the species diversity being more than 50% of the benchmark species present for all life forms and more than 50% of life forms present. There were no weed species recorded in the patch, and organic litter was dominated by native species and was more than 50% of the benchmark cover. The landscape surrounding the patch is contiguous native vegetation that is considered significantly disturbed due to the canals, roads and easements and forestry activities within 5 km of the area. The vegetation condition assessments were completed in accordance with *A Manual for Assessing Vegetation Condition in Tasmania* (Michaels et al., 2020).

Subalpine *Diplarrena latifolia* rushland has an approximate Tasmania-wide extent of 600 hectares. Of this, 45% is mapped within the secure National Reserve System, such as the Cradle Mountain – Lake St Clair National Park and the Wild Rivers National Park. The reserved extent increases to 83% in the wider Tasmanian Reserve Estate, which also includes informal and fixed-term reserves.

Figure 3.21: Subalpine *Diplarrena latifolia* rushland and adjacent eucalypt communities

***Sphagnum* peatland (ASP, endangered under EPBC Act and threatened under NC Act)**

Sphagnum peatland is a component of the *Alpine Sphagnum Bogs and Associated Fens* community, which is listed as endangered under the EPBC Act and occurs in south-eastern Australia and in Tasmania. *Sphagnum* peatland (TASVEG code ASP) is also listed as a threatened native vegetation community listed under the *Nature Conservation Act 2002* (Tas).

One 3 ha patch of *Sphagnum* peatland was mapped on TASVEG that was identified as being potentially being indirectly affected by the project due to hydrological changes. The boundaries of the patch of *Sphagnum* peatland were further confirmed using drone imagery captured in 2024, 2025 and 2026, and the patch was found to be 3.0 ha in size when mapped using this high-resolution aerial imagery.

There is the potential that groundwater conditions at the *Sphagnum* peatland are influenced by water flowing past the peatland; the surface water flow past the peatland may change due to operational changes as a result of the Project. It is also possible that the construction of the tunnel may also affect groundwater conditions beneath the peatland during the construction period during which the tunnel is being excavated. The precautionary approach has been taken, and it is assumed that hydrological impacts to any part of this 3-hectare contiguous *Sphagnum* peatland could impact the entire 3-ha patch.

The patch is located approximately 400 m northwest and upstream of Mossy Marsh Pond on the western bank of an unconfined channel that conveys water from the No. 2 Canal to Mossy Marsh Pond at an elevation of 660 mAHD (Figure 3.22, Figure 3.23 and Figure 3.24). The pond is an artificial impoundment inundating what was previously a swampy area that forms part of the water transfer system from Lake King William to Tarraleah Power Station via Canal No. 2. Up to 12.7 cumecs of water can currently be released from No. 2 Canal into Mossy Marsh Pond, however the median flow into the pond is around 9 cumecs. Flow from No. 2 Canal is dispersed across multiple channels upstream and adjacent to the *Sphagnum* peatland community which have formed between islands of native vegetation dominated by *Leptospermum lanigerum* (woolly tea-tree). There are small flowing channels directly abutting the *Sphagnum* peatland community along some of its margin on the western edge; however, the main channel through which the water from No. 2 Canal flows is located along the east eastern edge of the peatland. The boundaries of the patch of *Sphagnum* peatland were further confirmed using drones to capture imagery, and the patch was found to be 3.0 ha in size when mapped by high resolution imagery. The patch is located on a bench which the land survey determined was relatively flat with a gentle slope from 660.1 mAHD on its northern edge to 659 mAHD at its southern extent, a fall of just over 1 m over almost 400 m (a slope of 0.25%) from north to south. The fall from east to west of the *Sphagnum* peatland ranged from 40 cm in the north to almost nothing in the middle sections and 20 cm in the south.

The *Sphagnum* peatland at Mossy Marsh Pond has an almost complete cover of *Sphagnum* moss interspersed with the sedge *Gahnia grandis* and the shrubs *Baeckea gunniana* and *Melaleuca squarrosa* (scented paperbark). *Eucalyptus rodwayi* is present as a scattered overstorey tree. The cover of *Eucalyptus rodwayi* is greater than is typically present in a *Sphagnum* peatland at around 10% canopy cover, but it still has the defining characteristic of a *Sphagnum* peatland having a dense cover of (90% projected foliage cover) of *Sphagnum* moss (Figure 3.22 and Figure 3.23). A vegetation condition assessment undertaken in January 2024 using the Tasmanian Vegetation Condition Assessment (VCA) method (Michaels et al., 2020) determined that the *Sphagnum* was in good condition. The *Sphagnum* peatland is not under any apparent management regime and had a landscape context score of 19 of a possible 25. All five 0.25 ha *Sphagnum* peatland sample sites scored 77 out of a possible 100 for an overall condition score. Given the relatively pristine, unmodified, contiguous nature of the *Sphagnum* peatland at Mossy Marsh, the overall condition rating is high.

There is another small *Sphagnum* patch to the south of the pipeline alignment, which is outside the disturbance footprint. This small patch will not be affected by the Project either directly or indirectly.

Figure 3.22: *Sphagnum* peatland northwest of Mossy Marsh, outside of the direct disturbance footprint

Figure 3.23: Close-up photograph of *Sphagnum* moss species dominating the cover of the *Sphagnum* peatland northwest of Mossy Marsh

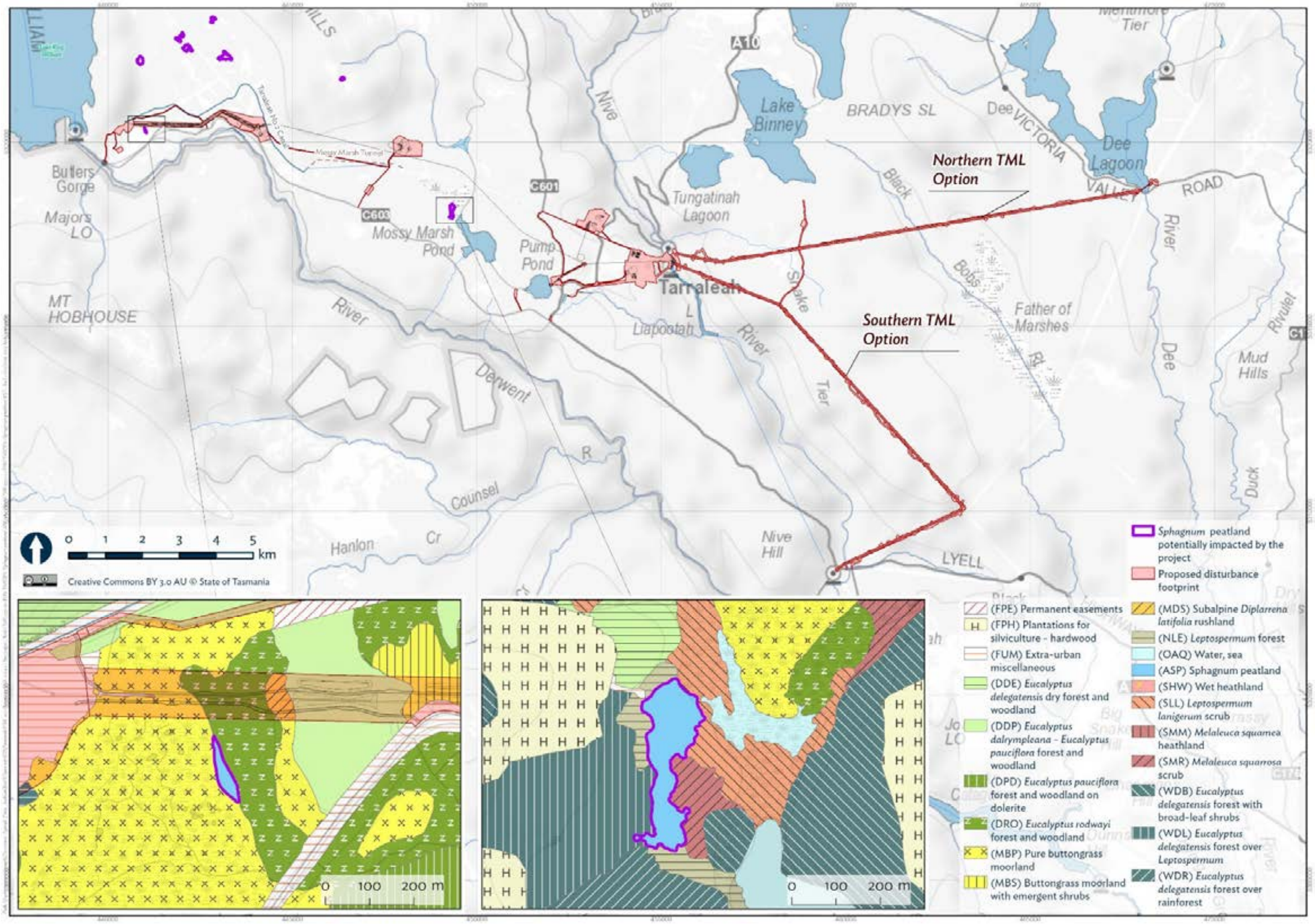

Figure 3.24: Location of *Sphagnum* peatlands relative to the disturbance footprint

3.2 Potentially groundwater-dependent ecosystems

A groundwater-dependent ecosystem (GDE) risk assessment was undertaken for the Tarraleah Redevelopment Project based on the Hydrogeological Interpretative Report provided by PSM (2025) and the verified and unverified TASVEG mapping of vegetation communities within the modelled **3,292.1 ha** (of which **2,575.1 ha** are mapped as native vegetation) zone of potential impact where the water table may be draw down by up to 0.2 m in the ungrouted scenario[7]. Within this zone, the water table under a **1,875 ha** area (**1,367.4 ha** of which is mapped as native vegetation) has been modelled to be potentially drawn down by up to 1 m.

The modelled zones of potential hydrological impact lie beneath 21 native vegetation communities, 7 modified communities and water, as listed in Table 3.4. A map of the communities is provided in Figure 3.25.

The 0.2 m groundwater drawdown may impact the following five potentially groundwater dependent ecosystems that are classified entirely or highly groundwater dependent in the assessment of groundwater dependant ecosystems in Tasmania (Eberhard, 2004):

- **30.5 ha** of pure buttongrass moorland
- **13.1 ha** of buttongrass moorland with emergent shrubs
- **10.1 ha** of *Melaleuca squarrosa* scrub
- **0.3 ha** of Restionaceae rushland
- the **3 ha** *Sphagnum* peatland northwest of Mossy Marsh Pond.

The summed area of potentially groundwater dependent ecosystem that may be impacted is **57 ha**.

Although 2.8 ha fall within the 0.2-m drawdown modelled zone of impact, the entire 3 ha *Sphagnum* peatland – listed as an endangered ecological community under the EPBC Act (Alpine *Sphagnum* Bogs and Associated Fens) and as a threatened vegetation community under the Tasmanian NC Act – that is located approximately 400 m northwest of Mossy Marsh Pond has been included in this assessment of potential drawdown impacts under the precautionary principle because of the vegetation's sensitivity to changes in groundwater levels.

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[7] The Project was simulated based on the base-case construction schedule and two grouting scenarios: no grouting, which is unlikely, and grouting of simulated fracture zones intercepted by the tunnels. The grouting scenario assumed that the fracture zones were grouted as soon as encountered during excavation. The grouted base case model scenario was considered to be optimistic; therefore, this assessment of drawdown impacts was completed using the ungrouted base case scenario model. This is considered to be a very conservative approach, as grouting will reduce drawdown and the reference design for the Project assumes systematic grouting.

Table 3.4: Vegetation communities within modelled zone of potential 1-m and 0.2-m drawdown groundwater impacts (e.g. drawdowns during tunnel excavation)

TASVEG Vegetation Community	TASVEG Code	Area over water table where 1-m drawdowns are expected during excavation works (ha)	Area over water table where 0.2-m drawdowns are expected during excavation works (ha)
Native vegetation		**1,367.4**	**2,575.1**
***Sphagnum* peatland**	**ASP**	**1.2**	**2.8**
Eucalyptus tasmaniensis dry forest and woodland	DDE	536.0	742.9
Eucalyptus dalrympleana - Eucalyptus pauciflora forest and woodland	DDP	21.3	44.1
Eucalyptus pauciflora forest and woodland on dolerite	DPD	0	6.1
Eucalyptus rodwayi dry forest and woodland	DRO	31.6	110.3
Eastern highland heathland	HHE	0.3	0.6
Pure buttongrass moorland	**MBP**	**6.4**	**30.5**
Buttongrass moorland with emergent shrubs	**MBS**	**8.8**	**13.1**
Restionaceae rushland	**MRR**	**0.1**	**0.3**
Acacia dealbata forest	NAD	0	7.6
Leptospermum forest	NLE	12.9	15.5
Lichen lithosere	ORO	0	0.2
Nothofagus - Atherosperma rainforest	RMT	50.7	74.1
Broad-leaf scrub	SBR	0	2.3
Leptospermum lanigerum scrub	SLL	2.8	11.2
***Melaleuca squarrosa* scrub**	**SMR**	**2.3**	**10.1**
Eucalyptus dalrympleana forest	WDA	0	2.3
Eucalyptus tasmaniensis forest with broad-leaf shrubs	WDB	214.3	381.1
Eucalyptus tasmaniensis forest over *Leptospermum*	WDL	56.3	160.8
Eucalyptus tasmaniensis forest over rainforest	WDR	422.4	958.7
Eucalyptus subcrenulata forest and woodland	WSU	0	0.5
Modified land		**507.6**	**717.0**
Permanent easement	FPE	70.8	88.5
Plantations for silviculture - hardwood	FPH	246.8	390.5
Plantations for silviculture - softwood	FPS	0	23.1
Regenerating cleared land	FRG	39.3	39.9
Extra-urban miscellaneous	FUM	106.4	130.4

TASVEG Vegetation Community	TASVEG Code	Area over water table where 1-m drawdowns are expected during excavation works (ha)	Area over water table where 0.2-m drawdowns are expected during excavation works (ha)
Urban areas	FUR	28.5	28.5
Weed infestation	FWU	15.8	16.1
Water	**OAQ**	**4.3**	**13.5**

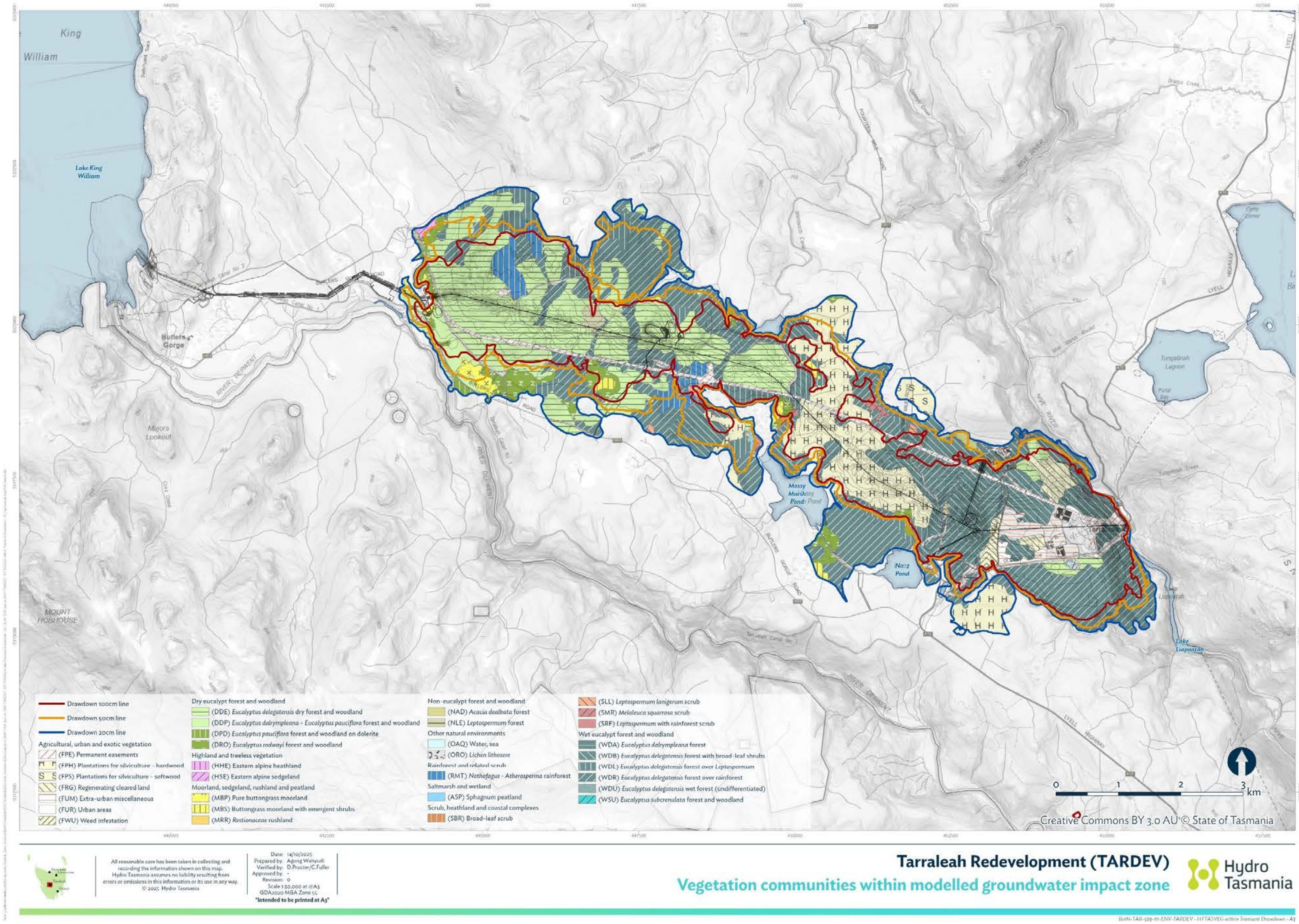


Figure 3.25: Vegetation communities mapped within the modelled zone of potential groundwater drawdown

3.3 Flora

The field surveys recorded 325 flora species within the Project survey area, of which 271 were native species and 54 were introduced species. A full list of flora species recorded during the survey is provided in Appendix A. Fifteen threatened flora species listed under the TSP Act have previously been recorded within 5 km of the disturbance footprint, in addition to three species listed under the EPBC Act (Appendix D.2).

A further seven flora species listed under the EPBC Act were identified as potentially occurring by the PMST search (Appendix D.2); none of which were considered likely to occur within the survey area (Appendix D.2) because:

- none were recorded during field surveys
- the survey area is outside the known ranges of the species
- and/or there was no suitable habitat within the survey area.

Five threatened species listed under the TSP Act were recorded within the survey area during flora surveys: *Barbarea australis* (native wintercress), *Westringia angustifolia* (narrowleaf westringia), *Pomaderris elachophylla* (small-leaf dogwood), *Muehlenbeckia axillaris* (matted lignum) and *Pherosphaera hookeriana* (Mount Mawson Pine).

Westringia angustifolia is listed as rare under the TSP Act and was recorded at two locations along the northern transmission line alignment. At the first location on the northern transmission line alignment, the population extended over an area of 150 m by 80 m across the currently maintained permanent easement into the adjacent *Eucalyptus amygdalina* forest on dolerite community (Figure 3.26).

At the second location, the population extended over an area of 40 m by 20 m which included the current transmission line alignment and the adjacent *Eucalyptus tasmaniensis* dry forest. This species was also recorded at three locations along the River Derwent between Clark Dam and Wayatinah Lagoon. The three occurrences of *Westringia angustifolia* along the River Derwent comprised one plant at each location.

Figure 3.26: *Westringia angustifolia* (narrowleaf westringia) in the transmission line alignment

Pomaderris elachophylla, which is listed as vulnerable under the TSP Act, was recorded on the edge of the western portal and pipeline disturbance footprint. Ten plants were recorded adjacent to No. 2 Canal over an area 10 m by 3 m. The species was also recorded along the Lake King William to Derwent Pumps distribution line alignment. A patch of 30 was recorded (Figure 3.27) as well as a single plant. The plants were recorded in the easement of the existing distribution line, which will be upgraded for the Project.

Figure 3.27: *Pomaderris elachophylla* (small-leaf dogwood) in the distribution line alignment

Muehlenbeckia axillaris was recorded at one location along the River Derwent between Clark Dam and Wayatinah Lagoon. *Muehlenbeckia axillaris* is listed as rare under the TSP Act. A small population of 11 plants of *Pherosphaera hookeriana* (Mount Mawson pine) was also recorded along this section of the River Derwent. *Pherosphaera hookeriana* is listed as vulnerable under the TSP Act. The occurrences *Muehlenbeckia axillaris* (matted lignum), *Pherosphaera hookeriana* (Mount Mawson Pine), and the three *Westringia angustifolia* (narrowleaf westringia) plants occur in riparian areas on the River Derwent and are associated with the operations of the proposed Tarraleah Redevelopment. These species are further addressed in the Tarraleah Redevelopment Aquatic Ecology Assessment (Entura, 2025).

The remaining eleven species listed under the TSP Act identified in the NVA search (Figure 3.28) were considered unlikely to occur within the survey area (Appendix D.2), because they were not recorded during field surveys and/or there was no suitable habitat within the survey area. Note that there are records on the NVA of *Uncinia elegans* (handsome hook sedge) which is listed as rare under the Tasmanian TSP Act within the disturbance footprint associated with surge tower and pump station. The records are on the maintained roadside easement of Fourteen Mile Road. Several plants of an *Uncinia* species were recorded in this area, and sample specimens were taken (with a permit) and submitted to the Tasmanian herbarium for identification. The *Uncinia* plants in this area were confirmed by the herbarium to be *Uncinia riparia* (river hooksedge), which is not listed as a threatened species. No *Uncinia elegans* specimens were recorded within the disturbance footprint.

The three flora species listed under the EPBC Act that have been previously recorded within 5 km of the Project disturbance footprint are *Barbarea australis* (native wintercress), *Xerochrysum palustre* (swamp everlasting) and *Glycine latrobeana* (clover glycine). *Barbarea australis* is endemic to Tasmania and listed as endangered under both the EPBC Act and the TSP Act. The riparian, flow-dependent plant species is known to occur in the River Derwent downstream of Wayatinah Lagoon. *B. australis* has also been recorded in the Nive River upstream and downstream of Lake Liapootah, including where the southern transmission line option would span the Nive River at its southern terminus. There have been up to 10 plants recorded at this location. There is also a small population of approximately 11 plants on the upstream face of the Tarraleah Pump Pond No. 2 dam wall above the existing outflow pipe. The outflow pipe will be connected to the proposed pumping station on the downstream side of the dam wall that is required to transfer water from the existing Pump Pond No. 2 through a pipeline to the surge tower.

There are six records of *Xerochrysum palustre* within 5 km of the disturbance footprint. The records are from Father of Marshes, 1.7 km south of the northern transmission line option alignment. The most recent records are in May 2021. However, it was not recorded during field surveys within the survey area and is considered unlikely to occur because of the absence of suitable wetland habitat.

There is only one historic record of *Glycine latrobeana* within 5 km of the disturbance footprint from October 1987, within 5 km of the southern transmission line option recorded in an area approximately 750 m of Wayatinah Lagoon. There was potentially suitable dry forest and woodland habitat recorded within the survey area; however, this species was not recorded during flora surveys between 2018 and 2024 thus is considered unlikely to occur within the survey area.

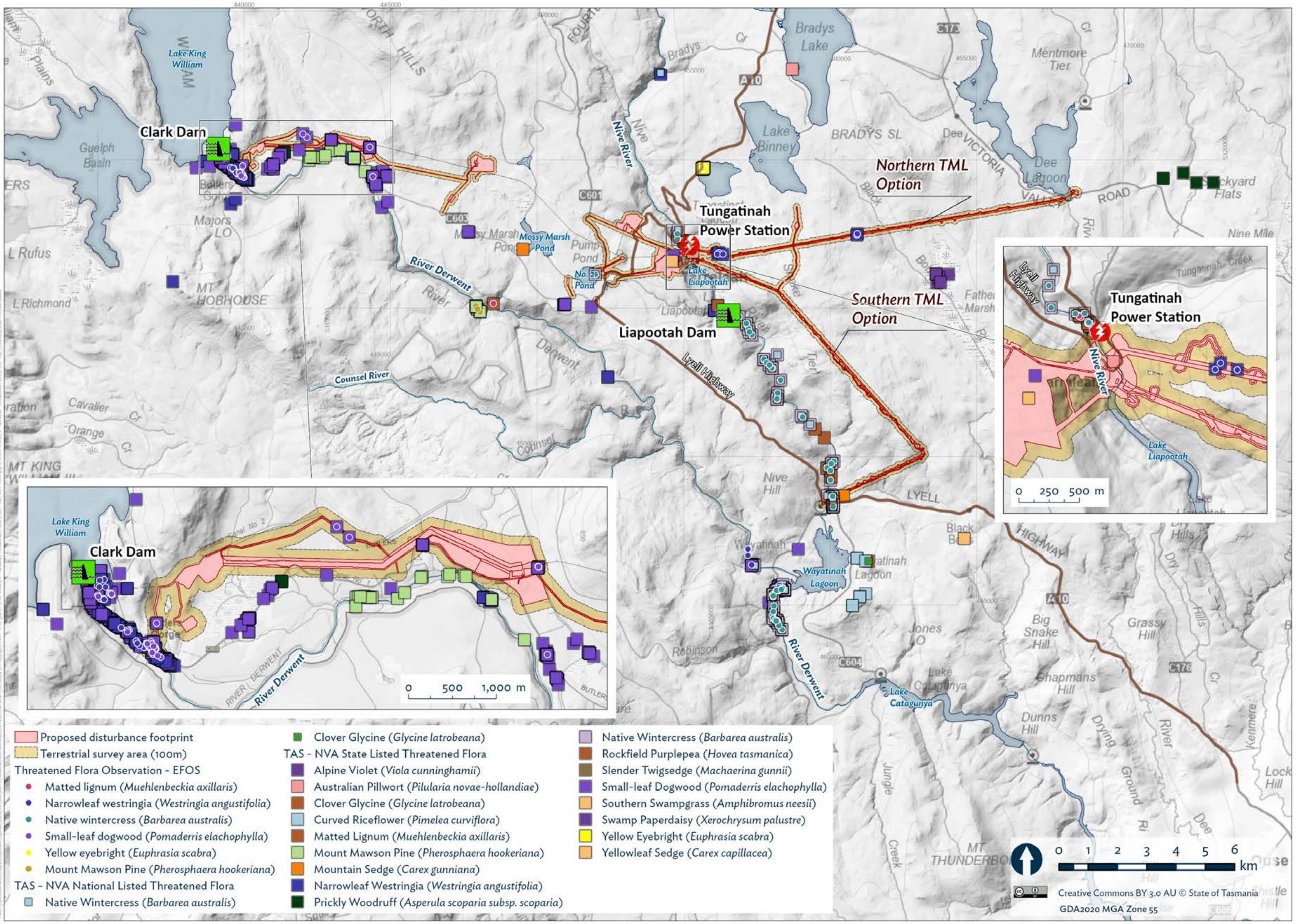


Figure 3.28: Natural Values Atlas records and Entura field survey records of threatened flora observations in the vicinity of the Tarraleah Redevelopment Project area

3.4 Fauna

The proposed Tarraleah Redevelopment Project's disturbance footprint encompasses three main fauna habitat types: dry and wet eucalypt forest and buttongrass moorland. Buttongrass moorland generally supports a low diversity of fauna due to its simple structure resulting in a lack of habitat heterogeneity. The two forest habitats are likely to provide habitat for a range of fauna species. A list of terrestrial fauna species that were recorded during the camera trapping survey at the Tarraleah Golf Course is provided in Appendix B. Noting that the golf course is not within the disturbance footprint but is included in the survey area and provides an indication of the fauna species that occur across the Project area given its central location.

The likelihood of occurrence for all threatened species that was identified in the NVA and PMST searches is detailed in Appendix D.3. There are two mammal species (Tasmanian devil and spotted-tailed quoll) that are listed under the TSP Act and the EPBC Act and two mammal species (eastern quoll and eastern barred bandicoot) listed under the only EPBC Act that that are likely to, or have potential to, occur within the survey area (Appendix D.3). The Tasmanian devil and spotted-tailed quoll may use the wet and dry forest habitats within the survey area as denning habitat, if there are suitable denning features present such as rocky outcrops, hollow logs, and old wombat burrows. No devil or quoll den sites were recorded during the field surveys between 2018 and 2024, however there were three potential wombat burrows recorded in the survey area all of which fall within or in close proximity to the disturbance footprint. None of the three potential burrows showed signs of recent use. The eastern quoll may occasionally occur in the survey area; however, there is unlikely to be a resident population of this species due to the suboptimal denning and foraging habitat comprising shrubby dry eucalypt forest lacking an open, grassy understorey. There is no suitable native grassland habitat for the eastern quoll. Eastern barred bandicoots may occur in the survey area, namely along the distribution line easement along Oldina Road adjacent the Tarraleah Golf Course, where it is known to occur based on Entura detection via camera trapping.

There are six threatened bird species either listed under the TSP Act and/or the EPBC Act that are considered likely or have potential to occur within the survey area including three species listed under both the TSP Act and EPBC Act, two species listed only under the EPBC Act and two species listed only under the TSP Act (Appendix D.3).

There are five known eagle nests within 1 km of the disturbance footprint; the nearest proposed infrastructure to these nests are the transmission line alignment options. There are four eagle nests within 1 km of the northern transmission line option and one eagle nest within 1 km of the southern transmission line option. All these nests are attributed to the wedge-tailed eagle although they may be used by the white-bellied sea eagle. Two of the nests on the northern transmission line option are within 500 m of the disturbance footprint. The nest on the southern transmission line option is within 500 m of the disturbance footprint.

There were large habitat trees (>100 cm diameter at breast height) present within the survey area, which may be suitable nesting or roosting habitat for the Tasmanian masked owl (*Tyto novaehollandiae castanops*). Although there are no known nests within 5 km of the survey area, passive acoustic recording has shown that the Tasmanian masked owl is likely to occur over the disturbance footprint near the existing Tarraleah Power Station. Targeted habitat tree assessment and masked owl call-playback and spotlighting surveys, undertaken where masked owl screeches were recorded, concluded that there is unlikely to be nesting within 150 m of the disturbance footprint.

There are observations of the swift parrot (*Lathamus discolor*) from *Eucalyptus tasmaniensis* forests outside of the breeding season; however, the survey area is not located within the swift parrot breeding range, which is mostly within 10 km of the coast in eastern and southeastern Tasmania.

Latham’s snipe (*Gallinago hardwickii*) which is listed as vulnerable and migratory under the EPBC Act may occur on occasion on the buttongrass plains that are along the proposed pipeline alignment; or the waterbodies such as Mossy Marsh associated with the Project. There are ten NVA records within 5 km of the disturbance footprint from Tungatinah Lagoon, Lake Binney, Lake King William and two records in Tarraleah Village with poor locational accuracy.

The EPBC Act-listed vulnerable and migratory species the white-throated needletail (*Hirundapus caudacutus*) was identified as potentially occurring within the survey area. The white-throated needletail is an aerial species that does not use terrestrial habitats.

Two additional fauna species that are not listed under the EPBC Act and are listed under the TSP Act, and which were identified on the NVA as having been observed within 5 km of the survey area, are the grey goshawk (previously *Accipiter novaehollandiae*, now *Tachyspiza novaehollandiae*) and the Lake Fenton trapdoor spider (*Plesiothele fentoni*). There are 7.1 ha of mature rainforest forest habitat in the form of *Eucalyptus tasmaniensis* forest over rainforest within the disturbance footprint, however the species was considered unlikely to occur due to the absence of mossy patches required for the spider to make its burrows. There are up to 48.3 ha of mature wet eucalypt forest in the form of *Eucalyptus dalrympleana* forest, *E. tasmaniensis* forest with broad-leaf shrubs, *E. tasmaniensis* forest over rainforest, and *E. obliqua* forest with broad-leaf shrubs that may form suitable foraging habitat for the grey goshawk.

Arboreal marsupials, bats and bird species use tree hollows in Tasmania, and all hollow-dependent fauna species are listed as having priority status under the Tasmanian Regional Forest Agreement. The known habitat trees within the survey area are shown in Figure 3.29.

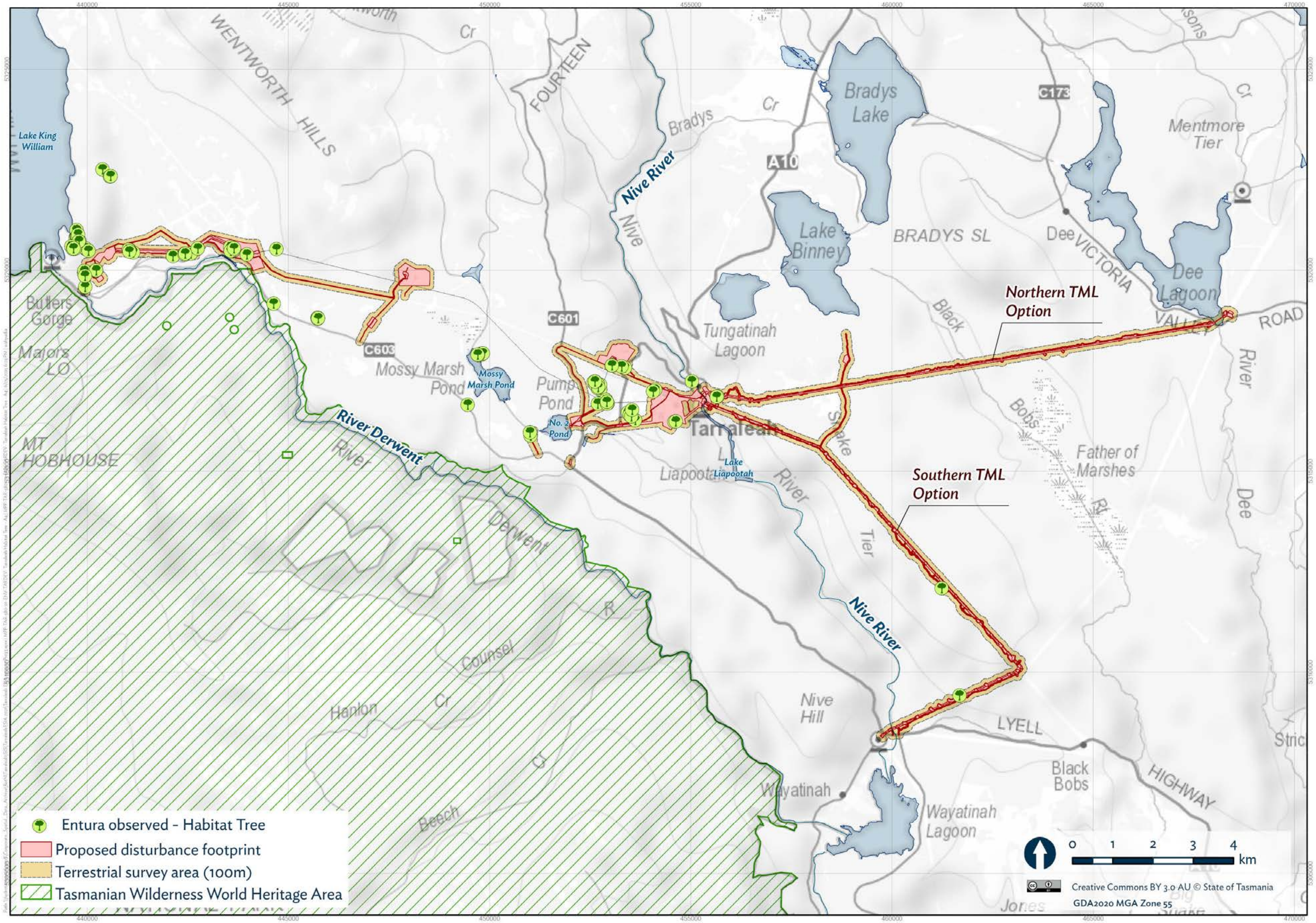


Figure 3.29: Map of habitat trees within and near the survey area

3.4.1 Tasmanian devil

The Tasmanian devil (*Sarcophilus harrisii*) is listed as endangered under both the EPBC Act and the TSP Act. The Tasmanian devil occurs across mainland Tasmania where it can be found in all terrestrial native habitats, forestry plantations and pasture (Forest Practices Authority, 2013). However, densities are higher in coastal scrub and eucalypt forest particularly where there is a mosaic of grazing land and open forest or woodland and in coastal heathland and scrub (Jones & Rose, 1996). Dense wet eucalypt forest and rainforest, alpine areas, dense wet heath and open grassland are less preferred habitats and support only low densities of devils (Jones et al., 2004). At the home-range scale, Tasmanian devils require shelter (e.g. dense vegetation, hollow logs, burrows or caves) and hunting habitat with an open understorey mixed with patches of dense vegetation (DPIPWE, 2010).

Tasmanian devils forage in most types of native vegetation and many areas of non-native vegetation, including eucalypt forests and woodlands, native grasslands, agricultural land, pastureland, easement, and regenerating cleared land. The suitability of potential foraging habitat varies based on prey availability and predation and competition pressures by feral cats (*Felis catus*). The 8 December 2023 to 9 May 2024 camera trap monitoring program targeting suitable eastern barred bandicoot (*Perameles gunnii gunnii*) habitat within the Tarraleah Golf Course captured three separate cat (*Felis catus*) detections on the golf course and an additional 14 separate cat detections were recorded during the mature dry forest camera trap survey at the main project disturbance footprint and on the southern transmission line option. Twenty-one Tasmanian devil detection events were captured by the camera trapping programs, and none showed any evidence of Devil Facial Tumour Disease.

Suitable maternal denning habitat components for Tasmanian devils include well-drained soil that is easily dug, sheltered overhangs such as cliffs, rocky outcrops, knolls, caves and earth banks, and log piles with at least one entrance through which a devil could pass[8]. Dens are typically underground burrows, (such as old wombat burrows) dense riparian vegetation, thick grass tussocks and caves (Environment Strategic Business Unit, 2023). Devils may also den within plantations for silviculture, especially if there are windrows (piles of woody debris from harvesting arranged in rows) present that can provide artificial habitat features (Jones et al., 2023).

Adults are thought to use the same den sites long-term, so den disturbance can have significant implications to devil populations (Owen and Pemberton, 2005). The maternal denning season is defined as the period July to December inclusive, however maternal denning can occur outside of this period (Environment Strategic Business Unit, 2023).

There are 67 records of the Tasmanian devil on the Tasmanian Natural Values Atlas (NVA) within 5 km of the main redevelopment infrastructure disturbance footprint west of the Nive River, with the most recent records being roadkill records on the Lyell Highway at Tarraleah on 11 June 2024 and another on the same day on Butlers Gorge Road 5 km west of Tarraleah, in addition to a roadkill record from 17 September 2025 on Butlers Gorge Road. There are eight records on the NVA within 5 km of the northern transmission option alignment east of the Nive River with most recent sighting being scats approximately 2 km south of the alignment. There are 26 records on the NVA within 5 km of the southern transmission alignment option. The most recent record is a sighting from on the Lyell Highway at Black Bobs approximately 2 km southeast of the alignment.

Tasmanian devil scats were observed in *Eucalyptus tasmaniensis* forest with broad-leaf shrubs (WBD), *E. tasmaniensis* forest over rainforest (WDR), *E. tasmaniensis* dry forest (DDE) and cleared weed infested

[8] https://www.threatenedspecieslink.tas.gov.au/Pages/Tasmanian-Devil.aspx

land (FWU). No devil den sites were recorded, although there is potential denning habitat present within the disturbance footprint particularly in mature dry forests where there are fallen logs (Forest Practices Authority, 2013). Note that there were three potential bare-nosed wombat burrows recorded within the survey area, all of which fall within (or within 5 m of, in the case of one burrow) the disturbance footprint. Of these, only two potential burrows looked to be inhabitable however neither of which showed any sign of recent use. Therefore, wombat burrows that have potential to be used by Tasmanian devils as den sites appear to be rare within the survey area.

During the camera trap monitoring program at the Tarraleah Golf Course targeting eastern barred bandicoots, Tasmanian devils were detected on 16 December 2023, 24 February 2024, and 7 March 2024 (Figure 3.30). Note that the Tarraleah Golf Course is not within the disturbance footprint and will not be impacted by Project activities.

During the camera trap monitoring program targeting game trails within the mature dry eucalypt forests within the disturbance footprint, there were 18 Tasmanian devil detection events at 8 camera sites. Eight of these devil detection events were by the 3 cameras deployed in *Eucalyptus tasmaniensis* dry forest and woodland (DDE) within the northern transmission line option disturbance footprint; two were in this forest type within the Tarraleah Village disturbance footprint. Two of these detection events were from a camera deployed within *Eucalyptus amygdalina* forest and woodland on dolerite (DAD) within the southern transmission line option disturbance footprint. Six of these detection events by 3 cameras deployed within the *Eucalyptus dalrympleana - Eucalyptus pauciflora* forest and woodland (DDP) within the western portal and pipeline disturbance footprints.

There are up to **89.8 ha** of preferred dry eucalypt forest habitat recorded within the disturbance footprint excluding the transmission line, which may be preferentially used for foraging by Tasmanian devils. There are also up to **43.3 ha** of wet eucalypt forest habitat and up to **6.9 ha** of non-eucalypt forest and broad-leaf scrub within the disturbance footprint excluding the transmission line, all of which may be used as less preferred habitat for Tasmanian devil foraging. The area of suitable foraging habitat converted to easement for the transmission line is not considered loss of foraging habitat, as Tasmanian devils will likely continue to forage successfully within the widened easement, regardless of which transmission line route is selected for construction. However, Tasmanian devils may den within hardwood plantations (FPH) that will be converted to transmission easement, especially if there are windrows (piles of woody debris from harvesting arranged in rows) present that can provide artificial habitat features (Jones et al., 2023). There are **10.9 ha** of hardwood plantation for silviculture within the southern transmission line option disturbance footprint, and **2.0 ha** within the northern transmission line option disturbance footprint. Therefore, there are up to approximately **140.0 ha** of native vegetation that is potentially suitable devil foraging habitat within the disturbance footprint excluding the transmission line. There are also up to **107.8 ha** of existing permanent easement and up to **10.9 ha** of plantation for silviculture within the total disturbance footprint that devils may forage within.

Tasmanian devil dispersal habitat includes all areas of suitable foraging habitat, given the wide-ranging nature of the species. Juvenile devils are likely to continue to disperse in the transmission line easement, given that such anthropogenic linear features can provide preferred movement corridors for Tasmanian devils within the forest and plantation landscapes (Andersen et al., 2017).

Tasmanian devils preferentially den in mature eucalypt forest and woodland where there is more likely to be denning features such as hollow logs or piles of woody debris. There are up to **50.4 ha** of mature dry eucalypt forest and **10.8 ha** of mature wet eucalypt forest within the disturbance footprint excluding the transmission line. There are **13.1 ha** of mature dry forest and **17.9 ha** of mature wet forest within the disturbance footprint for the northern transmission line option. There are **2.2 ha** of dry eucalypt forest (**0.5 ha** of which are mature) within the southern transmission line option disturbance footprint, as well as **46.6 ha** of wet eucalypt forest (**7.8 ha** of which are mature). Therefore, there are up to approximately 63.5 **ha** of mature dry eucalypt forest and up to approximately **28.7 ha** of mature wet eucalypt forest within the disturbance footprint (including the northern transmission line).

Of these areas of mature eucalypt forest within the disturbance footprint, approximately 2.0 ha of mature *Eucalyptus rodwayi* forest and woodland within the western pipeline footprint and less than 1 ha of mature *Eucalyptus tasmaniensis* forest with broad-leaf shrubs within the surge tower footprint were classified as having “high” availability of mature habitat features (i.e., contained at least 8 trees over 100 cm diameter at breast height per hectare). The *Eucalyptus rodwayi* forest and woodland within the western pipeline footprint is not considered suitable Tasmanian devil denning habitat due to the wet, sedgy understorey. See Figure 3.31, Figure 3.32, Figure 3.34, Figure 3.35, Figure 3.36, Figure 3.37, Figure 3.38, and Figure 3.39.

Approximately 26.5 ha of mature *Eucalyptus dalrympleana - Eucalyptus pauciflora* forest and woodland within the western portal and pipeline footprints, 3.2 ha of mature *Eucalyptus tasmaniensis* forest with broad-leaf shrubs within the surge tower footprint and south of the Tarraleah village and 3.6 ha of mature *Eucalyptus tasmaniensis* forest over rainforest near the surge tower footprint were classified as having “medium” availability of mature habitat features (i.e. at least 8 trees over 70 cm DBH in dry forest and at least 8 trees greater than 100 cm DBH for wet forests). Approximately 10.0 ha of mature *Eucalyptus dalrympleana - Eucalyptus pauciflora* forest and woodland in the western pipeline footprint and 1.0 ha of mature *Eucalyptus obliqua* forest with broad-leaf shrubs within the southern transmission line footprint near Liapootah were classified as having “low” availability of mature habitat features (i.e., contained less than 8 trees over 70 cm diameter at breast height per hectare in dry forests or contained less than 8 trees over 100 cm DBH per hectare in wet forests).

The mature habitat availability classification surveys did not record any potential devil denning features other than wombat burrows, which appeared to be likely occupied by wombats.

Figure 3.30: Tasmanian devil images from camera traps deployed on the Tarraleah Golf Course

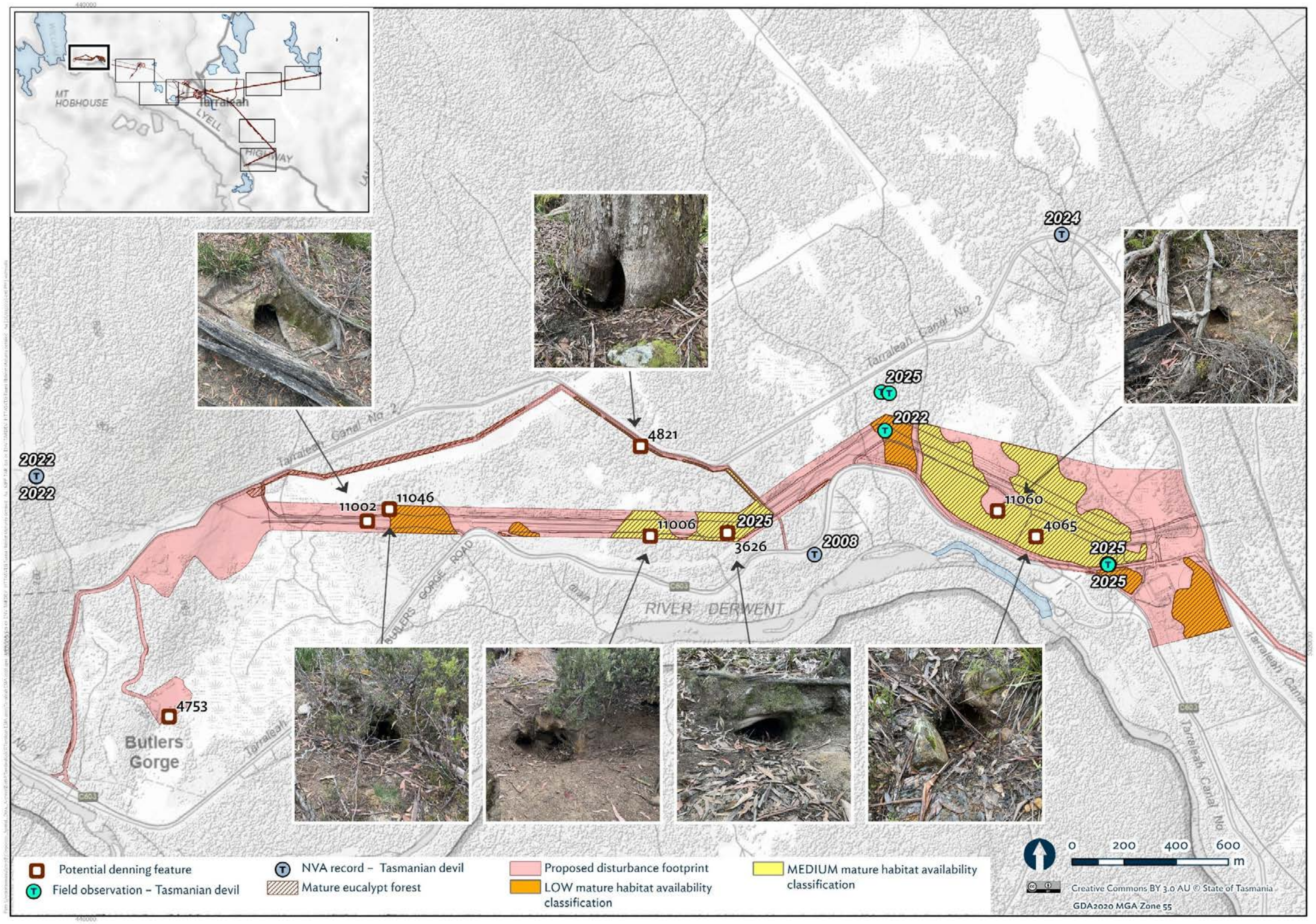


Figure 3.31: Mature forest habitat suitable for Tasmanian devils within the western portal and pipeline disturbance footprints.

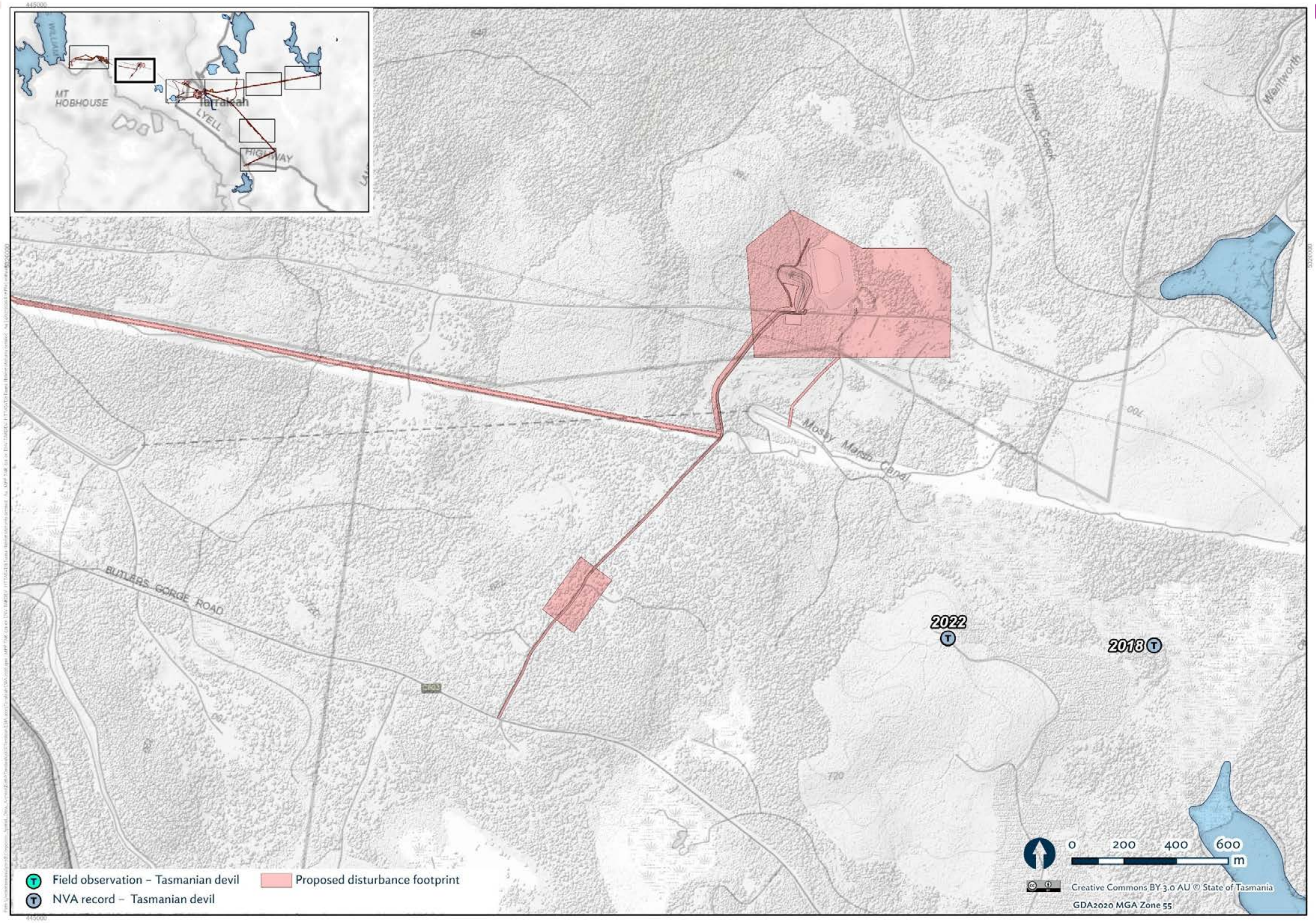


Figure 3.32: Absence of mature forest habitat suitable for Tasmanian devils within the mid-access portal and explosive magazine's disturbance footprints

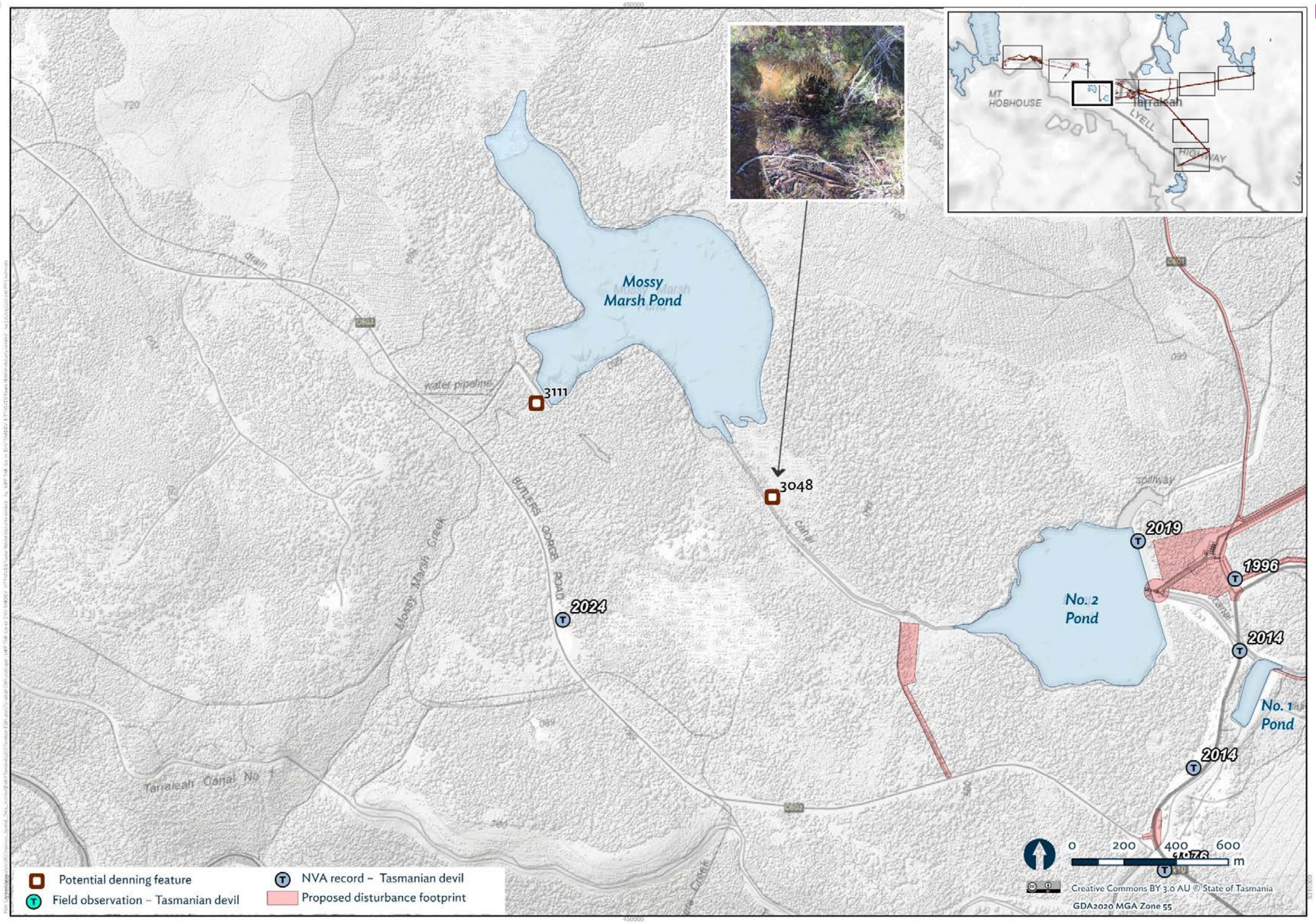


Figure 3.33: Absence of mature forest habitat suitable for Tasmanian devils within explosive magazine and pump station's disturbance footprints

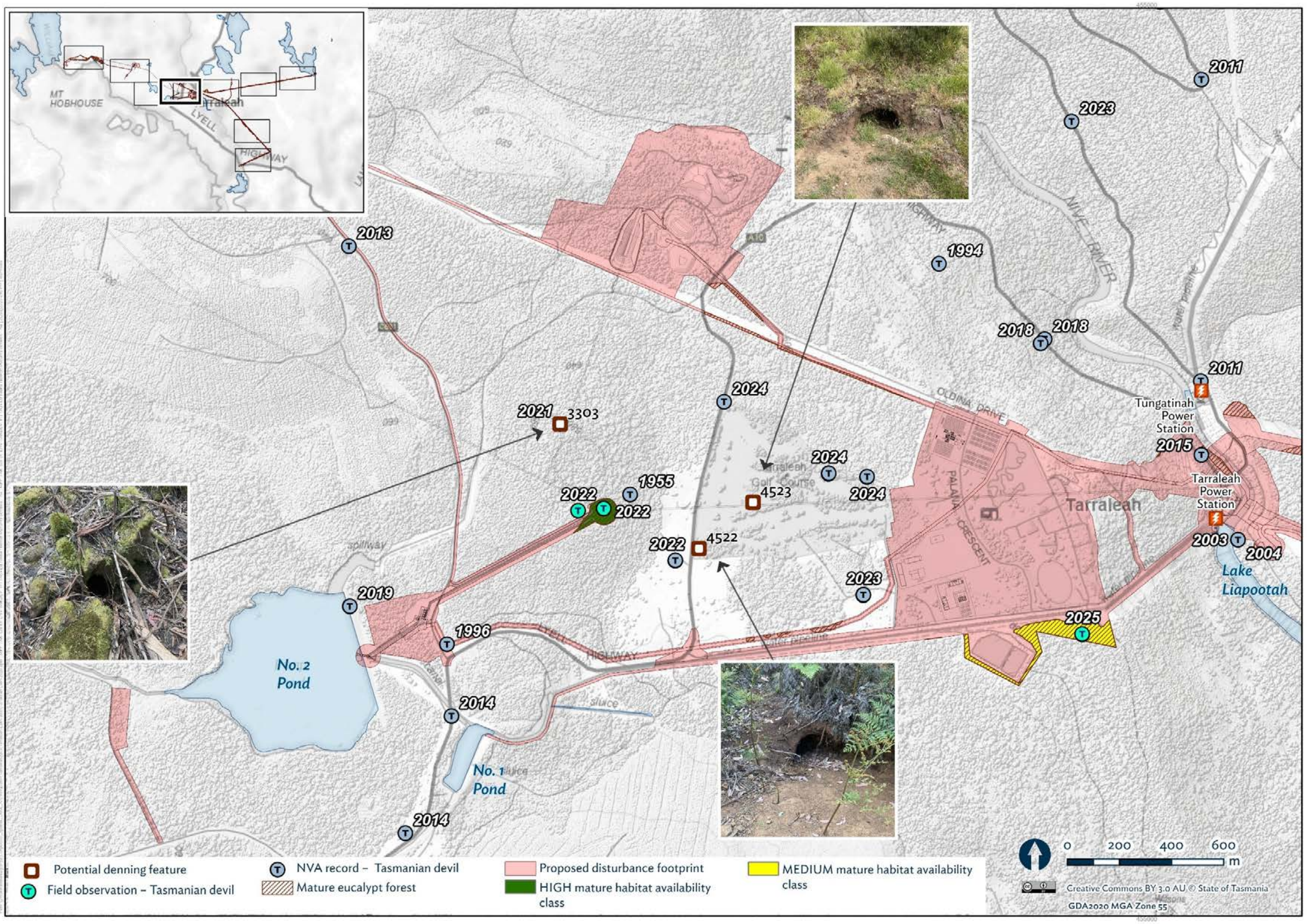


Figure 3.34: Mature forest habitat suitable for Tasmanian devils within Tarraleah village and surge tower disturbance footprints.

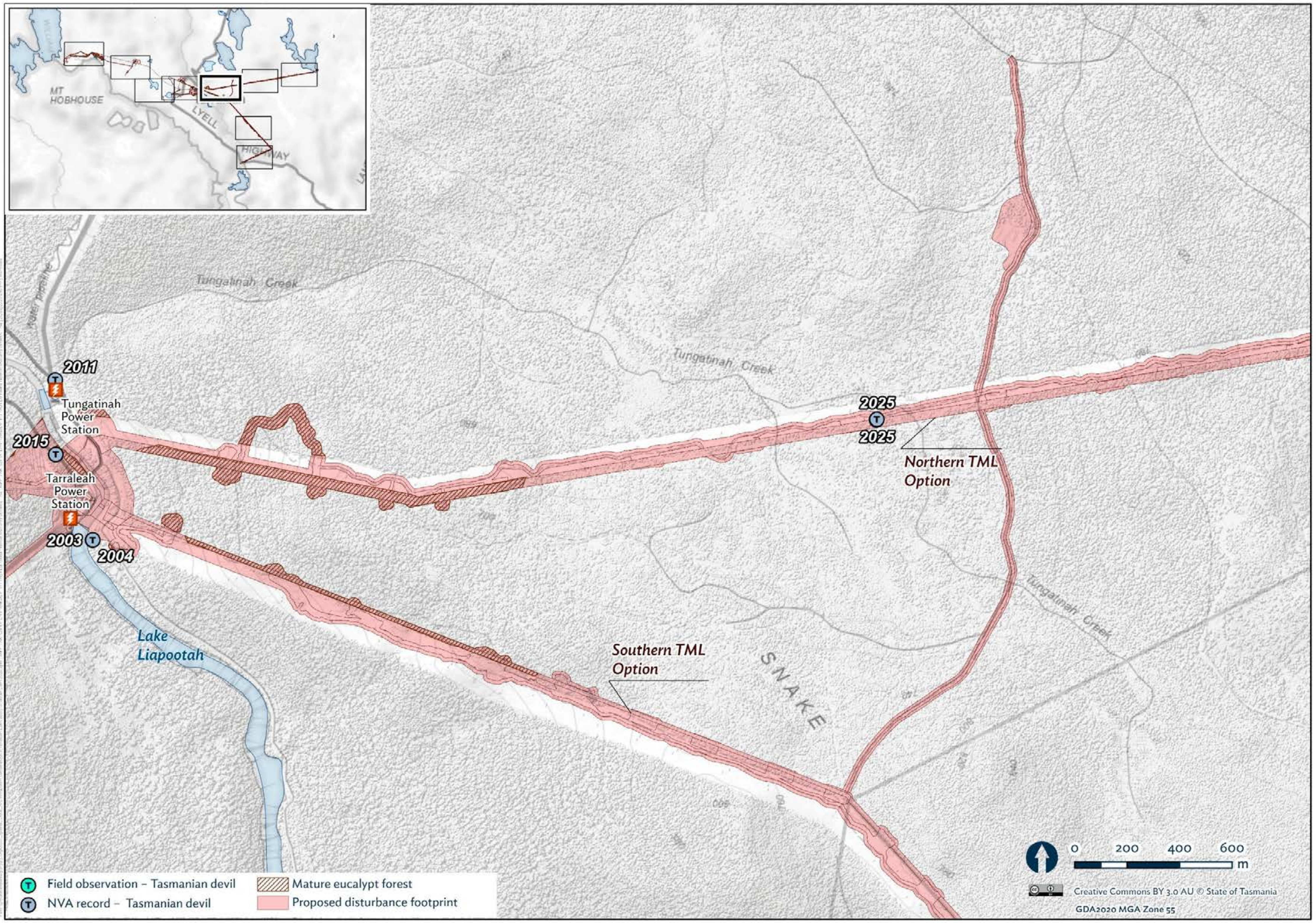


Figure 3.35: Mature forest habitat suitable for Tasmanian devils within the western component of the transmission line's disturbance footprints.

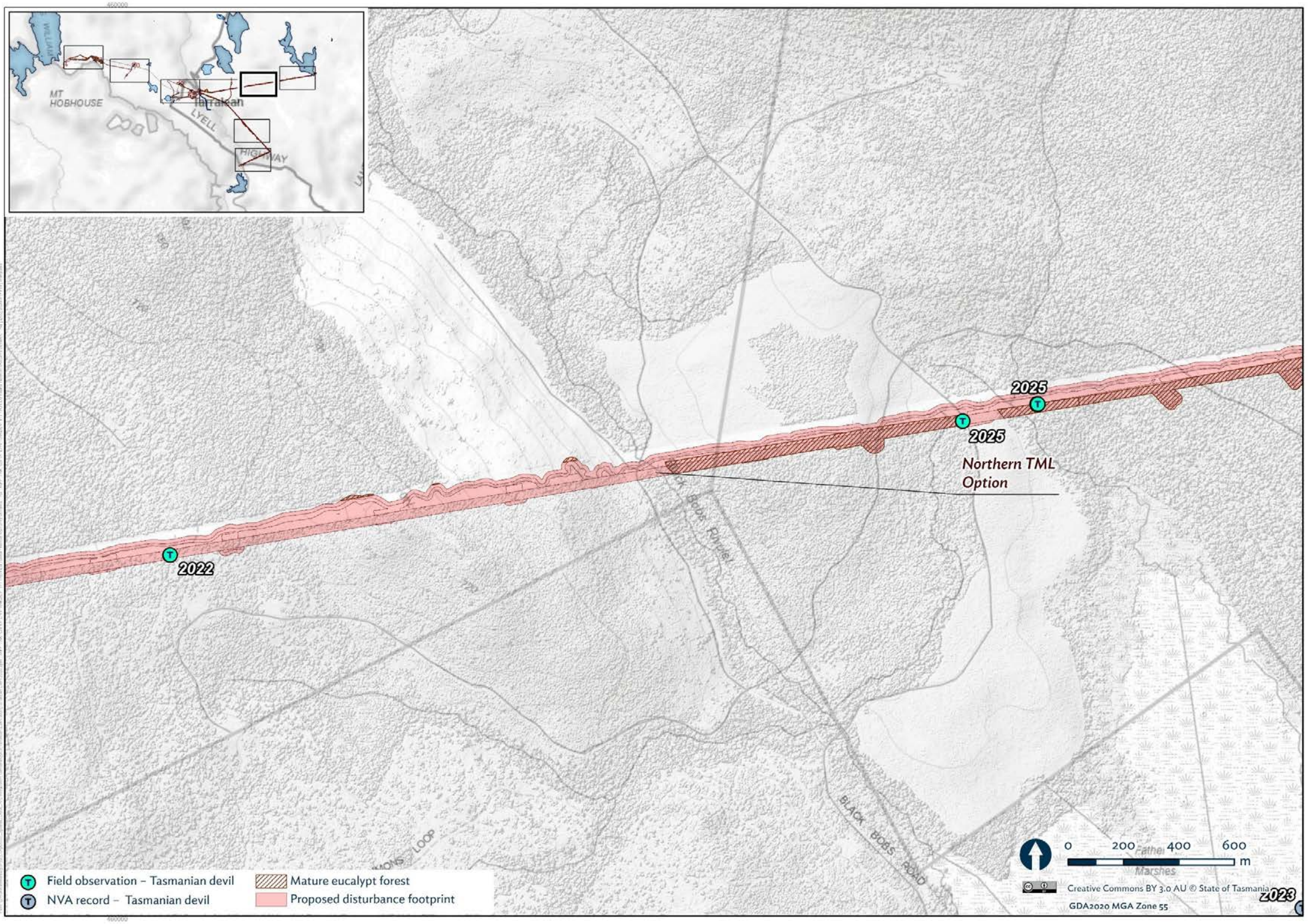


Figure 3.36: Mature forest habitat suitable for Tasmanian devils within the northern transmission line disturbance footprint.

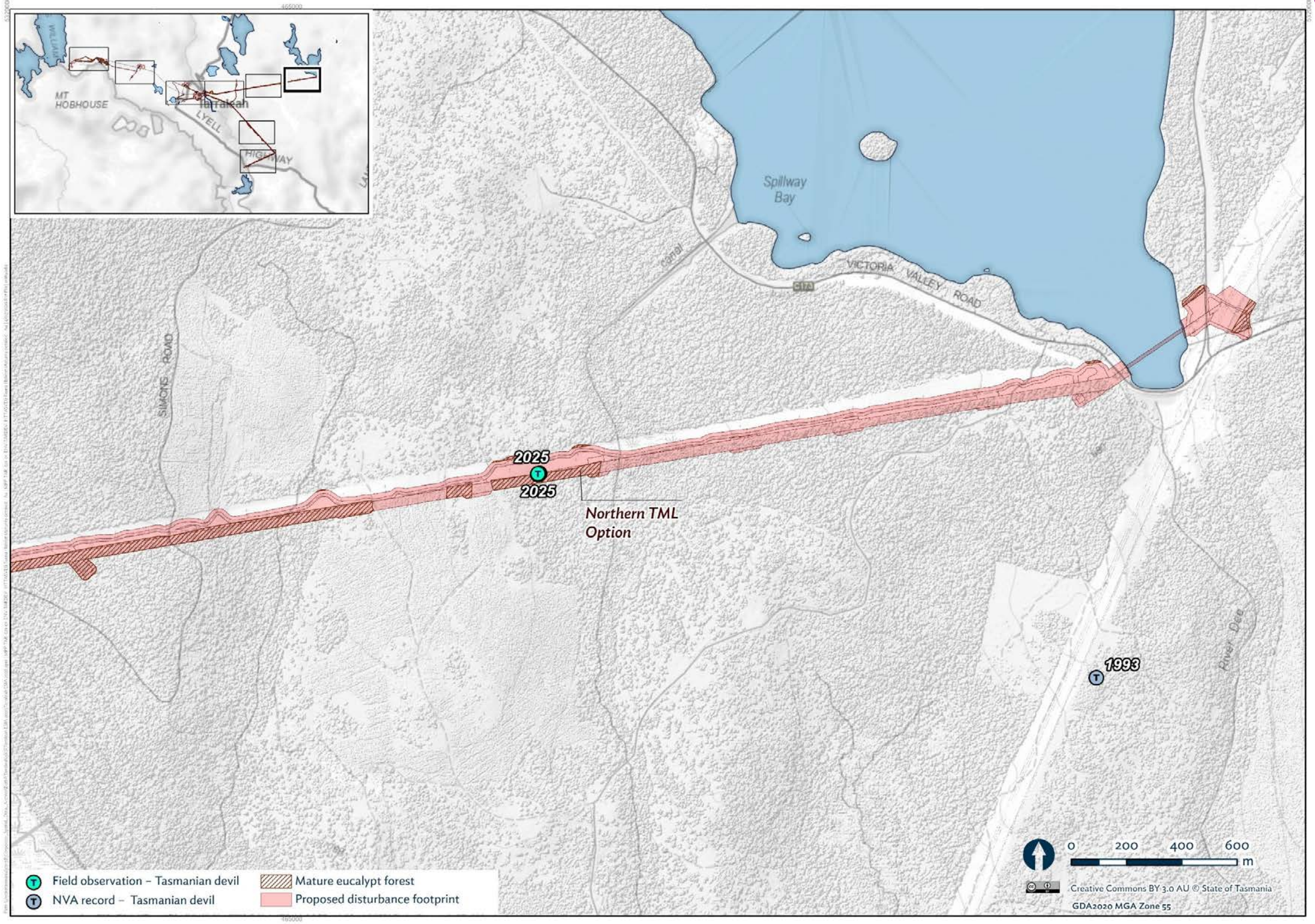


Figure 3.37: Mature forest habitat suitable for Tasmanian devils within the eastern component of the northern transmission line disturbance footprints.

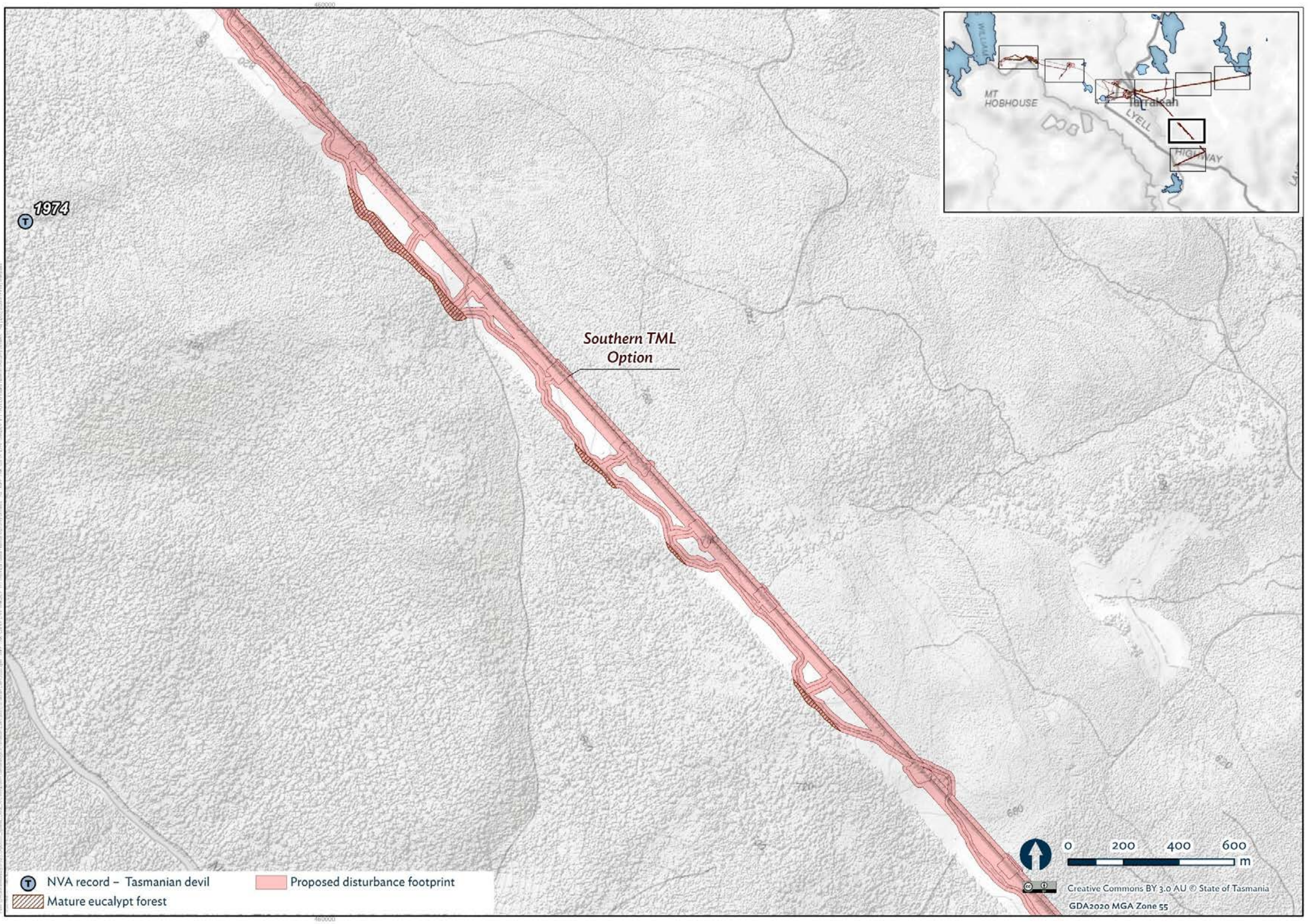


Figure 3.38: Mature forest habitat suitable for Tasmanian devils within the southern transmission line disturbance footprints.

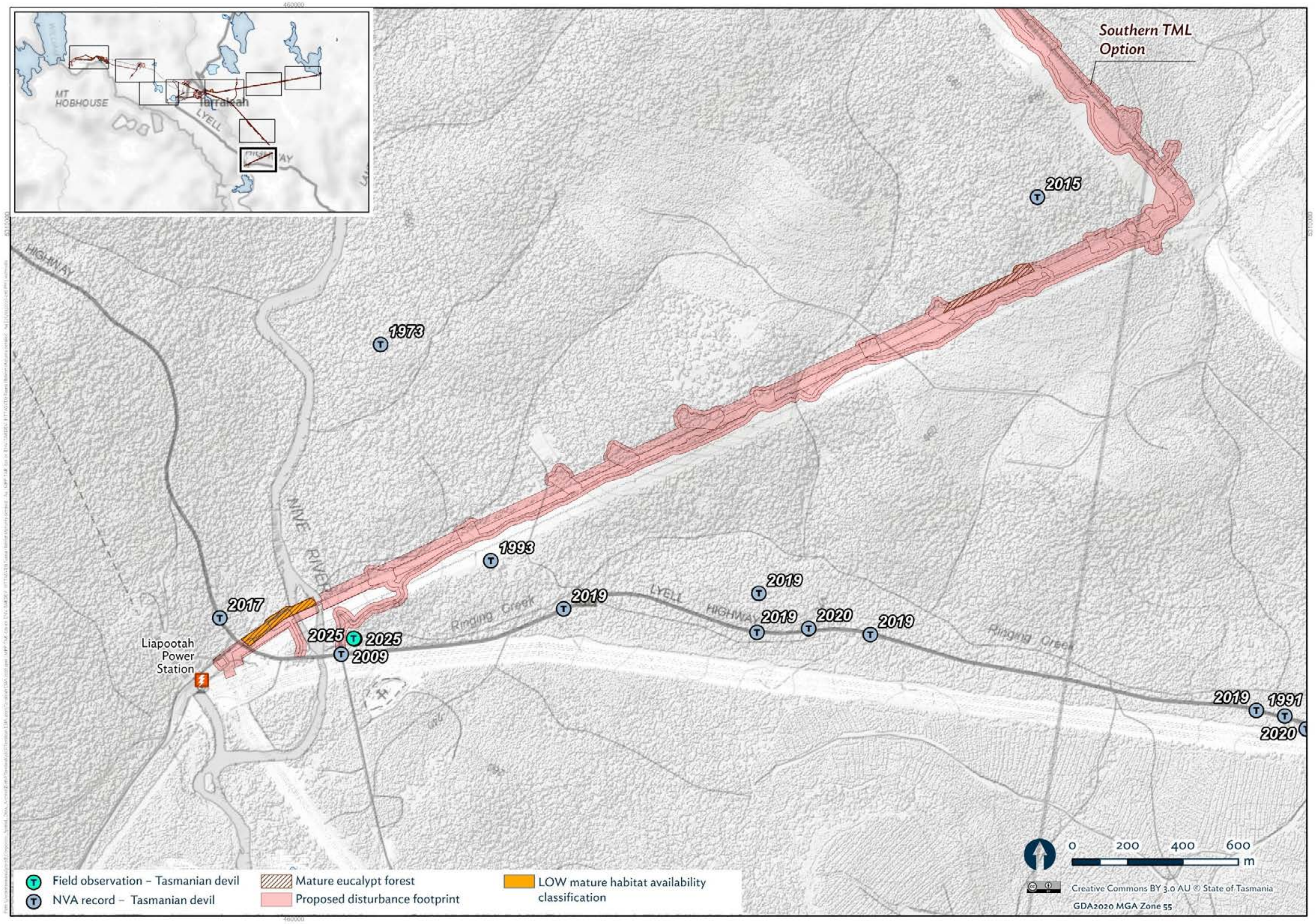


Figure 3.39: Mature forest habitat suitable for Tasmanian devils within the southern component of the southern transmission line disturbance footprints.

As no Tasmanian devil carcasses from the survey area were dissected, and as such it is unknown whether the TSP Act listed rare parasite species *Dasyurotaenia robusta*, a tapeworm that is uniquely hosted by the Tasmanian devil, occurs within the Tasmanian devil population within the survey area.

3.4.2 Spotted-tailed quoll

The spotted-tailed quoll (*Dasyurus maculatus maculatus*) is listed as vulnerable under the EPBC Act and as rare under the TSP Act. The species is widely but sparsely distributed across Tasmania, occurring in rainforest, wet and dry eucalypt forest, eucalypt woodland, coastal scrub and heath, non-eucalypt forest and woodland, highland treeless vegetation, and the fringes of pastoral areas (Threatened Species Section, 2025). However, spotted-tailed quoll abundance appears to be highest in north and northwest of the state Tasmania (Threatened Species Section, 2025). The vegetation types that this species is found in are generally characterised by relatively high and predictable seasonal rainfall, which is consistent with the climatic conditions of the north and northwest Tasmania. Spotted-tailed quoll presence and abundance show strong positive relationships with mid- and understorey cover and old-growth vegetation characteristics (Hamer, 2019).

There are nine records of the spotted-tailed quoll from within 5 km of the disturbance footprint; only three of these records are recent records since 1985.

No spotted-tailed quolls were detected by the camera trap monitoring program at the Tarraleah golf course. During the camera trap monitoring program targeting game trails within the mature dry eucalypt forests within the disturbance footprint, there were 5 spotted-tailed quoll detection events at 3 different camera sites. Two of these detection events were by 2 of the cameras deployed in *Eucalyptus tasmaniensis* dry forest and woodland (DDE) within the northern transmission line option disturbance footprint; 3 were in this forest type within the Tarraleah Village disturbance footprint.

There are **140.0 ha** of forest within the disturbance footprint excluding the transmission line that may be preferentially used for foraging by the spotted-tailed quoll. In addition, there are **63.2 ha** of forest within the northern transmission line option disturbance footprint and **48.8 ha** of forest within the southern transmission line option disturbance footprint. Note, however, that spotted-tailed quolls are likely to continue to forage in the Project-widened transmission line easement given that such anthropogenic linear features can provide preferred movement corridors for quolls within the forest and plantation landscapes (Andersen et al., 2017). Potential dispersal habitat includes all areas of suitable foraging habitat. Note, however, that juvenile spotted-tailed quolls are likely to still disperse in the widened transmission line easement (Andersen et al., 2017).

Potentially suitable spotted-tailed quoll breeding habitat is comprised of mature forests and woodlands containing denning features which includes sheltered overhangs, rocky outcrops, piles of woody debris, tree hollows, hollow logs, and wombat burrows (Threatened Species Section, 2025). Generally, wet eucalypt forests have the highest density of rotting logs suitable for den sites (Environment Strategic Business Unit, 2023). Preferred spotted-tailed quoll denning habitat within the disturbance footprint is likely the areas of mature forest (Threatened Species Section, 2025). Regrowth forest (i.e. forest harvested for timber in recent decades) is unlikely to be used for denning because of the absence of suitable den sites like large hollow logs, and the absence of a well-developed mid- and understorey; as noted above, spotted-tailed quolls avoid plantations (Hamer, 2019; Jones et al., 2021). There are up to approximately **61.2 ha** of mature eucalypt forest (both wet and dry forest) within the main disturbance footprint west of the Nive River (Figure 3.40, Figure 3.41, Figure 3.42, Figure 3.43, Figure 3.44, Figure 3.45, Figure 3.46, Figure 3.47). No existing den sites or potentially suitable denning features other than wombat burrows were found. There is no rainforest within the disturbance footprint.

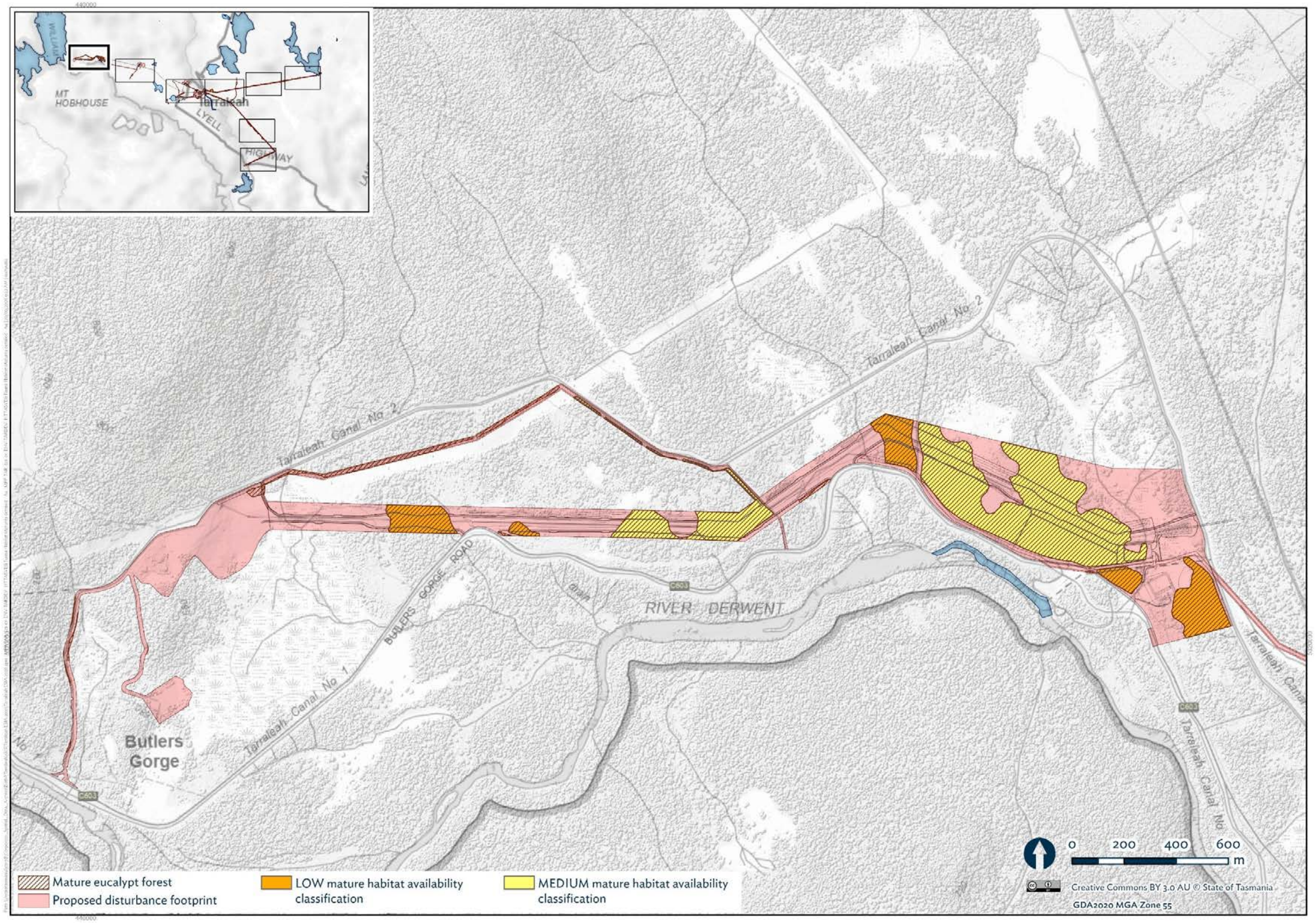


Figure 3.40: Mature forest habitat suitable for spotted-tailed quolls within the western portal and pipeline disturbance footprints, despite no Entura or NVA records of the species.

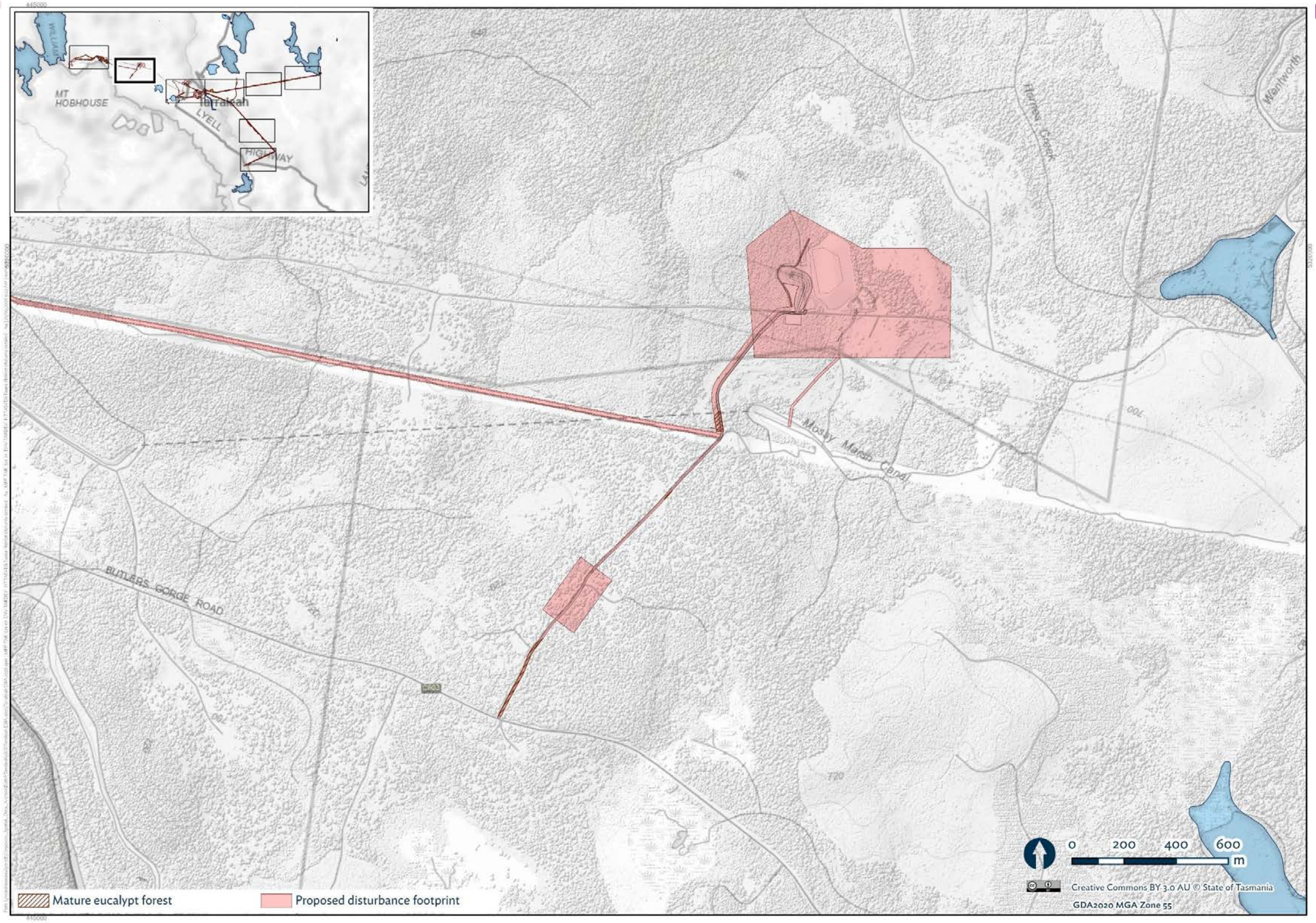


Figure 3.41: Mature forest habitat suitable for spotted-tailed quolls within the mid-access portal and explosive magazine's disturbance footprints

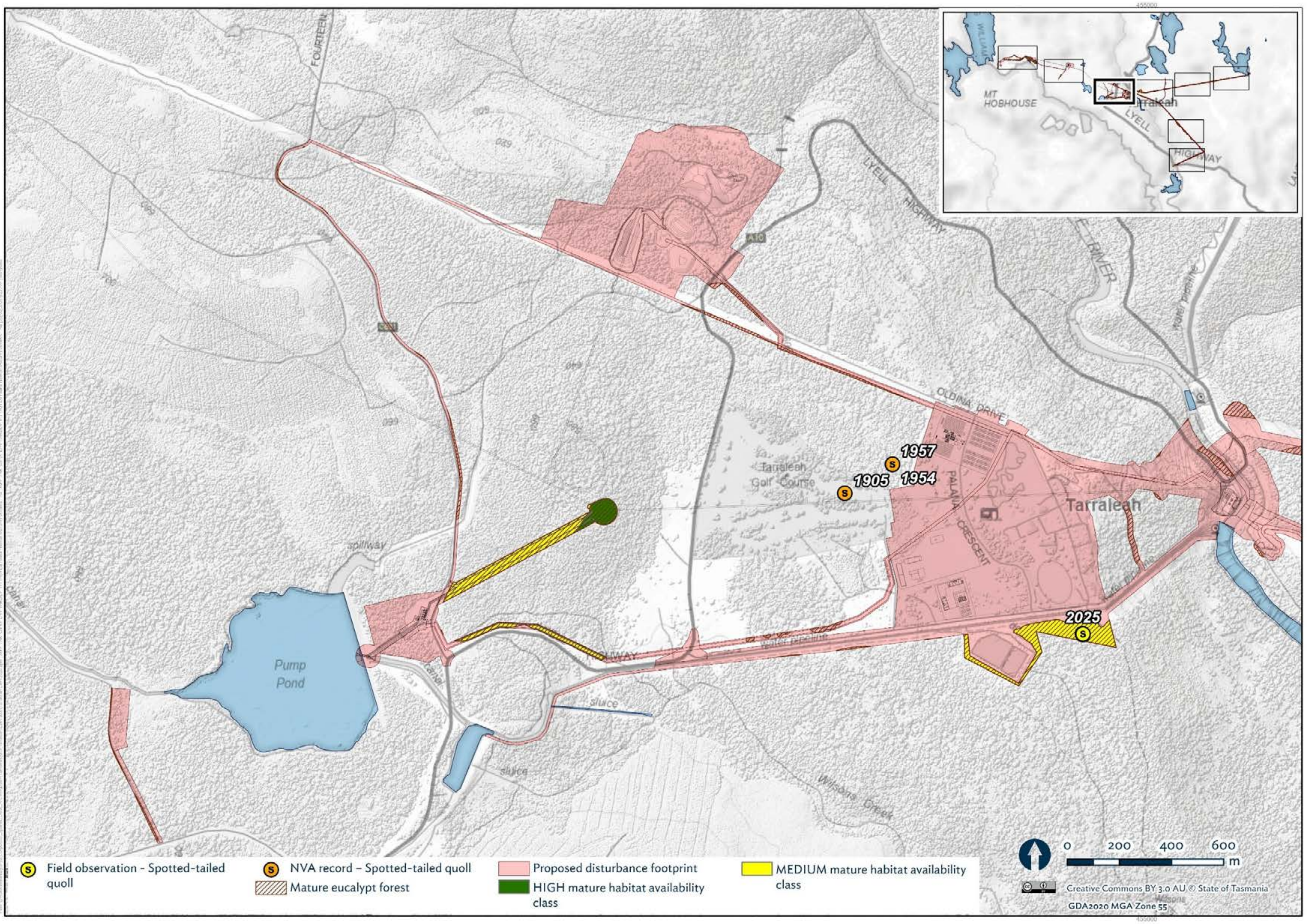


Figure 3.42: Mature forest habitat suitable for spotted-tailed quolls within Tarraleah village and surge tower disturbance footprints.

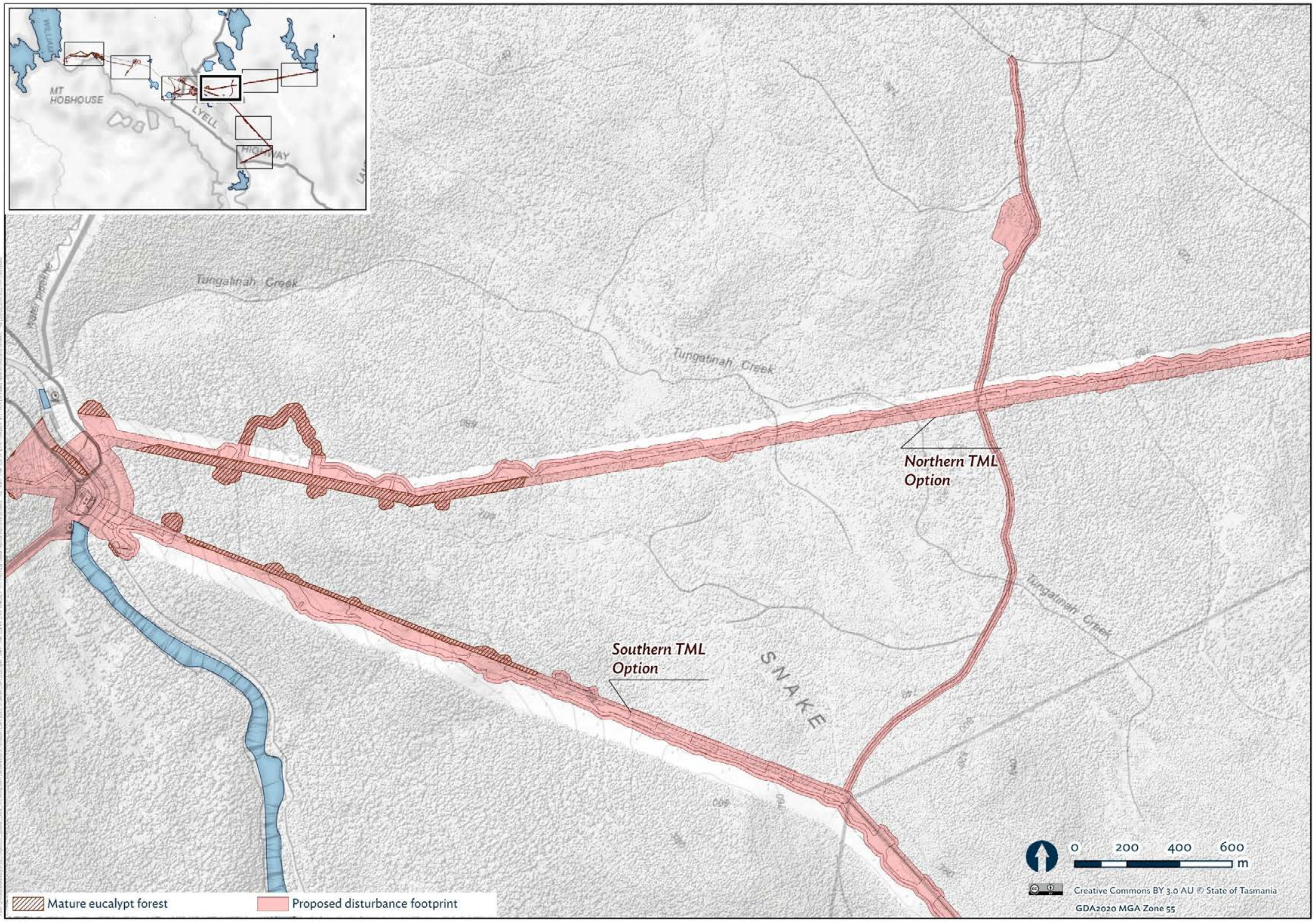


Figure 3.43: Mature forest habitat suitable for spotted-tailed quolls within the western component of the transmission line disturbance footprints.

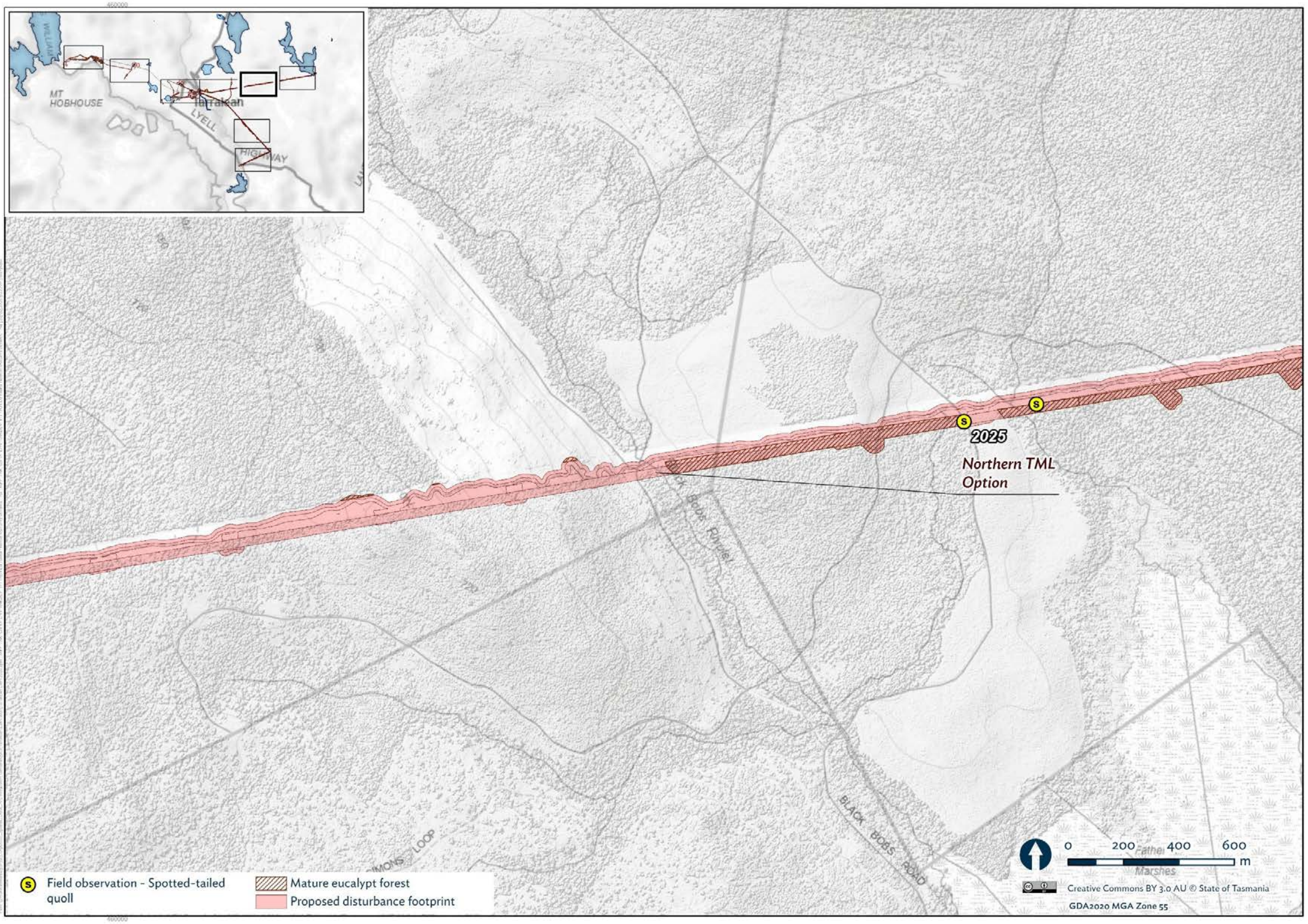


Figure 3.44: Mature forest habitat suitable for spotted-tailed quolls within the northern transmission line disturbance footprint.

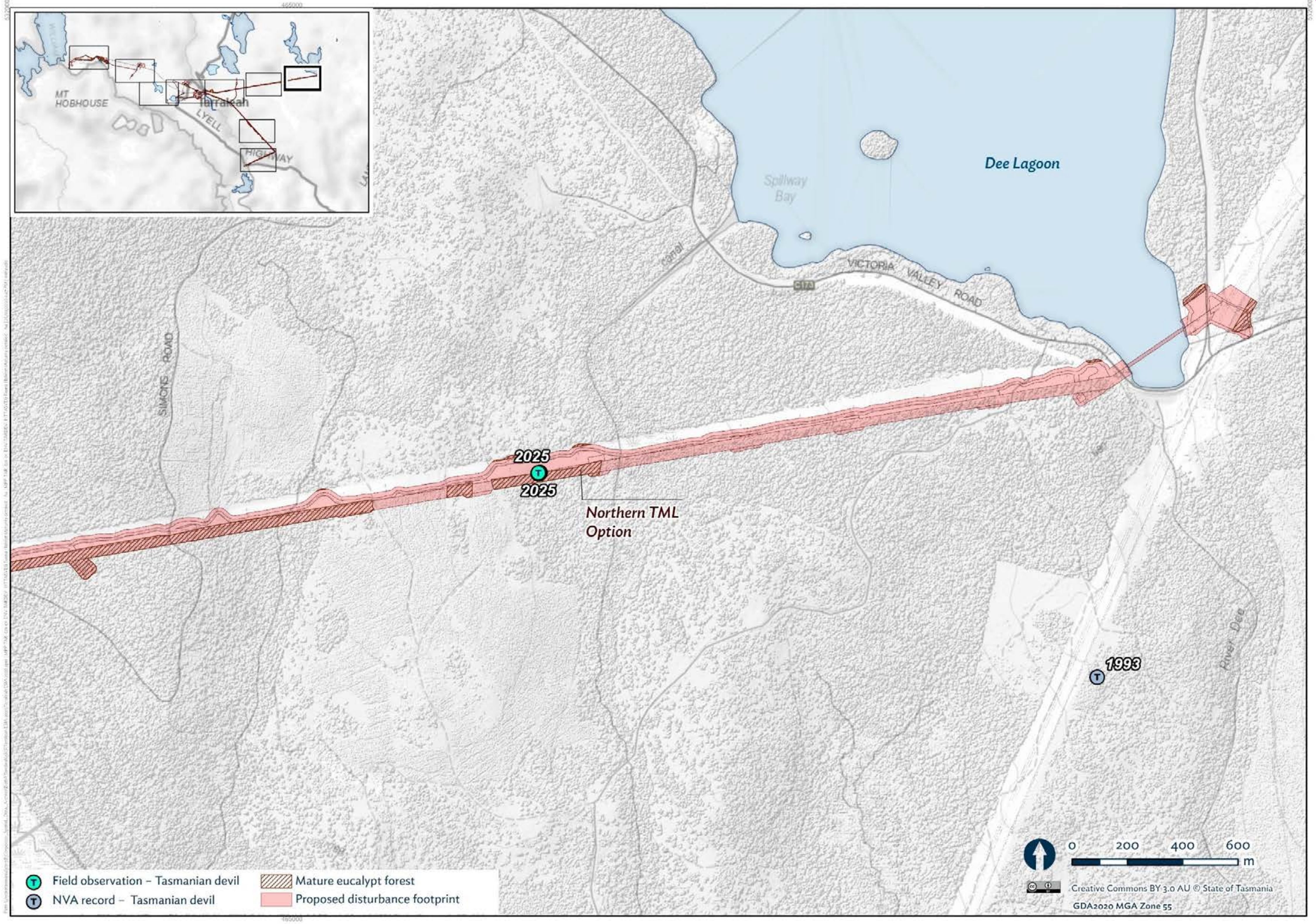


Figure 3.45: Mature forest habitat suitable for spotted-tailed quolls within the eastern component of the northern transmission line disturbance footprint.

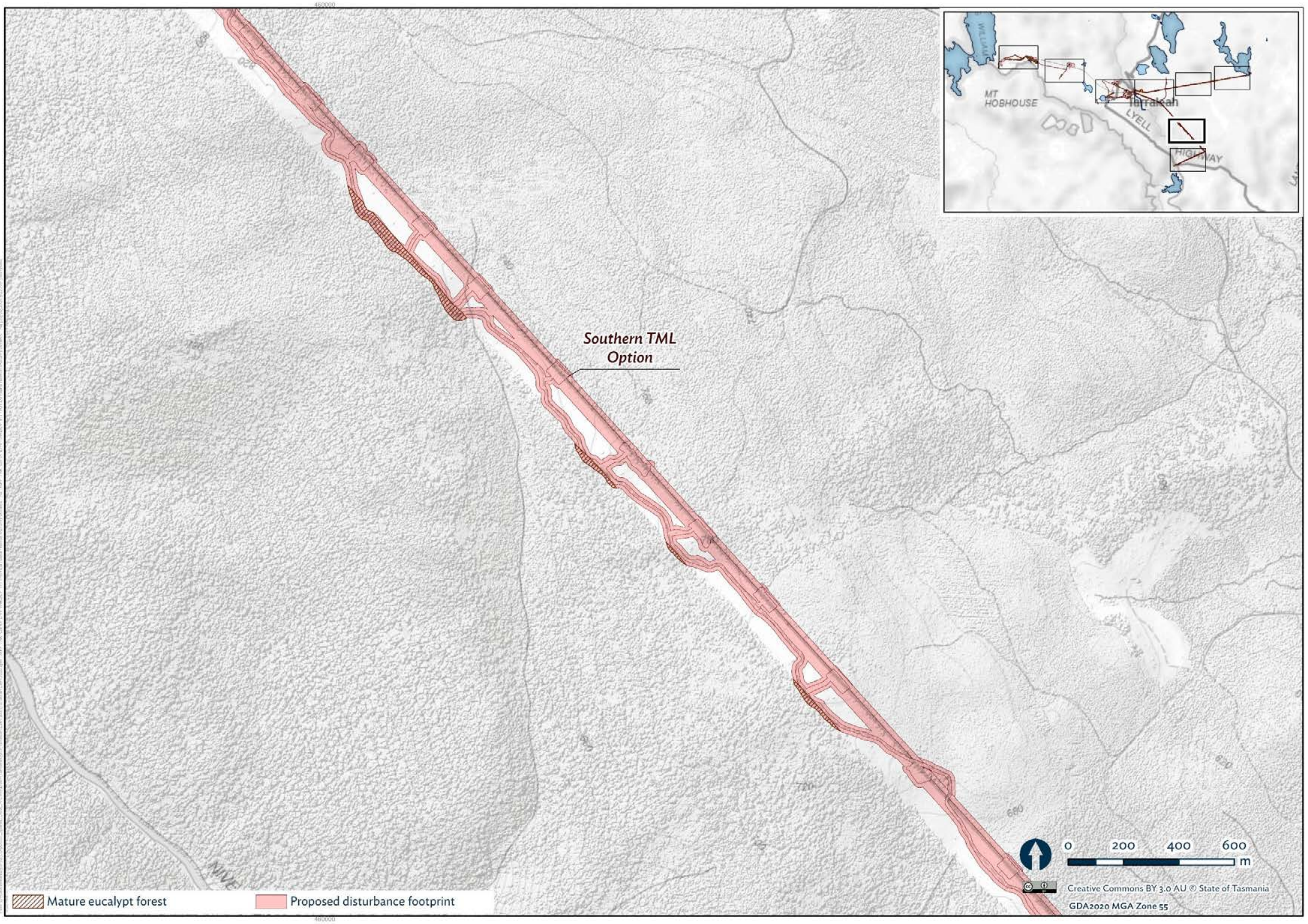


Figure 3.46: Mature forest habitat suitable for spotted-tailed quolls within the southern transmission line disturbance footprint.

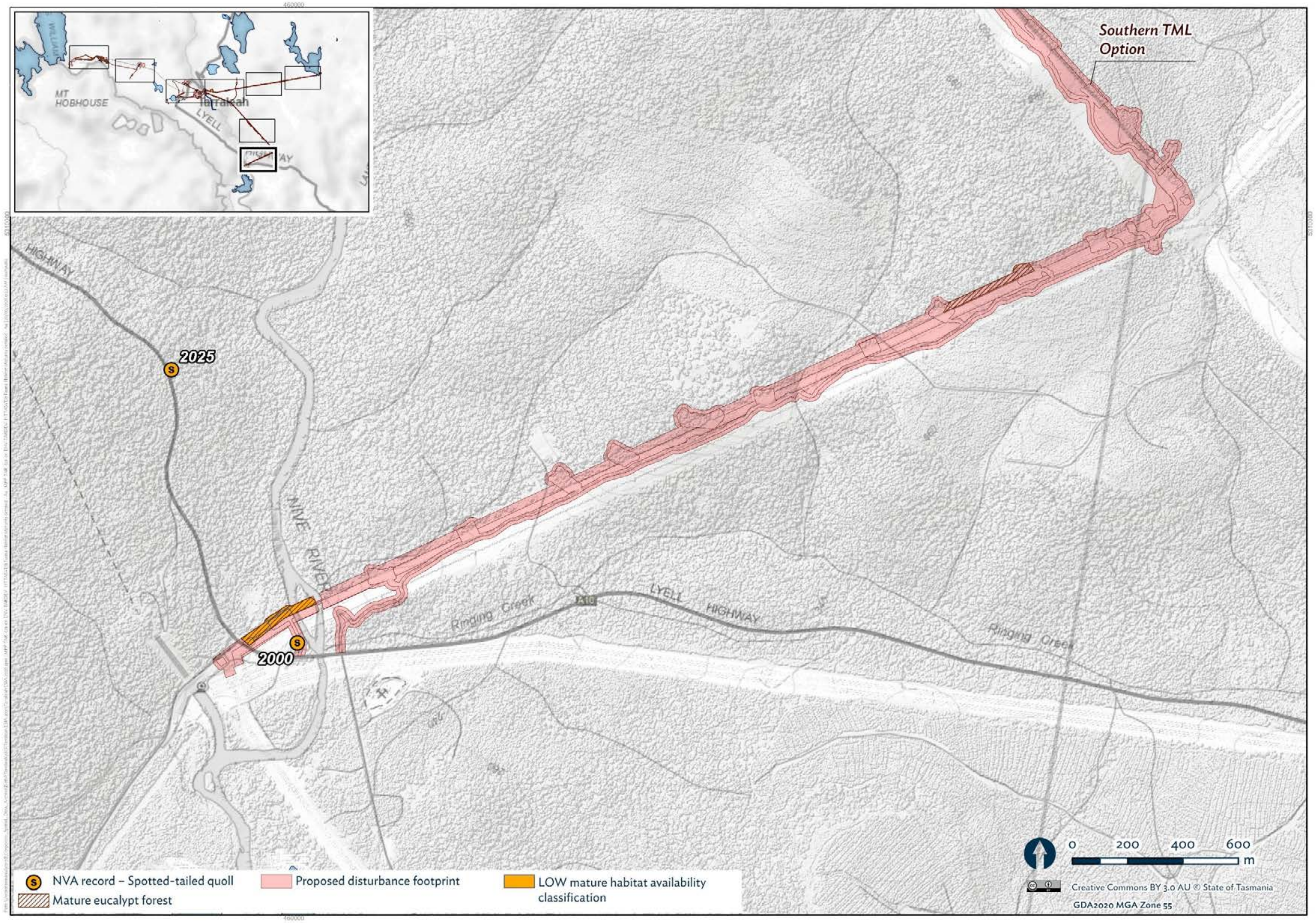


Figure 3.47: Mature forest habitat suitable for spotted-tailed quolls within the southern component of the southern transmission line disturbance footprint.

3.4.3 Eastern quoll

The eastern quoll (*Dasyurus viverrinus*) is listed as endangered under the EPBC Act and is not listed under the Tasmanian TSP Act. The eastern quoll is widespread in Tasmania, where its distribution is associated with areas of low rainfall and cold winter minimum temperatures (Fancourt, 2015); the species occurs at lesser densities in the wetter western third of the State (Threatened Species Scientific Committee, 2015). The area of occupancy in Tasmania of the eastern quoll is estimated to be 2,556 km^2 (Fancourt, 2016). The eastern quoll prefers drier, more open habitats, including grassland and dry forest mosaics which are bounded by agricultural land. Analysis of a combination of annual spotlighting, targeted trapping and a range of non-targeted trapping survey data has suggested the eastern quoll population in Tasmania has undergone a dramatic decline, with the annual spotlight observations of eastern quolls having decreased by 52% between 1999 and 2009 (Fancourt et al., 2013).

The eastern quoll population in Tasmania is considered to be a single population; however, it has been shown that there is greater genetic variation in central Tasmania than in peripheral populations (Cardoso et al., 2014). The eastern quoll is associated with habitats including grassland and dry forest mosaics which are bounded by agricultural land. They shelter in dens made under rocks, in underground burrows (e.g. old wombat burrows) or fallen logs.

The most recent database searches, including of the PMST, were undertaken in February 2025. There are 20 eastern quoll records on the NVA within 5 km of the disturbance footprint with 14 of the records all being pre-1996. Many of the records are to the north of Tarraleah around Lake Binney and Bradys Lake where there are open grasslands (Figure 3.48). The most recent record was from January 2025, which was a carcass observation on Butlers Gorge Road, identified in the Hydro Tasmania roadkill dataset (refer Section 2.2).

No direct or indirect evidence of the eastern quoll was identified within the disturbance footprint during the field surveys (e.g. scats), nor were any images of eastern quolls captured at the golf course camera trap monitoring site over 1,163 camera trap days and nights or during the mature dry forest camera trap survey over 1,318 camera trapping nights. The project transmission line options are all located in production forest landscapes which are predominantly wet forests which is not suitable habitat for the eastern quoll. There is no preferred habitat in the form of tussock grassland, grassy woodland or open dry forest within the survey area. However, there is shrubby dry forest within the disturbance footprint which may constitute sub-optimal habitat for the eastern quoll due to the dense shrubby understorey; eastern quolls prefer grassland and grassy woodland habitats (Jones & Barmuta, 2000). No quoll dens were recorded during the surveys.

The eastern quoll is considered unlikely to be resident within the survey area but may occur on occasions, particularly moving along anthropogenic linear features such as roads and easements (Andersen et al., 2017) particularly at the Liapootah end of the southern transmission line option where there are open grasslands in the vicinity of the Wayatinah Village.

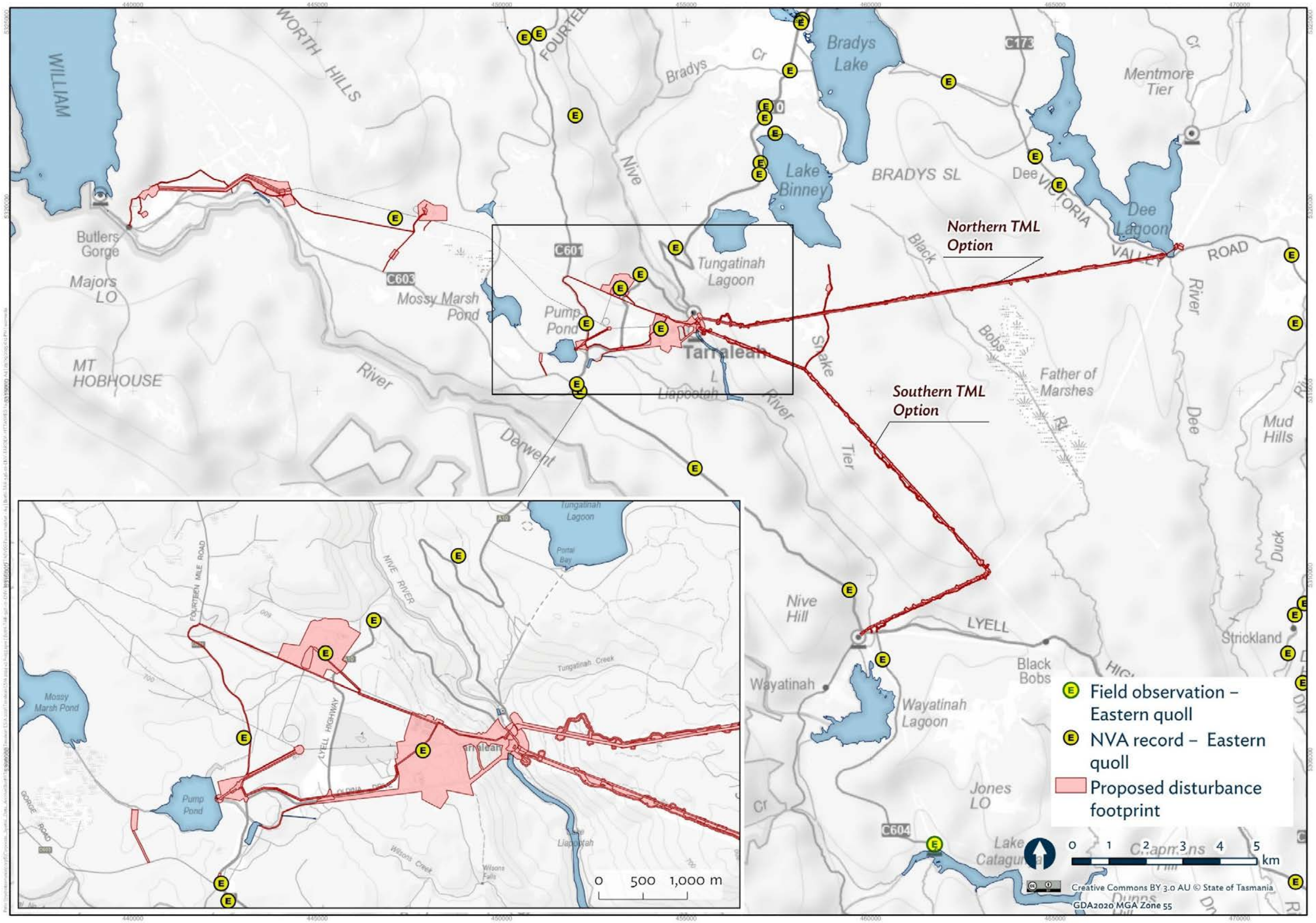


Figure 3.48: Eastern quoll records near the Project area

3.4.4 Eastern barred bandicoot

The Tasmanian and mainland populations of the eastern barred bandicoot are recognised as distinct subspecies. The mainland population is a formally unnamed subspecies (*Perameles gunnii*), and it is currently listed as Endangered under the EPBC Act; this mainland population is considered extinct in the wild, with surviving populations existing only through reintroduction and captive breeding programs. *Perameles gunnii gunnii* is a subspecies of *P. gunnii* which is found only in Tasmania and is listed as Vulnerable under the EPBC Act (DEWHA, 2008).

The Tasmanian population of the eastern barred bandicoot (*Perameles gunnii gunnii*) was identified as potentially occurring within the survey area for the Tarraleah Redevelopment project from the PMST search. Additionally, there were 14 NVA records of the species within 5 km of the survey area. The most recent record on the NVA was from May 2007. The eastern barred bandicoot occurs in open habitats including native and exotic grasslands, woodlands and open forests with a grassy understorey (DEWHA, 2008). It is thought that clearing for agriculture in south-eastern, north-eastern and north-western Tasmania has converted previously unsuitable, heavily forested habitat to a mosaic of pasture and remnant bush that appears to provide ideal habitat for the eastern barred bandicoot (Driessen et. al., 1996). This has resulted in colonisation of areas that were previously not inhabited by the species and a shift in the species in the distribution since European settlement (Mallick, 1997). The original range of eastern barred bandicoot in Tasmania is thought encompass the native grasslands and grassy woodlands of the Midlands (Mallick, 1997). The species is now absent from much of the original range in the Midlands which is thought to be primarily due to the removal of greater than 80% of the original native vegetation through clearing for agriculture and stock-grazing (Mallick, 1997).

Ideal habitat for the eastern barred bandicoot is high-quality agricultural land with deep soils and high rainfall where there are open grassy areas for foraging and ground cover (e.g. shrubs, grass tussocks and sedges) for refugia (Driessen et al., 1996). The only potentially suitable habitat at Tarraleah, in the form of open grassland interspersed with patches of native vegetation is at the Tarraleah Golf Course (Figure 3.49), which is not included in the disturbance footprint. However, the distribution line easement along Oldina Drive crosses the southeastern corner of the suitable habitat associated with the Tarraleah Golf Course. Breeding habitat constitutes shrubland and woodland adjacent to open grassland or pasture. The golf course itself is suitable foraging habitat.

A targeted camera trap monitoring program, specifically for the detection of eastern barred bandicoots, was undertaken within the Tarraleah Golf Course between 8 December 2023 and 9 May 2024 (Figure 3.51). Camera trap 6 was stolen after 17 January 2024; all other cameras captured images throughout the day and night during the entire monitoring campaign period. A total of 1,163 camera trap days and nights were captured. One image of a single eastern barred bandicoot was captured by camera trap 7 on 20 February 2024 (Figure 3.52). Therefore, this species is known to occur in the golf course; it may occasionally forage over the proposed distribution line alignment within the existing easement at the edge of the golf course and Oldina Drive.

There is no other potential suitable habitat for the eastern barred bandicoot within the disturbance footprint as it is comprised of wet and dry forests and there are no open grasslands or grassy woodlands present. Note that the *Eucalyptus rodwayi* forest mapped within the disturbance footprint is the sedgy facies with a dense understorey of the *Leptospermum lanigerum* (woolly tea-tree) and a ground layer dominated by low sedges including *Empodisma minu*s (spreading roperush) and *Schoenus* species (bogsedge), (Figure 3.50). This forest type is not suitable habitat for the eastern barred bandicoot because it is wet with no foraging or shelter habitat. Note that no images of eastern barred bandicoots were captured during the mature dry forest camera trap survey over 1,318 camera trapping nights.

The camera trapping programs also resulted in three separate cat (*Felis catus*) detections on the golf course (Figure 3.52) and an additional 14 separate cat detections in the mature dry forest areas in the disturbance footprint.

Figure 3.49: Camera trap view of Tarraleah Golf course

Figure 3.50: *Eucalyptus rodwayi* forest within the development footprint

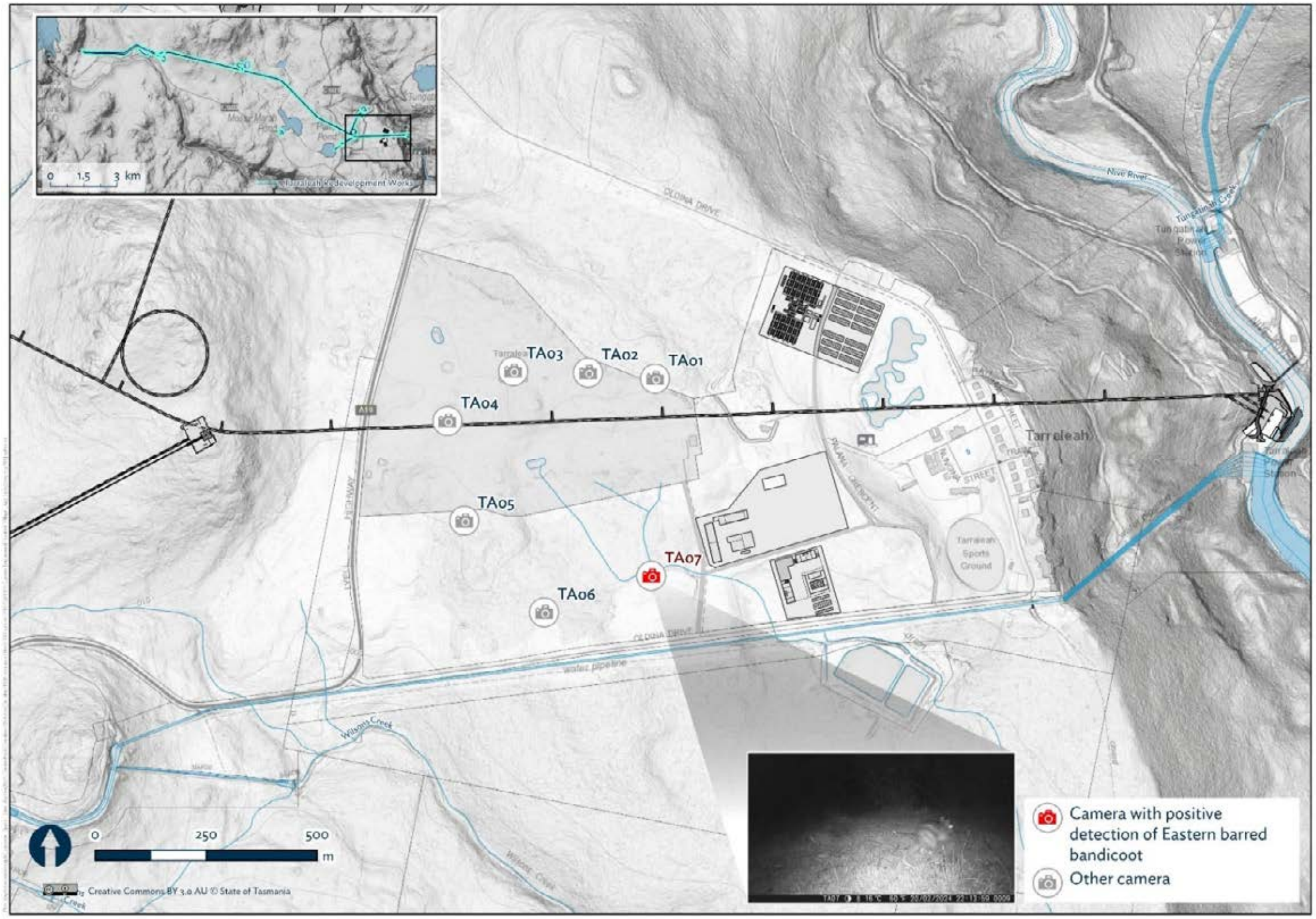


Figure 3.51: Map of camera trap deployments at Tarraleah Golf Course as part of targeted eastern barred bandicoot survey

Figure 3.52: Image of an eastern barred bandicoot captured at the Tarraleah Golf Course on 20 February 2024

Figure 3.53: Image of a cat captured at the Tarraleah Golf Course on 12 March 2024

3.4.5 Tasmanian wedge-tailed eagle and white-bellied sea-eagle

The Tasmanian wedge-tailed eagle (*Aquila audax fleayi*) is listed as endangered under both the TSP and EPBC Act, and the white-bellied sea-eagle (*Haliaeetus leucogaster*) is listed as vulnerable under the TSP Act. Note that the white-bellied sea-eagle is listed as a Marine species under the EPBC Act. The listing of species as Marine under the EPBC Act applies to those species where they occur in a Commonwealth marine area that is not in State waters (Department of Sustainability, Environment, Water Populations and Communities, 2013; DAWE, 2022). The Tarraleah Redevelopment survey area does not intersect a Commonwealth marine area, therefore the listing of the white-bellied sea-eagle as a Marine species under the EPBC Act is not relevant; thus, the white-bellied sea-eagle is not included in the assessment of MNES. Both eagle species are known to occur within the survey area (Appendix D.3).

The Tasmanian subspecies of wedge-tailed eagle occurs throughout Tasmania, foraging across a broad range of habitats, from coastal dunes to mountain peaks. The estimated densities of Tasmanian wedge-tailed eagle territories range from a maximum of one pair per 20-30 km^2 in the lowland landscapes of eastern and northern Tasmania, to a minimum of one pair per 1200 km^2 in the highland landscapes of western and south-western Tasmania (Bell & Mooney, 2002).

In Tasmania, the white-bellied sea-eagle is associated with coastal areas and large inland waterbodies. Nesting habitat is forest with old-growth eucalypts within 5 km of the coast (nearest coast including shores, bays, inlets and peninsulas), rivers, lakes or farm dams (Threatened Species Section, 2006). This eagle species may use what were previously wedge-tailed eagle nests (Threatened Species Section, 2006) and could use the known eagle nests within 1 km of the transmission alignment in the future.

Tasmanian wedge-tailed eagles have been sighted flying overhead during field surveys within the disturbance footprint and are therefore known to occur. There 14 observation records on the NVA within 5 km, but no known nests within 1 km of the main conveyance infrastructure disturbance footprint west of the Nive River. Four known nests occur within 1 km of the two transmission line option alignments.

Both eagle species are sensitive to disturbance during the breeding season, which can start at the beginning of July and extend through to the end of January and sometimes to February in late breeding season years (Forest Practices Authority, 2023). Construction activities within 500 m of an active nest, or within 1 km line-of-sight of an active nest, have the potential to disturb a breeding pair and potentially cause nest abandonment (Forest Practices Authority, 2023). Therefore, nesting habitat has been the focus of the habitat assessment for the eagle species.

Wedge-tailed eagle nesting habitat is generally concentrated in forests of predominantly mature eucalypts on sheltered aspects or locations (Threatened Species Section, 2006), although nesting can occur in areas without these preferred characteristics where sufficient prey is readily available. Similarly, the white-bellied sea-eagle nests in mature eucalypts on sheltered aspects. Eagle nesting habitat has been identified in the Tasmanian Eagles Recovery Plan (Threatened Species Section, 2006) as important to the survival of the species. There are no known eagle nests within the disturbance footprint itself.

The known eagle nests located within 2 km of the main project disturbance footprint and the two transmission line options are shown in Figure 3.54. These nests may be used by either the Tasmanian wedge-tailed eagle or by the white-bellied sea-eagle during a given breeding season. Potential impacts and management recommendations are considered the same regardless of which eagle species most currently used a given nest.

Raptor nest searches of the main project footprint and the northern transmission line option were conducted by helicopter in April 2023, June 2024 and 21 May 2025; these searches confirmed the presence of four nests (#2298, #3176, #1700, and a new nest #3577 discovered on 21 May 2025 which was assigned FID 3577) within 1 km of the northern transmission line option. The southern transmission line option, which may be selected instead of the northern option depending upon engineering decisions, was added to the survey area in November 2024; aerial raptor nest searching of the 2 km surrounding this alignment option was undertaken on 13 May 2025. One known eagle nest (#738) was verified within 500 m of the southern transmission line option alignment.

There are additional wedge-tailed eagle nests located between 1 and 2 km of the project footprint that are recorded on the NVA, which were confirmed as present during the aerial raptor nest searches: nests #1013, #1082, #1908, #1411, #1568, #2831, #2905, #3071, #3453, #3454 and #3461.

These nests further than 1 km from the disturbance footprint are unlikely to be impacted by the proposed action and are therefore not described in detail in this assessment. However, it is recommended that these nests be checked annually during aerial eagle nest searching; photographs and condition descriptions are to be provided to NRE Tas as soon as practicable after each search effort.

Eagle nest #483, first recorded in 1985, at a location approximately 850 m south of the southern option for the transmission alignment, was formally deemed absent by the Tasmanian NVA database in 2000. Eagle nest #484, which was also first recorded in 1985, at a location approximately 660 m south of the northern option for the transmission alignment, was also formally deemed absent by the Tasmanian NVA database in 2000 and was not found during Entura's aerial raptor nest searches for the Project.

Nest #585, which was last recorded in 2013 more than 1 km from the southern transmission line option, could not be found despite concentrated search effort on 13 May 2025.

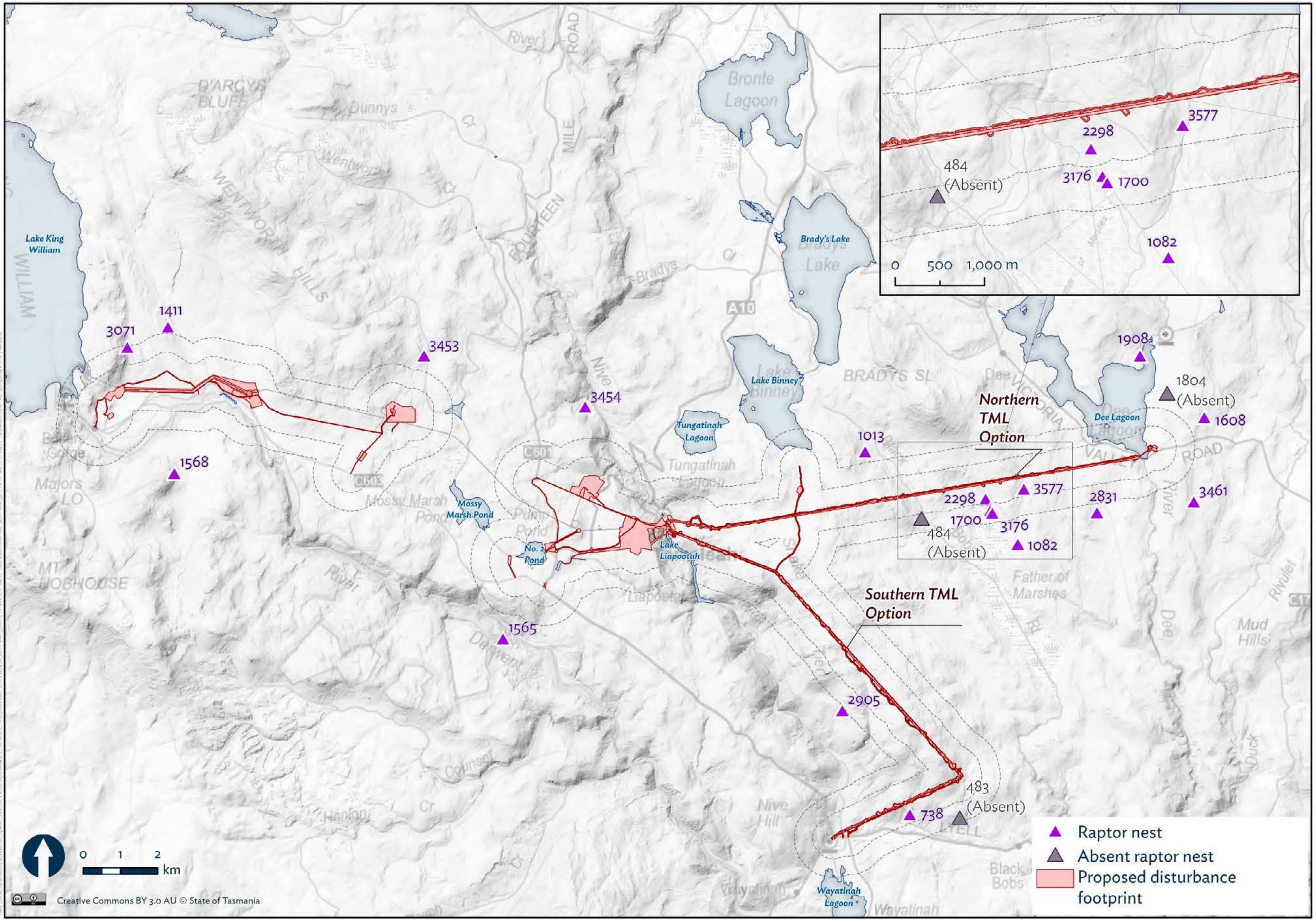


Figure 3.54: Map of locations of eagle nests recorded near the Tarraleah Redevelopment Project area

3.4.5.1 Eagle nest 2298 near northern transmission option

Eagle nest #2298 is located 280 m south of the northern transmission line option. This small nest is located about 25 m up a 35 m tall *E. tasmaniensis* tree and does not appear to be maintained (Figure 3.55). This nest may be impacted by vegetation clearing for easement widening, and/or by construction of the 220 kV transmission infrastructure because it is within 500 m of the proposed alignment.

Figure 3.55: Eagle nest #2298 as photographed in 2023 (upper) and 2024 (lower)

3.4.5.2 Eagle nest 3176 near northern transmission option

Nest #3176 is located 688 m south of the existing easement that will be widened to accommodate the 220 kV transmission line, if the northern option is selected. This nest is positioned in a fork at a height of approximately 20 m in a 40 m tall E. dalrympleana tree *E. dalrympleana* tree (Figure 3.56). This nest is not within line-of-sight of the easement due to the extant vegetation screening it from view (Figure 3.57, Figure 3.58) and therefore is unlikely to be disturbed by proposed action.

Figure 3.56: Eagle nest #3176 as photographed in 2023 (upper) and 2024 (lower)

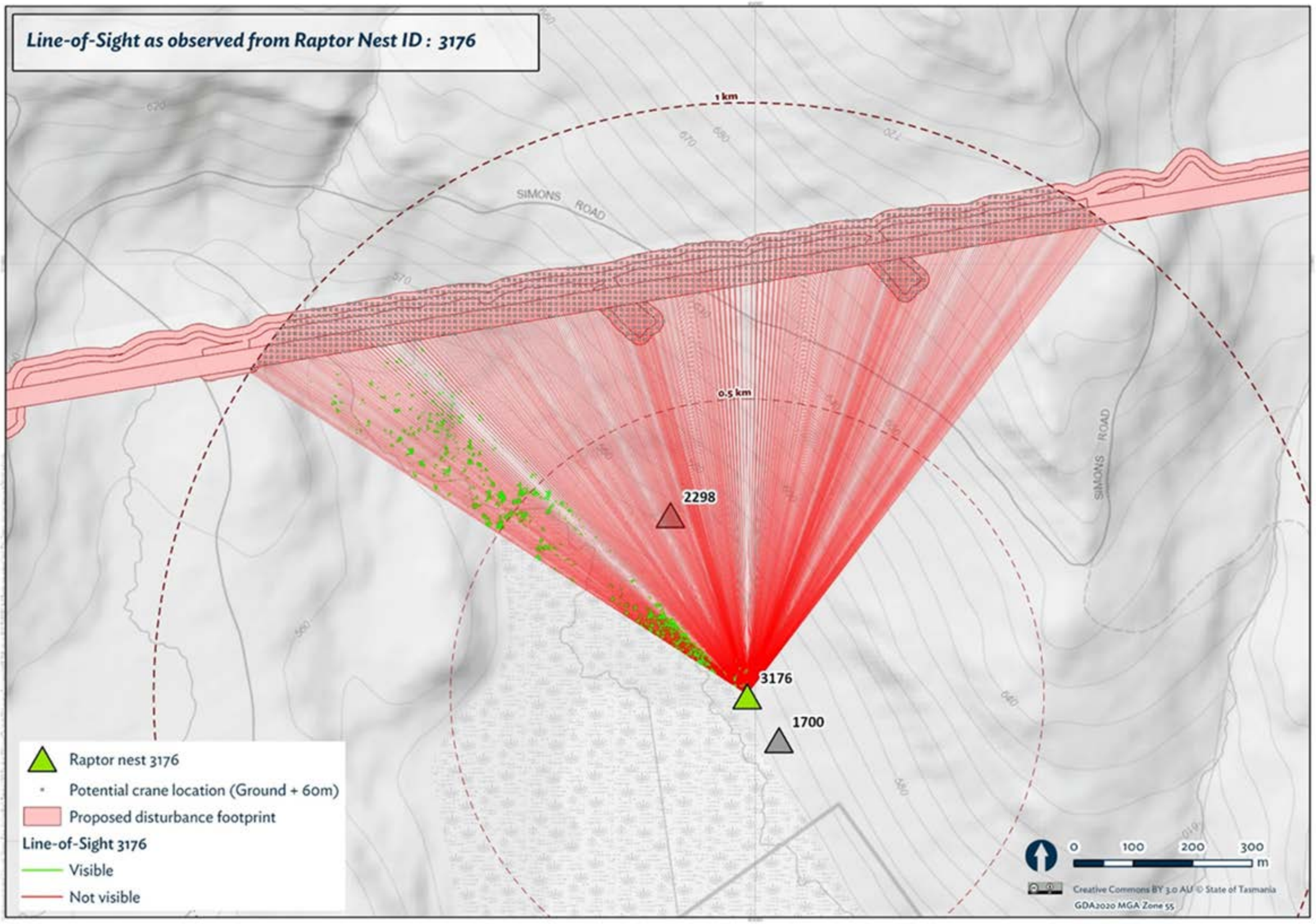


Figure 3.57: Line-of-sight analysis for nest #3176 with extant vegetation

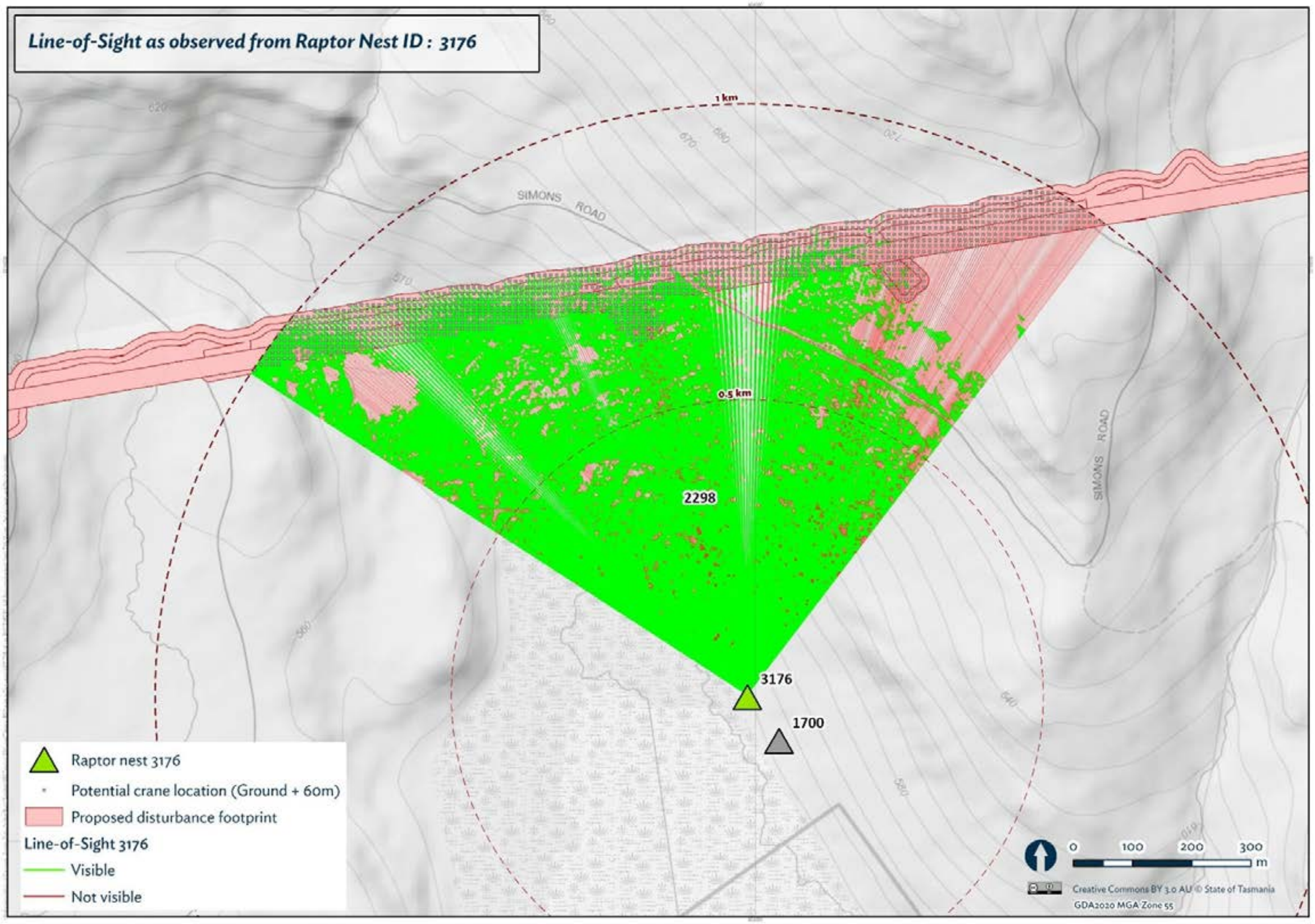


Figure 3.58: Line-of-sight analysis for nest #3176 based on bare-ground topography only (i.e. excluding extant vegetation)

3.4.5.3 Eagle nest 1700 near northern transmission option

Eagle nest 1700 is located 771 m south of the existing easement on the northern alignment option that will be widened to accommodate the 220 kV transmission line if the is selected. Then nest is in a large fork approximately 17 m above the ground in a 25 m tall *E. tasmaniensis* tree. It is a round nest with a nest bowl in centre with brown sticks and a few brown leaves (Figure 3.46). This nest is unlikely to be within line-of-sight of the easement due to the extant vegetation screening it from view (Figure 3.47, Figure 3.48). Therefore, nest #1700 is unlikely to be disturbed by the works.

Figure 3.59: Eagle nest #1700 as photographed in 2023 (upper) and 2024 (lower)

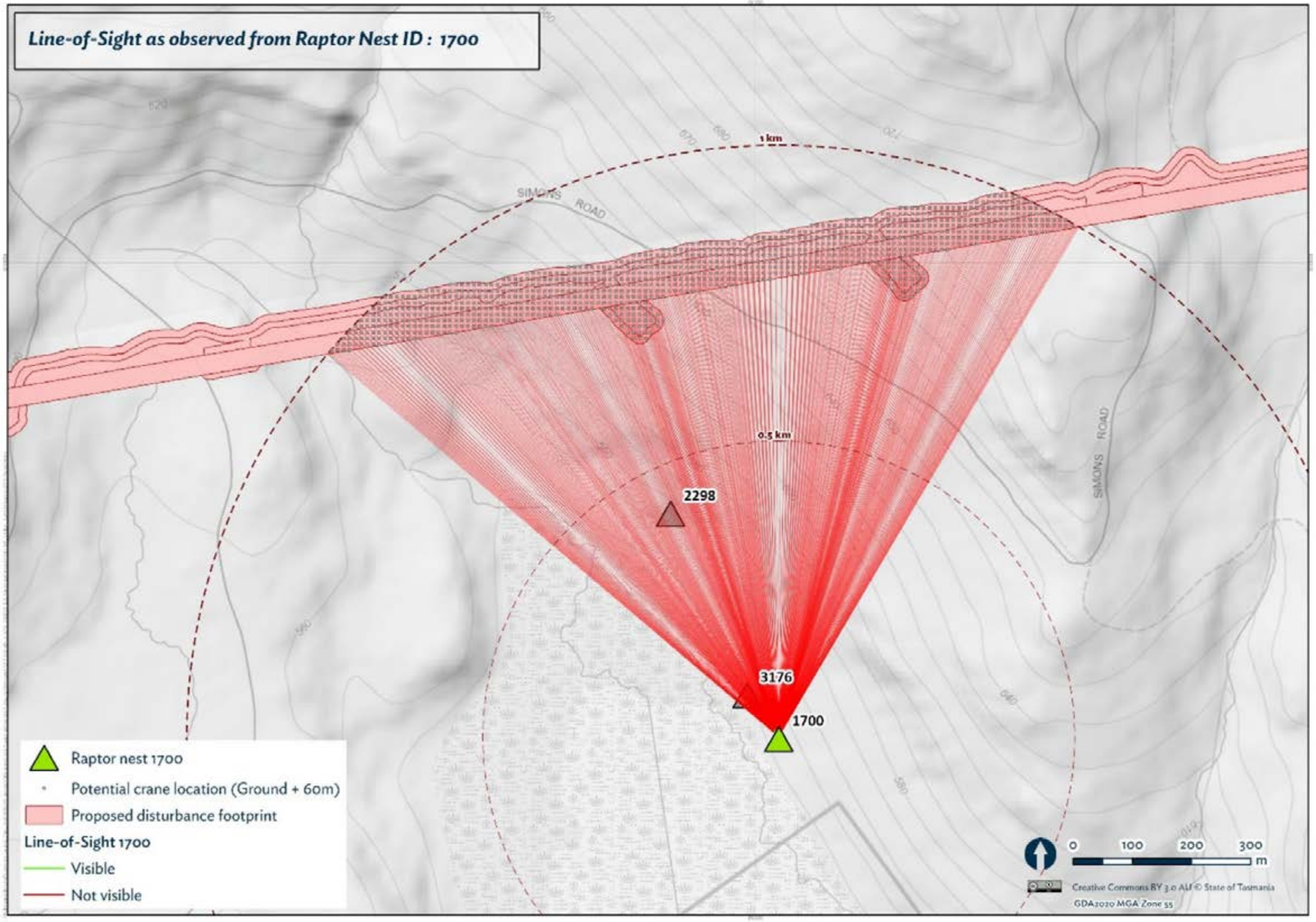


Figure 3.60: Line-of-sight analysis for nest #1700 with extant vegetation

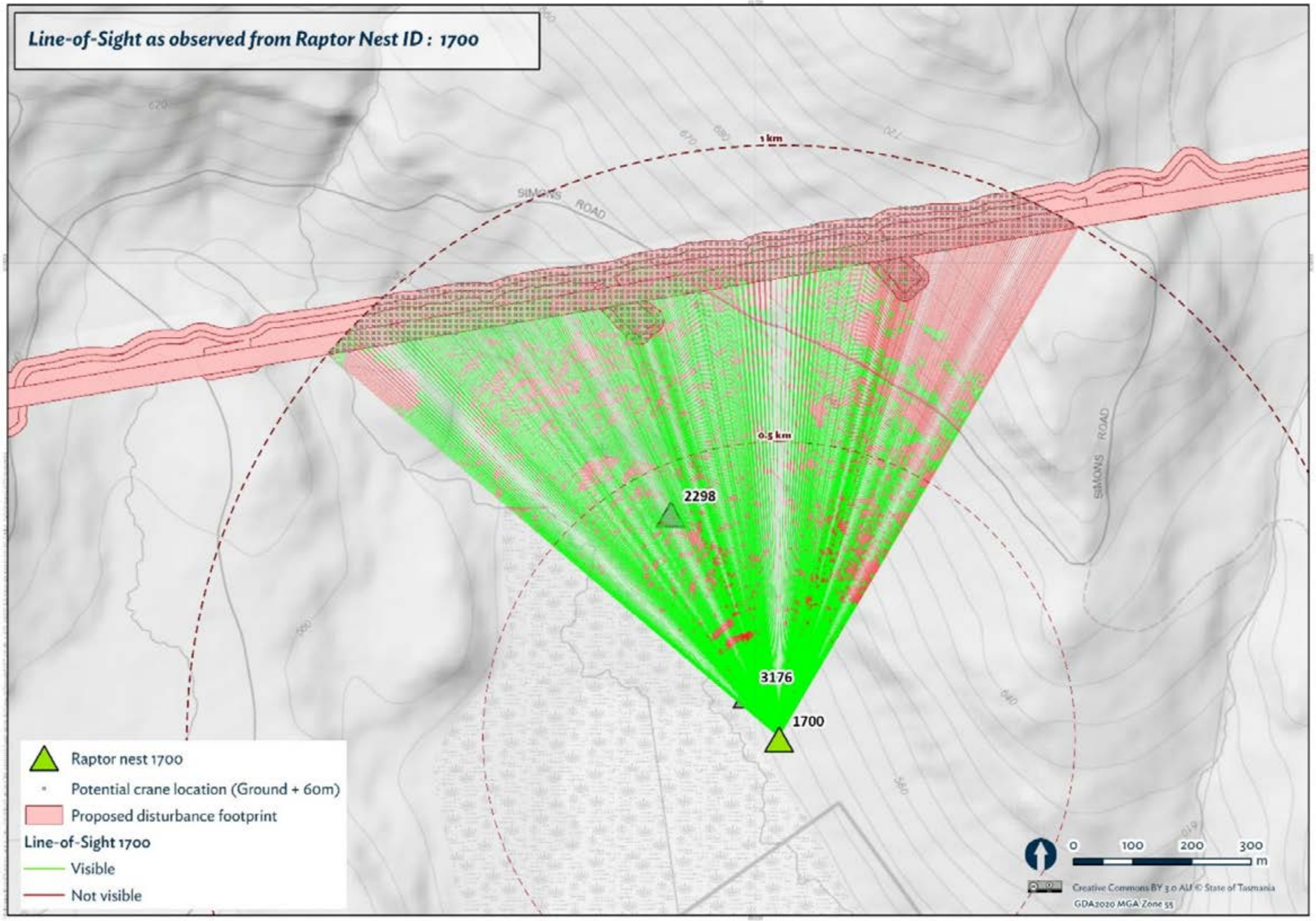


Figure 3.61: Line-of-sight analysis for nest #1700 based on bare-ground topography only (i.e. excluding extant vegetation)

3.4.5.4 Eagle nest 3577 near northern transmission option

A previously unrecorded eagle nest was identified by Entura ecologists during the aerial eagle nest search on 21 May 2025. This nest is located approximately 360 m south the disturbance footprint for the span between Tower 20 and 21 of the northern transmission line. It was described as a large nest with a flat top, located approximately 35 m up a 45 m live *Eucalyptus tasmaniensis* tree (Figure 3.62).

Figure 3.62: Nest #3577 as photographed 21 May 2025

3.4.5.5 Eagle nest 738 near southern transmission option

Eagle nest 738 was last confirmed present in 2022 and was located again by Entura during the 13 May 2025 aerial survey (Figure 3.63). It is located approximately 200 m from the current easement that will be widened to accommodate the 220 kV transmission line if the southern alignment option is selected. The nest is in a fork at approximately 35m above the ground in a 40m Eucalyptus obliqua tree with a compressed flat top. This nest may be impacted by vegetation clearing for easement widening, and/or by construction of the 220 kV transmission infrastructure due to its proximity (i.e. being within 500 m of the works).

Figure 3.63: Eagle nest #738 as photographed in May 2025

3.4.5.6 Summary of disturbance susceptibility of known eagle nests

A summary of the results of the line-of-sight analyses for each of the eagle nests within 1 km of the transmission line options is provided in Table 3.5.

Table 3.5: Factors affecting likelihood of disturbing eagle nests during the breeding season

Project component	NVA nest ID	Likelihood of disturbance by project activities	Distance to current easement		In line-of-sight with extant vegetation	In line-of-sight without extant vegetation
			≤500 m	≤1 km		
Northern transmission line option	2298	High due to proximity	✓		N/A	N/A
	3176	Unlikely		✓	No	Yes
	1700	Unlikely		✓	No	Yes
	3577 (New nest discovered 21 May 2025)	High due to proximity	✓		N/A	N/A
Southern transmission line option	738	High due to proximity	✓		N/A	N/A

3.4.5.7 Potential future nesting habitat

Potentially suitable future eagle nesting habitat has been defined as mapped eucalypt forests included in the Tasmanian Forest Practice Authority's eagle nesting habitat models. The FPA's models of suitable eagle nesting habitat constitute high-resolution tools that indicate the relatively likelihood that an eagle nest will be found in a particular area, through grid-code values ranging from 0 to 9 (Forest Practices Authority, 2014a). For example, a grid-code value of '8' indicates a nest is very likely to be found whereas a grid-code value of 0 indicates a low likelihood of finding a nest (Forest Practices Authority, 2014a). The variables used to develop this model largely related to the presence of mature crowns (which provide a structure in which nests can be built) and shelter from wind (e.g. aspect, wind protection index, and morphological protection index). There are three components to the FPA's nesting habitat suitability modelling: the low-elevation model (under 850 m), the high-elevation model (above 700 m) and the north-west model (NW). Both the low- and high-elevation models have been considered for this assessment (Figure 3.64). The FPA's Technical Note 6 (Forest Practices Authority, 2014a) states that "to capture most nests (70-80%), areas of grid-code '3' and higher should be searched."

If modelled grid-codes 3 to 8 are considered potentially suitable habitat, there are approximately **0.3** ha of potentially suitable future eagle nesting habitat within main conveyance infrastructure disturbance footprint, as well as **0.1** ha in the southern transmission option disturbance footprint (Figure 3.64). Therefore, the Project will require clearance of up to approximately **0.4** ha of potentially suitable future eagle nesting habitat.

If modelled gridcodes 1 and 2 are included as potentially suitable future eagle nesting habitat, then there are an additional **0.7** ha associated with the northern transmission line option disturbance footprint or an additional **0.6** ha associated with the southern transmission line option disturbance footprint. There are no areas of modelled gridcode scores 1 or 2 within the main conveyance infrastructure disturbance footprint. In this case, the Project would require clearance of up to **1.1** ha of potentially suitable eagle nesting habitat. However, gridcodes 3-6 are the accepted 'suitable' scores recommended by the creator of the habitat modellings (FPA, 2014a).

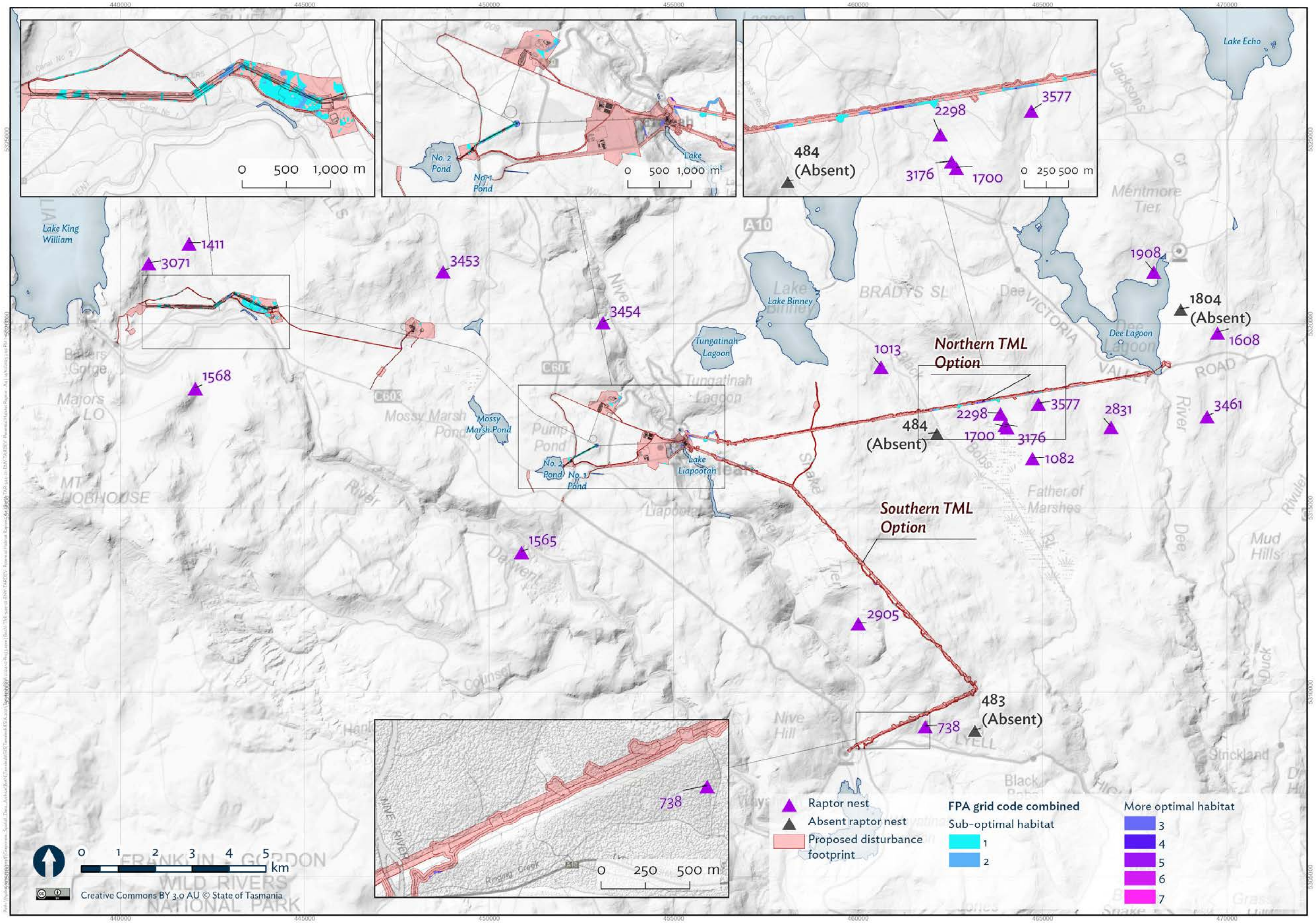


Figure 3.64: Modelled potentially suitable eagle nesting habitat within the disturbance footprint, including both low elevation and high elevation modelling

3.4.6 Tasmanian masked owl

The Tasmanian masked owl (*Tyto novaehollandiae castanops*) is listed as endangered under the TSP Act and as vulnerable under the EPBC Act. This species is widely distributed throughout the state in a range of wet and dry forest types, with the highest known densities occurring in low elevation areas (<600 m ASL) dominated by mature dry eucalypt forests, open woodlands and modified forest–pasture mosaics (Bell & Mooney 2002; Todd et al. 2018). The Tasmanian masked owl is a cryptic species, hunting at night and rarely observed during the day. Masked owls have large territories in the order of 1,000 to 2,000 ha (10 to 20 km²) (Todd, 2012; Young et. al. 2020) and may be even larger in some parts of Tasmania, such as at higher altitudes and in western Tasmania. The combination of low abundance, cryptic hollow nesting and nocturnal foraging make it difficult to survey for and to locate nesting sites of the Tasmanian masked owl (Phil Bell, pers. comm.). There are 40 recorded masked owl nest sites on the Natural Values Atlas (NVA) in Tasmania, concentrated in the northern and south-eastern regions of the state. Many of these records are historic and cannot be confirmed as validated nest sites (Dr Phil Bell, pers. comm.). For instance, 37 of the 40 nest records are between 11 and 37 years old, with varying date accuracies of day to decade, and position accuracies ranging between 10 m and 1 km. Thirty-eight of the 40 nest sites have not been revisited since they were originally recorded; therefore, it is not known whether these nests are still present.

Potential nesting trees for the masked owl include those with large hollows with an entrance usually at least 15 cm diameter. Large hollows are found in large trees, and trees over 100 cm diameter-at-breast height (DBH) have been found to have a higher probability of containing hollows than smaller diameter trees (Forest Practices Authority, 2016). It can be difficult to detect suitable hollows from the ground, so tree size can be used as a substitute to estimate hollow availability (Koch, 2008; Koch et al., 2008).

The most recent database searches, including of the PMST, were undertaken in November 2024. There are 40 records of the Tasmanian masked owl on the NVA within 5 km of the disturbance footprint, of which 30 are audible records entered from the passive bioacoustics monitoring surveys undertaken for the Project. The other ten records include five sighting records at three locations, including at Lake Binney from 2021 within 5 km of the main disturbance footprint, in a forestry coupe within 5 km north of the northern transmission line option from 1996 and 2006, and in a forestry coupe within 5 km of both the northern and southern transmission line options from 2006.

There are no NVA records of masked owl nests within 5 km of the disturbance footprint. There is one historic nest record from 1985 which is located 12 km north of Tarraleah at an altitude of 670 m. The status of the nest record is uncertain as it has a date accuracy of a decade and a position accuracy of 1 km.

As part of the field surveys undertaken between 2018 and 2024 for the Tarraleah Redevelopment Project, vegetation within the survey area was verified and attributed to the appropriate TASVEG Tasmanian Vegetation Mapping Units (Kitchener & Harris, 2013) and the presence of any vegetation communities listed under the Nature Conservation Act 2002 (NC Act) (Tas) or the EPBC Act was recorded. The boundaries and extent of the TASVEG communities were mapped using ArcGIS, and these spatial data were used for the assessment of potential suitable nesting habitat for masked owls within the survey area. The desktop analysis to identify patches of tall (and thus possibly large-diameter) trees to investigate in the targeted on-ground survey drew on a suite of available information, including aerial imagery, verified TASVEG forest type data, forest canopy tree height data (derived from LiDAR) and tree DBH data recorded during previous ecological field surveys in the area. Modified land, non-forested areas, and regrowth wet forest and woodland that has been recently harvested are unlikely to contain trees with large (at least 15-cm entry diameter) hollows; thus, these vegetation types were not included in the surveys to identify potential Tasmanian masked owl nesting habitat.

All potentially suitable native forest within 150 metres of the Tarraleah disturbance footprint that was identified by the desktop analysis was surveyed on foot on 27 September 2023 in accordance with the Tasmanian Forest Practices Authority (2016a) *Fauna Technical Note No. 17: Identifying masked owl habitat* and in accordance with more current advice from species experts. All habitat trees (hollow-bearing trees, typically eucalypts) were photographed and recorded as geolocated observations; details such as the tree's diameter-at-breast-height (DBH), the approximate entry diameter of hollows, and the presence of 'spouts' (broken branches potentially containing hollow interiors) were recorded. Any trees of approximately 100 cm DBH or above were inspected on the ground from all possible angles, and, if located on a slope, also from the parallel ridges using binoculars.

Although no suitably large hollows were identified from the ground during the on-ground targeted nest tree surveys, four patches of large old trees were nonetheless considered to potentially contain large hollow-bearing trees with hollows not visible from the ground. The targeted patches were located adjacent Butlers Gorge Road, adjacent to the existing easement near the Tarraleah Power Station, adjacent the access track to the canal between Mossy Marsh and Tarraleah Pump Pond No. 2, and the Tarraleah Conservation Area. As such, passive acoustic monitoring (PAM) was undertaken between September 2023 and December 2024 using Frontier Labs BAR-LT acoustic recorders (Figure 3.65). PAM has been shown by recent research by Gros et al. (2023) to be a suitable method for detecting masked owl presence in Tasmania. Detection of calls during the hour before sunrise and the hour after sunset is considered to be indicative of possible nearby masked owl roosting and/or nesting activity. If possible nearby roosting or nesting is interpreted from the recording data, follow-up targeted nest tree searches are to be subsequently undertaken by suitably qualified species experts with tree-climbing equipment and qualifications to determine if there are any suitable masked owl nest trees within 150 m of the disturbance footprint, and if so, whether any nest trees are active (in use by a breeding pair). The probability of detection of a nest tree is higher during the October to February inclusive period compared to the rest of the year, due to increased likelihood of nest activity and juvenile presence, but nest tree searches with a tree climber can be undertaken at any time of year.

Two acoustic recorders were deployed on 27 September 2023 and set to record between dusk and dawn each night. One recorder was deployed at a location north east of the Tarraleah Power Station on the other side of the River Derwent between 27 September and 27 October 2023 in the middle of the power line easement near the tower, pointed towards in *Eucalyptus tasmaniensis* forest with broad-leaf shrubs (WDB), (Figure 3.65). It was then deployed at edge of easement and the *Eucalyptus tasmaniensis* forest with broad-leaf shrubs between 8 November and 8 December 2023; again, it was pointed in towards the forest. The passive acoustic monitoring program near the Tarraleah Power Station detected 5 masked owl screeches between 27 September - 27 October 2023 (31 nights), 4 screeches between 8 November - 6 December 2023 (28 nights), 2 detections between 8 December 2023 - 20 February 2024 (64 nights), and 64 detections between 20 February - 17 May 2024 (87 nights). The high degree of activity in April-May 2024 (Figure 3.66) suggests regular masked owl activity in the vicinity. Follow up nest searching, complemented by spotlighting and call playback survey undertaken on 22 September 2024 found no evidence of masked owl nesting in this area (Appendix E.2.1).

The second acoustic recorder was deployed in *Eucalyptus dalrympleana - Eucalyptus pauciflora* (DDP) forest and woodland at a location along Butlers Gorge Road 4 km east of Clarke Dam and recorded nightly between 27 September 2023 and 17 January 2024 (Figure 3.67). No masked owl calls were detected on any night at this Butlers Gorge Road location (Appendix E.2.1).

Two additional acoustic recorders were deployed in October 2024, also set to record between dusk and dawn each night. One recorder was deployed at a location within the Tarraleah Conservation Area east of Fourteen Mile Road during the period 21 October 2024 – 12 December 2024 in *Eucalyptus tasmaniensis* forest with broad-leaf shrubs (WDB) (Figure 3.68). The other was deployed on the access track to the canal which runs between Mossy Marsh Dam and Tarraleah Pump Pond No. 2 north of Butlers Gorge Road in *Eucalyptus tasmaniensis* forest with broad-leaf shrubs (WDB) during the period 21 October 2024 – 12 December 2024. There was a reasonably high frequency of calls over the recording period including some evidence of dawn calling by masked owls within the Tarraleah Conservation Area (Figure 3.69, Appendix E.2.1). However, the nightly detection rate was relatively low at 13% (i.e. 7 of 53 recording nights). The data from the recorded indicated that masked owls were using the Tarraleah Conservation Area enough for the period 21 October-12 December 2024 to do follow-up ground surveys.

A more detailed on-ground survey was conducted within the Tarraleah Conservation Area around the recorder site and in the vicinity of the approximate footprint of the proposed surge tower and access track on 16 January 2025 (Appendix E.2.2). The search targeted trees with potential large hollows and other evidence of use by masked owls (e.g. pellets, whitewash, feathers). Much of the area within 200 m of the recorder site and the proposed surge tower and access track area supported regrowth forest and no trees with potential large hollows were identified within the search area. No evidence of the nesting by Tasmanian masked owls was observed within the search area.

Note that all areas not covered by water bodies or artificial structures are considered potentially suitable Tasmanian masked owl foraging habitat.

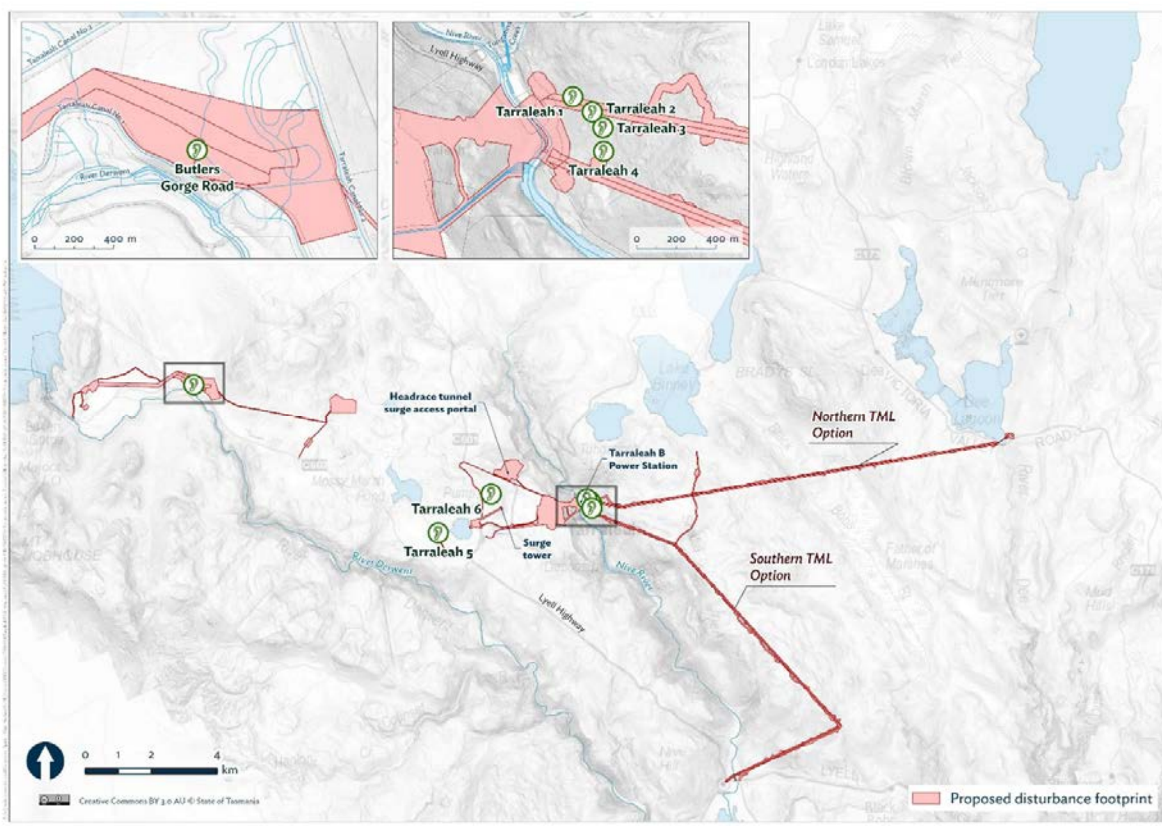


Figure 3.65: Locations of acoustic recorder deployments near the Tarraleah Redevelopment disturbance footprint

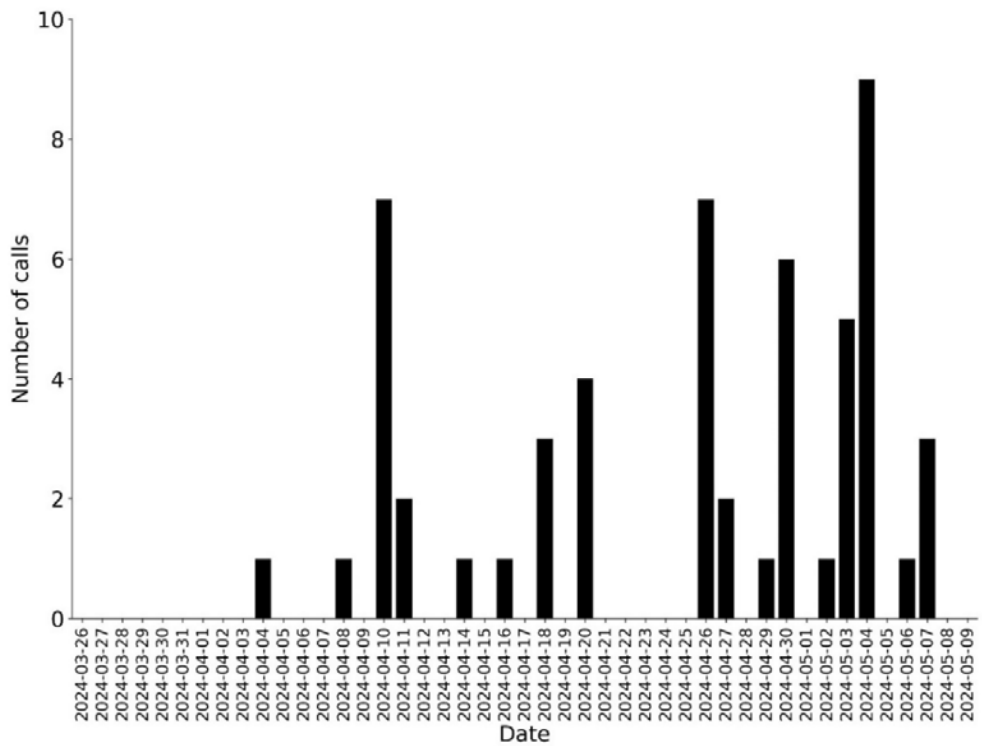


Figure 3.66: Results of passive acoustic monitoring near the Tarraleah Power Station during peak screech detection period

Figure 3.67: Frontier Labs BAR-LT acoustic recorder deployed near Butlers Gorge Road

Figure 3.68: Wildlife Acoustics acoustic recorder deployed in Tarraleah Conservation Area

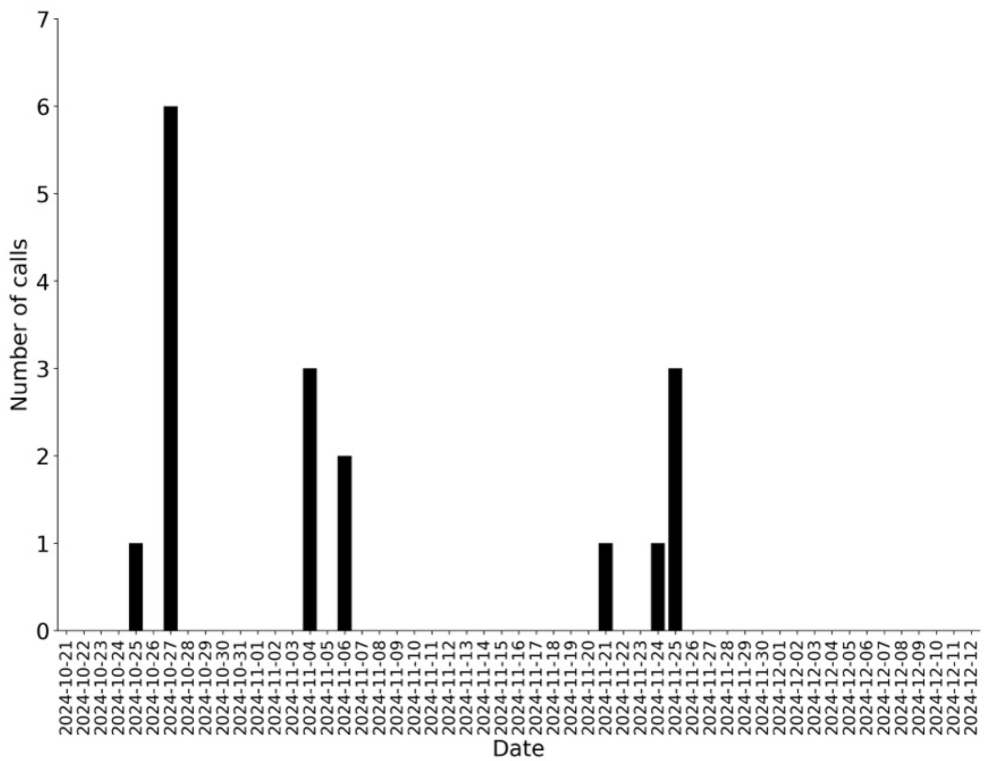


Figure 3.69: Results of passive acoustic monitoring within the Tarraleah Conservation Area during peak screech detection period

3.4.7 Swift parrot

The swift parrot (*Lathamus discolor*) is listed as critically endangered under the EPBC Act. The breeding range of the swift parrot is mostly within 10 km of the coast (including shores, bays, inlets or peninsulas), predominantly in eastern and southeastern Tasmania. However, there is breeding in some years on the central north and northwestern coasts of Tasmania (Threatened Species Scientific Committee 2016). Swift parrots breed in Tasmania and migrate to mainland Australia in autumn. The swift parrot returns to Tasmania during late winter and early spring, with the first birds usually arriving in August. Swift parrots begin to leave Tasmania for the mainland from mid-February; most have left by the end of April.

The Core Range of the Swift Parrot has been identified as the area within eastern and southeastern Tasmania that is within 10 km of the coast or is a designated Swift Parrot Important Breeding Area (SPIBA), (Figure 4.36). The potential breeding range of the Swift Parrot includes the NW breeding areas and Potential Breeding Range in north-western Tasmania and the Potential Breeding Range in southeastern Tasmania (Figure 4.36). Within the breeding range nesting habitat is forest with large eucalyptus trees with hollows in proximity to foraging habitat (DCCEEW, 2024b). The availability and use of potential foraging habitat in each breeding season is affected by the frequency, distribution and intensity of flowering events (Forest Practices Authority, 2014b).

Preferred foraging habitat during the breeding season is *Eucalyptus globulus* (Tasmanian blue gum) dry and wet forest and *E. ovata* (black gum), generally in older forests with larger trees (Forest Practices Authority, 2014b). Brereton et al. (2004) found that larger Eucalyptus globulus trees had a greater flowering frequency and intensity which were preferred by swift parrots for foraging.

The Swift Parrot Recovery Plan (DCCEEW, 2024b) has identified habitat critical to the survival for the swift parrot in Tasmania based on the identified important breeding habitats for the species as '*both potential foraging habitat – which is native forest and woodland containing either Blue Gum (<u>E. globulus</u>) and/or Black Gum (<u>E. ovata</u>) as a dominant, subdominant or low density species, and potential nesting habitat – which is forests or woodlands containing hollow-bearing eucalypt trees within foraging range (~10 km) of potential foraging habitat that is old enough to flower*'. Neither *Eucalyptus globulus* forest nor *E. ovata* forest occurs on the Central Plateau; therefore, the survey area is outside the breeding range of the species and there is no suitable swift parrot breeding habitat within the disturbance footprint area (Figure 3.70).

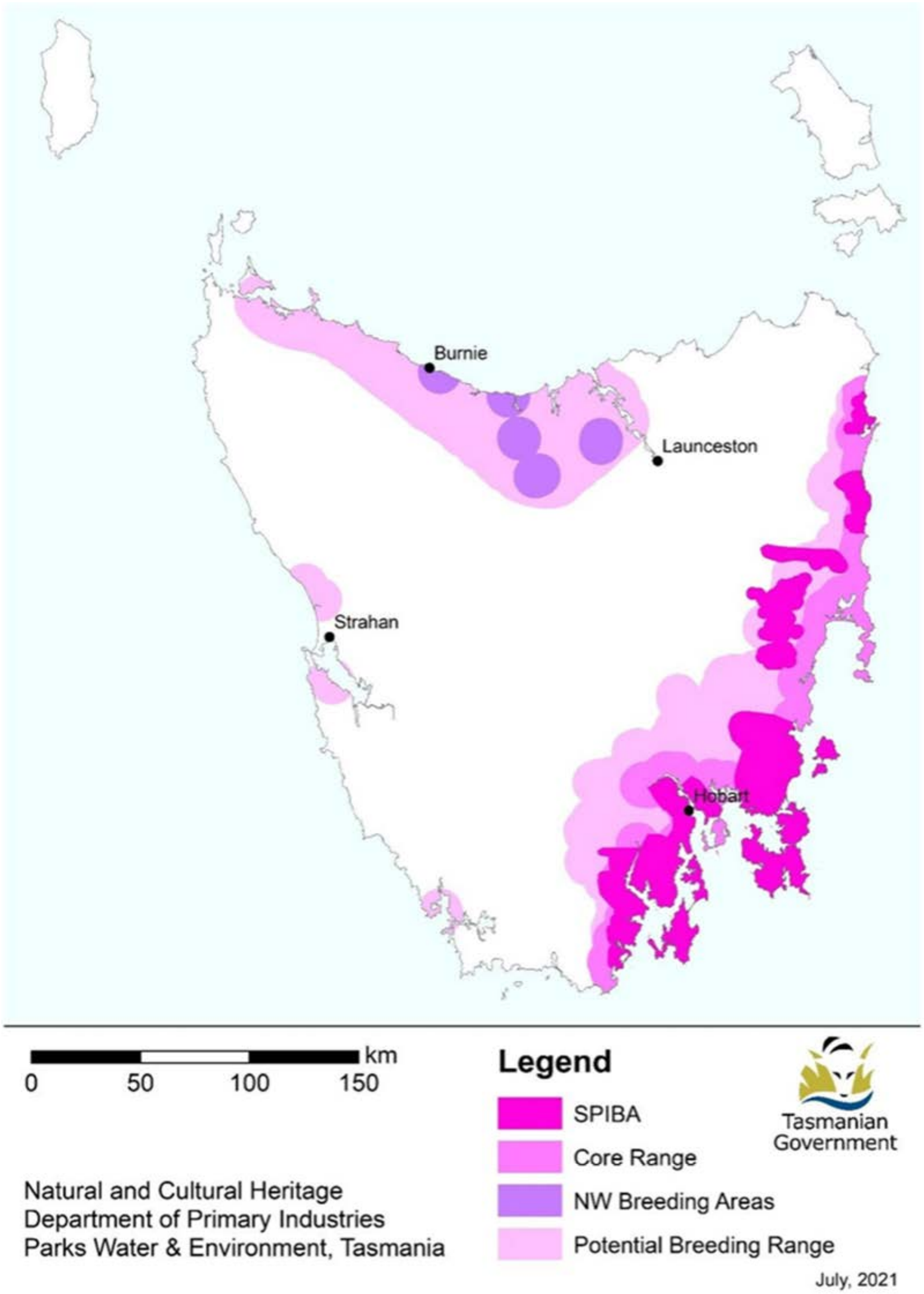
Outside of the breeding season swift parrots are nomadic and non-breeding dispersal and post-breeding (January to March) habitat can be anywhere in Tasmania, including forests in the west and north-west (DCCEEW, 2024b). At this stage, as blue gum and black gum flowering declines and other eucalypts begin to flower, the east coast population of both adults and immature birds moves westwards to the Central Plateau and western Tasmania. The swift parrot has been recorded feeding on range of eucalypts species in Tasmanian outside of the breeding season including *Eucalyptus obliqua* (stringybark), *E. viminalis* (white gum), *E tasmaniensis* (gum-topped stringybark), *E. rodwayi* (swamp peppermint), *E. pauciflora* (cabbage gum), *E. dalrympleana* (mountain gum) and *E. nitida* (Smithton peppermint), (Brereton, 1996, Swift Parrot Recovery Team 2001). Four of these eucalypt species occur within the Tarraleah Redevelopment Project disturbance footprint *E tasmaniensis, E. rodwayi, E. pauciflora, E. dalrympleana*.

There are 36 records of the swift parrot on the NVA within 5 km of the main projects' disturbance footprint west of the Nive River and 10 records within 5 km of the northern transmission option alignment east of the Nive River and there are no records within 5 km of the southern transmission alignment option. The most recent records are of 11 sightings in February and March 2025 northeast of the pipeline alignment with the nearest record approximately 200 m from the disturbance footprint. This record was of three birds flying overhead. There is one other record from March 2025 which is 1.6 km to the north of the of Tarraleah where birds were observed overhead and in *Eucalyptus tasmaniensis*. The only observation of birds foraging is a NVA record from February 2023 located 1.8 km northwest of Tungatinah Lagoon in E. tasmaniensis dry forest. The comment on the NVA record is “Feeding on lerps and flowering Euc”.

Some of the areas of native eucalypt forest within the disturbance footprint have been previously harvested and are ‘regrowth’ forest. Eucalypt flower resources from smaller trees which are characteristic of regrowth forests are less preferred by the swift parrot than eucalypt flower resources from large trees which can be found in mature forests (Brereton et al., 2004). Flowering frequency and flowering intensity have been found to increase with tree size (Brereton et al., 2004). Swift parrots generally select the larger-diameter, mature, flowering trees for foraging; a behaviour that likely reflects the greater number of flowers available on larger trees as well as their greater propensity to flower (Forest Practices Authority, 2014b). Therefore, the areas of potentially suitable eucalypt forest types that may provide foraging habitat have been confined to mature forests and not ‘regrowth’ forests (i.e. that have been cut over and are not mature forest).

Within the disturbance footprint, there are up to approximately **88 ha** of potentially suitable (non-breeding) foraging habitat for the swift parrot (Figure 3.71, Figure 3.72, Figure 3.73) in the form of mature wet and dry eucalypt forests that contain *Eucalyptus tasmaniensis*, *E. rodwayi, E. pauciflora,* and *E. dalrympleana* trees (if the northern transmission line is chosen; Table 3.7). If the southern transmission line option is chosen there is up to **76.2** ha.

An assessment of the mature habitat availability was undertaken in the larger areas of potential mature forest foraging habitat within the disturbance footprint. The assessment method used was the Forest Practices Authority *Assessing mature habitat availability on-ground survey* method (FPA, 2017). The mature forest assessment provides an estimate of the availability of the features important for biodiversity including large spreading crowns (providing a greater foraging resource when in flower) as well as tree hollows and coarse woody debris (FPA 2017). The results of the assessment are shown in Figure 3.71 and Table 3.7. The mature habitat assessment found there was less than 1 ha of mature *Eucalyptus tasmaniensis* forest with broad-leaf shrubs within the surge tower footprint that was as having “high” availability of mature habitat features (i.e., contained at least 8 trees over 100 cm diameter at breast height per hectare). There was also approximately 26.5 ha of mature *Eucalyptus dalrympleana - Eucalyptus pauciflora* forest and woodland within the western portal and pipeline footprints which was classified as medium mature habitat availability (i.e., contained at least 8 trees over 70 cm diameter at breast height per hectare) and 10.1 ha of the same TASVEG vegetation type that was classified as low (i.e., contained less than 8 trees over 70 cm diameter at breast height per hectare). The assessment also found that there was 3.2 ha of mature *Eucalyptus tasmaniensis* forest with broad-leaf shrubs within the surge tower footprint and south of the Tarraleah village that had a and 3.6 ha of mature *Eucalyptus tasmaniensis* forest over rainforest near the surge tower footprint was classified as having “medium” availability of mature habitat features (i.e. at least 8 trees over 70 cm DBH in dry forest and at least 8 trees greater than 100 cm DBH for wet forests), (Figure 3.71 and Table 3.7). The mature habitat assessment indicates that there are limited areas of ‘high’ mature habitat availability but there are areas with some mature availability which may provide foraging resources in years when there is flowering which could vary 2 to 4 years or even as long as 7 years between flowering events.



Note: Swift Parrot Important Breeding Areas (SPIBA) are known or suspected to have supported a large portion of the Swift Parrot breeding population in any given year (FPA 2010). The core range of the Swift Parrot is the area within the south-eastern (SE) potentia breeding range that is within 10 km of the coast or is designated as a SPIBA (as defined in FPA 2022). The potential breeding range of the Swift Parrot comprises the north-western (NW) potential breeding range and the SE potential breeding range. The NW potential breeding range includes the NW breeding areas (known nesting locations such as, Gog Range, Badger Range, Kelcey Tier) (FPA 2022).

Figure 3.70: Potential breeding range of Swift Parrot in Tasmania (DCCEEW, 2024b at http://www.dcceew.gov.au/environment/biodiversity/threatened/recovery-plans/swift-parrot-2024)

Table 3.6: Potential swift parrot foraging habitat forest types

TASVEG community	TASVEG Code	Main infrastructure (ha)	N TML (ha)	S TML (ha)	Potential max clearing extent (ha)
Eucalyptus tasmaniensis dry forest	DDE	0.0	3.6	0.0	**3.6**
Eucalyptus dalrympleana–Eucalyptus pauciflora forest and woodland	DDP	38.3	0.2	0.0	**38.5**
Eucalyptus rodwayi forest and woodland	DRO	12.1	5.1	0.5	**17.2**
Eucalyptus tasmaniensis forest over broad-leaf shrubs	WDB	5.4	17.9	6.8	**23.3**
Eucalyptus tasmaniensis with *Leptospermum*	WDL	0.0	0.0	0.0	**0.0**
Eucalyptus tasmaniensis forest over rainforest	WDR	5.4	0.0	0.0	**5.4**
Eucalyptus obliqua forest with broad-leaf shrubs	WOB	0.0	0.0	1.0	**1.0**
Total		**61.2**	**26.8**	**8.3**	**88**

Table 3.7: Mature habitat availability within the disturbance footprint

TASVEG community	TASVEG Code	Low	Medium	High
Eucalyptus dalrympleana–Eucalyptus pauciflora forest and woodland	DDP	10.1	26.5	0
Eucalyptus rodwayi forest and woodland	DRO	0	0	2
Eucalyptus tasmaniensis forest over broad-leaf shrubs	WDB	1.0	3.2	0
Eucalyptus tasmaniensis forest over rainforest	WDR	0	3.6	0
Eucalyptus obliqua forest with broad-leaf shrubs	WOB	1	0	0

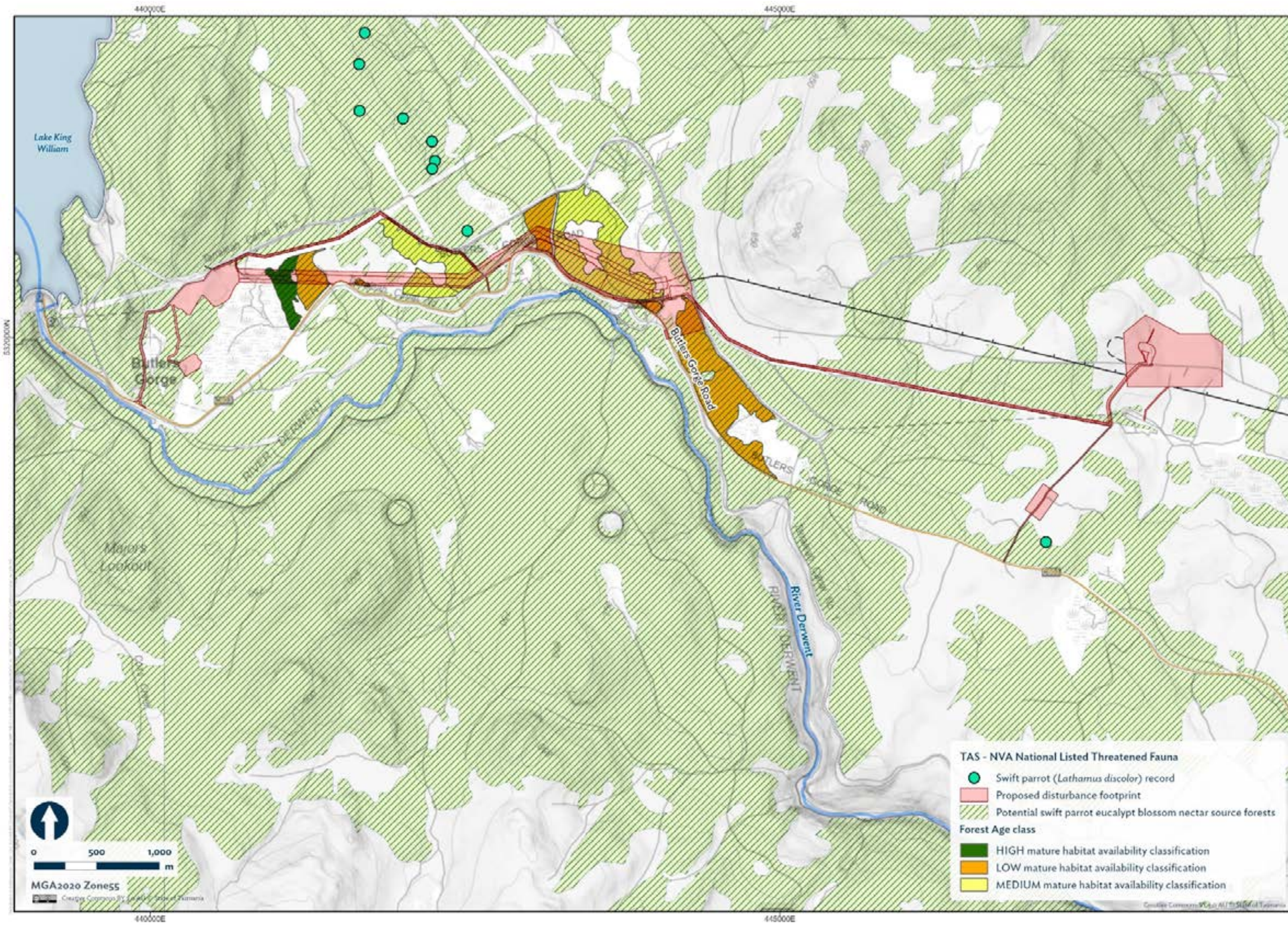
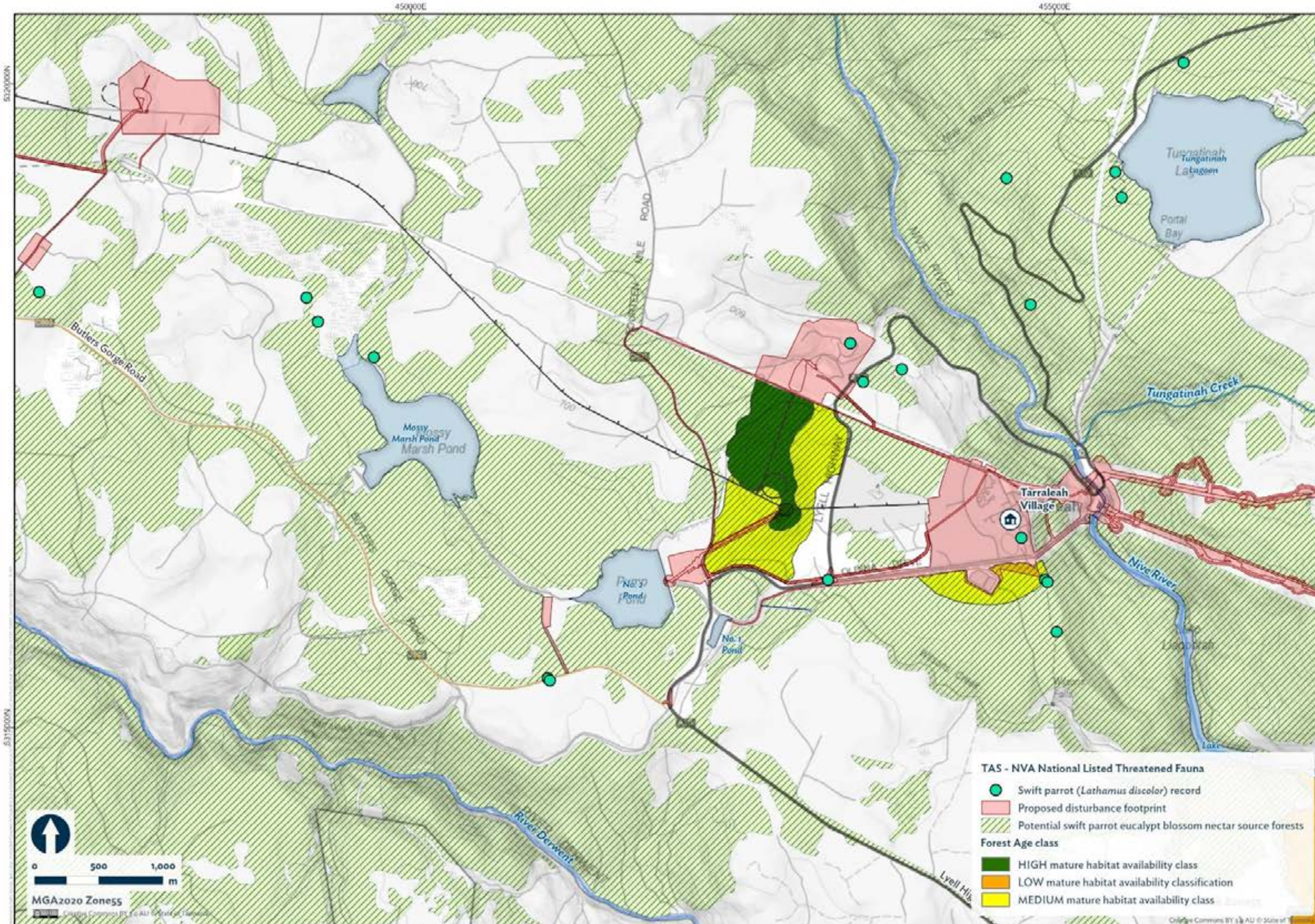


Figure 3.71: Map of vegetation communities that constitute potential post-breeding foraging habitat for the swift parrot within and surrounding the western components of the redevelopment conveyance infrastructure


450000E
455000E
Mossy Marsh Pond
Tungatinah Lagoon
Portal Bay
Tungatinah Creek
Tarraleah Village
Nive River
Butlers Gorge Road
River Derwent
No. 1 Pond
No. 2 Pond
TAS - NVA National Listed Threatened Fauna
Swift parrot (Lathamus discolor) record
Proposed disturbance footprint
Potential swift parrot eucalypt blossom nectar source forests
Forest Age class
HIGH mature habitat availability class
LOW mature habitat availability classification
MEDIUM mature habitat availability class
0 500 1,000 m
MGA2020 Zone55

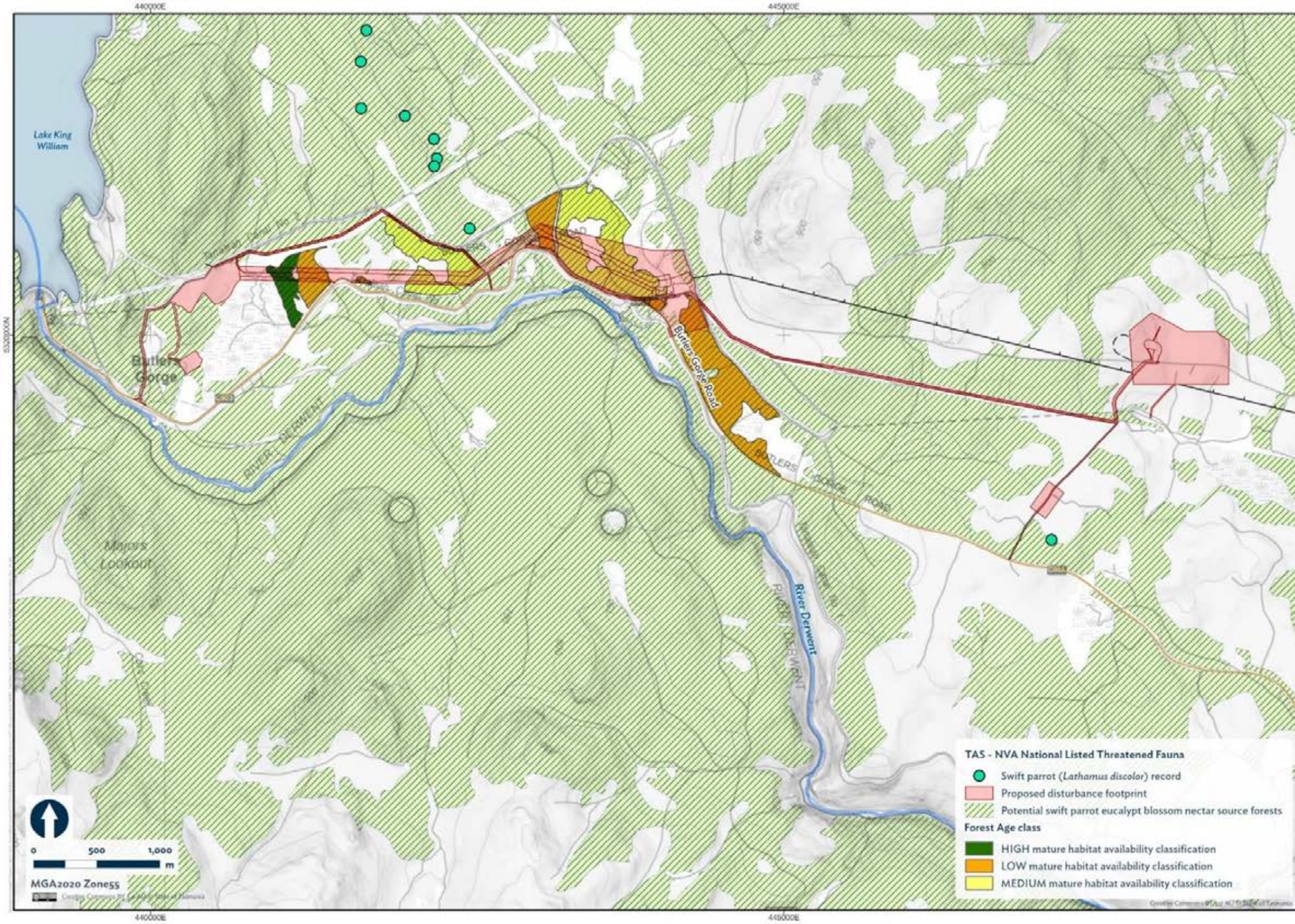


Figure 3.72: Map of vegetation communities that constitute potential post-breeding foraging habitat for the swift parrot within and surrounding the central components of the redevelopment conveyance infrastructure

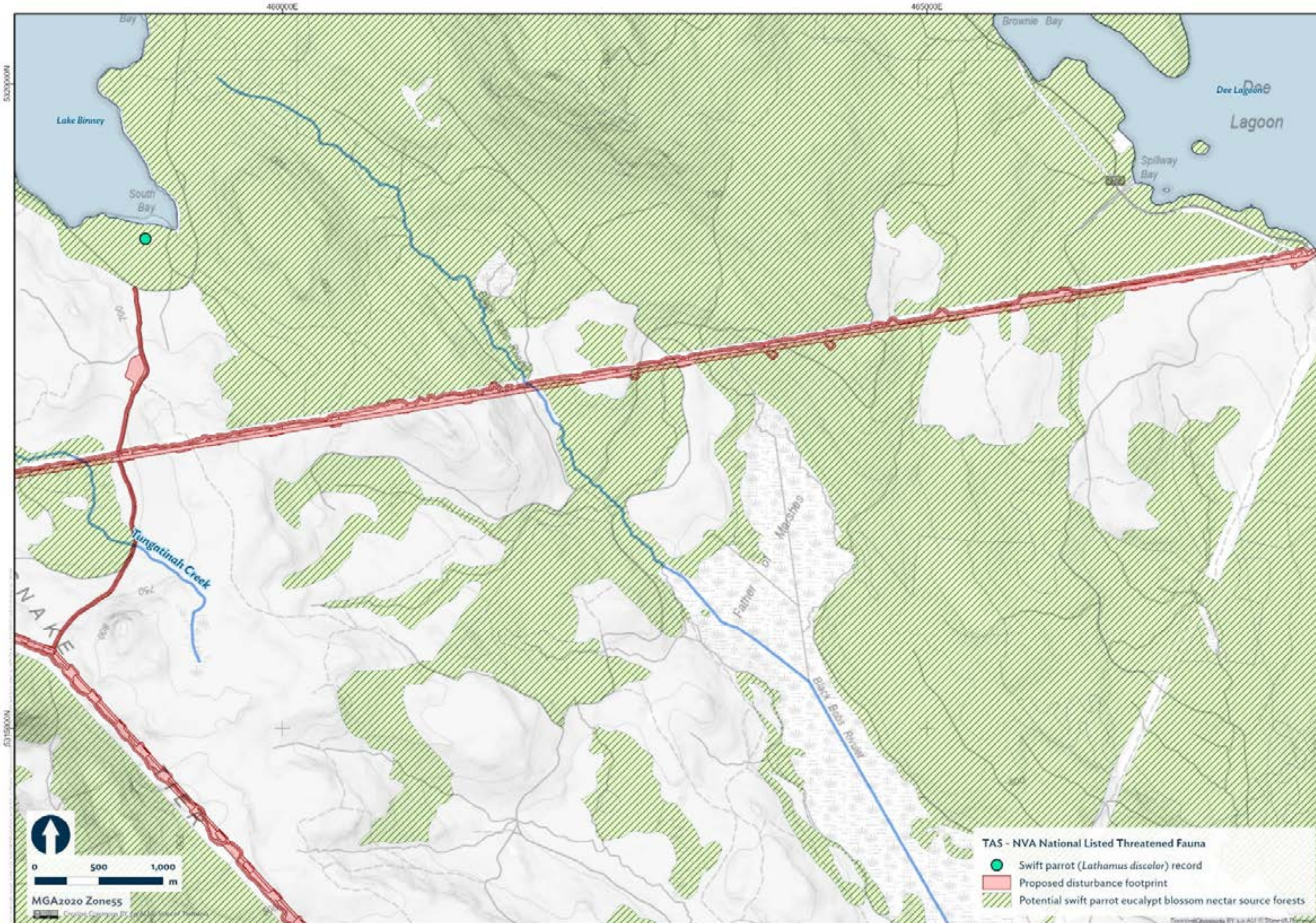


Figure 3.73: Map of vegetation communities that constitute potential post-breeding foraging habitat for the swift parrot within and surrounding the northern transmission line option

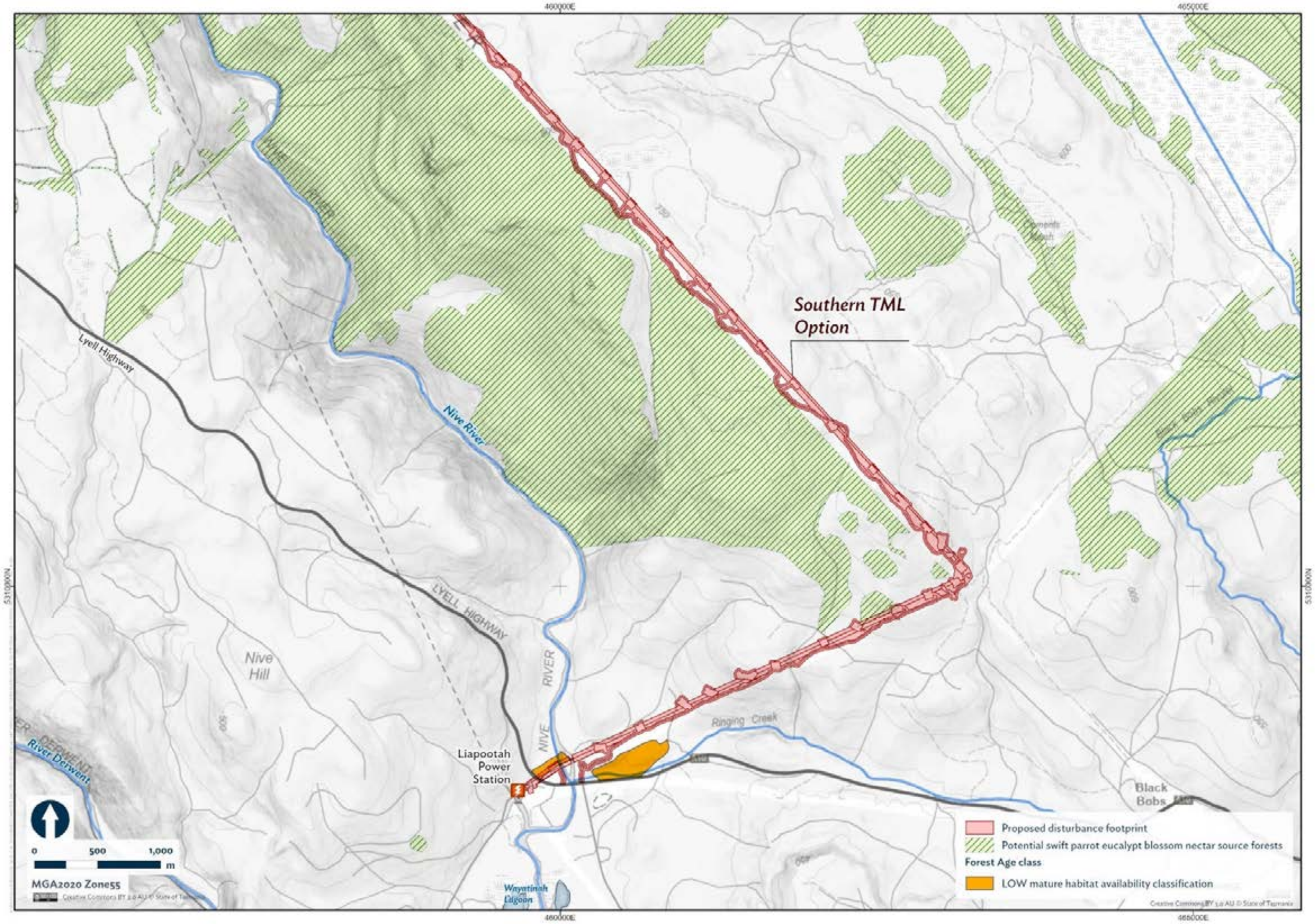


Figure 3.74: Map of vegetation communities that constitute potential post-breeding foraging habitat for the swift parrot within and surrounding the southern transmission line option

3.4.8 Blue-winged parrot

The blue-winged parrot (*Neophema chrysostoma*) is listed as vulnerable under the EPBC Act and the TSP Act. The blue-winged parrot occurs in coastal, sub-coastal and inland areas in north-western, central and eastern parts of Tasmania (DCCEEW, 2023). They favour open dry forest and woodlands with grassy or heathy understorey and often occur near wetlands near the coast; however, the species is rarely recorded in dense wet forest (Higgins, 1999). They have also been observed in buttongrass moorlands and moors at higher elevations (Higgins, 1999). Blue-winged parrots also occur in modified habitats including farmland, mostly pastures with scattered trees but also cultivated paddocks and altered grassland habitats such as golf courses and gardens (Higgins, 1999). Birds migrate to Tasmania in late winter to breed and return to the mainland Australia in autumn (Higgins, 1999). During the breeding season, birds occupy dry eucalypt forests and woodlands where they nest in hollows in eucalypts (Higgins, 1999).

Blue-winged parrots forage near or on the ground for seeds of a wide range of native and introduced grasses, herbs and shrubs (DCCEEW, 2023). They have been recorded on foraging on seeds of grasses in the family Poaceae, and the seeds of herbs from the families of Asteraceae (daisies e.g. *Hypochoeris radicata*), Brassicaceae (mustards and cabbage family) including *Cakile maritima* (sea rocket) and the Chenopodiaceae including *Chenopodium* species (goosefoot), *Salicornia quinqueflora* (glasswort) and *Tecticornia arbuscula* (shrubby glasswort), (Higgins, 1999).

There are six records on the NVA within 5 km of the disturbance footprint. Three of the records are historic, from 1981, 1977 and 1976 with low accuracy (+/- 18,500 m). There are three recent records one from over 2.7 km north of the disturbance footprint at Lake Binney in February 2021, one from over 3.8 km north of the disturbance footprint at Bradys Lake in December 2022, and one from over 2.7 km further north at Dee Lagoon in January 2024 (Figure 3.71, Figure 3.72, Figure 3.73, Figure 3.74). The blue-winged parrot was not recorded during field surveys which included flora and fauna habitat assessments over different seasons between October 2018 and January 2026. Note that the species was not recorded during a survey of bird communities at three sites in the Tarraleah area including Hornes Dam and Butlers Gorge Road which are within the project area (Brereton and Taylor, 2000). The survey involved monthly transect counts over a 10-day period at each site over 12 months between December 1991 and November 1992 (Brereton and Taylor, 2000).

The only potential habitat for the blue-winged parrot within the disturbance footprint is the buttongrass moorlands which do not form the preferred habitat of the species, which is grassland and open grassy woodland habitats (DCCEEW, 2023). The buttongrass moorlands within the disturbance footprint are characterised of a continuous expanse of large buttongrass tussocks (*Gymnoschoenus sphaerocephalus*) with almost a complete cover of 80 to 90% with no open areas and few grasses, herbs or shrubs for foraging (Figure 3.75). *Gymnoschoenus sphaerocephalus* is a member of the Cyperaceae family (sedges) and has not been recorded being used as a food plant by the blue-winged parrot (Higgins, 1999). The forests within the project area are either wet forests or dry shrubby forests which are also not the preferred habitat of the species. Thus, the blue-winged parrot is unlikely to occur within the disturbance footprint due to the absence of suitable foraging habitat in the form of grassy woodland and grassland habitats. In the absence of foraging habitat, the birds are unlikely to breed within the survey area.

Figure 3.75: Pure buttongrass moorland

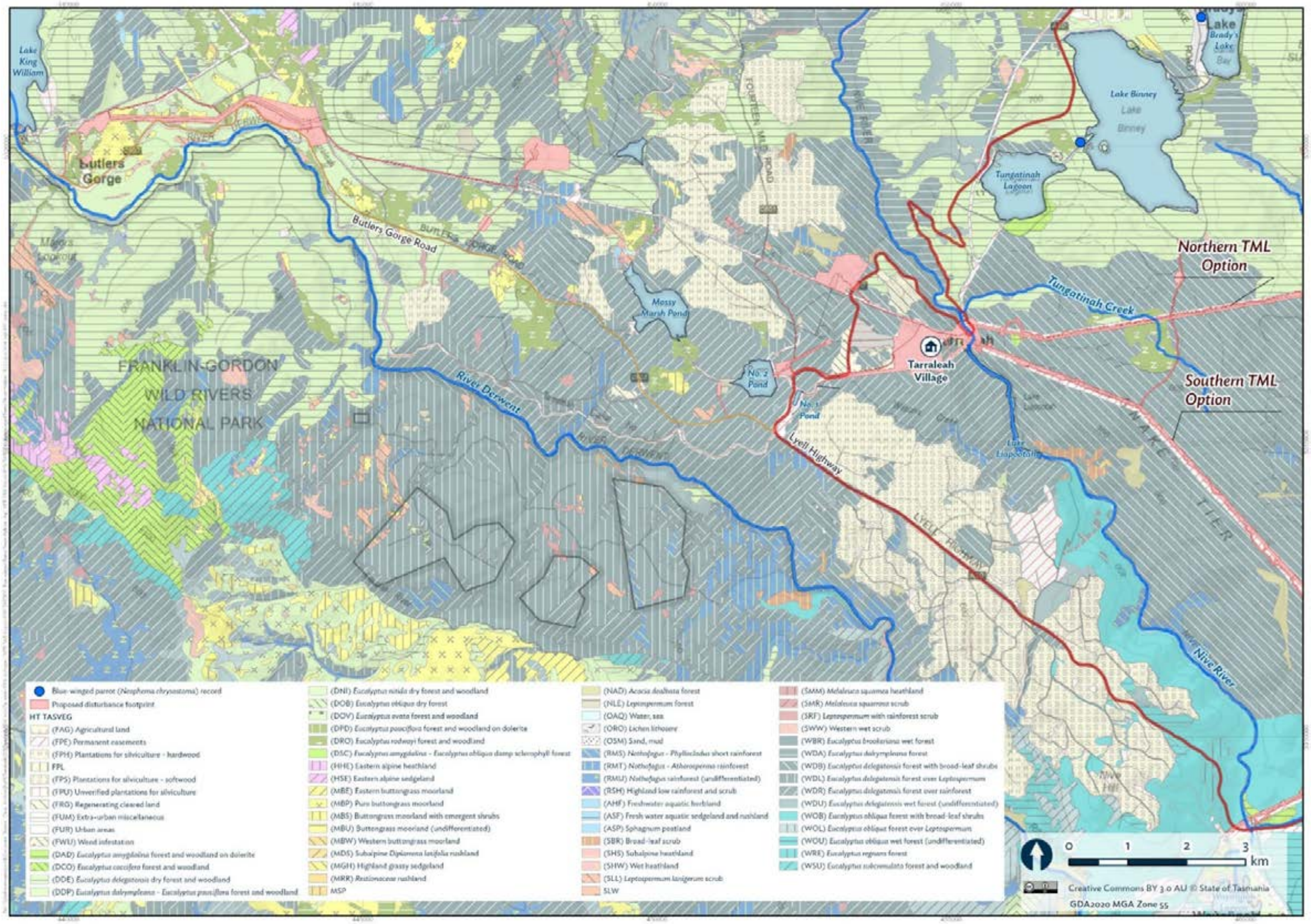


Figure 3.76: Map of blue-winged parrot records within the Project area

3.4.9 Latham's snipe

Latham's snipe (*Gallinago hardwickii*) is listed as a vulnerable species under the EPBC Act it is also listed as a migratory wetland species under the EPBC Act. The species occurs in permanent and ephemeral wetlands up to 2000 m AHD where it may be found in a variety of vegetation types including tussock grasslands with rushes, reeds and sedges, coastal and alpine heathlands, lignum or tea-tree scrub, buttongrass plains, alpine herbfields and open forest (Department of the Environment, 2022g). This species is widespread in Tasmania, with the Central Plateau historically supporting large colonies of Latham's snipe (Naarding, 1983) where it associated with wetland, moorlands and grassland. There are 10 records on the NVA within 5 km of the survey area. Two of the records are historic (1977 and 1988), the remaining four records post 2000 including two records from Tarraleah village. There are **20.7** ha of potentially suitable buttongrass habitat within the survey area. The buttongrass plains within the survey are closed with few open wet areas and are likely to be less preferred habitat for Latham's snipe, which is usually associated with wetlands (Department of the Environment, 2022g). Nonetheless, the species has the potential to occur within the survey area.

3.4.10 Grey goshawk

The grey goshawk (*Accipiter novaehollandiae*[9]) is listed as endangered under the TSP Act and is not listed under the EPBC Act. Grey goshawk preferred nesting habitat is mature wet forests at low elevations, and nests are almost always associated with a nearby watercourse (Brereton & Mooney, 1994; Young et al., 2024). Blackwood (*Acacia melanoxylon*) trees in blackwood swamp forests are preferred nesting habitat in the northwest of the state (Brereton & Mooney, 1994); in the southeast, stringybark (*Eucalyptus obliqua*) and silver wattle (*Acacia dealbata*) trees in mature wet forests are preferred (Young et al., 2025). These regional differences in nesting habitat preferences throughout the state are likely in response to bioregional differences in the distribution of wet forests and swamp forests (Young et al., 2025). Construction activities within 100 m of an active nest may cause disturbance to breeding individuals of the grey goshawk (Threatened Species Section, 2023b).

There are 13 NVA records of this raptor within 5 km of the survey area, with the last record from October 2018. No grey goshawk nests were recorded during aerial raptor nest searches undertaken in April 2023 and June 2024 and there are no known nests within 1 km of the disturbance footprint. However, two birds were recorded during the June 2024 eagle nest survey flying near Lake King William and one recorded in May 2025 flying near Dee Lagoon. There was another sighting near Mossy Marsh Lagoon during field surveys in October 2018. Previous studies have indicated that grey goshawks generally nest at lower elevations (Brereton & Mooney, 1994; Young et al., 2025) and there are no records of nests on the Central Plateau. However, the presence of grey goshawk sightings indicate that the grey goshawk could breed in the Tarraleah area. Nonetheless, the grey goshawk is considered unlikely to nest within the disturbance footprint or within 100 m of the disturbance footprint due to the absence of suitable nesting habitat (mature and old growth forest near a water feature) in these areas. Note that the southern transmission line crosses the Nive River at Wayatinah however, the riparian vegetation at this location is not suitable nesting habitat as it is open low eucalypt forest, and no nests were recorded at this site. No grey goshawk nests or brown goshawk or forest raven nests were observed during the aerial raptor nest searches.

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[9] The genus of the grey goshawk has been changed; the bird of prey is now known as *Tachyspiza novaehollandiae*. The previous scientific name has been retained throughout the report because the listed threatened entity under the TSP Act is still *Accipiter novaehollandiae.*

3.4.11 White-throated needletail

The white-throated needletail (*Hirundapus caudacutus*) is listed as vulnerable under the EPBC Act; it is also listed as migratory under the EPBC Act. There are 3 historic records on the NVA from within 5 km of the disturbance footprints. There are 2 records of this bird species from 1981 and 1976 from the same location to east of Dee Lagoon with a poor location accuracy of 18.5 km and 1 record from 1900 to the north of Liapootah at the end of the southern transmission line option. The species was not recorded during field surveys; however, it was identified as potentially occurring in suitable habitat in the PMST. Three are three historic NVA records within 5 km of the disturbance footprints, from 1900 and 1981, with poor location accuracy of 18.5 km. The white-throated needletail is a summer migrant to Australia from its breeding grounds in the northern hemisphere arriving in Tasmania in November and departing mid-March and April (Threatened Species Scientific Committee, 2019). The species is mostly aerial within its Australian distribution, where it occurs over most types of habitats, although birds are recorded most often above wooded areas, including open forest and rainforest (Threatened Species Scientific Committee, 2019). There may be rare occurrences of the white-throated needletail over the survey area, but it is unlikely that it forms a regular part of its range in Tasmania.

3.4.12 Lake Fenton trapdoor spider

The Lake Fenton trapdoor spider (*Plesiothele fentoni*) is listed as endangered under the TSP Act. There are three records of this invertebrate from within 5 km of the disturbance footprint. All three records are from February 2022 from the Wentworth Hills area near Tarraleah. The species was until recently only known from Lake Fenton in the Mount Field National Park, where it occurs in subalpine woodland. It has since been recorded in south-west Tasmania in the Hartz National Park as well as the Wentworth Hills locations where it was excavated from its holes in moss beds in tall wet forest. The potential habitat for the spider is described as ‘mossy patches within rainforest, mixed forest and mature wet forest particularly those with rainforest species in the understorey (Threatened Species Section, 2017c). There are **10.4 ha** of wet forest habitat within the disturbance footprint within the Tarraleah Conservation Area, **9.3 ha** of which are *Eucalyptus tasmaniensis* forest over rainforest. However, this area has been extensively surveyed for flora and Tasmanian masked owl habitat and there was little habitat that matched the potential habitat description for the Lake Fenton trapdoor spider. Due to the absence of mossy patches required by the species to make its burrows within the wet forest with a rainforest understorey, it was considered unlikely for this species to occur in the disturbance footprint.

3.5 Threats to natural values

Figure 3.77 shows the records of introduced species and diseases in the vicinity of the Project area.

3.5.1 Weeds

Fifty-four introduced plant species were recorded within the survey area of which nine are listed as declared under the *Biosecurity Management Act 2019* (Tas). A tenth declared weed species (serrated tussock) was recorded and removed by Tasmania Parks and Wildlife Service (PWS) at the Tarraleah picnic area. A complete list of introduced species encountered during surveys is provided in the flora species list in Appendix A. The declared weeds known to occur in the survey area include:

- *Cirsium arvense* var. *arvense* (Californian thistle) – recorded throughout the survey area in proximity to all Project components, including in the aquatic survey area on the Nive River downstream of Tungatinah Power Station to Wayatinah Lagoon, and on the River Derwent upstream of Wayatinah Lagoon.

- *Cytisus scoparius* (English broom) – recorded in two locations in the survey area, with the largest infestation occurring in a proposed pad associated with the northern transmission line option, and along Lyell Highway.
- *Digitalis purpurea* (foxglove) – recorded at four locations in the survey area associated with the surge tower off Fourteen Mile Road (outside the Tarraleah Conservation Area), the Tarraleah Golf Course, Tarraleah Village, adjacent Tungatinah Power Station and adjacent the Tungatinah Power Station.
- *Erica lusitanica* (Spanish heath) – recorded at one location within the survey area adjacent Lyell Highway south of the distribution line associated with the surge tower.
- *Genista monspessulana* (Montpellier Broom) – recorded in four locations including on the Lyell Highway north of the Tarraleah Power Station, around Tungatinah Power Station, to the east of Paddy’s Quarry, and a large infestation of *Genista monspessulana* at the eastern end of the northern transmission line option at Dee Lagoon.
- *Nassella trichotoma* (serrated tussock) – although not observed by Entura ecologists during field surveys, PWS recorded and removed serrated tussock from the Tarraleah picnic area at in March 2025.
- *Pilosella aurantiaca* subsp. *aurantiaca* (orange hawkweed) – recorded at three locations in the survey area for the access road to the downstream portal Project component, along Lyell Highway south of the surge tower in the Tarraleah Conservation Area, and along Oldina Drive east of the intersection with Lyell Highway.
- *Rubus fruticosus* (blackberry) – recorded in one location in the survey area adjacent the Lyell Highway near the Tarraleah Power Station.
- *Senecio jacobaea* (ragwort) – recorded in four locations in the aquatic survey area on the River Nive downstream of Lake Liapootah.
- *Ulex europaeus* (gorse) – recorded at one location in the aquatic survey area on the River Derwent downstream of Wayatinah Lagoon.

3.5.2 *Phytophthora cinnamomi*

Commonly known as root rot or dieback, *Phytophthora cinnamomi* is a soil-borne fungal pathogen that invades the roots of plants and starves them of nutrients and water. It is generally spread by the transportation of soil on vehicles, construction machinery and walking boots. Soils that are more favourable for the spread of *Phytophthora* are generally the low nutrient types that support healthy communities. The vegetation types most affected in Tasmania are heathland, moorland, dry eucalypt forest. *Phytophthora cinnamomi* requires warm moist soils if it is to reproduce and spread. This limits its distribution in Tasmania to areas that are generally below about 700 m in altitude. The only potentially susceptible vegetation community within the Tarraleah Redevelopment survey area is the *Eucalyptus amygdalina* forest on dolerite dry eucalypt forest which occurs along the northern and southern transmission line options. However, most of the disturbance footprint is at the upper limit of the altitudinal range of *Phytophthora cinnamomi*; the exception is the southern end of the southern transmission line option which is at 240 m AHD. There are no *Phytophthora cinnamomi* records on the NVA within 5 km of the disturbance footprint, and there were no symptoms of infection (i.e. dieback in susceptible species) recorded during field surveys. The nearest record of *Phytophthora cinnamomi* on the NVA is over 6 km south of the southern end of the southern transmission line option.

3.5.3 Tasmanian Devil Facial Tumour Disease

Three Tasmanian devil detection events were captured by the camera trapping program at the Tarraleah Golf Course, and none showed any evidence of the transmissible cancer **Devil Facial Tumour Disease.** However, the disease is known to be endemic to the region; there have been observations of affected Tasmanian devils in the Central Highlands bioregion since 2017 (Woods et al., 2018).

3.5.4 Chytrid fungus

Chytrid fungus causes the disease of chytridiomycosis or chytrid infection which is a threat to Tasmania's native amphibians. The fungus infects the skin of frogs affecting its structure and interfering with its function and can result in the death of infected frogs (Philips et al., 2010). There are no records on the NVA of chytrid fungus (*Batrachochytrium dendrobatidi*s) within 5 km of the disturbance footprint.

3.5.5 Toxoplasmosis

Toxoplasmosis is caused by the intestinal parasite of cats - the protozoan *Toxoplasma gondii*. This disease presents in marsupials as both a subclinical infection and an overt disease. Quolls may contract the disease through exposure to cat faeces, food or water that has been contaminated by cat faeces, or through eating the flesh of animals that contain the parasite. Toxoplasmosis-associated neurological effects may cause quolls to be more susceptible to predation and motor vehicles strike (Fancourt, 2010). The disease can cause death in bandicoots.

3.5.6 Sarcoptic mange

The bare-nosed wombat images captured by the camera traps at the Tarraleah Golf Course did not show any signs of sarcoptic mange (caused by the parasitic mite *Sarcoptes scabiei*).

3.5.7 Pest animals

Introduced European fallow deer (*Dama dama*) and European rabbits (*Oryctolagus cuniculus*) are known to occur in the region. The closest deer record is from 2023 and is 8.6 km to the northeast of the surge tower, near the northern shore of Lake Binney. Rabbit scat has been recorded in the Tarraleah Golf Course. Cats (*Felis catus*) are known to occur in the Project area, particularly near the Tarraleah Village and Golf Course. The camera trapping program resulted in three separate cat (*Felis catus*) detections on the golf course and an additional 14 separate detections during the mature dry forest camera trap survey at the main project disturbance footprint and on the southern transmission line option. Cats are a known threat to bandicoots, birds, and a range of other native wildlife; feral and domestic cats may compete with native carnivores and reduce their abundance.

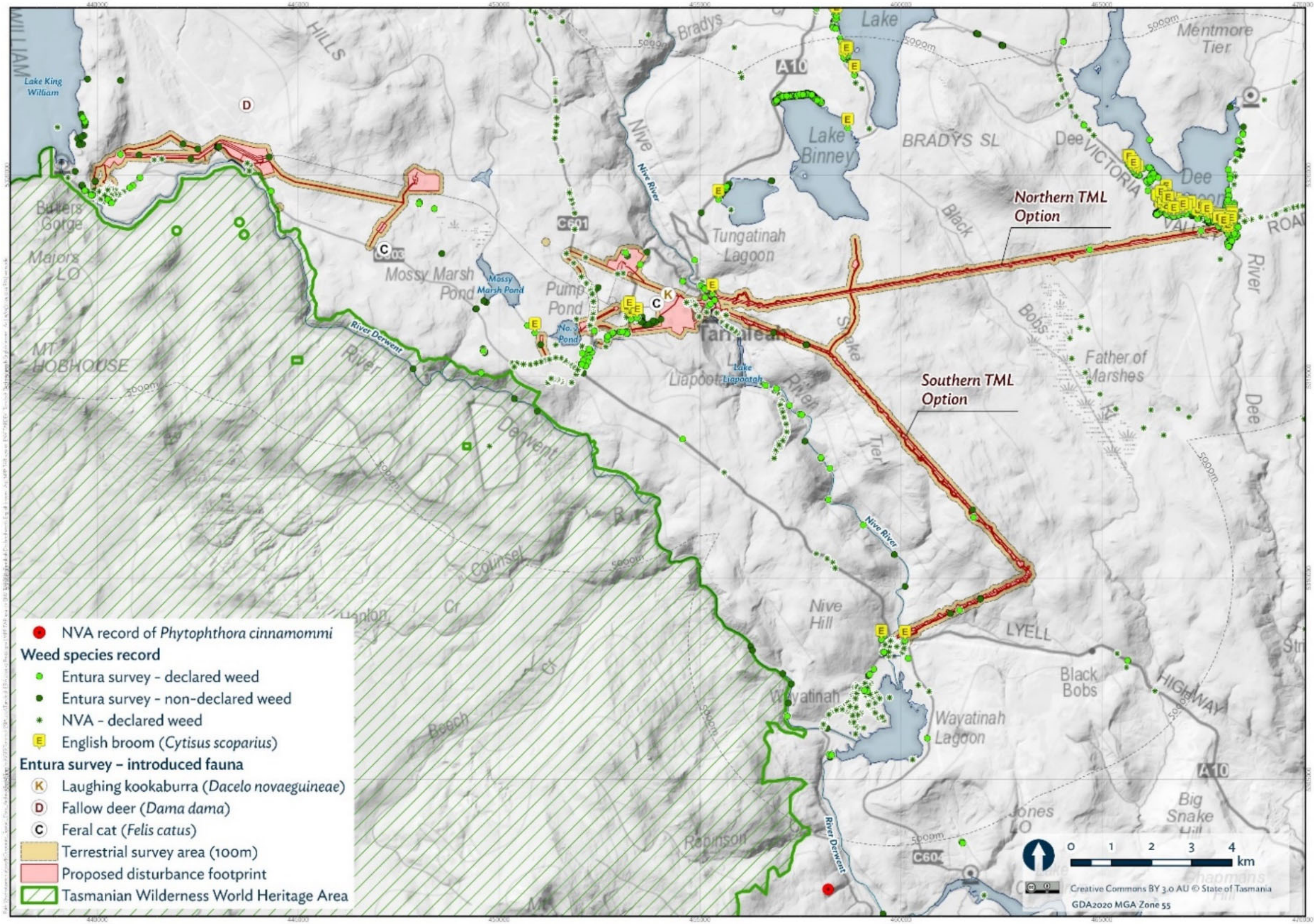

Figure 3.77: Map of record of introduced species and disease in the vicinity of the Project

3.6 Sites of geoconservation significance

The Tasmanian Geoconservation Database documents geological, geomorphological (landform), and pedological (soil) sites, features, areas and systems considered to be of significant conservation, scientific or heritage value. Site values are classified according to formative process into 81 types, which are further subdivided by geological age. Values are assigned significance on a five-level scale ranging from local to global. Significance is determined by an expert panel, the Tasmanian Geoconservation Database Reference Group, which assesses site nominations on behalf of Natural Resources and Environment Tasmania (NRE Tas).

There is one listed geoconservation feature within the disturbance footprint, the Western Tasmania Blanket Bogs. There are approximately 20.7 ha of the Western Tasmania Blanket Bogs within the disturbance footprint comprised of pure buttongrass moorlands (MBP) and buttongrass moorlands with emergent shrubs (MBS). This geoconservation feature is recognised as being the most extensive organosol (i.e. peat) terrain in Australia and the Southern Hemisphere. There are over one million ha of blanket bogs across western Tasmania (Kitchener and Harris, 2013). The Western Tasmania Blanket Bogs are of a different type (non-*Sphagnum* based) to most comparable northern hemisphere blanket bogs, and their extent is largely natural and undisturbed compared to similarly extensive but significantly more degraded Irish and Scottish blanket bogs. Note that the mapping precision for geoconservation sites the Tasmanian Geoconservation Database 7.0 spatial layer is variable, especially where the boundaries of some larger sites (e.g. the Western Tasmania Blanket Bogs) were determined using aerial photos or other desktop methods and require verification. As such, Entura's field verified vegetation community mapping of buttongrass moorlands in this region supersedes the Geoconservation Database 7.0 spatial layer.

Figure 3.78 shows both the relevant verified buttongrass moorland communities and the Geoconservation Database 7.0 spatial layer.

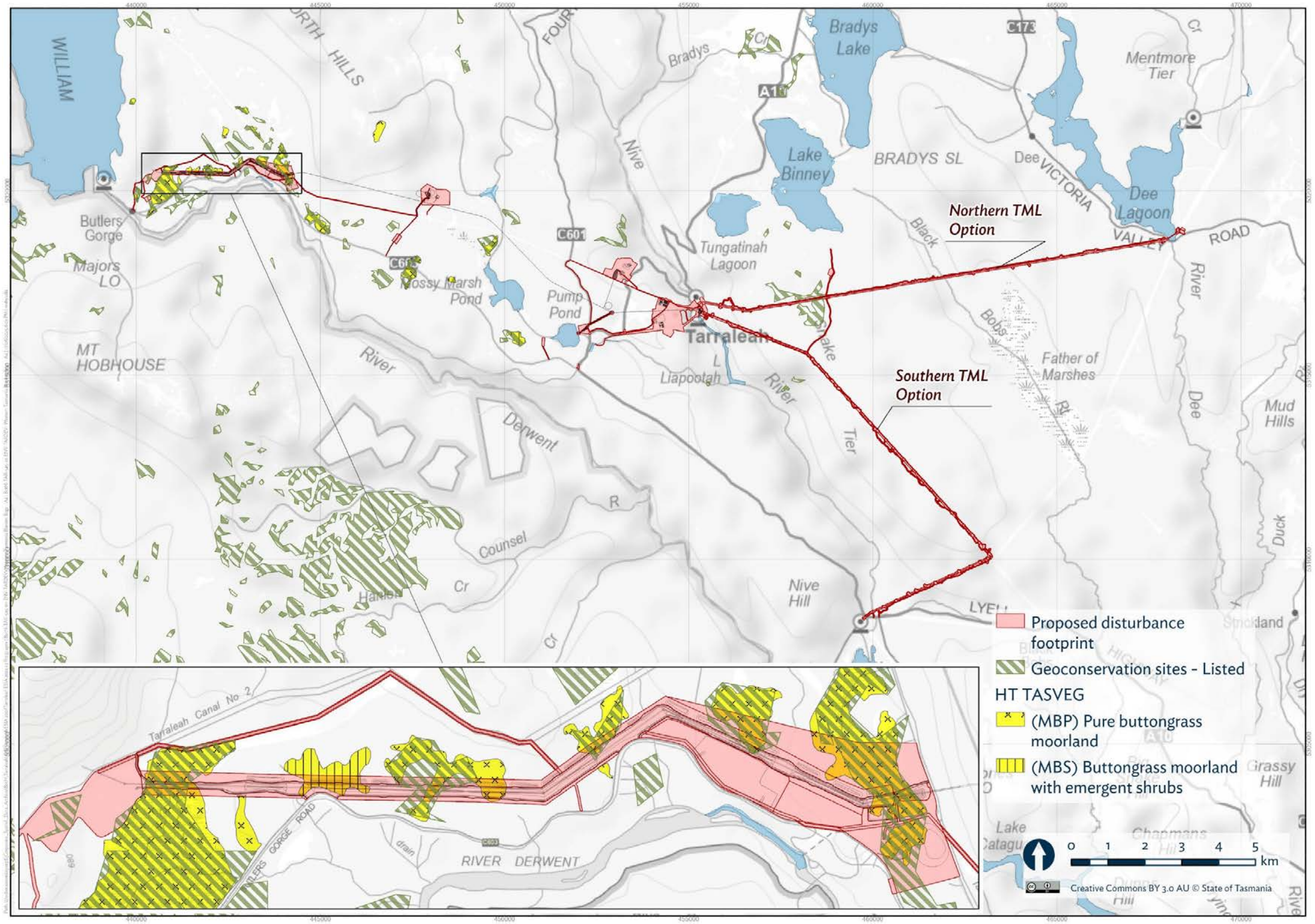

Figure 3.78: Location of mapped buttongrass moorlands within the vicinity of the Project area, the verified components of which are a more accurate extent of the Western Tasmania Blanket Bogs geoconservation feature than the ListData geoconservation database layer

3.7 Formal reserves

There are no designated conservation areas relating to the requirements of international treaties (e.g. Japan-Australia, China-Australia Migratory Bird Agreements or Ramsar Convention), or wetlands listed in Directory of Important Wetlands in Australia within the Project area.

The Tasmanian Wilderness World Heritage Area (TWWHA) is located to the south of the Project (Figure 3.79). The closest point of the disturbance footprint to the TWWHA is 25 m at the Western Portal and Pipeline disturbance footprints.

The Tasmania Parks and Wildlife Service (PWS) is the managing authority for the Tarraleah Conservation Area, within which Hydro Tasmania proposes to develop infrastructure related to the Tarraleah Redevelopment Project (Figure 3.79, Figure 3.80). The reserve is approximately 967.2 ha in area and lies within the Central Highlands local government area. The proposed infrastructure is a surge shaft and tower, with the associated rising main, access track and distribution line from Tarraleah Pump Pond No. 2. As of January 2025, there was no reserve management plan for the Tarraleah Conservation Area. Pursuant to Schedule 1 of the *Nature Conservation Act 2002* (NC Act), the purpose of reservation for a conservation area is to provide for "*the protection and maintenance of the natural and cultural values of the area of land and the sustainable use of natural resources of that area of land".*

The Tarraleah Conservation Area is classified under IUCN category IV, which are areas primarily managed for the maintenance of habitats or to meet the requirements of specific species and which have the following objectives:

- secure and maintain the habitat conditions necessary to protect significant species, groups of species, biotic communities or physical features of the environment where these require specific human manipulation for optimum management
- to facilitate scientific research and environmental monitoring as primary activities associated with sustainable resource management
- to develop limited areas for public education and appreciation of the characteristics of the habitats concerned and of the work of wildlife management
- to eliminate and thereafter prevent exploitation or occupation inimical to the purposes of designation
- to deliver such benefits to people living within the designated areas as are consistent with the other objectives of management (IUCN, 1994).

The 967.2 ha Tarraleah Conservation Area is comprised of approximately 868.7 ha of native vegetation, **53.0** ha of modified vegetation (primarily existing easement), and **45.6** ha of water. The native vegetation includes **668.2** ha of *Eucalyptus tasmaniensis* over rainforest and **55.2** ha of *Eucalyptus tasmaniensis* forest with broad-leaf shrubs.

The native vegetation within the disturbance footprint is dominated by *Eucalyptus delegatensis* up to a height of 40 to 45 m. *Pomaderris apetala* (common dogwood) formed a small tree layer to 8 m. The ground layer was sparse with few native herbs present and tree ferns (*Dicksonia antarctica*) were common in some areas. The declared weed *Pilosella aurantiaca* subsp. *aurantiaca* (orange hawkweed) was recorded along Lyell Highway south of the proposed surge tower site within the Tarraleah Conservation Area.

Up to approximately **13.7** ha of the disturbance footprint for the Tarraleah Redevelopment fall within the Tarraleah Conservation Area, of which **3.3** ha was non-native vegetation including 0.5 ha associated with the potential minor upgrades to the Lyell Highway – Butlers Gorge Road intersection if required to facilitate access (does not form part of the Redevelopment approvals process), **0.9** ha are associated with the temporary explosive magazine, and **1.8** ha are associated with the permanent surge tower and associated rising main, access track and 22 kV distribution line (of which approximately **0.4** ha is comprised of a *Cytisus scoparius* - English Broom, declared weed - infestation). There are **10.4** ha of native vegetation within the disturbance footprint within the Tarraleah Conservation Area, most of which are wet forest dominated by *Eucalyptus tasmaniensis* (Figure 3.80). The temporary clearance required for the explosive magazine encompasses **1.3** ha of *Eucalyptus tasmaniensis* over rainforest (WDR) and **0.1** ha of *Leptospermum* forest (NLE). There are **9.0** ha of native *Eucalyptus tasmaniensis* forest associated with the permanent surge tower and associated rising main, access track and 22 kV distribution line.

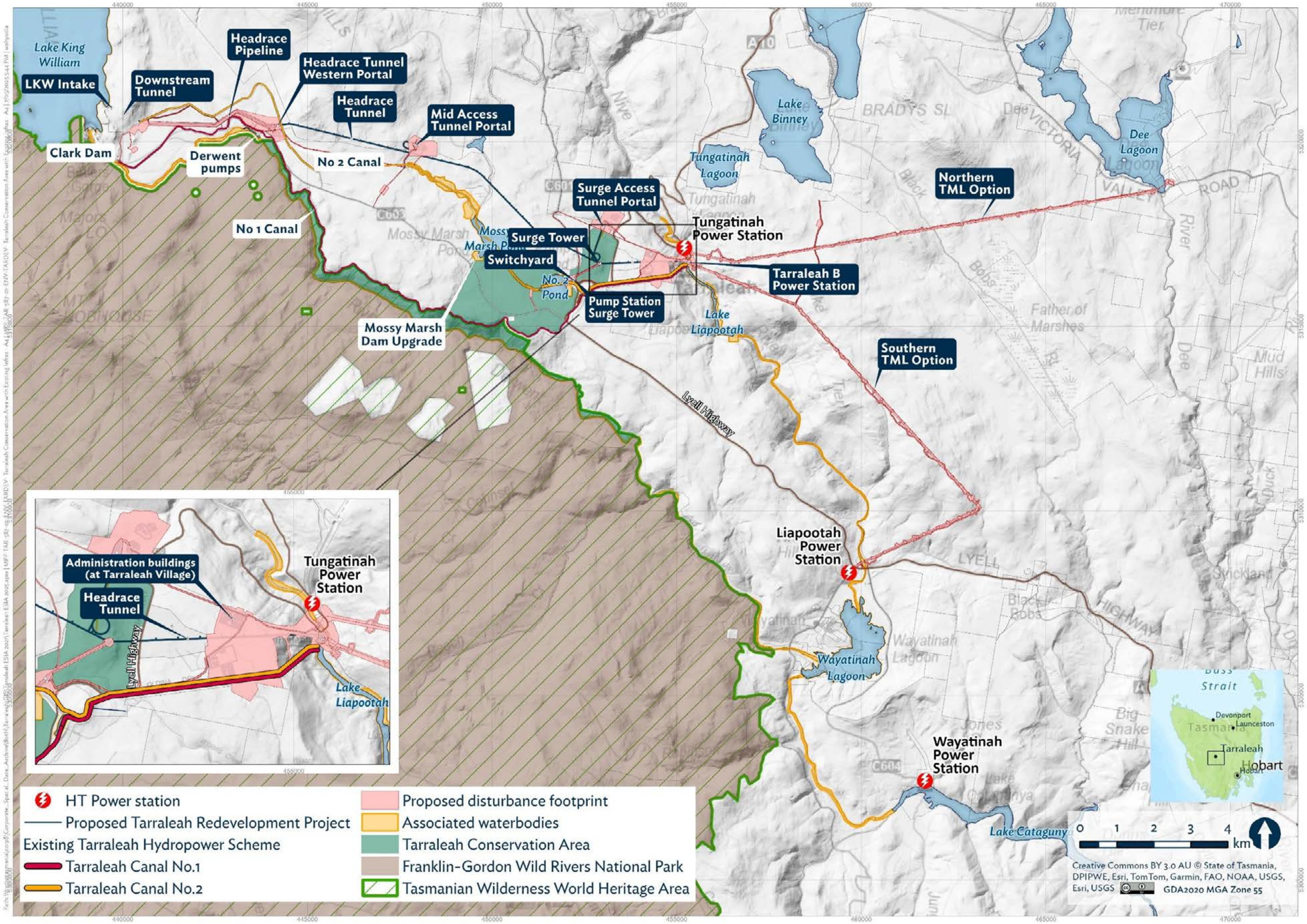

Figure 3.79: Map of the proposed disturbance footprint and formal reserves

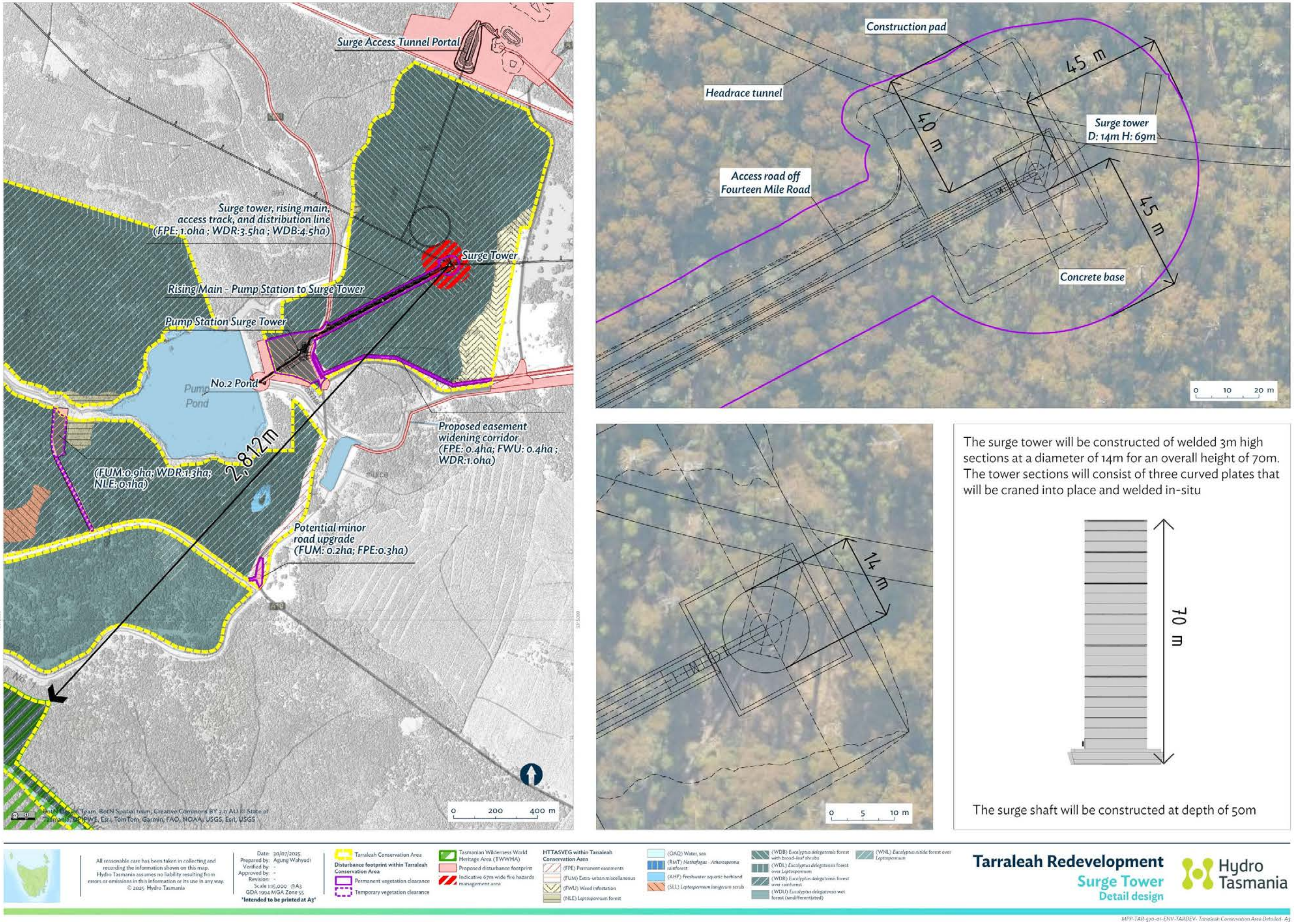

Figure 3.80: Location of Tarraleah Redevelopment infrastructure proposed within the Tarraleah Conservation Area

3.8 Informal reserves

Informal reserves are reserves on Public Land comprising an area identified as a Protection Zone under the Management Decision Classification System (Sustainable Timbers Tasmania) or other administrative reserve on public land that is managed to protect Comprehensive, Adequate and Representative (CAR) values. Informal reserves form part of the Comprehensive, Adequate and Representative Reserve System for Forests in Australia[10].

The disturbance footprint encompasses up to 105.4 ha of informal reserves on Permanent Timber Production Zone land or other Sustainable Timber Tasmania managed land, of which up to 86.6 ha are native vegetation communities (Figure 3.81). The remaining 18.8 ha are modified (non-native) vegetation communities. The native communities in the informal reserves are presented Table 3.8.

Table 3.8: Area of native vegetation communities within the informal reserves that occur within disturbance footprint

Vegetation community	TASVEG Code	Redevelopment (ha)	TL alignment (north) to Dee Lagoon (ha)	TL alignment (south) to Liapootah (ha)	Maximum possible (ha)
Eucalyptus amygdalina forest and woodland on dolerite	DAD	0	0	0.5	**0.5**
Eucalyptus tasmaniensis dry forest and woodland	DDE	0.3	2.2	0.0	**2.5**
Eucalyptus rodwayi forest and woodland	DRO	12.5	2.4	0	**14.9**
Eucalyptus dalrympleana–Eucalyptus pauciflora forest and woodland	DDP	39.6	0	0	**39.6**
Pure buttongrass moorland	MBP	18.4	0	0	**18.4**
Buttongrass moorland with emergent shrubs	MBS	1.9	0	0	**1.9**
Subalpine *Diplarrena latifolia* rushland	MDS	0.5	0	0	**0.5**
Acacia dealbata forest	NAD	0	0.6	0	**0.6**
Leptospermum forest	NLE	3.1	0	0	**3.1**
Eucalyptus tasmaniensis forest with broad-leaf shrubs	WDB	1.9	1.4	2.1	**5.4**
*Eucalyptus tasmaniensis*forest over rainforest	WDR	0.5	0	0	**0.5**
Eucalyptus obliqua forest with broad-leaf shrubs	WOB	0	0	0.3	**0.3**
	Total (ha)	**78.7**	**6.6**	**2.9**	**84.7**

[10] https://www.agriculture.gov.au/agriculture-land/forestry/policies/rfa/about/protecting-environment

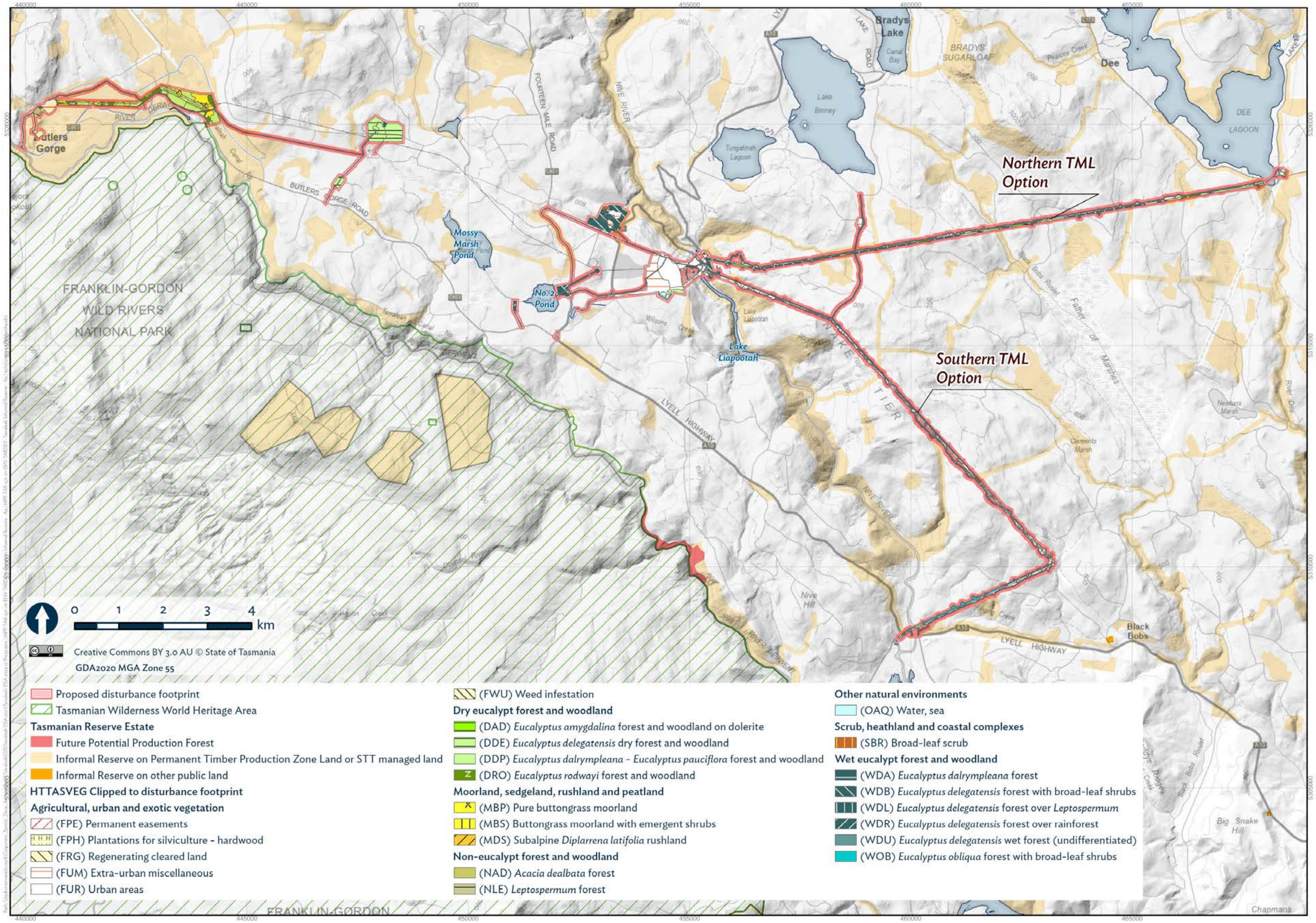

Figure 3.81: Map of disturbance footprint and informal reserves

3.9 Tasmanian Permanent Native Forest Estate

Within the disturbance footprint, there are nine forest communities (Figure 3.82) that are managed in accordance with the Tasmanian *Permanent Native Forest Estate Policy*[11], which is implemented by the Tasmanian Forest Practices Authority (FPA) under the *Forest Practices Act 1985* and which is required for compliance with the Tasmanian *Regional Forest Agreement Act 2002* (Cth, RFA). There are up to **133.5 ha** of native forest communities within the main infrastructure disturbance footprint, and if the northern transmission route is chosen, there will be an additional **63.2 ha**; if the southern transmission route is chosen, there will be an additional **48.8 ha**. Across all land parcels, there are up to approximately **196.7 ha** of native forest communities within the disturbance footprint, if the northern transmission option is chosen (Figure 3.82). There are up to approximately **182.3 ha** of native forest communities within the disturbance footprint, if the southern transmission option is chosen.

There are two land parcels where 20 ha or more of native forest is within the disturbance footprint. This includes **123.1 ha** of native forest including wet and dry eucalypt forest, namely *Eucalyptus delegatensis* dominated forest **(67.0 ha**), to be cleared on a single property (PID 3384222) for the main infrastructure disturbance footprint. If the northern transmission line option is selected, there are **48.4 ha** of native forest within a single STT property (PID 3385073) that will be cleared and converted, namely *E. delegatensis* forest over broad-leaf shrubs (**31.7 ha**). If the southern transmission line option is selected, there are **48.8 ha** of native forest within the same single STT property (PID 3385073) that will be cleared and converted. Thus, whichever transmission line option is selected for construction, the clearance and conversion of native forest on this single STT property within a 5-year period would be defined as "broad-scale clearance and conversion" as per the *Permanent Native Forest Estate Policy*.

The southernmost 2 km of the southern transmission line option is within the IBRA4 (Interim Biogeographic Regions of Australia version 4) Midlands bioregion, whereas the rest of the disturbance footprint is within the IBRA4 Central Highlands bioregion. The only forest communities within the small area of disturbance footprint within the Midlands bioregion is a **5.1 ha** area of *Eucalyptus obliqua* forest with broad-leaf shrubs (TASVEG code WOB), which corresponds to the "tall *E. obliqua* forest" RFA community, and **1.1 ha** of *Eucalyptus amygdalina* forest and woodland on dolerite (TASVEG code DAD), which corresponds to the "*E. amygdalina forest on dolerite*" RFA community. As at 30 June 2025, the Tasmanian FPA reported the remaining Midlands extent of tall *E. obliqua* forest as 7,816.2 ha and *E. amygdalina* forest on dolerite as 39,998.1 ha. Therefore, if the southern transmission line option is selected for construction over the northern route, less than one-tenth of one percent of the current extent of tall *E. obliqua* forest and *E. amygdalina* forest on dolerite is proposed for clearance and conversion to easement. For hazard tree management of the southernmost 2 km of this transmission line route option, up to **3 ha** of tall *E. obliqua* forest may also need to be cleared in addition to the **5.1 ha** that will be cleared for easement widening. The clearance required for hazard tree management has been estimated from desktop analyses of tree canopy height data and is likely an over-estimate of what an arborist will mark out for clearance on the ground. There are up to **25.0 ha** of hazard tree management zones associated with the transmission line options in the Central Highlands bioregion, largely comprised of *Eucalyptus delegatensis* forest with broad-leaf shrubs (**15.2 ha** of WDB), and *Eucalyptus delegatensis* dry forest and woodland (**5.9** ha of DDE). None of the forest communities as classified under the RFA will lose more than **0.3 of one percent** of the current extent of that community (Table 3.9) in either the Central Highlands or the Midlands bioregions.

[11] Tasmania's *Permanent Native Forest Estate Policy* regulates the extent to which native forests can be cleared and converted to other land uses. The Policy limits "clearance and conversion of more than 20 hectares of native forest in any period of five consecutive years (based on calendar years) per property" except where it is for the construction of new significant infrastructure or is to facilitate any development that demonstrates substantial public benefit.

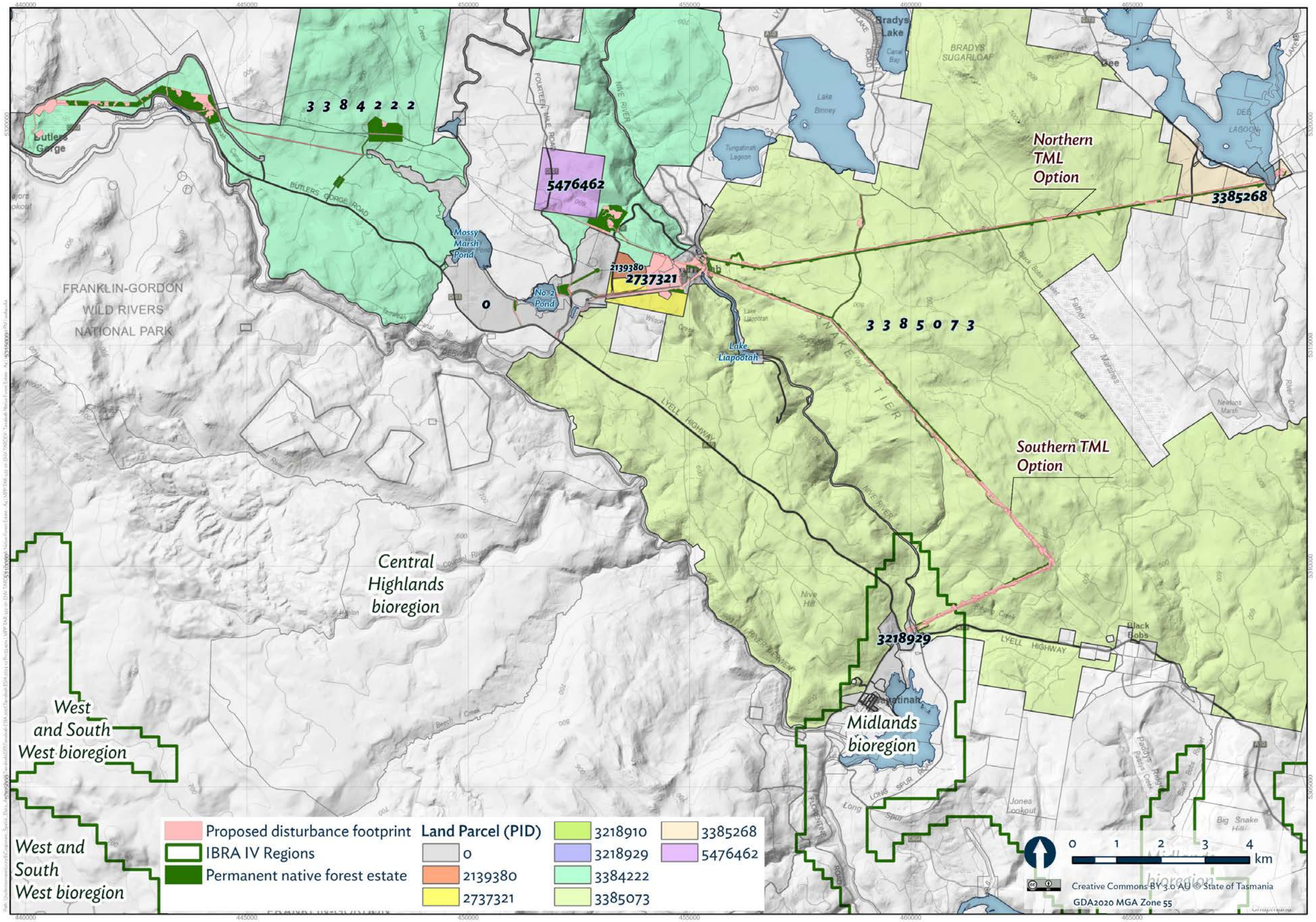

Figure 3.82: Map of permanent native forest estate within the disturbance footprint and relevant land parcel boundaries

Table 3.9: Impact to Tasmanian Permanent Native Forest Estate, based on remaining extents within the Central Highlands IBRA4 bioregion, as reported in the Tasmanian Forest Practices Authority's annual report 2024-25

			Main Infrastructure		Northern transmission option		Southern transmission option	
RFA Forest Community	**Corresponding TASVEG community**	**Remaining extent in Central Highlands bioregion (ha)**	**Extent within disturbance footprint (ha)**	**% of remaining bioregion extent**	**Extent within disturbance footprint (ha)**	**% of remaining bioregion extent**	**Extent within disturbance footprint (ha)**	**% of remaining bioregion extent**
E. amygdalina forest on dolerite	*Eucalyptus amygdalina* forest and woodland on dolerite (DAD)	4,468.0	0	0	4.2	<0.1	1.4	<0.1
Dry *E. delegatensis* forest	*Eucalyptus delegatensis* dry forest and woodland (DDE)	156,329.3	38.1	<0.1	13.0	<0.1	0.3	<0.1
E. pauciflora forest on Jurassic dolerite	*Eucalyptus dalrympleana–Eucalyptus pauciflora* forest and woodland (DDP)	16,643.1	39.6	0.2	0.2	<0.1	0	0
Acacia dealbata forest	*Acacia dealbata* forest (NAD)	6,937.7	0.4	<0.1	0.6	<0.1	0	0
E. rodwayi forest	*Eucalyptus rodwayi* forest and woodland (DRO)	5,302.3	12.1	0.2	5.1	<0.1	0.5	<0.1
Tall *E. delegatensis* forest	*E. delegatensis* forest with broad-leaf shrubs (WDB), *E. delegatensis* forest over rainforest (WDR), *E. delegatensis* over *Leptospermum* (WDL)	145,647.9	43.3	<0.1	40.1	<0.1	37.3	<0.1
Tall *E. obliqua* forest	*Eucalyptus obliqua* wet forest (WOB)	12,941.7	0	0	0	0	9.3	<0.1
	TOTAL	N/A	**133.5**	**0.5%**	**63.2**	**0.2%**	**48.8**	**0.1%**

3.10 Modelled wilderness value

The Tasmanian ListMap layer of modelled wilderness value is based on the National Wilderness Inventory (NWI) methodology, which was developed by the Australian Heritage Commission in the mid-1990s to assess wilderness values across much of Australia including most of Tasmania in 1995, the results of which formed part of the basis for the 1997 Tasmanian *Regional Forest Agreement* (RFA). High-quality wilderness areas are those with a score of twelve (12) or higher out of twenty (20) (Commonwealth of Australia, 1997).

There are no high-quality wilderness areas that will be directly impacted by the Project. Most of the Tarraleah Redevelopment survey area is primarily classed as having an NWI score of between 1.0 and 8.0 out of 20.0; apart from the western end of the survey area which has a NWI score between 8 and 10. The area around the Tarraleah Village does not have a NWI score. Most of the survey area is classed as having an NWI score of less than 1. The modelled wilderness values in the vicinity of the survey area are shown in Figure 3.83.

Potential indirect impacts to the reaches of the River Derwent within the Tasmanian Wilderness World Heritage Area (TWWHA), as well as recommended mitigation measures, are addressed in the Tarraleah Redevelopment Aquatic Ecology Assessment (Entura, 2025).

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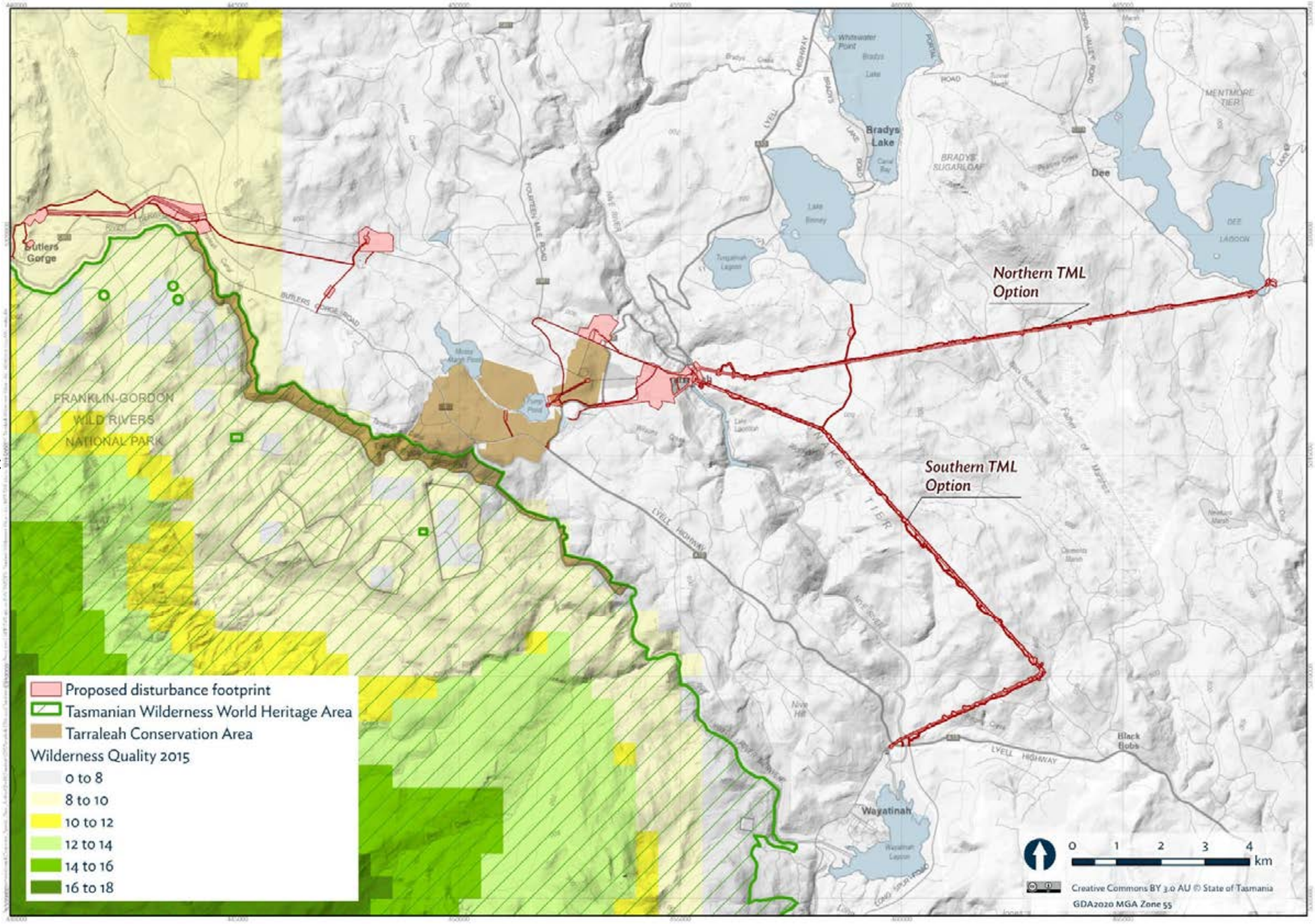

Figure 3.83: Map of modelled wilderness quality in the vicinity of the Tarraleah Redevelopment Project

4. Potential impacts and mitigation measures

The redevelopment will result in permanent alterations to the landscape in the form of a new pipeline, tunnel and access portals, access tracks, and a surge tower with associated infrastructure, as well as a new power station on the Nive River. A combination of permanent and temporary spoil stockpiles will be required for construction and operation. Temporary facilities including laydown areas, accommodation for workers, site offices, and workshops will be built to enable construction and will be later dismantled and sites rehabilitated and revegetated. The 220 kV transmission line and the 30-m extension of the existing easement required to accommodate it will be a permanent addition to the landscape; and new and upgraded existing access tracks established during construction will be maintained during the operational stage. It is likely that hardstands established at winch, drum and brake sites used to string the conductors will be left in situ after construction is completed to be used for maintenance activities.

The main potential impact on terrestrial flora and fauna values is the removal of native vegetation for the construction of the pipeline, the tunnel portals, tunnel spoil stockpile areas, the surge tower and associated infrastructure and the widening of the transmission line easement. The disturbance footprint associated with the construction of conveyance components (i.e. not transmission line infrastructure) of the Tarraleah Redevelopment Project includes up to approximately **161.1 ha** of native vegetation.

The construction of the northern transmission line option from the new Tarraleah Power Station to Dee Lagoon will result in the clearing of area of **up to 58.5 ha** of native vegetation; this value does not include the potential clearance of up to a further **17 ha** that may be required to manage hazard trees[12], pending assessment by arborists.

The construction of the southern transmission line option from the new Tarraleah Power Station to Liapootah will result in the clearing of area of up to **48.8 ha** of native vegetation. Similarly to the northern option, the disturbance footprint does not include the potential clearance of up to a further **12 ha** that may be required to manage hazard trees, pending assessment by arborists.

The increased vehicle movements associated with the construction of the Project may increase the risk of:

- roadkill, particularly of threatened species such as the Tasmanian devil, spotted-tailed quoll and Tasmanian wedge-tailed eagle
- spreading weeds and diseases.

Noise and vibration associated with construction activities may also cause disturbance to birds and mammals. Studies have shown that terrestrial mammals have varying responses to noise from ignoring or tolerating to avoiding noise with impacts ranging from negligible to major (Erbe et al., 2022). For mammals and birds that rely on hearing for hunting (e.g. Tasmanian masked owl) anthropogenic noise can interfere with their ability to find and catch prey (Erbe et al., 2022). Noise and vibration associated with construction activities may also cause disturbance to breeding threatened native carnivore

[12] Hazard trees are those trees outside of the easement that are at a height of 30 m or more and are assessed as unhealthy and could fall across the transmission line therefore they need to be removed. It also includes trees with hazardous branches or limbs that need to be trimmed. Hazard trees include dead or dying trees, and trees with obvious externally visible defects, at high risk of failure in foreseeable weather conditions, and upon failure would be likely to come into contact with overhead power lines.

mammals and the raptors, the wedge-tailed eagle and white-bellied sea-eagle. Human activities that can be heard, smelt, or seen by devils within 50 m of den sites during the maternal denning period (July to December inclusive) have the potential to cause desertion of young devils (imps) by their mother; such activities are likely to similarly disturb maternal dens of either quoll species.

A detailed assessment of noise and vibration associated with construction was conducted by NVC (2025). The construction phase of the Project will increase levels of noise above the baseline level, as a result of both works within the site as well as increased traffic volumes coming to and from site. The Project involves a pipeline, underground works (tunnel access and portals) to the above ground power station on the banks of Nive River. The underground works and associated activity will be undertaken 24 hours a day, seven days a week as well as surface works that will mostly occur during daylights hours. Operation of the Project will not produce any significant on-site noise emissions or traffic noise levels on surrounding roads. Sources of ground vibration for the Project have been identified as:

- short-term vibration from vibratory rolling and rock breaking, which will be reduced by the installation of a rock breaker shroud, and
- earthworks where drill and blast methods will be used – such as in tunnel portal excavation, underground tunnelling – that may result in both ground vibration and air blast overpressure (shockwaves that occur as a result of blasting).

A detailed assessment of potential impacts on natural values and recommended mitigation measures is provided in the following sections.

4.1 Vegetation

There were 15 native vegetation communities comprising **161.1 ha** identified and mapped within disturbance footprint and associated infrastructure (e.g. tunnel portals, spoil heaps and access tracks) for the main conveyance component of the Project (i.e. not the transmission alignments). The disturbance footprint for the conveyance and associate infrastructure also includes **129.9 ha** of modified vegetation communities (Table 3.3).

The largest areas of native vegetation impacted are the native forest communities including:

- *Eucalyptus dalrympleana–Eucalyptus pauciflora* forest and woodland
- *Eucalyptus delegatensis* dry forest and woodland
- *Eucalyptus delegatensis* forest with broad-leaf shrubs
- *Eucalyptus rodwayi* forest and woodland.

There are also up to **20.7 ha** of buttongrass moorland that will be impacted by the construction of the pipeline for the project, which includes approximately **18.4 ha** of pure buttongrass moorland and **2.3 ha** of buttongrass moorland with emergent shrubs (Figure 3.2). Note that the buttongrass moorland communities form part of the Western Tasmania Blanket Bogs site of geoconservation significance (ID 2527), the statement of significance being ‘the most extensive organosol (i.e. peat) terrain in Australia and the Southern Hemisphere’.

There is also **0.5 ha** of subalpine *Diplarrena latifolia* rushland (MDS) which is listed as threatened under the NC Act and not listed under the EPBC Act. There are approximately 600 ha of subalpine *Diplarrena latifolia* rushland mapped across Tasmania of which 45% (270 ha) is mapped within the secure National Reserve System (Department of Natural Resources and Environment Tasmania, 2022). The mapped area in reserves increases to 83% when the wider Tasmanian Reserve Estate is considered, which also includes informal reserves (Department of Natural Resources and Environment Tasmania, 2022). The loss of **0.5 ha** of the threatened subalpine *Diplarrena latifolia* rushland (MDS) represents **0.083 of one percent** of the 600-ha statewide extent of this vegetation community and **0.100 of one percent** of the **498-ha** extent of subalpine *Diplarrena latifolia* rushland within the Tasmanian Reserve Estate (including formal and informal reserves). Approximately 0.3 ha of the 0.5 ha of subalpine *Diplarrena latifolia* rushland community will be in use during the operation of the Project where the new pipeline will be located.

It is recommended that effort be made to minimise disturbance to the impacted vegetation communities during construction with particular attention paid to minimising impacts on the buttongrass moorlands and subalpine *Diplarrena latifolia* rushland vegetation communities. *Diplarrena latifolia* (western flag-iris) within the subalpine *Diplarrena latifolia* rushland within the pipeline corridor and buttongrass (*Gymnoschoenus sphaerocephalus*) rushes within buttongrass moorlands in the disturbance footprint are to be stockpiled as close as possible to their original location and, after construction of the relevant infrastructure, be spread over areas no longer required for operation. Areas not required post construction will be revegetated including the re-establishment of the buttongrass moorland and of subalpine *Diplarrena latifolia* rushland vegetation communities.

The construction of the northern transmission line option will require a nominal ground area of 100 m by 50 m for the construction of a transmission tower; each tower has a nominal footprint of 15 m by 15 m. All vegetation will be cleared to ground level from this area, which may require benching in some instances. A permanently cleared area of approximately 15 m from each tower leg is required for operation and maintenance, including tower inspections. Temporary construction areas will be rehabilitated with native vegetation suitable for the safe and reliable operation of the transmission assets. There were six native vegetation communities identified and mapped within disturbance footprint for the northern transmission line option, none of which are listed as threatened under the NC Act or the EPBC Act.

The southern transmission line option will be a steel pole double circuit 220 kV line. The construction of the southern transmission line option will require a nominal hardstand area of 100 m by 50 m for the construction of the transmission pole; each pole has a nominal footprint of 15 m by 15 m. All vegetation will be cleared to ground level from pole location and hardstand area, which may require benching in some instances. A permanently cleared area of approximately 15 m from each pole is required for operation and maintenance, including tower inspections. Temporary construction areas will be rehabilitated with native vegetation suitable for the safe and reliable operation of the transmission assets.

There were five native vegetation communities identified and mapped within disturbance footprint for the southern transmission line option, none of the which are listed as threatened under the NC Act or the EPBC Act.

During operation of the project, up to approximately **75.9ha** of native vegetation will be required to house infrastructure (of which **31.7** ha is for non-transmission line related infrastructure). Up to **63.6 ha** of modified vegetation will be required to house infrastructure (of which **26.2** ha is for non-transmission line related infrastructure). The (current) native vegetation that is likely to be in the operational footprint includes up to approximately **32.1 ha** of dry eucalypt forest (DAD, DDE, DDP and DRO), **35.8 ha** of wet eucalypt forest (WDB, WDR and WOB), **4.9 ha** of buttongrass moorlands (MBP and MBS), **1.5 ha** of non-eucalypt forest (NAD and NLE) and **0.3 ha** of subalpine *Diplarrena latifolia* rushland (MDS).

Measure A. A final Project disturbance footprint (located within the Project disturbance footprint presented within this EIS) will be established, based on the Project's final design and construction method. The final Project disturbance footprint and vegetation clearing exclusion zones will be clearly demarcated on Project plans, communicated to all construction personnel and physically marked on site. Vegetation clearing will be limited to the minimum necessary to construct the Project and allow for its effective operation. A vegetation clearance plan will be developed and implemented as part of the Construction Environmental Management Plan (CEMP) that will specify appropriate procedures to ensure that vegetation clearance is minimised.

Measure B. Hazard trees associated with the Project's 220 kV transmission line and 22 kV distribution lines will be identified and assessed by a suitably qualified arborist prior to construction. Those marked for removal or trimming will be checked for fauna use of tree hollows by a suitably qualified person prior to removal. If native fauna are found to be using hollows in hazard trees, a permit to 'Take' in accordance with the TSP Act and/or NC Act will be required.

Measure C. *Diplarrena latifolia* (western flag-iris) within the subalpine *Diplarrena latifolia* rushland within the pipeline corridor and buttongrass (*Gymnoschoenus sphaerocephalus*) within buttongrass moorlands in the disturbance footprint will be stockpiled as close as possible to their original location and, after construction of the relevant infrastructure, be spread over areas no longer required for operation.

The buttongrass moorland and the subalpine *Diplarrena latifolia* rushland vegetation communities will be re-established in areas not required after construction. Specifically:

- Suitably qualified ecologists will monitor the revegetation and rehabilitation of the <1-hectare Tasmanian NC Act listed *Diplarrena latifolia* rushland community that occurs on the pipeline alignment by conducting annual, formal vegetation condition assessments during the 2 years post-construction completion to ensure that *Diplarrena latifolia* (western flag-iris) re-establishes as per the success criteria of the Rehabilitation Management Plan.
- Suitably qualified ecologists will monitor the revegetation and rehabilitation of the buttongrass moorlands within the disturbance footprint annually during the 2 years post-construction completion (i.e. 1 year after completion and 2 years after completion) to ensure that buttongrass (*Gymnoschoenus sphaerocephalus*) re-establishes as per the success criteria of the Rehabilitation Management Plan.
- Monitoring and treatment for weeds in and within 50 m of the works areas (focused on areas of past disturbance or disturbance associated with the Project) will continue for the duration of construction and for a period of 2 years post-construction. At completion of construction, the contractor will provide a report demonstrating how native vegetation has been avoided and clearing minimised.

4.2 Potential hydrological impacts to *Sphagnum* peatland

The *Sphagnum* peatland community that is located approximately 400 m upstream of Mossy Marsh Pond will not be directly impacted by project activities as there will be no construction activity at the site of the peatland, nor any other activities at or adjacent to the site. However, this community could potentially be indirectly impacted by the proposed Tarraleah Redevelopment Project because of hydrological changes caused by the partial decommissioning of No. 2 Canal resulting in a reduced flow past the *Sphagnum* peatland. In addition, the proposed tunnel excavation works may cause groundwater drawdowns in some of the surrounding areas and tunnel pressurisation during operation may lead to leakage of water through the joints and faults in the bedrock (primarily Tertiary basalt and older Period dolerite in this area). The ecological impacts of hydrological changes on *Sphagnum* peatlands will be determined by; the duration of the changes, whether the water table is lowered or raised, the vegetation community's degree of groundwater dependency, surface water dynamics, root zone depth, topography, underlying geological characteristics and soil type, among other factors. In extreme cases, prolonged changes to water table levels can alter the floristic composition of a vegetation community to the extent that it transitions into a different community. A significant impact assessment for the *Sphagnum peatland* as part of the Alpine *Sphagnum* Bogs and Associated Fens threatened ecological community against the guidelines in the EPBC Act Policy Statement 1.1 (DEWHA, 2013) is provided in Appendix F.1.

A section of No. 2 Canal will be decommissioned between the current outlet at Clark Dam and the inlet from the Derwent pumps. No. 2 Canal will continue to deliver water into Mossy Marsh Pond from operation of the Derwent Pumps (up to 2.8 cumecs) and through the continued diversion of minor creeks which supply the canal. The peak discharge from Canal No. 2 past the *Sphagnum* peatland community is estimated to decrease from 12.7 cumecs to approximately 4.5 cumecs, and the median discharge will decrease from approximately 9 cumecs to approximately 1 cumec. Therefore, the reduction in flow upstream of Mossy Marsh Pond could affect the groundwater level that maintains the current *Sphagnum* peatland community.

The Conservation Advice for Alpine *Sphagnum* Bogs and Associated Fens (DEWHA, 2008b) identifies that a priority action is to 'prevent or minimise any changes or disruptions to hydrology and water flows which may result in changes to the water table levels, increased run off or sediment'. A hydrogeological assessment was undertaken of the groundwater conditions across the Project site, and a conceptual groundwater model was developed (Figure 4.1). The assessment found that groundwater heads in the vicinity of the *Sphagnum* community are correlated with water levels in Mossy Marsh Pond and/or discharges from the Canal No. 2 (PSM, 2025). Changes in flows and water levels in Mossy Marsh are also closely correlated with rainfall. Therefore, the hydrogeological assessment concluded that rainfall is the predominant influence of groundwater heads at the Mossy Marsh *Sphagnum* peatland (PSM, 2025). The assessment also considered the contribution of Mossy Marsh Canal to groundwater. The analysis of the groundwater data indicated that the aquifer system beneath the *Sphagnum* peatland is full and that the typical discharge of 9 cumecs from Mossy Marsh Canal to the headwaters of the Mossy Marsh Pond provides supplementary water that contributes to surface run-off and that there would be limited infiltration into the groundwater table. Overall, it appears the flows from Mossy Marsh Canal are a form of artificial recharge that moderate the magnitude and period of seasonal water table fluctuations with Mossy Marsh. Therefore, the partial decommissioning of No. 2 Canal and associated reduction in flows is unlikely to affect the *Sphagnum* peatland at Mossy Marsh.

The *Sphagnum* peatland community may be also indirectly impacted if tunnel excavation work result in prolonged drawdown of the shallow water table during times of low rainfall, which would likely negatively impact the *Sphagnum* moss, the floristic composition of the community, and/or the condition and viability of the community near Mossy Marsh. However, the groundwater investigations have determined that the cumulative influences of a net positive hydrological water balance, artificial recharge by discharges from Mossy Marsh Canal and the Mossy Marsh waterbody itself and the interpreted hydraulics for soils and fractured rock aquifers would restrict the southward propagation of drawdown at the peatland (PSM, 2025). That is, the surface water availability and vertical infiltration capacities would predominantly offset any potential local drawdowns due to the drained tunnel (PSM, 2025).

The EPBC Act Listing Advice for Alpine *Sphagnum* Bogs and Associated Fens suggests that waterlogging associated with raising groundwater levels during tunnel pressurisation can change the floristic structure of the community by reducing the *Sphagnum* moss cover and increasing sedge cover, stating that "The absorptive properties of *Sphagnum* spp. and the underlying peat regulate the lateral spread of moisture within this ecological community and ultimately define its boundaries. Under operation the tunnel will be full of water that is pressurised to a level above the baseline water table elevations which will result in leakage of tunnel waters into and above the ground along fractures zones in the dolerite. However, the groundwater investigations found that there appears to be a limited connection between the tunnel and the *Sphagnum* peatland indicating that, in the operation stage of the Project, the altered hydrological influences on peatland from the local leakage of tunnel water onto the ground surface will be insignificant (PSM, 2025).

Therefore, it is considered the Project is unlikely to have a significant impact on the Alpine *Sphagnum* Bogs and Associated Fens threatened ecological community because the hydrogeological assessment indicated that the groundwater conditions beneath the *Sphagnum* peatland are maintained by rainfall and not Canal No. 2. In addition, the peatland does not appear to be geologically connected to the tunnel to the extent that there will be an impact. However, due to uncertainty surrounding the understanding of the groundwater dynamics and the magnitude of the potential impact on the *Sphagnum* peatland, a precautionary approach has been taken such that it is considered likely that the Project will have a significant impact on this threatened ecological community. Therefore, an offset in accordance with DPIPWE's *General Offset Principles* will be secured (see Section 4.2.2). A monitoring program has been implemented to capture baseline conditions for the *Sphagnum* peatland and will continue during construction to detect any impacts. The monitoring plan is detailed below.

Any process water that includes nitrates produced by construction blasting will be intercepted by erosion and sediment control measures on-site and disposed of via No. 2 Canal which flows past the *Sphagnum* peatland however, the level of nitrate will be only marginally higher than current levels. The canal is lower than the *Sphagnum* peatland, and therefore in most conditions any nitrate-loaded water will flow past the peatland and is unlikely to affect the peatland.

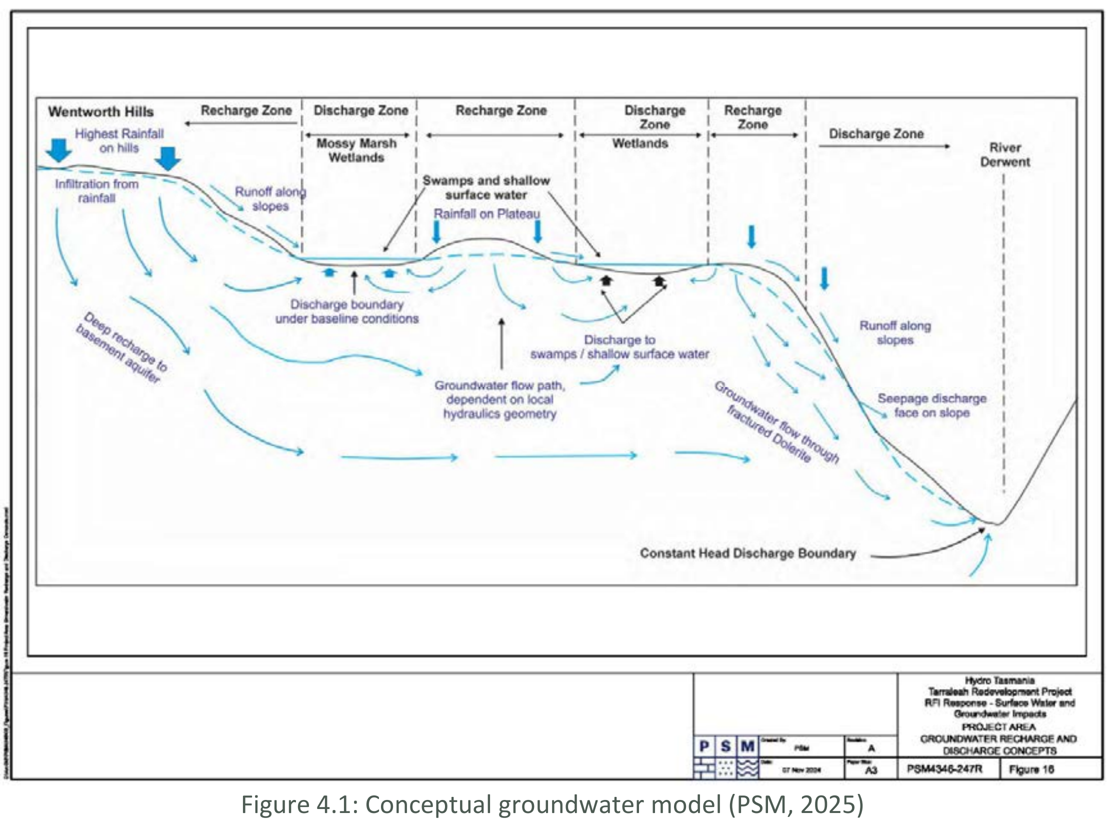

Figure 4.1: Conceptual groundwater model (PSM, 2025)

4.2.1 Monitoring plan for the Alpine *Sphagnum* Bogs and Associated Fens Ecological Community

The hydrogeological assessment indicated that ground water levels at the *Sphagnum* peatland are maintained by rainfall and not flows in No. 2 Canal. However, a monitoring program consistent with a precautionary approach has been developed to determine if the change in flows past the peatland may potentially impact on the Alpine *Sphagnum* Bogs and Associated Fens threatened ecological community by reducing groundwater levels. The monitoring program will also determine whether the construction and operation of the tunnel will impact groundwater beneath the *Sphagnum* peatland. An outline of the monitoring plan is provided below. The monitoring program is consistent with the SMART principles:

- S – Specific (what and how)
- M – Measurable (baseline information, number/value, auditable)
- A – Achievable (timeframe, money, personnel)
- R – Relevant (conservation advice, recovery plans, threat abatement plans)
- T – Time-bound (specific timeframe to complete).

Objective

The overall objective of the Alpine *Sphagnum* Bogs and Associated Fens Ecological Community monitoring plan is to implement a monitoring program to detect changes in the extent of the *Sphagnum* peatland community as a result of a reduction in flow past the peatland from No. 2 Canal. Specifically, the aim of the *Sphagnum* peatland monitoring is to determine if there has been a reduction in the area of the *Sphagnum* peatland and/or a change in its condition, particularly encroachment of woody vegetation which may indicate a change in hydrology. This will facilitate an assessment of the Project impacts on the community. Note that despite indications that the groundwater levels at *Sphagnum* peatland are maintained by rainfall and not by flows in No. 2 Canal, an offset will be obtained as a precautionary measure.

Method

There will be two components to the monitoring program, one of which is to measure the groundwater levels at a site located on the northwestern side of the *Sphagnum* peatland. A piezometer was installed at this site in January 2023 and has been measuring ground water levels since this time. The ground water monitoring using this piezometer and other piezometers that have been installed to monitor groundwater conditions across the tunnel site will continue as part of the monitoring program for the *Sphagnum* peatland.

The second component of the monitoring program will be to track the extent and condition of the *Sphagnum* peatland over time using a drone survey approach. The drone survey will be undertaken over the *Sphagnum* peatland twice a year; at the end of summer when any impacts from decreased rainfall and groundwater recharge are likely to be evident, and at the end spring which is generally when the greatest period of *Sphagnum* moss growth occurs. The drone will be used to take high-resolution photo-imagery to detect changes in extent of the *Sphagnum* peatland. The drone imagery will be geo-referenced and used to map the boundaries of *Sphagnum* peatland to see if and how that patch changes over time.

The monitoring program is proposed to be continued through construction and the initial operation of the proposed Tarraleah Redevelopment Project (up to 5 years of operation) to determine the extent of impact (if any) to the patch of *Sphagnum* peatland.

4.2.2 Offset management strategy

As described above, the current understanding of the groundwater dynamics at the *Sphagnum* peatland indicates the Project is unlikely to have a significant impact. However, it is recommended that an offset will nonetheless be secured to compensate for any potential unintended impacts due to the uncertainty surrounding the understanding of the groundwater dynamics. The proposed offset program will be developed to be consistent with the Commonwealth EPBC Act *Environmental Offsets Policy* (2012) and the associated *Offsets Assessment Guide* (2012), as well as DPIPWE's *General Offset Principles*.

Hydro Tasmania intends to offset any impacts to the Alpine *Sphagnum* Bogs and Associated Fens ecological community by protecting an area of *Sphagnum* peatland greater in area than the 3.0 ha patch at Mossy Marsh Pond. A potentially suitable offset in Tasmania containing 9.5 ha of *Sphagnum* peatland in excellent condition has been identified. Hydro Tasmania has contracted to purchase the property on particular conditions. Registration of a conservation covenant will be pursued by Hydro Tasmania in consultation with Natural Resources and Environment Tasmania (NRE Tas).

The proposed offset has been calculated against the potential loss of the entire 3.0 ha patch of Alpine *Sphagnum* Bogs and Associated Fens threatened ecological community at Mossy Marsh (Table 4.2). As noted above, this is a precautionary approach, as the loss of the entire 3.0-ha patch due to hydrological changes caused by the decommissioning of part of No. 2 Canal is unlikely, given that the results of the groundwater assessment indicated groundwater levels at the *Sphagnum* peatland are maintained by rainfall and not by flows in No. 2 Canal. A vegetation condition assessment was undertaken at the *Sphagnum* peatland at Mossy Marsh in January 2024 using the Tasmanian Vegetation Condition Assessment (VCA) method (Michaels et al., 2020). The assessment determined that the *Sphagnum* peatland was in good condition and had a condition score of 77, which resulted in a quality score of 8 out of 10 on the impact calculator for *Ecological communities in Offsets Assessments Guide* (2012). The total quantum of the impact based on the quality score for the *Alpine Sphagnum Bogs and Associated Fens* community is 2.4 ha (Table 4.2).

4.2.2.1 Offset gain

The proposed offset property is located in northwestern Tasmania at an altitude of between 620 to 630 mAHD elevation compared to the elevation of 650 mAHD of the potentially impacted *Sphagnum* peatland at Mossy Marsh. The proposed offset for the *Alpine Sphagnum Bogs and Associated Fens* threatened community was assessed using the Ecological Communities calculator in the *Offsets Assessment Guide* (2012). A field assessment of the proposed offset property was undertaken in March 2024 and included a vegetation condition assessment using the using the Tasmanian Vegetation Condition Assessment (VCA) method (Michaels et al., 2020). The results of the offsets assessment using the *Offsets Assessment Guide* are presented in Table 4.1 and Table 4.2.

The time over which the ecological loss is averted was assessed as 20 years which is the capped maximum in the Offsets Assessment Guide this was based on the proposed offset being purchased and protected in perpetuity. The time until an ecological benefit was identified as 1 year although it is planned to acquire the offset prior to the construction of the Tarraleah Upgrade Project commencing it may take some time to install basic infrastructure required to manage the site (e.g. access tracks, fencing).

The condition scores for the *Sphagnum* peatland at the proposed offset ranged from 74 to 86, which resulted in a quality score of 8 for the 9.5 ha of the threatened ecological community. The risk of loss of the proposed offset without offset and management measures is estimated to be 70%, given that the site is privately owned land that was purchased for grazing, which is an identified threatening process for the ecological community (DEWHA, 2008b). There is also a patch of gorse (*Ulex europaeus*) near the offset *Sphagnum* peatland, which is spreading which may end up infesting much of the site with if control measures are not implemented.

The risk of loss of the proposed offset with the acquisition of the offset and the implementation of management measures (e.g. cessation of any grazing and weed control) is estimated to be 10% which accounts for stochastic events which may affect the site (e.g. wildfire).

The vegetation condition assessment that was carried out on site confirmed the presence of the *Sphagnum* peatland within the proposed offset that meets the criteria for the *Alpine Sphagnum Bogs and Associated Fens* threatened ecological community. Tasmanian devil scats (*Sarcophilus harrisii*) and 20 wombat burrows were recorded during the survey of the proposed offset property.

The offset calculation summarised in Table 4.2 demonstrates that the proposed offset is more than double the minimum (90%) direct offset requirement as described in the EPBC Act *Environmental Offsets Policy* (2012). This combined with the landscape context of the proposed offset area, which is within a predominantly native vegetation landscape, demonstrates the offset would persist in the long term and add to the National Reserve System by protecting threatened ecological communities and species.

The surrounding land tenure is predominantly Permanent Timber Production Zone Land managed by Sustainable Timbers Tasmania.

Table 4.1: Calculation of impact on the Alpine *Sphagnum* Bogs and Associated Fens threatened ecological community

Ecological community	Quantum of impact		Units	Information source
Alpine *Sphagnum* Bogs and Associated Fens	Area	3	Hectares	Vegetation mapping
	Quality	8	Scale 0-10	
	Total quantum of impact	**2.40**	**Adjusted hectares**	

Table 4.2: Calculation of offset for the *Alpine <u>Sphagnum</u> Bogs and Associated Fens* threatened ecological community

<table>
<tr><th>Total quantum of impact</th><th>Units</th><th>Proposed offset</th><th colspan="2">Time horizon (years)</th><th colspan="2">Start area and quality</th><th colspan="2">Future area and quality without offset</th><th colspan="2">Future area and quality with offset</th><th>Raw gain</th><th>Confidence in result (%)</th><th>Adjusted gain</th><th>Net present value (adjusted hectares)</th><th>% of impact offset</th><th>Minimum (90%) direct offset requirement?</th></tr>
<tr><td rowspan="3">2.4</td><td rowspan="3">Adjusted hectares</td><td rowspan="3">Purchase/ protection of Sphagnum peatland</td><td rowspan="2">Risk-related time horizon (max. 20 years)</td><td rowspan="2">20</td><td rowspan="2">Start area (ha)</td><td rowspan="2">9.2</td><td>Risk of loss (%) without offset</td><td>70%</td><td>Risk of loss (%) with offset</td><td>10%</td><td rowspan="2">5.52</td><td rowspan="2">95%</td><td rowspan="2">5.24</td><td rowspan="2">3.30</td><td rowspan="3">137.70 %</td><td rowspan="3">Yes</td></tr>
<tr><td>Future area without offset (adjusted hectares)</td><td>2.1</td><td>Future area with offset (adjusted hectares)</td><td>8.5</td></tr>
<tr><td>Time until ecological benefit</td><td>1</td><td>Start quality (scale of 0-10)</td><td>8</td><td>Future quality without offset (scale of 0-10)</td><td>4</td><td>Future quality with offset (scale of 0-10)</td><td>8</td><td>2.00</td><td></td><td>0.00</td><td>0.00</td></tr>
</table>

4.2.3 *Sphagnum* peatland mitigation measures

- **Measure A.** A monitoring program will be implemented to assess any hydrogeological impacts on the *Sphagnum* peatland located approximately 400 m upstream (northwest) of Mossy Marsh Pond, either from the change in discharge from No. 2 Canal or from groundwater changes due to the construction and operation of the tunnel. Monitoring began in 2023 and will continue until five years after construction is completed. The program has three components: groundwater monitoring, aerial imagery, and vegetation condition assessments:

- **Groundwater monitoring:** Groundwater levels on the northwestern side of the peatland have been recorded by a piezometer installed in January 2023. Monitoring using this piezometer will continue until five years post-construction.
- **Aerial imagery:** The extent of the peatland has been monitored since September 2024 through a drone program capturing high-resolution imagery. Extent measurements will be used to assess expansion or contraction of the community and potential correlation with Project construction or operation. Drone surveys will be undertaken twice yearly—at the end of summer (when impacts from reduced rainfall and recharge are most evident) and at the end of spring (when growth is greatest). Imagery will include both photographic and thermal infrared data to map peatland extent.
- **Vegetation assessments:** Suitably qualified ecologists will undertake a formal vegetation condition assessment no more than six months before construction, to provide a current baseline beyond the December 2024 assessment. Condition will also be assessed at five years post-construction to identify any substantial change.

Mitigation Measure B. An offset for potential impacts to the *Sphagnum* peatland downstream of No. 2 Canal (~400 m upstream of Mossy Marsh Pond) will be secured before construction begins. The offset will involve protecting a *Sphagnum* peatland area larger than the 3 ha Mossy Marsh patch, under a covenant and approved conservation management plan in accordance with the NC Act. It will also align with the *EPBC Act Environmental Offsets Policy* (2012) and *Offsets Assessment Guide* (2012). Hydro Tasmania has identified a suitable 9.5 ha offset site in Western Tasmania. Entura ecologists have verified this site contains high-quality *Sphagnum* peatland, listed as threatened under the NC Act and as an endangered ecological community under the EPBC Act (Alpine *Sphagnum* Bogs and Associated Fens*)*. The peatland at this site is in similarly excellent condition to Mossy Marsh. Hydro Tasmania is in ongoing negotiations with the property owner to acquire freehold title.

4.3 Other potentially groundwater-dependent ecosystems

In addition to the 3-ha *Sphagnum* peatland, there are other four potentially groundwater dependent ecosystems within the modelled 0.2 m drawdown zone, none of which are listed as threatened: two types of buttongrass moorland, a scrubland, and a rushland. The ecological impacts of hydrogeological changes are determined by the duration of the changes, whether the water table is lowered or raised, the vegetation community's degree of groundwater dependency, surface water dynamics, root zone depth, topography, underlying geological characteristics and soil type, among other factors. In extreme cases, prolonged changes to water table levels can alter the floristic composition of a groundwater dependent vegetation community to the extent that it transitions into a different community. In this worst-case scenario, the extent of impact is unlikely to change the conservation status of any of these relatively widespread communities.

The **43.6 ha** of buttongrass moorlands that may be impacted by water table drawdowns during tunnel construction constitute less than 0.005 of 1% of the million-hectare statewide extent of buttongrass moorlands. The **10.1 ha** of *Melaleuca squarrosa* scrub constitutes less than 0.05 of 1% of the mapped 23,774-ha statewide extent of this community. The **0.3 ha** of Restionaceae rushland that may be impacted constitutes less than 0.003 of 1% of the mapped 12,776.8-ha statewide extent of this vegetation community. The water table drawdowns during tunnel construction are therefore unlikely to affect any of these vegetation communities' conservation statuses. These communities are likely to re-establish after the construction of the tunnel is complete.

Hydrogeological modelling indicates that localised leakages of water during tunnel pressurisation along fracture zones in the dolerite will largely correspond with the existing wetlands, ponds, and streams on the Tarraleah Plateau that are located above fracture zones near the tunnel alignment. The duration and magnitude of leakages during operation are unlikely to be sufficient to change the conservation status of any other GDEs.

4.4 Groundwater discharge

Localised leakages from the pressurised tunnel are unlikely to modify the flora species composition to the extent that the vegetation community at the surface would change because

- leakages are most likely to occur at the sites of existing wetlands, ponds, and streams on the Tarraleah Plateau, and as such are unlikely to add novel wetness to previously dry environments
- the leakages' short duration and small magnitude means that leakages are unlikely to be sufficient to cause moisture-tolerant flora species to outcompete species less adapted to wet environments except temporarily in very localised sites
- there is already baseline discharge occurring in most of the areas that were modelled as potentially experiencing additional discharge due to tunnel pressurisation; additional surface expression of groundwater when the tunnel is pressurised may slightly offset the reduction of artificial surface water flowing in Canal No. 2.

4.5 Threatened flora

Barbarea australis, which is listed as endangered under the TSP Act and EPBC Act, was recorded at two locations within the survey area. There is one occurrence of species in the Nive River where the southern transmission line option would span the Nive River (Figure 4.2). It is recommended that *B. australis* plants at this location be marked out to be avoided. The second occurrence is on the upstream face of the dam wall above the existing outflow pipe at the Tarraleah Pump Pond No. 2 (Figure 4.3, Figure 4.4). It is recommended that an exclusion zone, comprised of a 5-m disturbance buffer around the outermost *B. australis* plants of the population, be marked out at this site to avoid impacting the *B. australis* population. A significant impact assessment for the direct impacts of the Project against the guidelines in the EPBC Act Policy Statement 1.1 (DEWHA, 2013) is provided in Appendix F.11. The indirect impacts of predicted changes in the flow regime downstream from Liapootah Dam on the Nive River and Clark and Wayatinah dams on the River Derwent on the *B. australis* plants in these areas is addressed in the Tarraleah Redevelopment Aquatic Ecology Assessment (Entura, 2025).

Pomaderris elachophylla, which is listed as vulnerable under the TSP Act, was recorded at three locations in the Tarraleah conveyance footprint at the western tunnel portal, as well as on the existing easement where the new 22 kV distribution line for power supply is proposed. Ten plants were recorded adjacent to No. 2 Canal in the maintained easement along the canal access track over an area 10 m by 3 m (Figure 4.5). This patch is on the edge of the disturbance footprint for the western portal and pipeline disturbance footprint. It is recommended that this patch of *P. elachophylla* be marked out and avoided in the detailed design and during the construction works. The other two locations of *P. elachophylla* occur along the Lake King William to Derwent Pumps distribution line alignment. A patch of 30 was recorded as well as a single plant (Figure 4.6). The two locations are 180 m apart. The plants were recorded in the easement of the existing distribution lines, which will be upgraded for the Project. It is recommended that the patch and the single plant be marked out and avoided in the detailed design and during the distribution line upgrade works.

Westringia angustifolia, which is listed as rare under the TSP Act, was recorded at two locations along the northern transmission line alignment. At the first location on the transmission line alignment, the population extended over an area of 150 m by 80 m and extended from the current transmission line alignment into the adjacent *Eucalyptus amygdalina* forest on dolerite community (Figure 4.7). At the second location, the population extended over an area of 40 m by 20 m which included the current transmission line alignment and into the adjacent *E. delegatensis* dry forest. The first *Westringia angustifolia* location will be directly impacted by the construction of transmission line Tower 3, if the northern transmission line is constructed. Construction of the tower and associated laydown area will require the removal of a number of plants. The second *Westringia angustifolia* location is adjacent Tower 14 and its associated laydown area. These areas of the populations of *Westringia angustifolia* which will be impacted by the construction of the northern transmission line have been designated *Westringia angustifolia* management zones (Figure 4.8). At this stage the exact area of impact of both locations will not be known until final design. However, it is recommended that the tower and associated laydown areas of at both locations be sited in detailed design to avoid and minimise impacts on *Westringia angustifolia* plants and a ‘Permit to Take’ be sought for the affected plants once the final area of impact is known.

Two *Muehlenbeckia axillaris* (matted lignum) plants*,* which is listed as rare under the TSP Act, were recorded at one location along the River Derwent between Clark Dam and Wayatinah Lagoon. A small population of 11 plants of *Pherosphaera hookeriana* (Mount Mawson pine), which is listed as vulnerable under the TSP Act, was also recorded along this section of the River Derwent as were three *Westringia angustifolia* plants. The indirect impacts of predicted changes in the spill regime downstream from Clark Dam on the River Derwent on these three species located in the riparian zone is addressed in the Tarraleah Redevelopment Aquatic Ecology Assessment (Entura, 2025).

Mitigation measure A. Threatened flora exclusion zones of 5 m from the outermost plant will be established for:

- The *Barbarea australis* (native wintercress) plants at the Nive River and the Pump Pond wall locations.
- The *Pomaderris elachophylla* (small-leaf dogwood) plants at the No. 2 Canal location and the two locations along the Lake King William to Derwent Pumps distribution line alignment.

Exclusion zones will be shown on Project plans, communicated to all construction personnel and physically marked on site.

If new occurrences of threatened flora are detected during construction, exclusion zones of at least 5 m from the outermost plant will be established. If avoidance is not possible, a permit to 'Take' under the TSP Act will be required.

If the southern transmission line route option is selected for construction, then an exclusion zone 5 m from the outermost plants of the *B. australis* population at the section of the Nive River that will be traversed by the transmission line will be marked out and avoided.

Mitigation measure B. The final disturbance footprint for the northern transmission line (if that route option is selected for construction over the southern route option) will be designed to minimise impacts to *Westringia angustifolia* (narrowleaf westringia) plants at the proposed locations of Towers 3 and 14.

Where these plants can be avoided, exclusion zones will be shown on Project plans, communicated to construction personnel and physically marked on site.

If any *W. angustifolia* plants cannot be avoided, then a permit to 'Take' under the TSP Act will be required.

Figure 4.2: *Barbarea australis* plants at the Nive River

Figure 4.3: *Barbarea australis* plants on the Tarraleah Pump Pond No. 2 dam wall

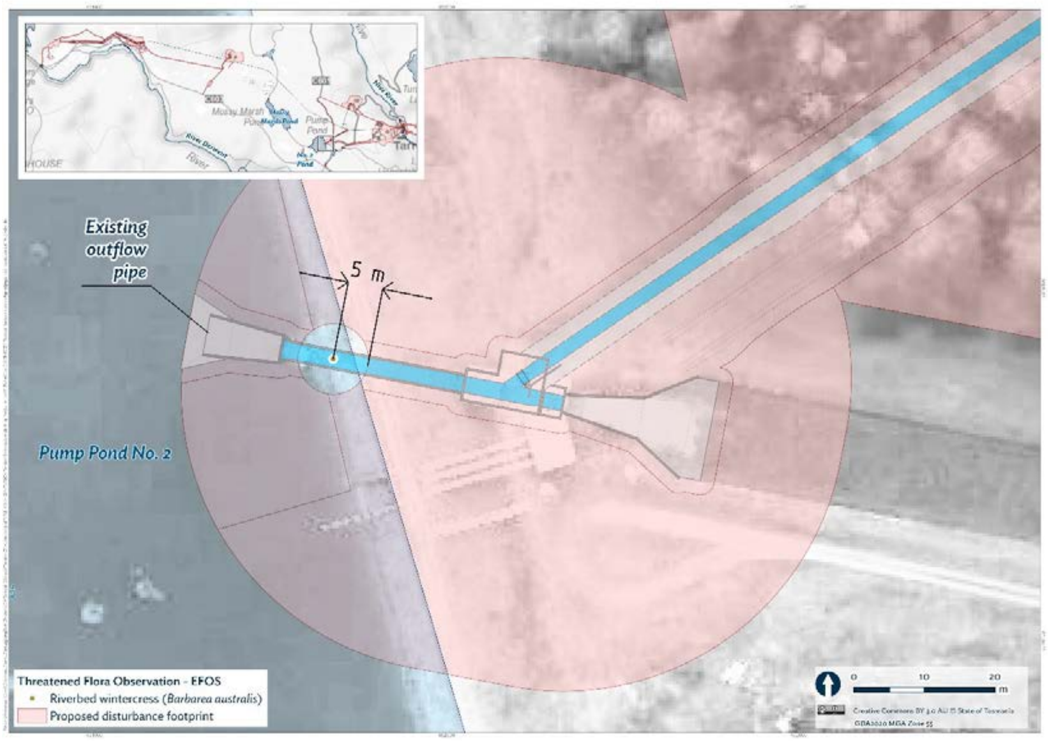

Figure 4.4: Map of known location of *Barbarea australis* plants at Pump Pond No. 2 and associated exclusion zone within the disturbance footprint

Figure 4.5: *Pomaderris elachophylla* plants near No. 2 Canal

Figure 4.6: *Pomaderris elachophylla* (small-leaf dogwood) in the distribution line alignment

Figure 4.7: *Westringia angustifolia* within the northern transmission line alignment

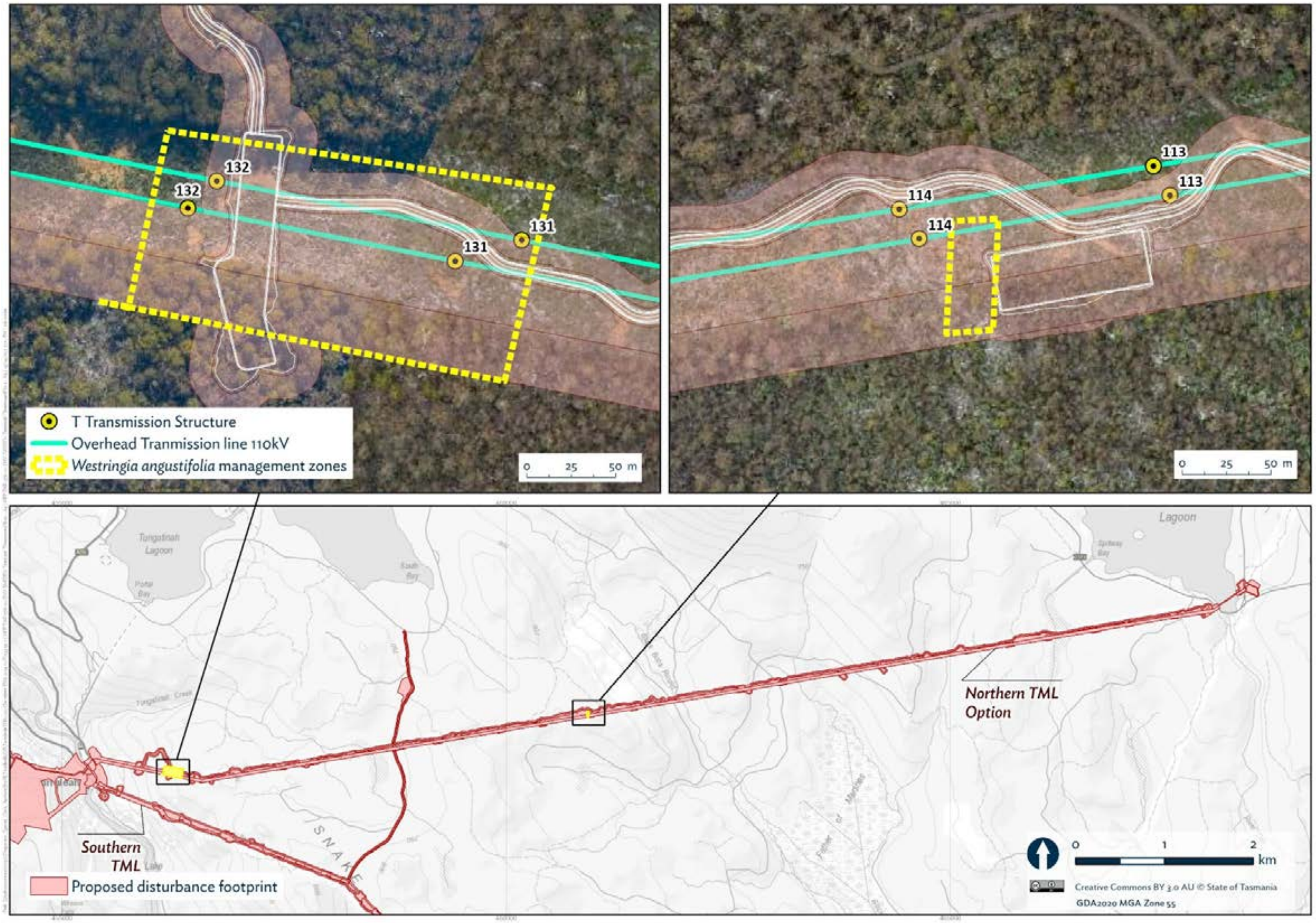

Figure 4.8: Management zones for *Westringia angustifolia* within the disturbance footprint of the northern transmission line option

4.6 Fauna

Native fauna species may be injured or killed during the construction phase if open excavations (pits and trenches) and/or if the clearing of habitat trees is not managed effectively.

General fauna measure A: Any pits and trenches (e.g. for the pipeline or underground distribution lines) required will remain open for the shortest duration possible and, where practicable, will not be open during periods of heavy rain or forecast weather events that may inundate the trench. A suitably qualified person will inspect open excavations (pits and trenches) for fauna within five hours after sunrise, before sunset and prior to backfilling and work will not commence until inspections are completed. Trapped fauna will be recorded including location, species and condition.

General fauna measure B: Habitat trees (hollow-bearing trees important for arboreal mammals and hollow-nesting birds) within the disturbance footprint will be avoided as far as practicable, with a root protection buffer zone applied. The buffer radius will equal the length of the habitat tree's diameter at breast height (DBH) multiplied by twelve.

4.6.1 Tasmanian devil

During the camera trap monitoring program at the Tarraleah Golf Course, Tasmanian devils were detected three times. During the camera trap monitoring program targeting game trails within the mature dry eucalypt forests within the disturbance footprint, there were 18 Tasmanian devil detection events at 8 camera sites. Tasmanian devils use the habitat available within the Project area.

The potential Project impacts relevant to the Tasmanian devil are:

- Modification of foraging habitat due to clearance of up to **140.0 ha** of native forest and scrubland foraging habitat which may change prey availability, noting that of this, **31.0 ha** in the northern transmission line easement or **48.8 ha** in the southern transmission line easement are likely to continue to be used for foraging when converted to permanent easement.
- Loss of potentially suitable denning habitat due to clearance of up to **92.2 ha** of mature eucalypt forest if the northern transmission line is selected, or up to **69.5 ha** of mature eucalypt forest if the southern transmission line is selected.
- Potential loss of active dens due to clearance of eucalypt forest and woodland.
- Potential disturbance of dens by noise and vibration associated with construction of the above ground components of the Project and the widening of the existing easement for the proposed transmission line alignment.
- Potential increase in vehicle strike and roadkill risk associated with construction traffic.

4.6.1.1 *Habitat degradation and loss*

Tasmanian devils may forage over dry and wet eucalypt forest and woodland, non-eucalypt forest and woodland, scrub, permanent easement, hardwood plantation, agricultural land, and regenerating cleared land within the disturbance footprint. The works associated with the construction of the proposed Tarraleah Redevelopment Project could result in the clearance of approximately **140.0 ha** of potentially suitable foraging habitat within the main redevelopment infrastructure footprint (Figure 4.9).

Tasmanian devils will continue to forage over distribution line easements. The conversion of foraging habitat is unlikely to significantly impact the Tasmanian devil given the large extent of native eucalypt forests and woodlands and plantations within the Central Highlands bioregion. For example, there is 302,003 ha of *Eucalyptus delegatensis* wet and dry forest within the Central Highlands bioregion[13]. It is likely that Tasmanian devils will continue to forage and move through modified habitat especially anthropogenic linear features like easements (Andersen et al., 2017). Note that this is a production forest landscape that is continually being disturbed with forest coupes of 40 ha or more being harvested on a regular rotation both native forest and hardwood plantations.

Up to approximately **31.4 ha** of native vegetation will be converted to permanent, operational above-ground infrastructure, of which up to approximately **26.2 ha** will constitute permanent loss of Tasmanian devil native foraging habitat (eucalypt forest, non-eucalypt forest, and scrub). Overall, it was determined that the proposed vegetation clearance and infrastructure installation will not modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that either species is likely to decline. The loss of potentially suitable foraging habitat is unlikely to significantly impact the Tasmanian devil given the species' large home range and mobile nature, as well as the large extent of dry and wet forests within the Central Highlands.

Devils are not territorial, but they have home ranges which range from 400 to 2,670 ha with a mean home range of 1,330 ha (Pemberton, 1990). Home ranges also overlap (Pemberton, 1990). The proposed clearance will be patchily spread across the 28 km extent of the disturbance footprint between Lake King William and the terminus of the transmission line and is unlikely to significantly impact any one home range (Figure 4.10).

The **140.0 ha** of potentially suitable foraging habitat that will be permanently lost is spread across non-contiguous areas across the disturbance footprint; this figure does not include the transmission line disturbance footprint, as the forest-adjacent easement will likely continue to be used by Tasmanian devils for foraging. The largest contiguous area of this forest to be cleared is **37.4** ha of dry eucalypt forest within the western tunnel portal and associated pipeline footprint; clearance of this area may constitute loss of up to 10% of one single Tasmanian devil home range. The mid access tunnel portal footprint contains approximately 34.2 ha of dry eucalypt forest, which would constitute a loss of about 9% of one single Tasmanian devil home range. Given devil's wide habitat suitability requirements, it is unlikely that the species' habitat will be fragmented by the vegetation clearance associated with the proposed action given the species' broad habitat requirements and occurrence across a range of altered landscapes including production forest (Jones, 2021; Jones & Rose, 1996).

Habitat degrading processes such as the introduction of weeds, pest and pathogens are unlikely to occur, as strict hygiene protocols are to be maintained throughout the Project. Also note that the clearing of areas for construction will not necessarily mean the permanent removal of habitat because areas that are not required post construction will be rehabilitated to native vegetation and will soon become suitable foraging habitat again.

The northern transmission line option disturbance footprint is likely to require conversion of up to **62.6 ha** of wet and dry eucalypt forest to permanent easement, of which **31.0 ha** is. mature, not regrowth forest that could contain suitable denning features (Figure 4.10). The northern transmission line option includes **58.5 ha** of already modified vegetation including **54.4** ha of permanent easement and **2.0 ha** of hardwood plantation. The southern transmission line option is likely to require conversion of up to **48.8 ha** of wet and dry eucalypt forest to permanent easement, of which **8.3 ha** is mature, not regrowth forest that could contain suitable denning features. The southern transmission line option

[13] Tasmanian Forest Practices Authority's annual report 2023–24

includes **96.8 ha** of already modified vegetation including **82.1 ha** of permanent easement and **10.9 ha** of hardwood plantation; devils are likely to use existing easement and hardwood plantation whilst foraging. The conversion of forest or of plantation to permanent easement will not result in the loss of foraging habitat as the permanent easement will still be used by devils for foraging.

The Project will require clearance of up to **92.2 ha** of mature eucalypt forest, which is the most likely habitat type to contain suitable Tasmanian devil denning habitat; however, no evidence of devil nor quoll dens was observed during field surveys of these areas (Figure 4.10).

The Tasmanian Forest Practices Authority's *Fauna Technical Note No. 10: Identifying devil and quoll habitat* (2025) states that '*Significant habitat for the Tasmanian devil is a patch of potential denning habitat where a 'cluster' of three or more entrances (large enough for a devil to pass through) occur within 100 m of each other and where no other clusters may be found within a 1 km radius (i.e. an isolated cluster). These are given the highest priority for protection because (a) there is the potential for multiple individuals to be breeding there, so disturbance could have a particularly high local impact and (b) these features would imply that denning habitat is limited in the area, and its loss would be most likely to exert a high long term impact on the local population.*' No significant habitat, as defined by this technical note, was found within the disturbance footprint.

The survey guidelines for the Tasmanian devil (Environment Strategic Business Unit, 2023) state that "Essential habitat for devils includes:

- Places to hide and shelter during the day, such as dense vegetation, hollow logs, burrows, or caves,
- Native vegetation with a mosaic of open and closed understory which provides hunting opportunities,
- Suitable maternal denning areas with one or a combination of well-drained soil types suitable for burrows, sheltered overhangs such as cliffs, rocky outcrops, knolls, caves and earth banks, and log piles with at least one entrance through which a devil could pass, and
- An adequate prey base or source of food.

For devils, the combination of these features within the area is more important than the presence of any particular vegetation community."

Within the disturbance footprint, there are:

- places where devils could hide and shelter during the day, particularly in the form of dense vegetation
- areas of native vegetation with a mosaic of open and closed understorey that would provide hunting opportunities to Tasmanian devils
- adequate sources of food for Tasmanian devils including macropod species such as the Tasmanian pademelon.

However, surveys did not record features associated with suitability for maternal denning. The wombat burrows recorded within the disturbance footprint or within 50 m of the disturbance footprint all appeared to either be unused by any species (e.g. due to vegetation growing within the burrow entrance or a mass of spiderwebs across the entrance) or to be in use by wombats (e.g. due to piles of fresh wombat scat being recorded within 5 m of the burrow entrance).

Table 4.3: Potential areas of Tasmanian devil and spotted-tailed quoll habitat within the disturbance footprint

Species	Home range extents (ha)	Potential native foraging habitat within the conveyance disturbance footprint (ha)	Mature eucalypt forest habitat within the redevelopment disturbance footprint (ha)	Potential native foraging habitat within the northern TL alignment (ha)	Mature eucalypt forest within the northern TL alignment (ha)	Potential native foraging habitat within the southern TL alignment (ha)	Mature eucalypt forest within the southern TL alignment (ha)
Tasmanian devil	400 to 2,670	140.0	61.2	63.2	31.0	48.8	8.3
Spotted-tailed quoll	191 to 5,512	140.0	61.2	63.2	31.0	48.8	8.3

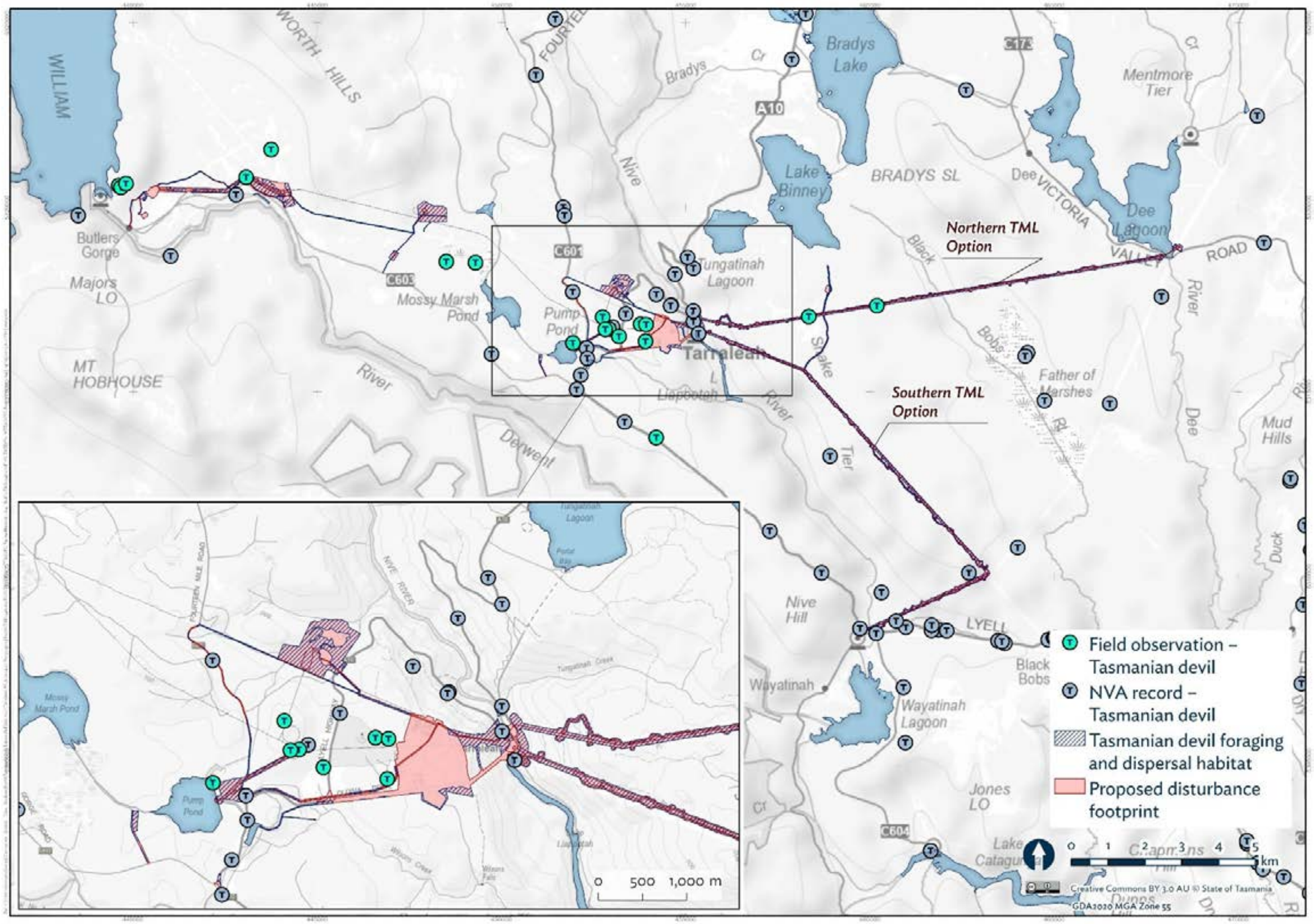

Figure 4.9: Potentially suitable Tasmanian devil foraging and dispersal habitat within the disturbance footprint

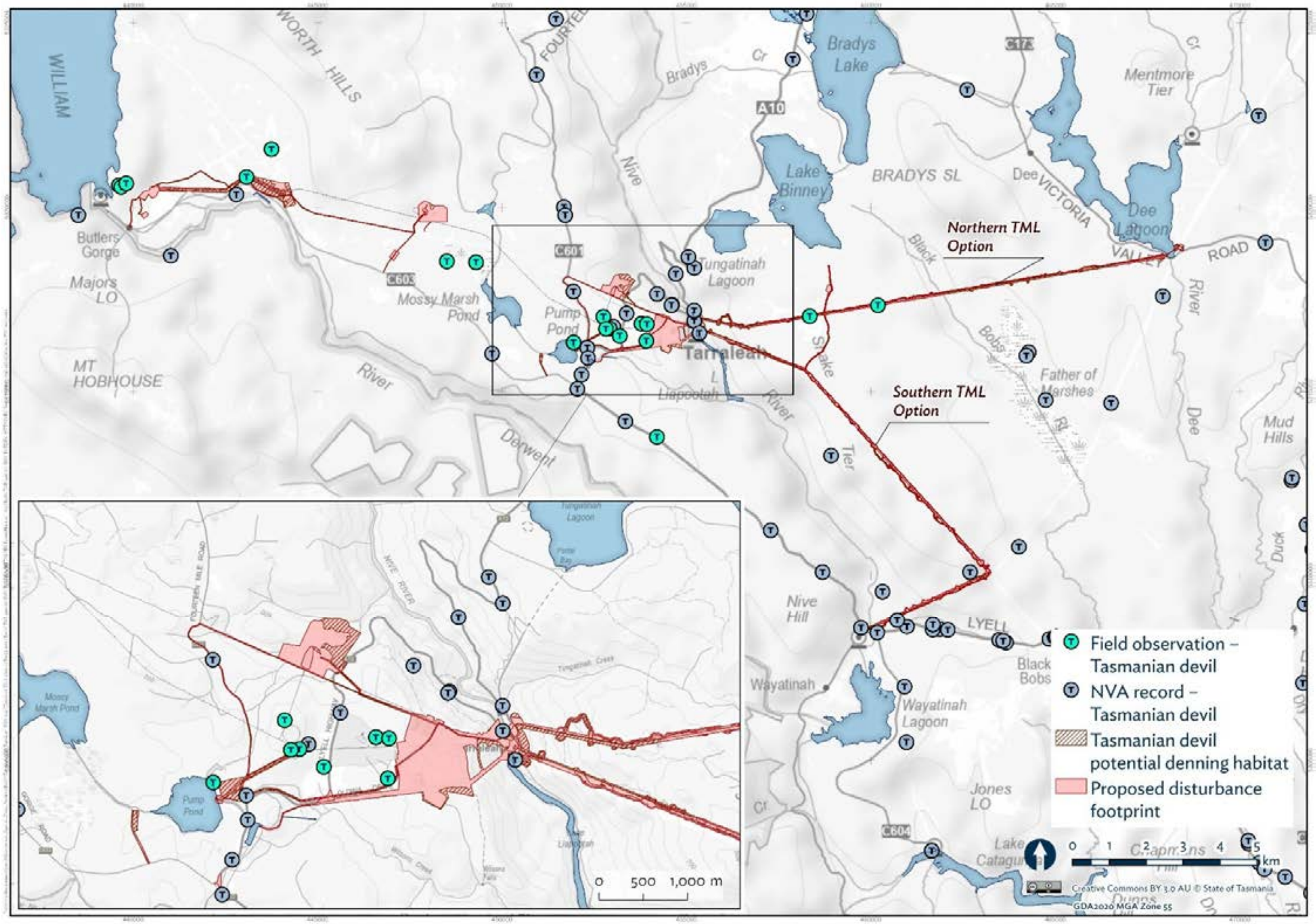

Figure 4.10: Mature (non-regrowth) eucalypt forest within the disturbance footprint that could provide denning features for devils

4.6.1.2 Den disturbance

Clearing of vegetation associated with the construction of the Project could result in impacts to the Tasmanian devil due to destruction and/or disturbance of dens and maternal dens from vegetation clearance. Adults are thought to use the same den sites long-term, so den destruction and disturbance can have significant implications to devil populations (Owen & Pemberton, 2005).

Noise and vibrations associated with vegetation clearance and construction activities has the potential to disturb Tasmanian devil dens, including sensitive maternal dens. Disturbance of an active maternal den by noise or vibration within 50 m of the den site may constitute a significant impact to this species. Although there are no known den sites within the disturbance footprint, maternal dens may be established in suitable denning features prior to construction. The risk of den disturbance is expected throughout the proposed five-year construction period.

Construction activities, particularly night-time lighting and dust associated with the 24/7 underground works, may interfere with typical devil foraging behaviour at the localised construction sites (e.g. tunnel portals) during the construction period, whereby devils and/or prey species may avoid these sites. The avoidance of these sites is unlikely to materially reduce prey availability or foraging success given that the species is highly mobile. Tasmanian devils are not territorial, and home ranges are known to overlap as such avoidance of these construction sites may shift home ranges but is unlikely to reduce their extent or result in intraspecific competition. In addition, the landscape is subject to frequent disturbance associated with logging activities and hydropower operations. Thus, the local Tasmanian devil population will be accustomed to some level of disturbance.

4.6.1.3 Increased risk of vehicle strike

Roadkill has been identified as a threatening process for the Tasmanian devil as they may be struck and killed on the road by vehicles, particularly whilst scavenging on the carcasses of other road-killed animals (DEWHA, 2009). There is potential for an increase in road mortalities due increased traffic volumes on project transport routes during the construction phase (Appendix G).

The greatest risk of roadkill mortality for the Tasmanian devil is during the juvenile dispersal period, which occurs in the months after maternal denning season which is defined as the period July to December inclusive (Environment Strategic Business Unit, 2023). However maternal denning can occur outside of this period.

According to the *Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil (Sarcophilus harrisii)*, a 10% or greater increase in night-time traffic indicates potential for a substantial impact on the local devil population from increased road mortality (Environment Strategic Business Unit, 2023). The Guidelines consider night-time traffic as between one hour before sunset to one hour after sunrise.

A traffic impact assessment was undertaken for the Project, whereby night-time traffic was assumed to operate between approximately 3:40 pm and 8:40 am during the worse-case (winter) scenario. Therefore, construction vehicles will travel on roads in the Project area during night time. A range of vehicles will be used during construction including light vehicles (primarily used by employees travelling to/from site and around the site), general access heavy vehicles (primarily used to transport materials to/from site and around the site, and to transport workers between accommodation and construction sites), and Class 1, 2 and 3 heavy vehicles (transporting materials and infrastructure to and from the site). There is not anticipated to be any increased risk of roadkill from the Class 1, 2 and 3 heavy vehicles transporting materials to and from site given the inherent low speed limits of these vehicles even if required to travel at night time. Further, there is not anticipated to be any increase in traffic movements (day or night) associated with the post-construction (operational) phase of the Project.

The traffic impact assessment (Pitt & Sherry, 2025) identifies that a total of 23 roads (comprising 29 road segments as identified in Appendix G) will experience a 10% or greater increase in night-time traffic from vehicle movements associated with the construction phase of the Project and transmission line infrastructure. Thus, there is a potential for an increase in road mortalities on these roads during the construction phase. Of the 29 road segments identified, there were 19 road segments whereby workforce traffic would likely result in a 10% or greater increase of night-time traffic volume (i.e. night time vehicle movements)[14] between the workforce accommodation in Tarraleah Village and the site locations (Pitt & Sherry, 2025; Appendix G).

It is also anticipated that workers travelling between homes (in Tasmania) and accommodation will travel at night. Of the 31 road segments assessed between Hobart, Launceston (two route options) and Devonport (for mainland workers) to the Project area, a total of 15 road segments are anticipated to exceed a 10% increase in night-time traffic (Appendix G) based on the following assumptions:

- 80% of the Tarraleah workforce will be Tasmanian based, and 20% of the workforce will travel from the mainland
- 70% of the workforce will travel from Hobart (115 minutes from Tarraleah)
- 15% of the workforce will travel from Launceston and surrounds (140 minutes from Tarraleah)
- 15% of the workforce will travel from Devonport and surrounds (145 minutes from Tarraleah)
- the surface workforce (including civil workers, building workers, equipment and maintenance personnel, professionals and supporting staff) travel to Tarraleah accommodation either during Sunday afternoon/ night, or very early Monday morning before start of shift.

Where night-time traffic volumes for the transport routes were not known, conservative estimates were made which assumed that the anticipated increase in night-time vehicular movements on these roads associated with the Project would result in a 10% or greater increase in night-time traffic volumes.

There were 5,302 roadkill records on the NVA identified on the transport routes associated with the Project and transmission line construction from the desktop roadkill data analysis, of which 241 had a positional accuracy of 100 m or less (refer Section 2.2). Of these, there were 135 roadkill records identified on the NVA from roads anticipated to experience a 10% or greater increase in night-time traffic volume associated with the Project. The majority of the 135 roadkill records were from Highland Lakes Road (46%) and Lyell Highway (40%). In addition, there were 203 roadkill records identified on Butlers Gorge Road from the Hydro Tasmania dataset which have a presumed accuracy of less than 100 m (refer Section 2.2).

There were no roadkill records meeting the selection criteria (refer Section 2.2) on Exton Road, Oldina Drive, Palana Crescent or Saundridge Road on the transport route roads with an anticipated 10% or greater increase in night-time traffic associated with the main Project construction, nor any of the roads associated with construction of either transmission line option with an anticipated 10% or greater increase in night-time traffic.

[14] There were no known night-time traffic volumes for 20 of the 46 road segments included in the traffic assessment however for the purposes of the traffic assessment, were assumed to be very low.

Of the 338 roadkill records identified, 61 records were of threatened fauna species (Table 4.4, Figure 4.11). The majority (80%) of these threatened fauna species records were Tasmanian devils collected over ten years between February 2005 and September 2025 on nine of the 29 road segments with an anticipated 10% or greater increase in night-time traffic (Figure 4.11).

There were five Tasmanian devil roadkill records identified on the NVA with less than 100 m positional accuracy within 10 m of the transport routes in the vicinity of the Project area, including two records on the Lyell Highway between the Oldina Drive intersection and the Tarraleah Power Station (Figure 4.11), and further three records on Lyell Highway between the Butlers Gorge Road intersection and Long Spur Road intersection (at the junction to access the southern transmission line option). There were also three roadkill records identified in the Hydro Tasmania data collected on Butlers Gorge Road from June 2024, January 2025 and September 2025.

A roadkill management plan will be developed for the Tarraleah Redevelopment Project to minimise the risk of vehicle strike with fauna species on roads potentially impacted by increased construction traffic. The plan addresses the elevated roadkill risks for species that scavenge on roadkill carcasses including the Tasmanian devil, spotted-tailed quoll and Tasmanian wedge-tailed eagle. However, the mitigation measures that will be included in the roadkill management plan will minimise the risk of vehicle strikes with all fauna species. These measures will be implemented throughout the construction contract.

Table 4.4: Carcass records of threatened fauna species on the Natural Values Atlas and Hydro Tasmania data road segments anticipated to experience a 10% or greater increase in night-time traffic during construction

Species	Count of carcass records	Earliest record date	Most recent record date
Tasmanian wedge-tailed eagle (*Aquila audaxfleayi*)	**3**	**3/08/2019**	**5/02/2024**
Highland Lakes Road - Golden Valley Road to Marlborough Road	1	3/08/2019	3/08/2019
Lyell Highway – New Norfolk to Tarraleah	2	31/01/2024	5/02/2024
Spotted-tailed quoll (*Dasyurus maculatusmaculatus)*	**5**	**18/03/2014**	30/06/2025
Lyell Highway – New Norfolk to Tarraleah	2	18/03/2014	24/01/2025
Marlborough Road	2	20/04/2015	12/06/2017
Butlers Gorge Road	1	30/06/2025	30/06/2025
Eastern quoll (*Dasyurus viverrinus*)	**4**	**16/12/2009**	**23/01/2025**
Butlers Gorge Road	1	23/01/2025	23/01/2025
Lyell Highway – New Norfolk to Tarraleah	3	16/12/2009	27/03/2023
Tasmanian devil (*Sarcophilus harrisii*)	**48**	**11/02/2005**	**17/09/2025**
Bogan Road	2	31/03/2017	6/02/2022
Butlers Gorge Road	3	12/06/2024	17/09/2025
Fourteen Mile Road	4	11/02/2005	27/02/2014
Highland Lakes Road – Golden Valley Road to Marlborough Road	6	23/12/2017	5/02/2024
Highland Lakes Road – Poatina Road to Marlborough Road	2	7/02/2010	25/11/2020
Lyell Highway – New Norfolk to Tarraleah	23	11/02/2005	24/01/2025
Lyell Highway – Oldina Drive (south) to Tarraleah PS	2	23/04/2015	11/06/2024
Lyell Highway – Tarraleah PS to Marlborough Road	3	3/05/2013	6/03/2021
Poatina Road	3	2/03/2017	3/04/2022
Tasmanian masked owl (*Tyto novaehollandiaecastanops*)	**1**	**9/10/2012**	**9/10/2012**
Lyell Highway – New Norfolk to Tarraleah	1	9/10/2012	9/10/2012
TOTAL	**61**	11/02/2005	17/09/2025

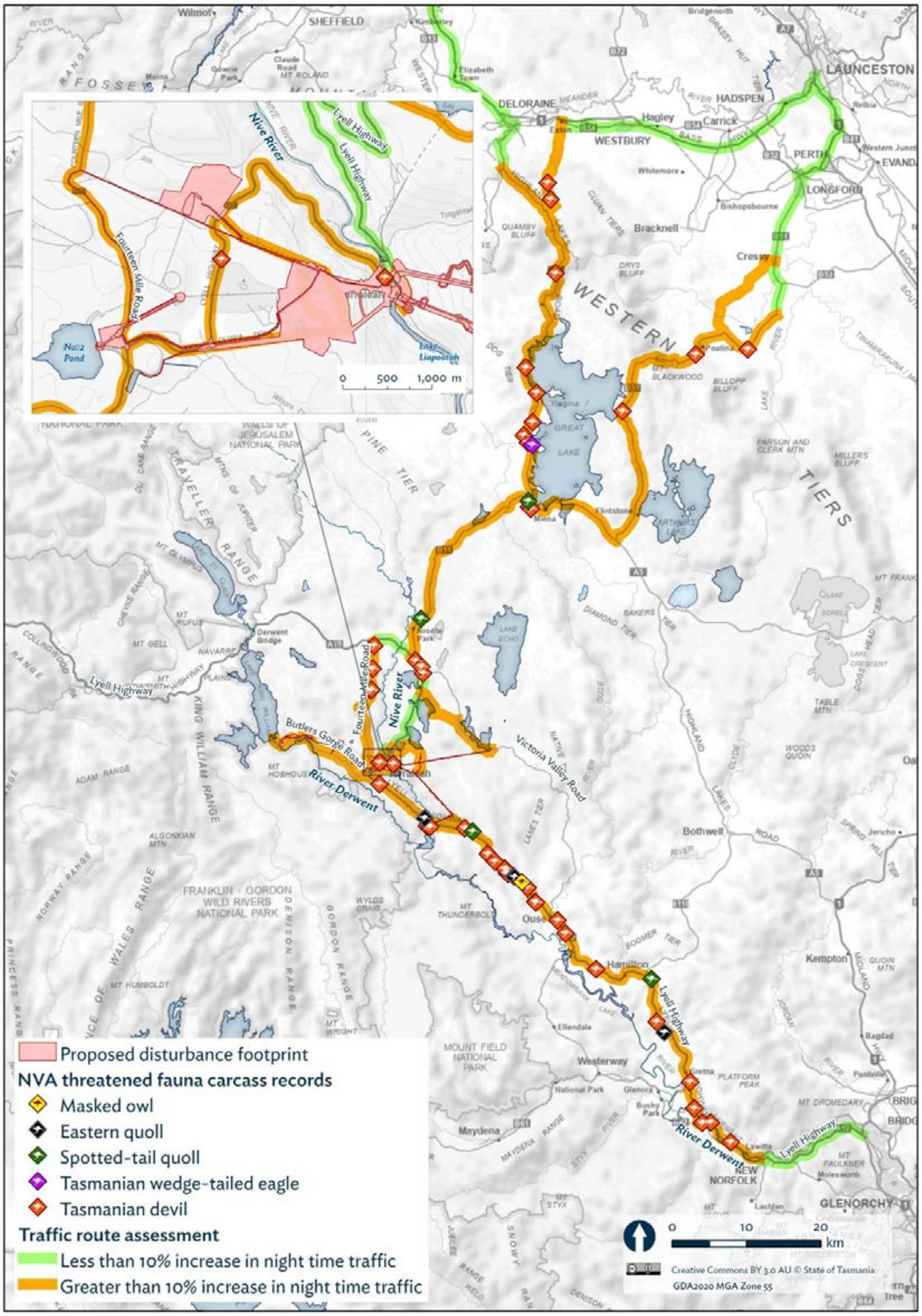

Figure 4.11: Natural Values Atlas records of threatened fauna species carcasses on roads anticipated to experience a 10% or greater increase in night-time traffic during construction

4.6.1.4 Assessment of impact significance

Tasmanian devils occur in all terrestrial habitats across their geographic range in Tasmania, resulting in an extent and area of occupancy of 64,030 km² or 94% of Tasmania (Jones and Rose 1996, DPIPWE 2005). Given the broad habitat requirements of the species; the landscape context of widespread forestry activity and hydropower infrastructure and the implementation of mitigation measures to reduce the risk of disturbance to maternal dens and to minimise the risk of roadkill, the Tarraleah Redevelopment Project is unlikely to have significant impact on the species. Particularly with the implementation of a den survey and management protocol and the implementation of mitigation measures to prevent roadkill. A significant impact assessment for the Tasmanian devil against the guidelines in the EPBC Act Policy Statement 1.1 (DEWHA, 2013) is provided in Appendix 0. The mitigation measures for the Tasmanian devil are described below Sections 4.6.2.5 and 0.

4.6.2 Spotted-tailed quoll

There are only nine records of the spotted-tailed quoll (*Dasyurus maculatus maculatus*) within the last 40 years from within 5 km of the disturbance footprint for the Tarraleah Redevelopment (NVA data). There was also one roadkill record on Butlers Gorge Road identified in the Hydro Tasmania data from June 2025. The paucity of spotted-tailed quoll NVA records was further supported by the camera trapping at the Tarraleah Golf Course, which did not record any detections of this species over 1,163 camera trap days and nights. During the camera trap monitoring program targeting game trails within the mature dry eucalypt forests within the disturbance footprint, there were 5 spotted-tailed quoll detection events at 3 different camera sites. Two of these detection events were by 2 of the cameras deployed in *Eucalyptus tasmaniensis* dry forest and woodland (DDE) within the northern transmission line option disturbance footprint; 3 were in this forest type within the Tarraleah Village disturbance footprint.

The available data suggest that the spotted-tailed quoll is relatively rare in this part of the Central Highlands bioregion. However, the impact assessment has considered the spotted-tailed quolls possible presence and has identified that without avoidance and mitigation measures, the following potential project impacts:

- Loss of foraging habitat due to clearance of **140.0ha** of eucalypt forest and non-eucalypt forest in the main infrastructure redevelopment footprint, noting that clearance for the transmission line easement widening will not result in a loss of foraging habitat due to this species use of anthropogenic linear features (Andersen et al., 2017).
- Loss of potentially suitable denning habitat due to clearance of up to **61.2 ha** of mature eucalypt forest in the main infrastructure redevelopment footprint and either **31.0 ha** in the northern transmission option or **8.3** ha in the southern transmission option; there is no rainforest in the disturbance footprint.
- Potential loss of denning features due to clearance of mature wet and dry eucalypt forest.
- Potential loss of active dens due to clearance of mature wet and dry eucalypt forest.
- Modification of potentially suitable foraging habitat due to vegetation clearance required to widen of the existing easement by about 30 m on the southern side for the proposed transmission line alignment.
- Potential disturbance of dens by noise and vibration associated with construction of above ground components of the Project and the widening of the existing easement for the proposed transmission line alignment.
- Potential increase in vehicle strike and roadkill risk associated with construction traffic.

Note that the *National Recovery Plan for the Spotted-tailed Quoll* (DELWP, 2016) does not identify the Central Plateau as an important population of this vulnerable species. The Recovery Plan identifies the important spotted-tailed quoll populations in Tasmania as:

- Takone to Upper Natone (south-south west of Burnie) stronghold & research population
- Central-north Tasmania (including Great Western Tiers to Narawntapu) stronghold & research population
- Freycinet National Park research population
- Cradle Mountain National Park stronghold & research population
- Far north-western Tasmania (including the Smithton and Marrawah regions) stronghold & research population
- Eastern Tiers/northern Midlands (including Nugent and Ross regions) stronghold population
- Southern forests/South Coast (including the Hastings region) stronghold population
- Gordon River system stronghold population
- South-west Cape stronghold population.

4.6.2.1 *Habitat degradation and loss*

The spotted-tailed quoll may forage over dry and wet eucalypt forest, non-eucalypt forest, scrub, permanent easement and hardwood plantation within the disturbance footprint. The works associated with the construction of the proposed Tarraleah Redevelopment Project could result in the clearance of up to **140.0ha** of potentially suitable native forest and scrubland foraging habitat within the disturbance footprint excluding the transmission line, with the additional **63.2 ha** if the northern option is selected or **48.8 ha** if the southern option is selected (Figure 4.12). Therefore, up to **203.2 ha** of native forest will be converted for the Project. However, it is likely that spotted-tailed quolls will continue to forage and move through modified habitat especially anthropogenic linear features like easements (Andersen et al., 2017).

The conversion of native forest foraging habitat is unlikely to significantly impact the spotted-tailed quoll, given the large extent of native eucalypt forests and woodlands and plantations within the Central Highlands bioregion. For example, there is 302,003 ha of *Eucalyptus delegatensis* wet and dry forest within the Central Highlands bioregion[15]. Note that the project is in a production forest landscape that is continually being disturbed with forest coupes of 40 ha or more being harvested on a regular rotation both native forest and hardwood plantations.

Overall, it was determined that the proposed vegetation clearance and infrastructure installation will not modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that either species is likely to decline. The loss of potentially suitable foraging habitat is unlikely to significantly impact the spotted-tailed quoll given the species' large home range and mobile nature, as well as the large extent of dry and wet forests within the Central Highlands and their apparent low abundance of spotted-tailed quolls within the survey area.

The Tasmanian Forest Practices Authority's *Fauna Technical Note No. 10: Identifying devil and quoll habitat* (2025) states that "For spotted-tailed quolls, significant habitat is all potential denning habitat within the core range. Spotted-tailed quolls appear to be opportunistic in their den selection (though

[15] Tasmanian Forest Practices Authority's annual report 2023–24

maternal dens are likely to be selected from the highest quality den sites), so any potential denning habitat retained for Tasmanian devils should suffice for spotted-tailed quolls in most cases."

Suitable denning habitat for spotted-tailed quolls includes old growth wet and dry forest and rainforest that contains potential denning features like logs, rock outcrops, piles of woody debris, or abandoned wombat burrows. There is no rainforest within any of the disturbance footprint. The **61.2 ha** of mature eucalypt forest within the disturbance footprint excluding the transmission line (and the additional **31.0 ha** if the northern option is selected or additional **8.3 ha** if the southern option is selected) may contain suitable spotted-quoll denning habitat (Figure 4.13), although no evidence of devil nor quoll dens was observed during field surveys of these areas nor are there den records on the NVA database within 5 km of the disturbance footprint. Field surveys did not record features associated with suitability for maternal denning. The wombat burrows recorded within the disturbance footprint or within 50 m of the disturbance footprint all appeared to either be unused by any species (due to vegetation growing within the burrow entrance or a mass of spiderwebs across the entrance) or to be in use by wombats (e.g. due to piles of fresh wombat scat being recorded within 5m of the burrow entrance).

Female spotted-tailed quoll home ranges vary in size between 191 to 470 ha, whilst male home ranges are larger between 359 and 5,512 ha in area (Troy, 2014). Both female and male home ranges overlap (DELWP, 2016). The proposed native forest clearance is patchily spread across the disturbance footprint which extends for 28 km between Lake King William and Dee Lagoon if the northern transmission line option is used (Figure 3.2, Figure 3.3). If the southern transmission line option is used, then the disturbance footprint extends for 25 km between Lake King William and Liapootah (Figure 3.4). The **140.0 ha** of potential spotted-tailed quoll foraging habitat west of the Nive River that is in non-contiguous areas spread across the disturbance footprint, of which the largest contiguous area is **37.4** ha of predominately mature dry eucalypt forest (predominately *Eucalyptus dalrympleana - Eucalyptus pauciflora* forest and woodland), which is sub-optimal denning habitat for this species, which occurs at the western tunnel portal and associated pipeline footprint. The clearance of this area may constitute loss of up to 20% of one single female spotted-tailed quoll home range. Therefore, any one home range is unlikely to be significantly impacted.

The proposed vegetation clearance and removal of the tree canopy associated with the Project will reduce the habitat suitability for spotted-tailed quolls(Troy, 2014). The landscape surrounding the disturbance footprint is regularly subject to larger-scale clearance as part of forestry operations and there is likely ongoing conversion of mature wet and dry eucalypt forest part of routine harvest operations regardless of the Project.

Habitat degrading processes such as the introduction of weeds, pest and pathogens are unlikely to occur if strict hygiene protocols are maintained throughout all phases of the Project.

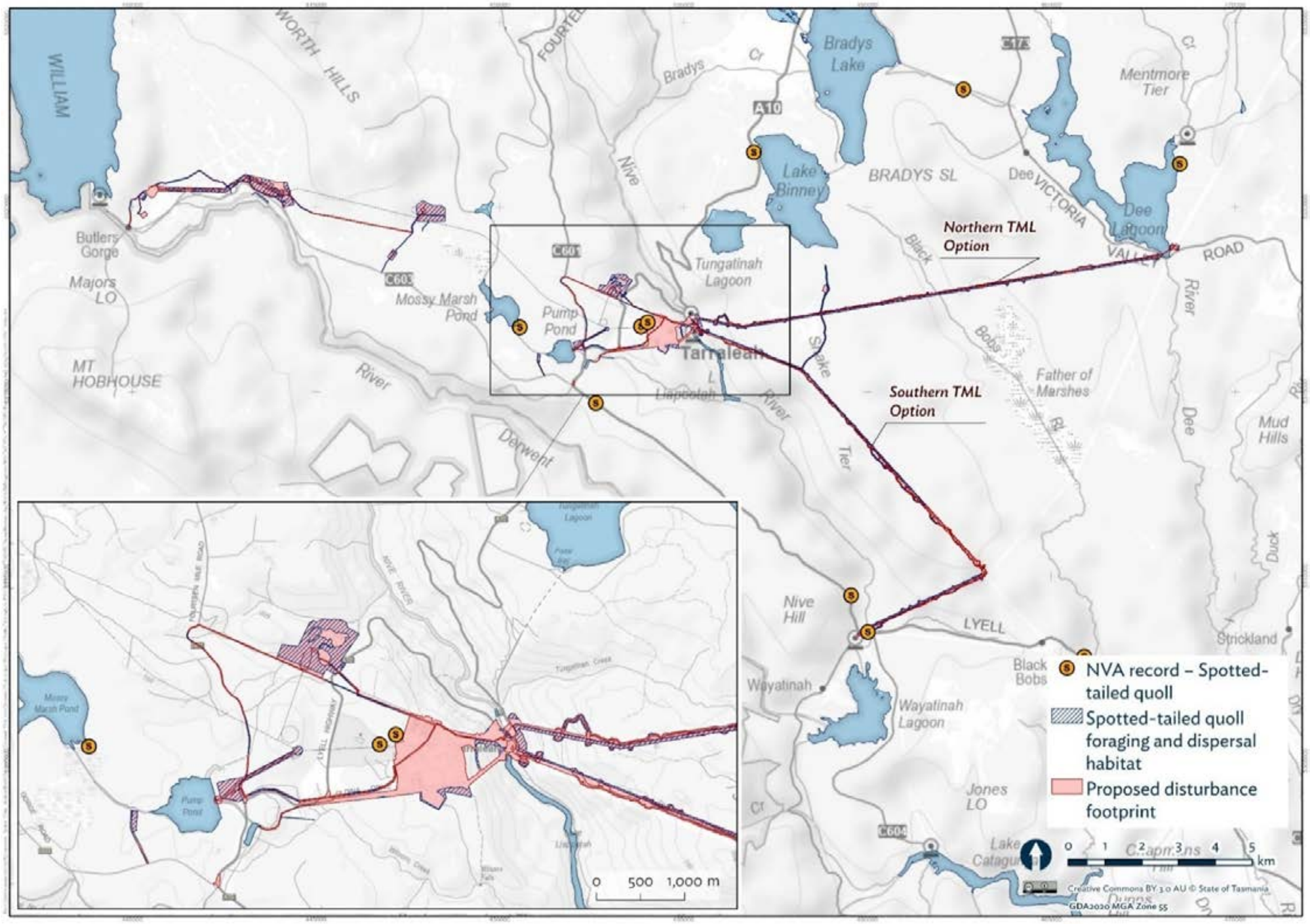

Figure 4.12: Potentially suitable spotted-tailed quoll foraging and dispersal habitat within the disturbance footprint

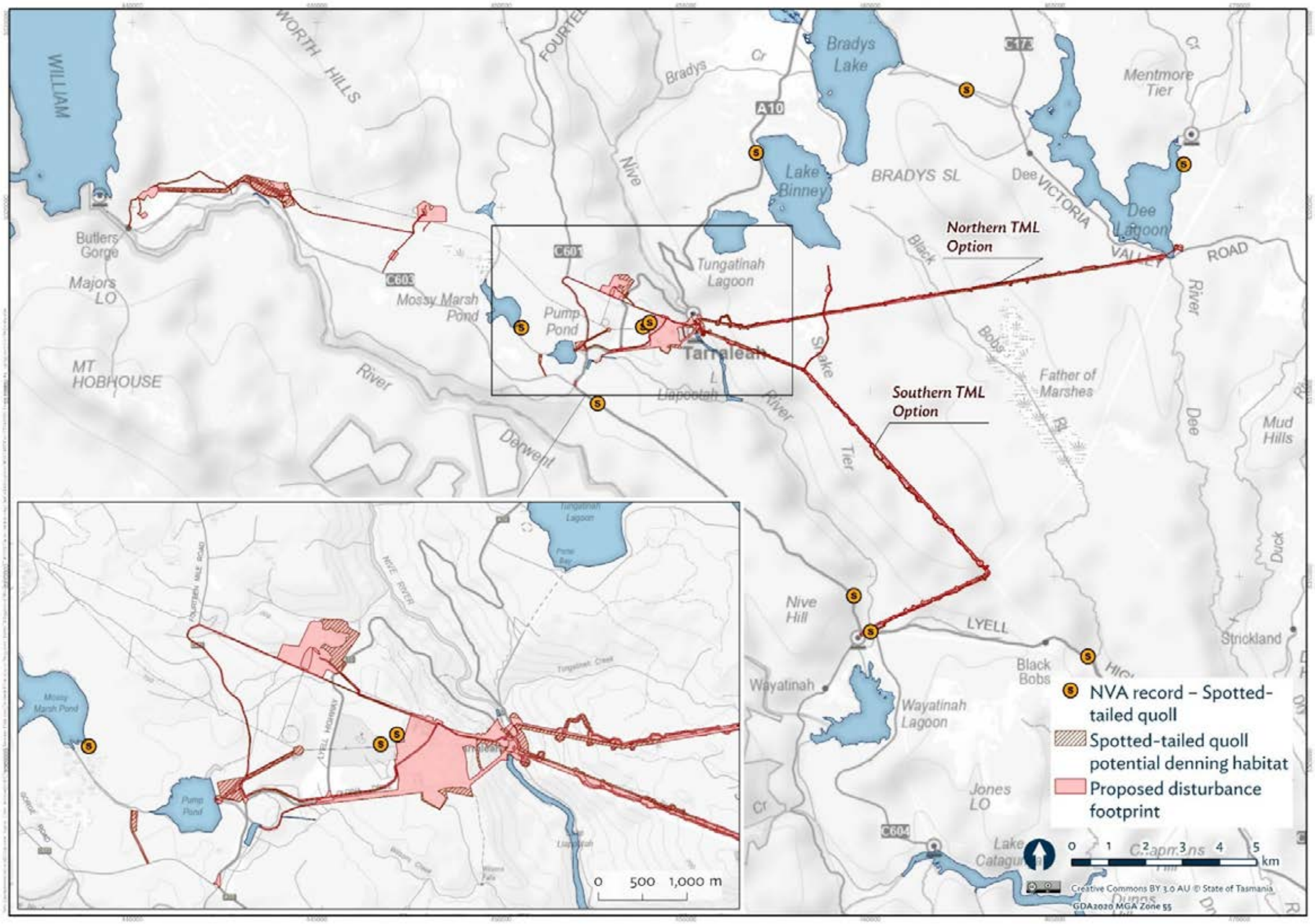

Figure 4.13: Mature eucalypt forest within the disturbance footprint that could provide denning features for quolls

4.6.2.2 Den disturbance

The noise and vibration associated with vegetation clearance and construction activities have the potential to disturb spotted-tailed quoll dens, including sensitive maternal dens. The *Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil (Sarcophilus harrisii)*, which are also relevant to the spotted-tailed quoll species, recommend that development activities maintain a buffer of 50 m around an active den site (Environment Strategic Business Unit, 2023) wherein surface works do not occur. Although there are no known den sites within 50 m of the disturbance footprint, maternal dens may be established in suitable denning features prior to construction.

Construction activities, particularly night time lighting and dust associated with the 24/7 underground works, may interfere with typical quoll foraging behaviour at the localised construction sites (e.g. tunnel portals) during the construction period, whereby quolls and/or prey species may avoid these sites. The avoidance of these sites is unlikely to materially reduce prey availability or foraging success given that the species is highly mobile. In addition, the landscape is subject to frequent disturbance associated with logging activities and hydropower operations. Thus, the apparently sparse local spotted-quoll population will be accustomed to some level of disturbance.

4.6.2.3 Increased risk of vehicle strike

As for Tasmanian devils, spotted-tailed quolls may be struck and killed by vehicles, particularly whilst scavenging on carcasses on roads. There is potential for an increase in road mortalities due increased traffic volumes during the construction phase of the Project (Appendix G). According to the *Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil (Sarcophilus harrisii)*, which are also relevant to the spotted-tailed quoll species, a 10% or greater increase in night-time traffic indicates potential for a substantial impact on the local spotted-tailed quoll population from increased road mortality (Environment Strategic Business Unit, 2023).

The traffic report from Pitt & Sherry (2025) identifies that a total of 23 roads (comprising 29 road segments as identified in Appendix G) will have a 10% or greater increase in night time traffic associated from vehicle movements associated with the construction phase of the Project and transmission line infrastructure, thus representing potential for an increase in road mortalities on these roads during the construction phase. Refer to Section 4.6.1.3 and Appendix G for the results of the roadkill data analysis and traffic assessment respectively. In summary, construction of the main conveyance infrastructure is anticipated to result in a 10% or greater increase in night-time traffic on 17 road segments including the Lyell Highway, Butlers Gorge Road, Fourteen Mile Road, Oldina Drive, Palana Crescent, Saundridge Road, Poatina Road, Highland Lakes Road, Marlborough Road, Exton Road, Bogan Road, and Golden Valley Road. Construction of the northern transmission line is likely to result in a 10% or greater increase in night-time traffic on seven road segments including Victoria Valley Road, Portal Road, Lake Echo Road, and three unnamed access roads. Construction of the southern transmission line option is likely to result in a 10% or greater increase in night-time traffic on five road segments including Black Bobs Road, Wayatinah Road, and three unnamed access roads (Appendix G).

There were 135 roadkill records identified from the desktop roadkill data analysis on roads anticipated to experience a 10% or greater increase in night time traffic with positional accuracy of 100 m or less (refer Section 2.2 and 4.6.1.3). The majority of the 135 roadkill records were from Highland Lakes Road (46%) and Lyell Highway (40%). In addition, there were 203 roadkill records identified on Butlers Gorge Road from the Hydro Tasmania dataset which have a presumed accuracy of less than 100 m (refer Section 2.2), one of which was a spotted-tailed quoll from June 2025..

Of the 338 roadkill records identified (135 NVA records and 203 Hydro Tasmania data records), 59 records were of threatened fauna species (Table 4.4, Figure 4.11). There were three spotted-tailed quoll roadkill records identified with less than 100 m positional accuracy identified on the 29 road segments with an anticipated 10% or greater increase in night-time traffic, including two from Marlborough Road and one from Lyell Highway (Pitt & Sherry 2025). There were no roadkill records on the NVA of spotted-tailed quolls on the roads in the vicinity of the Project area (irrespective of positional accuracy).

The risk of roadkill to spotted-tailed quolls is considered low given the apparent low density of the species in the area as evidenced by the paucity of NVA records (and that no spotted-tailed quolls were recorded at the Tarraleah Golf Course over 1,163 camera trap days and nights). Nonetheless, a roadkill management plan will be developed for the Tarraleah Redevelopment Project to minimise the risk of vehicle strike with fauna species potentially impacted by increased construction traffic. The plan will be tailored to address the elevated roadkill risks for species that scavenge on roadkill carcasses including the Tasmanian devil, spotted-tailed quoll and Tasmanian wedge-tailed eagle. However, the mitigation measures that will be included in the roadkill management plan will minimise the risk of vehicle strikes with all fauna species. These measures will be implemented throughout the construction contract (see Mitigation Measure B below).

4.6.2.4 Assessment of impact significance

The proposed action is unlikely to have a significant impact on the spotted-tailed quoll because it will not affect an important population as defined in the Spotted-tailed quoll Recovery Plan (DEWLP, 2016). Furthermore, pre-construction native mammalian carnivore den surveys and implementation of a roadkill management plan will mitigate anticipated Project impacts. The anticipated habitat loss is unlikely to substantially impact any one home range. A significant impact assessment for the Tasmanian population of the spotted-tailed quoll against the guidelines in the EPBC Act Policy Statement 1.1 (DEWHA, 2013) is provided in Appendix F.3. The mitigation measures for the spotted-tailed quoll are described below in Section 4.6.2.5.

4.6.2.5 Mitigation measures for the Tasmanian devil and spotted-tailed quoll

The management and mitigation measures recommended for minimising impacts to the two threatened mammalian carnivores considered at risk from the Project, the Tasmanian devil and spotted-tailed quoll, are described below.

Mitigation measure A. Management of dens. A suitably qualified ecologist will survey suitable denning habitat (mature dry and wet eucalypt forest) within the disturbance footprint at least 30 days before construction begins at each site. The survey will locate possible Tasmanian devil or quoll den sites, including wombat burrows, and determine the occupant species and if any are active maternal carnivore dens, in accordance with the *Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil* (Environment Strategic Business Unit, 2023). Camera traps may be used to confirm activity and determine the occupant species.

If a Tasmanian devil or quoll den is identified, management will follow the above guidelines and advice from NRE Tasmania. Where avoidance is not possible, a decommissioning plan will be prepared and a permit to 'Take' in accordance with the TSP Act and/or NC Act will be required.

If an active wombat burrow is found within the disturbance footprint, it will be closed in accordance with NRE Tasmania advice, and a permit to 'Take' in accordance with the NC Act will be required.

Mitigation measure B. Unexpected den finds. If an unexpected den is discovered during construction, surface works will cease at the den location. A suitably qualified ecologist will determine whether the den is used by a native or non-native animal.

- If non-native, works may continue.
- If native, no surface works will recommence within 50 m of the den until a permit to 'Take' under the TSP Act and/or NC Act is obtained.

Mitigation measure C. Roadkill management plan. A Roadkill Management Plan (RkMP) will be prepared to minimise vehicle strike risk. The plan will apply to roads assessed as likely to experience a 10% or greater increase in night-time traffic (defined as one hour before sunset to one hour after sunrise) due to construction. The plan will follow the *Caring for Nature - Reducing Roadkill* guidelines (PWS, 2006) and address elevated risks for threatened species that scavenge on roadkill carcasses (Tasmanian devils, spotted-tailed quolls, eastern quolls, and Tasmanian wedge-tailed eagles). Mitigation measures will include:

- Minimising night-time construction traffic where practicable.
- Reducing Project vehicle night-time speed limits by at least 10 km/hr on all roads that are expected to experience a 10% or greater increase in night-time traffic volume due to Project construction (Appendix F)
- Environmental training for site workers covering threatened species awareness, reporting procedures for vehicle strikes and roadkill, and recommended rescue procedures (e.g. reporting to Bonorong Wildlife Rescue on 0447 264 625)
- Reporting Project-related vehicle strikes and threatened species roadkill to Hydro Tasmania within 24 hours
- Investigating Project-related threatened species roadkill incidents within three working days
- Installing advisory signs in high-risk areas
- Continuing verge maintenance along Oldina Drive and Butlers Gorge Road to maintain visibility and reduce browsing
- Prompt removal of roadkill carcasses along Oldina Drive and Butlers Gorge Road, as soon as safe, to reduce scavenger attraction.

4.6.3 Eastern quoll

There are 20 eastern quoll (*Dasyurus viverrinus*) records on the NVA within 5 km of the disturbance footprints; ten of these records are from pre-1996. Many of the records are located to the north of Tarraleah around Lake Binney and Bradys Lake where there are open grasslands. There are four roadkill records with a positional accuracy of 100 m or less on the transport routes for which there is a 10% or greater increase in night-time traffic anticipated during construction, three of which are on the Lyell Highway. The closest (and most recent) roadkill observation was recorded in the Hydro Tasmania data collected on Butlers Gorge Road from January 2025.

There is no potentially preferred habitat in the form of tussock grassland and grassy woodland forest within the survey area. However, there are up to **112.3 ha** of dry forest within the disturbance footprint which is sub-optimal habitat due to the dense shrubby understorey as eastern quolls prefer grassland

and grassy woodland habitats (Jones & Barmuta, 2000). Note that no dens were recorded during the surveys, and no images of the species were captured at the golf course camera trap monitoring site over 1,163 camera trap days and nights nor during the mature dry forest camera trap survey over 1,318 camera trapping nights.

The eastern quoll is considered unlikely to be resident within the survey area but may occur on occasions, particularly moving along anthropogenic linear features such as roads and easements (Andersen et al., 2017), especially at the Liapootah end of the southern transmission line option where there are open grasslands in the vicinity of the Wayatinah Village. A significant impact assessment for the eastern quoll against the guidelines in the EPBC Act Policy Statement 1.1 (DEWHA, 2013) is provided in Appendix F.4.

4.6.4 Eastern barred bandicoot

The construction of the 22 kV distribution line adjacent to the existing distribution line along the existing easement north of Oldina Drive will occur in approximately 0.1 ha of suitable foraging habitat where the eastern barred bandicoot is known to occur at a relatively low density. Eastern barred bandicoots may avoid the area during active construction works (e.g. installation of the poles and stringing of the lines). Construction of the distribution line is unlikely to impact foraging success of this species, and the easement will continue to be used by the eastern barred bandicoot throughout the operational phase. A significant impact assessment for the eastern barred bandicoot against the guidelines in the EPBC Act Policy Statement 1.1 (DEWHA, 2013) is provided in Appendix 0.

There are no roadkill records (irrespective of positional accuracy) of this species on the transport routes with a 10% or greater increase in nigh- time traffic anticipated during construction of the main Project or the associated transmission line options. However, there are four NVA records (sightings) near Tarraleah Village on the Lyell Highway and Oldina Drive. The exiting speed limit on Oldina Drive is 60 kmph slowing to a posted speed limit of 25 kmph approaching Tarraleah Village. Based on the paucity of eastern barred bandicoot detections during the camera trapping program, no roadkill records on the transport routes with a 10% or greater increase in night-time traffic volume associated with construction, and the low speed limit on Oldina Drive, it is considered unlikely that the eastern barred bandicoot vehicle strike risk will be significantly increased above typical risk levels.

4.6.5 Wedge-tailed eagle and white-bellied sea-eagle

4.6.5.1 Foraging habitat assessment

The Tasmanian wedge-tailed eagle is listed as endangered under the TSP Act and the EBC Act. The clearing of **92.2**ha of mature native eucalypt forest to construct the Tarraleah Redevelopment project including the northern the transmission line option is unlikely materially impact Tasmanian wedge-tailed eagle foraging habitat given that eagles will forage across a range of open habitats. If the southern transmission line option is selected, then the area of mature eucalypt forest clearing is slightly less at **69.5** ha. Hunting behaviour and hunting success are unlikely to be impacted by the proposed action due to the wide-ranging nature of the species and its preference for hunting over open habitats (Department of the Environment, 2025). Similarly, the proposed action is unlikely to result in the fragmentation of the Tasmanian wedge-tailed eagle population into two or more populations, given the large size of territories and the highly mobile nature of the species.

The white-bellied sea-eagle is an opportunistic carnivore which forages over coastal areas and inland waterways and lakes where they feed on carrion or live caught prey such as fish, birds, reptiles, and small mammals (Threatened Species Section, 2023a; Debus, 2008). The clearing of native forest is unlikely to impact the foraging behaviour of the white-bellied sea-eagle given their forging habitat is open waters. Neither is the Tarraleah Redevelopment Project likely to fragment the population given their wide-ranging occurrence across coastal and inland waters in Tasmania.

4.6.5.2 Nesting habitat assessment

Habitat critical to the survival of the Tasmanian wedge-tailed eagle and white-bellied sea-eagle is defined as nesting habitat which is defined as patches of eucalypt forest of predominantly old growth trees greater than 10 ha in area (Threatened Species Section, 2006). There are no known eagle nests within the disturbance footprint and no eagle nest trees will be removed.

There approximately **0.3** ha of potentially suitable future eagle nesting habitat within main conveyance infrastructure disturbance footprint, as well as **0.1** ha in the southern transmission option disturbance footprint. Therefore, the Project will require clearance of up to **0.4** ha of potentially suitable future eagle nesting habitat. The clearing of up to **0.4** ha of potentially suitable eagle nesting habitat is unlikely to constitute a significant impact on the species given the species' wide-ranging nature, large territory size and the prevalence of existing nests in the area, which are likely parts of defended territories of existing breeding pairs. This removal of potential future eagle nesting habitat is therefore unlikely to significantly impact the species. The estimated densities of Tasmanian wedge-tailed eagle territories range from a maximum of one eagle pair per 2,000 to 3,000 ha in the lowland landscapes of eastern and northern Tasmania, to a minimum of one pair per 120,000 ha in the highland landscapes of western and south-western Tasmania (Bell & Mooney, 1998).

4.6.5.3 Breeding disturbance

The two Tasmanian eagle species are sensitive to disturbance during the breeding season, which can start at the beginning of July and extend through to the end of January and sometimes to February in late breeding season years (Forest Practices Authority, 2023). If a nesting eagle perceives a disturbance as a threat, even from hundreds of metres away, it may leave its eggs or chicks at risk of cold, heat and predation; it may desert its nest site for years and long after the disturbance has ceased (Threatened Species Section, 2006). Nest disturbance late in the breeding period could also potentially causing young birds to attempt to fly before they are fully fledged (Threatened Species Section, 2006). Disturbances are more likely to disrupt breeding if they are visible; louder; more intense; frequent; closer to the nest (either vertically or horizontally); over an extended period; across a larger area; earlier in the breeding season; above the nest; people are visible; during the day, if helicopters are involved (Threatened Species Section, 2022a). Individual wedge-tailed eagles vary in their tolerance levels, and some may nest in areas near sources of regular disturbance after some months or years spent assessing an area (Threatened Species Section, 2006). Eagles appear to be more tolerant of ongoing disturbance that began in an area before they started nesting than of disturbance that is introduced once they are nesting (Threatened Species Section, 2006). Potential disturbance from construction of the Tarraleah Redevelopment Project may be caused by loud blasting works, and/or by transmission tower erection, and/or by transmission line conductor stringing.

The habitat assessment and the subsequent line-of-sight analysis was used to identify eagle nests within 500 m and eagle nests within 1 km line-of-sight of the disturbance footprint that have potential to be disturbed by Project activities. There are no known eagle nests within 500 m or 1 km line-of-sight of the disturbance footprint west of the Nive River, including the portal areas where blasting will occur. The nearest nest to a tunnel portal is over 2.6 km northwest of the Western Portal. There are five eagle nests that are within 500 m or 1 km line-of-sight of the two transmission line options. There is a risk that active eagle nests could be disturbed by transmission line construction activities, such as vegetation clearance, access track construction, transmission tower/pole assembly and/or overhead line stringing with the use of helicopters. In the northern alignment option, the new 220 kV transmission line is proposed to be built in addition to the existing 110 kV transmission lines and will require an approximately 30 m enlargement to the existing easement, with vegetation cleared proposed on the southern side of the existing easement. In the southern alignment option, the new 220 kV transmission line is proposed to be built adjacent to the existing easement, also requiring a 30 m widening of the existing easement. Thus, regardless of whether the northern or southern transmission alignment is selected, there is the potential for works associated with the transmission line construction disturb breeding wedge-tailed eagles in the relevant spans that fall within 500 m of the nests and within 1 km line-of-sight of the nests. The likely impacts of these activities to each of the five eagle nests known to be present within 1 km of the two alignment options are as follows:

- Nest #2298 is located within 500 m of the easement associated with the northern alignment option and therefore may be disturbed by proposed works if the nest is active when works are undertaken.
- Nest #3577 is located within 500 m the easement associated with the northern alignment option and therefore may be disturbed by proposed works if the nest is active when works are undertaken.
- Nest #3176 is located 688 m south of the easement associated with the northern alignment option and is not within line-of-sight of the easement due to screening by extant vegetation; it is unlikely to be disturbed by construction of the northern transmission line option.
- Nest #1700 is located 771 m south of the easement associated with the northern alignment option and is not within line-of-sight of the easement due to screening by extant vegetation; it is unlikely to be disturbed by construction of the northern transmission line option.
- Nest #738 is located within 500 m of the current easement associated with the southern alignment option and therefore may be disturbed by proposed works if the nest is active when works are undertaken.

For all nests either within 500 m or 1 km line-of-sight of proposed works, works will not proceed within 500 m or 1 km line-of-sight during the breeding season (July to January inclusive) unless the nest is confirmed inactive for that breeding season. Thus, nest activity checks will be undertaken during the breeding season by a suitably qualified species expert prior to the commencement of works, and repeated annually until the completion of works in accordance with the Tasmanian EPA’s *Guide to Eagle Nest Searches and Activity Checks*, the Tasmanian FPA’s *Fauna Technical Note No. 1: Eagle nest searching, activity checking and nest management*, and the Commonwealth’s *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment, Water, Heritage and the Arts, now DCCEEW, 2010).

4.6.5.4 Risk of electrocution and collision

Impacts of the operation of the proposed transmission line may include mortality or injury to the Tasmanian wedge-tailed eagle and the white-bellied sea-eagle through electrocution and collision with the approximately 12.5 km length of the proposed new 220 kV northern transmission line option and 15 km length the new 220 kV southern transmission line option. Collision with electricity infrastructure is recognised as a major threat to the eagle species which is considered more likely than electrocution.

The proposed transmission line design consists of separate phase and earthing, also known as optical ground wires (OPGW), conductors. The separate earthing wire is required to protect the power line from lightning strikes, as well as provide fibre optic communications for OHTL protection, supervisory control and data acquisition (SCADA) and other telecommunications services. Earth wires are typically positioned at the top of the tower, increasing the risk of collision with birds that fly over the conductors.

Based on historic incident data kept by TasNetworks, there has only been one confirmed incident of a pole-top electrocution of a wedge-tailed eagle on a high-voltage transmission line in Tasmania. The pole type was a steel lattice tower, and the voltage of the line was 110 kV. This line has been decommissioned. There were two (2) possible mid-span collisions recorded making three (3) reported wedge-tailed eagle incidents in total since 2014-15. Two (2) additional transmission line incidents have been recorded involving white-bellied sea-eagles, one (1) pole top electrocution and one (1) possible mid-span collision. All incidents since 2014-15 involved the 110 kV transmission line network. The spacing between conductors and the towers is smaller for the 110 kV transmission lines, which may represent a relatively greater risk of electrocution than with 220 kV transmission lines; however, for both types of transmission lines, the likelihood of electrocution and collision is rare. It should be noted, however, that the rate of incident detection on a transmission line is likely to be low given that any collision will not create fault level conditions. The low rate of incidents with transmission infrastructure compared to the distribution line network has been attributed to the transmission network using larger wires, which are more visible and more easily avoided by eagles compared to the less visible, thinner wires used on the distribution network. In addition, the distance between conductors and tower structures on the transmission network is generally greater than an adult wedge-tailed eagle, which has a wingspan of up to 2.3 m. Twin conductors with a spacing of 520 mm are proposed, which will be suspended from the tower by a large insulator. This arrangement of the conductors will result in the distance between the tower and the conductors being 3 m which means there is a lower likelihood of electrocution. This distance is much larger than the distance between conductors on distribution lines.

The proposed construction of the new 220-kV transmission line within the existing easement is unlikely to change the current risk of raptor electrocution with the existing powerlines. The new conductors would be larger, more visible and higher than the existing conductors, and the towers would also be larger with greater spacing distance between the tower and the conductors than in the existing transmission lines within the same easement. The risk of eagles colliding with the thick and more visible conductors and optical ground-wires of the proposed infrastructure is low given that it will be installed in an existing easement with existing power lines. As such, the impact of the proposed additional transmission infrastructure on the Tasmanian wedge-tailed eagle is unlikely to be significant.

The majority of bird electrocutions are attributed to the distribution network, where the distances between conductors is smaller than in the transmission network. The new 22 kV power distribution lines will be designed and built in accordance with TasNetworks standards, which seek to minimise electrocution risk and collision risk for avifauna (e.g. using delta configuration as in Figure 4.14). There are approximately 11 km of new 22 kV distribution lines proposed in the concept design; the total length of proposed new distribution lines is subject to change in the final design.

In summary, during the operational phase, the proposed 220 kV overhead transmission infrastructure does not pose an elevated **collision** risk to eagles to the extent that the populations are likely to decline, given that:

- There are several power lines within close proximity to the proposed transmission line for the Tarraleah Redevelopment Project, and as such the new infrastructure will not be novel in this landscape.
- The diameter of transmission line conductors (34 mm) is significantly larger than that of distribution conductors and are therefore more visible.

During the operational phase, the proposed 220 kV OHTL infrastructure does not pose an elevated electrocution risk for eagles to the extent that the populations are likely to decline, given that:

- The majority of raptor electrocution incidents are attributed to the distribution network rather than the transmission network, because distances between phase conductors is smaller in distribution infrastructure than in transmission infrastructure.
- The distance between the tower and the conductors will be 3 m, which is greater than the full-grown adult wingspan of the white-bellied sea-eagle and of the Tasmanian wedge-tailed eagle.

Figure 4.14: Example of a delta configuration on a distribution line

4.6.5.5 Increased risk of vehicle strike

Collision with vehicles is noted in the *Threatened Tasmanian Eagles Recovery Plan 2006-2010* as a threat to the wedge-tailed eagles (Threatened Species Section, 2006). Wedge-tailed eagles are known to scavenge on roadkill carcasses, making them vulnerable to vehicle strike (Pay, 2019). Refer to Section 4.6.1 and Appendix G for further information on the increases in traffic during construction.

There are four records of wedge-tailed eagle carcasses within 10 m of the transport routes proposed for the Project and the associated transmission line options. Three of these records are on the Lyell Highway, two of which are within 20 m from each other from January and February 2024 between Ouse and Wayatinah, and the other record from the Lyell Highway between Bridgewater and New Norfolk. The fourth record is from Highland Lakes Road from August 2019. Note that the species observation notes for one of the Lyell Highway records comments on injuries consistent with vehicle collision, however the other Lyell Highway record and the Highland Lakes Road record mentions the proximity to power lines which may have caused the fatality. There are no roadkill records on the NVA of wedge-tailed eagles on roads in the vicinity of the main Project disturbance footprint, nor are there any roadkill records of white-bellied sea-eagles on the transport routes with an anticipated 10% or greater increase in night-time traffic associated with the Project.

A roadkill management plan will be prepared for the proposed Tarraleah Redevelopment Project to outline measures to prevent an increase in fauna road mortalities from increased traffic during the construction phase. With the appropriate implementation of a roadkill management plan throughout the duration of the construction phase of the Project, the risk of increased vehicle strike with wedge-tailed eagles can be mitigated such that the impact of the proposed action is unlikely to be significant.

4.6.5.6 Light and dust

Other construction activity impacts, such as night-time lighting at works sites and dust generated by construction activities, are not expected to significantly impact breeding eagles within 1 km of the proposed redevelopment project. Any night-time lighting infrastructure will be designed to comply with the Commonwealth *National Light Pollution Guidelines for Wildlife* specifications provided in Appendix A (Best Practice Lighting Design), to minimise disturbance to wildlife.

4.6.5.7 Secondary poisoning

The species' habit of feeding on carrion exposes it to secondary poisoning (e.g. via ingestion of rabbits laced with pindone). Anti-coagulant rodenticides, especially second-generation anticoagulant rodenticides (SGARs; brodifacoum, bromadiolone, difethialone, difenacoum and flocoumafen) also pose a particularly problematic secondary poisoning risk to raptors (Pay et al., 2021). Use of the SGAR class of chemicals will be avoided during all phases of the proposed action, including at the new power station.

4.6.5.8 Likely duration and repetition of impacts

The threat of disturbance of an active eagle nest during the breeding season July to January inclusive (in typical breeding seasons) or July to February inclusive (in late breeding seasons) by construction activities will be mitigated for the duration of construction.

The use of helicopters for line inspections within 1 km line-of-sight of an active eagle nest has the potential to disrupt breeding eagles similar to the disturbance impacts from the use of helicopters during the construction of the transmission line. The threat of disturbance of an active eagle nest during the breeding season by maintenance and repair activities involving a helicopter will likely be repeated at least annually throughout the operational lifetime of the transmission infrastructure. Inspections of the transmission network are typically undertaken using drones, helicopters, and/or ground patrols to identify any potential vegetation and easement access issues within and adjacent to the transmission line operational area. The proposed transmission line will be constructed within an existing easement with existing transmission infrastructure; as such, routine line inspection using drones and helicopters will proceed as usual without increased disturbance risk attributed to the new infrastructure.

4.6.5.9 Assessment of impact significance

The proposed action is unlikely to have a significant impact on the wedge-tailed eagle or the white-bellied sea-eagle because there will be no construction activity during the breeding season (July to January inclusive) within 500 m or 1 km line-of-sight of the nests known to occur within 500 m and 1 km line-of-sight of the transmission line options if they are active. In addition, secondary poisoning will be avoided by selecting appropriate rodenticides, and the new 22 kV power distribution lines will be designed and built in accordance with TasNetworks standards, which seek to minimise electrocution risk and collision risk for avifauna. A significant impact assessment for the wedge-tailed eagles against guidelines in the EPBC Act Policy Statement 1.1 (DEWHA, 2013) is provided in Appendix F.6. The mitigation measures for the Tasmanian eagle species are described below.

Mitigation Measure A. As at June 2025, the eagle nests known to occur within 1 km of the disturbance footprint are four nests near the northern transmission alignment option (nests #2298, #3176, #3577 and #1700) and one nest near the southern transmission alignment option (nest #738). To identify new or previously unknown eagle nests, annual eagle nest searches will be undertaken by a suitably qualified species expert outside of the eagle management constraint period prior to the commencement of construction and repeated until the completion of construction.

Annual eagle nest searches will be undertaken before the start of construction and repeated until construction is complete, to identify new or previously unknown eagle nests and to monitor the condition of known nests. Searches and activity checks will follow the Tasmanian EPA's *Guide to Eagle Nest Searches and Activity Checks (*EPA Tasmania, 2023), the Tasmanian FPA's *Fauna Technical Note No. 1: Eagle nest searching, activity checking and nest management* (Forest Practices Authority, 2023), and the *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment, Water, Heritage and the Arts, now DCCEEW, 2010a). Searches will be guided by the FPA's eagle nesting habitat models (FPA, 2014a).

For all eagle nests either within 500 m or 1 km line-of-sight of proposed surface works, no surface works will occur within these buffers during the breeding season (July to January inclusive, and July to February in late breeding seasons) unless the nest is confirmed inactive for that breeding season. Where required, nest activity checks will be undertaken during the breeding season before relevant works commence, and nest activity checks will be repeated annually until construction of the relevant infrastructure is complete.

An annual report summarising the results of eagle nest search results will be prepared and provided to the EPA upon request. Any previously unrecorded raptor nests, or failures to locate previously recorded nests, will be reported to the Tasmanian Natural Values Atlas (NVA) as soon as practicable. Photographs and descriptions of known nests re-located during surveys will be provided to the NVA as soon as practicable after each search.

Mitigation Measure B. The new 22 kV power distribution lines will be designed and built in accordance with TasNetworks standards, which seek to minimise electrocution risk and collision risk for avifauna.

Mitigation Measure C. The roadkill management plan (RKMP) will be developed and will be implemented throughout the construction phase to reduce the risk of construction vehicle strike with eagles, which are slow to take flight due to their large size.

Mitigation Measure D. Anti-coagulant rodenticides, especially second-generation anticoagulant rodenticides (SGARs; brodifacoum, bromadiolone, difethialone, difenacoum and flocoumafen) that pose a risk of secondary poisoning of raptors, will be avoided during all phases of the Project, including at the new power station on the Nive River.

4.6.6 Tasmanian masked owl

The Tasmanian masked owl (*Tyto novaehollandiae castanops*) is listed as vulnerable by the EPBC Act and endangered by the TSP Act, and it is a ‘priority species requiring consideration’ under the Tasmanian *Regional Forest Agreement 1997*. For Matters of National Environmental Significance that are listed as vulnerable species, the significant impact criteria refer to an ‘important population,’ which is defined as a population that is necessary for a species’ long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- key source populations either for breeding or dispersal
- populations that are necessary for maintaining genetic diversity
- populations that are near the limit of the species range.

The Tasmanian subspecies has been determined to be a distinct population of a biological entity under section 517 of the EPBC Act, and it is assumed that there is a single population in Tasmania. Given the low population size and large territory size of the Tasmanian masked owl, an important population is the entire Tasmanian masked owl population. Therefore, for the purposes of this assessment, it is assumed that a significant impact on any single Tasmanian masked owl territory (e.g. disturbance of an active nest or destruction of a tree containing a nest hollow) would constitute a significant impact on an important population.

There is no critical habitat defined in the Conservation Advice for the Tasmanian masked owl, nor is there a recovery plan for the subspecies. Further, there is no habitat for masked owls listed on the Register of Critical Habitat. However, nest hollows constitute habitat features that are considered to be critical to the survival of the species.

Tasmanian masked owls are likely to fly and forage over the survey area, as evidenced by the occasional recording of masked owls at the passive acoustic monitoring (PAM) sites opposite the Tarraleah Power Station and near proposed upstream portal, within the Tarraleah Conservation Area east of Fourteen Mile Road. There is no evidence of resident (roosting or nesting) masked owls within nor within 150 m of the disturbance footprint.

The following possible project impacts to the Tasmanian masked owl are assessed below: disturbance from vegetation clearance, disturbance of a breeding pair by construction noise and/or vibrations, elevated collision risk, elevated electrocution risk, and destruction of key habitat features (nest hollows). None of these potential impacts are considered likely in the context of this development.

4.6.6.1 Foraging and nesting habitat assessment

The vegetation clearance required for the project will not impact the Tasmanian masked owl, as there are no known roost or nest sites within the disturbance footprint. In addition, the clearance of vegetation proposed for this project will not impact the foraging behaviour of this species. The masked owl is known to occur widely across Tasmania in a range of wet and dry forest types. The highest known densities occur at low elevations (less than 600 m) dominated by mature dry eucalypt forests, open woodlands and modified forest–pasture mosaics (Bell & Mooney, 2002; Todd et al., 2018). Masked owls have large territories in the order of 1,000 to 2,000 ha (10 to 20 km^2) (Todd, 2012; Young et. al., 2020) and may be even larger in some parts of Tasmania, such as at higher altitudes and in western Tasmania. During both the construction and operational phases, the Tasmanian masked owl population is likely to continue to fly and forage over the survey area at night as usual, given that the species is known to forage across modified landscapes.

Potential nesting trees for the masked owl include those with large hollows with an entrance usually larger than 15 cm diameter. Trees over 100 cm diameter-at-breast height (DBH) have been found to have a higher probability of containing large hollows suitable for masked owls than smaller diameter trees (Forest Practices Authority, 2014a). Therefore, the clearing of *Eucalyptus delegatensis* dry forest and woodland (DDE), *Eucalyptus dalrympleana–Eucalyptus pauciflora* forest and woodland (DDP) and *Eucalyptus delegatensis* forest with broad-leaf shrubs (WDB) with large old trees may potentially directly impact the masked owl if there is a roost or nest within 150 m of the Tarraleah Redevelopment disturbance footprint. It is important to note that most of the native vegetation within the disturbance footprint is regrowth forest from previous timber harvesting operations. Of approximately **141.2 ha** of wet and dry eucalypt forest within the main infrastructure (west of the Nive River) disturbance footprint, approximately **54.2 ha** have previously been harvested, and there are approximately **87.1 ha** of mature forest which might contain potentially suitable nesting habitat for the masked owl. Additionally, there are up to **30.1 ha** of mature eucalypt forest within the northern transmission line option disturbance area, and there are up to **12.2 ha** of mature eucalypt forest in the southern option disturbance footprint.

It has been reported that in Tasmania, most female masked owls lay eggs in mid-October to early November (Mooney 1997), though nestlings have been recorded in winter at one nest site in an agricultural land/native forest mosaic in northern Tasmania (Bell 2006). It is assumed that a spring peak in breeding would encompass the months of October to February, inclusive; however, given that masked owls are highly versatile foragers, breeding probably occurs in response to prey availability and could therefore occur at any time of year. As described above, passive acoustic monitoring (PAM) was undertaken during the breeding season for the Tasmanian masked owl.

The acoustic recorder that was deployed northeast of the Tarraleah Power Station on the other side of the River Derwent recorded nine individual calls over 8 months between the 27 September 2023 and 23 May 2024. The call analysis revealed that 8 of these calls were recorded at dusk and one a few hours later. The PAM results indicate that masked owls visit the area on occasion; however, there is no indication that they are roosting or breeding in the area.

The second acoustic recorder was deployed along Butlers Gorge Road 4 km east of Clarke Dam over 4 months between 27 September 2023 and 17 January 2024. As noted above, no calls were recorded at this location despite being deployed over the breeding season.

Although, the PAM in potentially suitable masked owl habitat did detect occasional masked owl calls, there was no evidence of masked owls being resident in the form of roosting or nesting. Therefore, it is considered that although the area may be visited on occasion, it does not form important habitat for the masked owl and thus the species is unlikely to be impacted by the proposed Tarraleah Redevelopment.

4.6.6.2 Habitat fragmentation

The proposed action is unlikely to result in habitat fragmentation for masked owls within the survey area because the proposed project infrastructure does not constitute a barrier to the movement of individual masked owls traversing or foraging over the landscape, given that the species is known to forage across modified landscapes.

4.6.6.3 Disturbance to individuals and habitat

The proposed action is unlikely to result in direct or indirect loss and/or disturbance to masked owls, as there is no evidence that they are nesting within the survey area and there are no known suitable nest trees within 150 m of the project area, and the species is highly mobile. Neither is the Project is likely to result in the introduction of harmful or invasive species or disease that may cause the masked owl to decline.

During the construction phase, the above-ground works will be undertaken during daylight hours; as such, the construction works will not directly impact masked owls given that:

- masked owls are generally not active during the day when above-ground works will be undertaken
- there are unlikely to be any resident (roosting or nesting) masked owls within 150 m of the disturbance footprint that could be disturbed by noise or vibration from construction works.

During the operational phase, the proposed up to 15 km of new 220 kV overhead transmission line (OHTL) infrastructure [16] depending on which transmission line option is selected does not pose an elevated collision risk for the Tasmanian masked owl, given that:

- there are no records of mid-span collisions of Tasmanian masked owls with transmission line infrastructure [17]
- masked owls are not likely to be frequently traversing the easement, as there are no known masked owl roosts nor nests within 150 m of the easement
- there are unlikely to be resident masked owls in the area given that the passive acoustic monitoring program detected only errant masked owl calls over 7 months of nightly recording
- the new OHTL is not novel infrastructure in the landscape, as it will run parallel and 25 m to the south of the two existing transmission lines in the easement
- the new OHTL conductors will be thicker and more visible than the existing conductors.

During the operational phase, the proposed of the up to 15 km of new 220 kV OHTL infrastructure does not pose an elevated electrocution risk for the Tasmanian masked owl, given that:

- there are no records of pole-top electrocution of a Tasmanian masked owl on a high-voltage transmission line
- masked owls are not likely to be frequently traversing the easement, as there are no known masked owl roosts nor nests within 150 m of the easement
- there are unlikely to be resident masked owls in the area given that the passive acoustic monitoring program detected only occasional masked owl calls despite recording for several months
- the new OHTL is not novel infrastructure in the landscape, as it will run parallel and 25 m to the south of the two existing transmission lines in the easement

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[16] The proposed new, double-circuit, 220 kV OHTL will have two transmission lines installed on a single set of steel poles or steel lattice towers such that there will be eight conductors per pole/tower. The centreline of the proposed new OHTL will be located 30 m offset from the centreline of the existing 110 kV OHTL. The two existing 110 kV transmission lines will not be decommissioned as part of this project. However, TasNetworks may elect to retire these old lines in the future. The existing easement will need to be extended 30 m to accommodate the proposed new 220 kV OHTL. The proposed new 220 kV OHTL's pole/tower heights will vary from 37m to 52m; the existing 110 kV OHTL's tower heights are approximately 17 m. The proposed new 220 kV OHTL's conductors will be thick sulfur conductors of 34 mm diameter, which are generally much more visible, compared with smaller, copper conductors of 15 mm diameter on the existing OHTLs.

[17] The rate of collision or electrocution incident detection on a transmission line is likely to be low given that any raptor collision will not create fault-level conditions.

- the majority of raptor electrocution incidents are attributed to the distribution network rather than the transmission network, because distances between phase conductors is smaller in distribution infrastructure than in transmission infrastructure.
- the distance between the tower and the conductors will be 3 m for the proposed 220 kV transmission infrastructure, which is greater than the full-grown adult wingspan of the Tasmanian masked owl (approximately 1.3 m).

4.6.6.4 Secondary poisoning

The species' habit of feeding on rabbits and introduced rodents exposes it to secondary poisoning (e.g. via ingestion of rabbits laced with pindone). Anti-coagulant rodenticides, especially second-generation anticoagulant rodenticides (SGARs; brodifacoum, bromadiolone, difethialone, difenacoum and flocoumafen) also pose a particularly problematic secondary poisoning risk to raptors (Pay et al., 2021). It is recommended that use of the SGAR class of rodenticide chemicals be avoided during all phases of the Project, including at the switchyard and at the new power station on the Nive River.

4.6.6.5 Impacts of vehicle strike

The traffic report from Pitt & Sherry (2025) identified that there will likely be a 10% or greater increase in night-time traffic volume on 29 road segments associated with construction, which represents potential for an increase in road mortalities due increased traffic volumes during the construction phase of the Project. Refer to Section 4.6.1.3 and Appendix G for the results of the roadkill data analysis and traffic assessment respectively.

There is one masked owl carcass record on the Lyell Highway between Ouse and Wayatinah from 2012, over 20 km to the southeast of Tarraleah. This road segment between New Norfolk and Tarraleah is expected to experience a 10% or greater increase in night-time traffic (Appendix G). However, Tasmanian masked owls hunt for their food by taking live prey (Higgins, 1999); there is no evidence of the species scavenging carrion such as roadkill carcasses on roads (Dr Phil Bell, pers. comm.). However, masked owls often hunt on roads as their prey (rats, mice and rabbits in particular) are highly vulnerable when on the road (Dr Phil Bell, pers. comm.). In the Tarraleah region, they are more likely to prey upon arboreal mammals due to the largely forested nature of the landscape. Therefore, it is considered unlikely that the masked owl vehicle strike risk will be significantly increased above typical risk levels.

Nonetheless, the mitigation measures to be identified in the roadkill management plan for the Project will minimise the risk of vehicle strike for all fauna species, including for Tasmanian masked owls.

4.6.6.6 Impacts of noise, vibration and dust

Given that there is no evidence of masked owls nesting within the Project area and given that the species is highly mobile with large home ranges, there are unlikely to be any impacts from light, noise, vibration and dust from the construction and operation of the project on the species.

No impacts to the Tasmanian masked owl are expected. Helicopters may fly over the easement as part of routine overhead transmission line infrastructure maintenance checks during the operational phase; these checks are unlikely to disturb masked owls as there are no known nest or roost hollows within 150 m of either proposed transmission alignment.

4.6.6.7 Assessment of impact significance

The proposed action is unlikely to have a significant impact on the Tasmanian masked owl because (1) foraging success will not be impacted due to the mobile nature and large territory size of the species, (2) there are no known nest trees within 150 m of the disturbance footprint, and as such breeding will not be disturbed, (3) secondary poisoning will be avoided by selecting appropriate rodenticides, and (4) the new 22 kV power distribution lines will be designed and built in accordance with TasNetworks standards, which seek to minimise electrocution risk and collision risk for avifauna. A significant impact assessment for the Tasmanian masked owl against the guidelines in the EPBC Act Policy Statement 1.1 (DEWHA, 2013) is provided in Appendix F.7. The mitigation measures for the Tasmanian masked owl are described below.

Mitigation measure A. The new 22 kV power distribution lines will be designed and built in accordance with TasNetworks standards, which seek to minimise electrocution risk and collision risk for avifauna.

Mitigation measure B. Anti-coagulant rodenticides, especially second-generation anticoagulant rodenticides (SGARs; brodifacoum, bromadiolone, difethialone, difenacoum and flocoumafen) that pose a risk of secondary poisoning of raptors, will be avoided during all phases of the Project, including at the new power station on the Nive River.

4.6.7 Swift parrot

4.6.7.1 Foraging habitat loss or fragmentation

The critically endangered (under EPBC Act) swift parrot is an occasional visitor to the Central Plateau, including the Tarraleah area, following breeding in the forests of eastern and south-eastern Tasmania as they disperse to western and northwestern Tasmania before flying back to the mainland for winter (DCCEEW, 2024b). Swift parrots have been recorded in mature *Eucalyptus delegatensis* wet forest in the Tarraleah area, and they may forage in other mature eucalypt forest and woodland in the area including *Eucalyptus dalrympleana-E. pauciflora*, *E. rodwayi* dry forest and *E. obliqua* wet forest as they have been recorded foraging in flowering *Eucalyptus tasmaniensis, E. dalrympleana, E. pauciflora*, *E. obliqua* and *E. rodwayi* trees (Brereton, 1996, Swift Parrot Recovery Team 2001).

Eucalyptus delegatensis dry and wet forests are extensive within the IBRA7 Central Highlands bioregion; 301,977 ha of this forest type is mapped within the bioregion (Forest Practices Authority, 2025). There is also 16,643ha *of E dalrympleana-Eucalyptus pauciflora* dry forest and 5,302 ha of *Eucalyptus rodwayi* dry forest in the Central Highlands bioregion (Forest Practices Authority, 2025). There are 12,941.7ha of *Eucalyptus obliqua wet forest* in the Central Highlands bioregion (Forest Practices Authority, 2025). These forest types have not been identified as priority foraging habitat, as they are not *Eucalyptus globulus* or *E. ovata* forest communities, nor do they contain *Eucalyptus globulus* or *E. ovata* trees, nor are they within the breeding range of the swift parrot (DCCEEW, 2024b).

Therefore, the loss of up to **88** ha or **0.03%** of these potentially suitable mature eucalypt forest types in the Central Highlands that may be used on occasions depending on flowering frequency (which could be between 2 to 4 years or up to 7 years) is unlikely to have an impact on the species. Particularly given that the species could occur anywhere in Tasmanian post-breeding (DCCEEW, 2024b).

The Swift Parrot Recovery Plan (DCCEEW, 2024) has identified habitat critical to the survival for the swift parrot in Tasmania based on the identified important breeding habitats for the species as '*both potential foraging habitat – which is native forest and woodland containing either Blue Gum (E. globulus) and/or Black Gum (E. ovata) as a dominant, subdominant or low density species, and potential nesting habitat – which is forests or woodlands containing hollow-bearing eucalypt trees within foraging range (~10 km) of potential foraging habitat that is old enough to flower*'. Neither *Eucalyptus globulus* forest nor *E. ovata* forest occurs on the Central Plateau; therefore, the Project will not impact habitat critical to the survival of the species.

Swift parrots are highly mobile species and can travel between flowering eucalypts in a fragmented landscape particularly during the post-breeding period in Tasmanian where they can occur over a large part of the state. The landscape within which the Project is located is already characterised by a history of forestry activity which has created a mosaic of forest ages from recent clear fall operations, through regrowth to some remnant mature forests. Therefore, clearance of a relatively small area of native vegetation eucalypt forest within the disturbance footprint within the context of the extensive area of eucalypt forests on the Central Plateau is unlikely to fragment an existing population into two or more populations. Note only 17.7 ha of mature forest within the project area will be permanently cleared for infrastructure and that the remaining cleared mature forest areas (approximately 70.3 ha) used for lay down areas and stockpiles that are not required post-construction will be rehabilitated to native forest. Therefore, the landscape impacts of clearing will be minimal in the longer term.

4.6.7.2 Nesting habitat loss

The major threats to the survival of the swift parrot are the ongoing loss of breeding habitat in Tasmania through forestry operations and land clearing (DCCEEW, 2024b). The disturbance footprint of the project is not within the species' breeding range, which is mostly within 10 km of the coast in eastern and southeastern Tasmania, although there is breeding in some years on the central north and northwestern coast of Tasmania (DCCEEW, 2024b). No nesting habitat as identified in the Swift Parrot Recovery Plan (DCCEEW, 2024b) will be lost as a result of the Project.

4.6.7.3 Increased risk of vehicle strike

Collisions with vehicles are identified as a threat to the swift parrot in the species' National Recovery Plan, along with collisions with wire netting, mesh fences and windows (Saunders & Tzaros, 2011). The loss of swift parrots due to such collisions is estimated to be up to 2% of the total population per year (Pfennigwerth, 2008). However, most collisions are associated with urban areas including vehicle strike (Pfennigwerth, 2008). There are 13 carcass records of swift parrots on the NVA in Tasmania, of which one is noted as a result of vehicle strike, eight from collisions with fences or house windows, and two unidentified causes of death. The vehicle strike record is from Taroona, south of Hobart in 2010 with poor location accuracy; it is likely that the risk of vehicle strike risk is highest in urban and suburban areas.

The swift parrot is fast-flying and can fly relatively low (only a few metres above ground) as they gain initial speed, flying between habitats within close proximity which can put them at risk of collision (Smales, 2005). The traffic report from Pitt & Sherry (2025) identifies that there will be an increase in traffic volume on roads associated with construction (Appendix G). However, it is unlikely to result in an increased risk of vehicle strike because the canopies of the potentially suitable *eucalypt* forage trees within the disturbance footprint are quite high, being at least 30 to 50 m above the ground. Therefore, it is unlikely that there will be any low flights by swift parrots when moving between trees, and flights will likely be well above vehicle level. Furthermore, the swift parrot is a transient visitor to Tarraleah and does not visit the area every year, only opportunistically when there is a suitable flowering resource, particularly of *Eucalyptus delegatensis*.

In addition, the mitigation measures to be identified in the roadkill management plan for the Project will minimise the risk of vehicle strike for all fauna, including for swift parrots. Therefore, it is unlikely that vehicle strike from increased vehicle movements associated with the development will present a risk to the swift parrot.

4.6.7.4 Light and dust

Other construction activity impacts, such as night-time lighting at works sites and dust generated by construction activities, are not expected to impact the swift parrot, whose occurrence within and surrounding the disturbance footprint after the breeding season will be transient.

4.6.7.5 Likely duration and repetition of impacts

The removal of summer- and autumn-flowering eucalypts within the approximately 133 ha of potentially suitable swift parrot foraging habitat, where opportunistic post-breeding foraging by swift parrots is known to occur, will not be repeated, and this one-time impact is unlikely to be significant given the widespread availability of these eucalypt species throughout the region.

4.6.7.6 Unknown, unpredictable or irreversible impacts

It is unlikely that there will be irreversible impacts from the Project on the swift parrot, given the widespread availability of summer- and autumn-flowering eucalypts throughout the region and the highly mobile nature of this migratory parrot. The assessment uses the most current knowledge of the species from recognised species experts to ensure that the risk of unknown or unpredictable impacts is minimised.

4.6.7.7 Assessment of impact significance

The proposed action is unlikely to have a significant impact on the swift parrot because is not the core breeding range of the species as defined in the *National Recovery Plan for the Swift Parrot* (DCCEEW 2024) and no priority foraging or breeding habitat will be impacted. A significant impact assessment for the swift parrot against the guidelines in the EPBC Act Policy Statement 1.1 (DEWHA, 2013) is provided in Appendix F.8.

4.6.8 Blue-winged parrot

There are only three recent records of the blue-winged parrot on the NVA within 5 km of the disturbance footprint since 1981 and three records prior to and including 1981, all with low accuracy of +/- 18,500 m and the species was not recorded during field surveys. There is also no suitable foraging habitat in the form of grassy woodland and grassland habitats within the disturbance footprint. Therefore, the blue-winged parrot is considered unlikely to occur within the disturbance footprint and will not be impacted by the Project.

4.6.9 Latham's snipe

4.6.9.1 Habitat loss or fragmentation

Latham's snipe (*Gallingo hardwickii*) usually inhabits open, freshwater wetlands with low, dense vegetation where they may be found in a variety of vegetation types or communities including tussock grasslands with rushes, reeds and sedges, coastal and alpine heathlands, buttongrass plains, alpine herbfields and open forest. Given the widespread occurrence of the species in Tasmania, it is possible that it could visit the buttongrass moorland within the disturbance footprint. However, the buttongrass moorlands are closed with a dense cover (up to 90% foliage cover) of buttongrass (*Gymnoschoenus sphaerocephalus*) with few open wet areas (Figure 4.15), which is likely less-preferred habitat for Latham's snipe. Buttongrass moorlands are extensive in Tasmania with over one million hectares of the vegetation community. Therefore, the loss of **20.7 ha** of buttongrass moorland comprised of **18.7 ha** of pure buttongrass moorland (MPB) and **2.0 ha** of buttongrass moorland with emergent shrubs, which together is 0.002% of the extent buttongrass moorlands in Tasmania, is unlikely to result in the loss of important habitat for Latham's snipe. Furthermore, the buttongrass moorlands not required to house permanent infrastructure will be rehabilitated after construction.

Figure 4.15: Closed buttongrass moorland

4.6.9.2 Assessment of impact significance

The proposed action is unlikely to have a significant impact on the Latham's snipe because the Tarraleah Redevelopment Project will have negligible impact on the extent of buttongrass moorland (0.002% of the Tasmanian extent) which is not preferred wetland habitat for the Latham's snipe.

4.6.10 White-throated needletail

The white-throated needletail (*Hirundapus caudacutus*) is listed as a vulnerable species, as a marine species, and as a migratory species under the EPBC Act.

The white-throated needletail is a summer visitor to Tasmania, occurring from January to April, where it forages above the tree canopy or over pastureland, rarely (if ever) coming to land. The species is generally observed as occurring in flocks when in Australia (Department of the Environment, 2019).

The white-throated needletail has not been recorded over the survey area and the only records of their presence are three historic NVA records within 5 km of the disturbance footprints, from 1900 and 1981, with poor location accuracy of 18.5 km. However, the species has the potential to occur as it is almost exclusively aerial and occurs over a range of habitat types including open forest and has been recorded over the Central Plateau. Therefore, the species could occur over the Project area on rare occasions.

Up to approximately **203.2 ha** of native forest may be cleared, which may contain potential roosting habitat (eucalypt forest, non-eucalypt forest, and scrub). Clearance will reduce the extent of potential roosting habitat; however, this species migrates over long distances and will roost wherever there is available habitat. The loss of potential roosting habitat will not materially affect this species' ability to roost over the Central Highlands of Tasmania in the unlikely event that it were to come to land over this region.

4.6.11 Grey goshawk

The grey goshawk (previously *Accipiter novaehollandiae*, now *Tachyspiza novaehollandiae*) is listed as endangered under the TSP Act and is not listed under the EPBC Act. Grey goshawk preferred nesting habitat is mature wet forests at low elevations, and nests are almost always associated with a nearby watercourse (Brereton & Mooney, 1994; Young et al., 2024). Blackwood (*Acacia melanoxylon*) trees in blackwood swamp forests are preferred nesting habitat in the northwest of the state (Brereton & Mooney, 1994); in the southeast, stringybark (*Eucalyptus obliqua*) and silver wattle (*Acacia dealbata*) trees in mature wet forests are preferred (Young et al., 2024). No grey goshawk nests were recorded during aerial eagle nest searches undertaken in April 2023, June 2024 and May 2025, and there are no known nests within 1 km of the disturbance footprint recorded on the NVAS database. The grey goshawk is considered unlikely to nest within the disturbance area or within 100 m of the disturbance area due to the absence of suitable nesting habitat. The southern transmission line option crosses the Nive River at Wayatinah, which is the only major waterway crossing. However, the riparian vegetation is not suitable nesting habitat as it is open low eucalypt forest, and no nests have been recorded at this site. Therefore, the Project is considered unlikely to have an impact on the grey goshawk including important breeding habitat.

4.6.12 Migratory species (Latham's snipe and white-throated needletail)

Two bird species listed as migratory under the EPBC Act were identified as potentially occurring within the survey area: Latham's snipe and the white-throated needletail. These two bird species are also listed as vulnerable under the EPBC Act and have been assessed in the threatened species impact assessment above in Sections 4.6.9 and 4.6.10 as well as being assessed against the significant impact criteria for migratory species (EPBC Act Policy Statement 1.1; DEWHA, 2013). The results of the significant impact assessments for Latham's snipe and white-throated needletail are presented in Appendices F.9 and F.10 and are summarised below.

The Tarraleah Redevelopment Project will have negligible impact on the extent of buttongrass moorland (0.002% of the Tasmanian extent) which is not preferred grassland or grassy woodland habitat for Latham's snipe. Therefore, the proposed action is **unlikely** to have a significant impact on Latham's snipe because it will not substantially modify an important area of habitat of the species, nor will it seriously disrupt the lifecycle of an ecologically significant proportion of the population.

The Tarraleah Redevelopment Project is **unlikely** to have a significant impact on the white-throated needletail because it is an aerial species that will not be impacted by vegetation clearing or construction activities, and furthermore there is no known roosting sites nor important habitat within the disturbance footprint.

4.6.13 Native fauna dens

As noted in the Tasmanian devil impact assessment (Section 4.6.1) two potential bare-nosed wombat (*Vombatus ursinus tasmaniensis*) burrows were recorded within the disturbance area for the Tarraleah Redevelopment during field surveys, neither of which showed any sign of recent use. Wombats and their burrows are protected under the *Nature Conservation (Wildlife) Regulations 2021*, under the Tasmanian *Nature Conservation Act 2002*. The regulations state that "a person must not take, buy, sell or have possession of any protected wildlife or any product of protected wildlife…or any product of partly protected wildlife." A permit must be sought to destroy wombat burrows where avoidance is not practicable, as they are deemed products of wildlife.

Similar protocols must be followed if additional wombat burrows or any other native fauna dens are found during the construction phase that were not identified in the pre-construction den surveys.

Measure A. Unexpected den find protocol. If an unexpected den is discovered during construction, surface works will cease at the den location. A suitably qualified ecologist will determine whether the den is used by a native or non-native animal. If the den is non-native, surface work may continue. If the den is native, surface work will not recommence within 50 m of the den site until a permit to 'Take' under the TSP Act and/or NC Act is obtained.

4.7 Hazard trees

TasNetworks defines a hazard tree as any tree or part of a tree sitting outside the easement that, if it were to fall, would infringe on the vegetation clearance requirements at maximum conductor sag of the transmission lines. In order to establish and maintain required safety clearance distances between vegetation and electrical infrastructure associated with the Tarraleah Redevelopment Project, LiDAR-derived tree canopy height data available from the Tasmanian ListData was used in a desktop assessment to identify areas potentially containing trees that could pose a hazard to the overhead transmission line infrastructure. When the southern or northern route is selected for construction, arborists will be engaged to undertake on-ground surveys to verify the desktop-identified areas of potential hazard trees, identifying the trees that must be felled to remove the risk to the infrastructure; other trees may only require removal of high-risk limbs.

To account for a worst-case scenario where all areas within 30 m of the easement widening corridor where the tree canopy height is 30 m or taller are assumed to be hazards, a 7.5 m buffer was applied to generate a 'potential hazard tree management zone' for each of the two transmission line options to allow for felling in any direction and for the access and egress for tree felling personnel and equipment.

The extent of this zone for the northern option is **17** ha comprised primarily of *Eucalyptus tasmaniensis* dry forest and woodland (**5.9** ha) and *Eucalyptus delegatensis* forest with broad-leaf shrubs (**9.2** ha). For the southern option, the extent of hazard tree management zone is **12** ha comprised primarily of *Eucalyptus tasmaniensis* forest with broad-leaf shrubs (**6.0** ha) and *Eucalyptus obliqua* forest with broad-leaf shrubs (**5.4** ha). Note that **5.5** ha of vegetation within the hazard tree management zones for the northern transmission line option is regrowth forest, and **2.6** ha is regrowth for the southern transmission line option.

If the southern transmission line route option is selected for construction, then an exclusion zone for the endangered *Barbarea australis* plants at the section of the Nive River that will be traversed by the transmission line will be marked out and avoided. Hazard trees should not be felled into these exclusion zones.

There may be a requirement for hazard trees to be removed along the distribution line routes particularly in taller forests within the Tarraleah Conservation Area and along the access into Mossy Marsh Canal. Note, however, that most of the distribution line will be located in existing powerline easements, and therefore most hazard trees will have been removed already.

Arboreal marsupials, bats and bird species use tree hollows in Tasmania, and all hollow-dependent fauna species are listed as having priority status under the Tasmanian Regional Forest Agreement. Hazard trees tend to be older, more senescent trees and are likely to contain hollows and spouts where limbs have broken off. Removal of hazard trees for either the transmission line or distribution lines poses a threat to hollow-dependent fauna. As such, it is recommended that hazard trees are checked for hollows and hollows-dependent fauna use prior to removal or limb trimming.

Mitigation measure A. Hazard trees associated with the Project’s 220 kV transmission line and 22 kV distribution lines will be identified and assessed by a suitably qualified arborist prior to construction. Trees marked for removal or trimming will be checked for fauna use of tree hollows by a suitably qualified person before removal. If native fauna are found using hollows of trees that must be cleared or trimmed, a permit to ‘Take’ under the TSP Act and/or NC Act will be required.

4.8 Threats to natural values

Ten declared weeds under the Tasmanian *Biosecurity Act 2019* are known to occur within the survey area. The survey area is located within the Central Highlands municipality, which is a Zone B municipality for California thistle, English broom, Spanish heath, Montpellier broom, blackberry, ragwort and gorse according to the respective species’ Statutory Weed Management Plans (Table 4.5). The objective of weed management in Zone B municipalities is *‘Containment within municipal boundaries, protection of specified areas within municipal boundaries, prevention of spread to Zone A municipalities*.’ English broom, Montpellier broom, gorse, serrated tussock and blackberry are also recognised as Weeds of National Significance.

Central Highlands municipality is a Zone A for orange hawkweed and serrated tussock, and it is a Class A[18] municipality for foxglove (Table 4.5). The objective of weed management in Zone A municipalities is '*Implement integrated control program for eradication and prevent future occurrences.'*

Construction works, particularly the movement of vehicles, poses a risk of introducing new weed species into the disturbance footprint or spreading the weeds found within the disturbance footprint and surrounding areas. Additional weed and disease protocols will be implemented during the proposed works, with a focus on weed and hygiene management for vehicles, machinery, equipment and any construction materials. All protocols will be consistent with the weed containment and eradication approaches outlined in the relevant Statutory Weed Management Plans (or Biosecurity Management Plans), the *Weed and Disease Planning and Hygiene Guidelines* (DPIPWE, 2015), and any other requirements that may apply to weed disposal to comply with the requirements of the *Biosecurity Act 2019*.

Table 4.5: Principal management objectives in Statutory Management Plans for declared weeds recorded in the Project's survey area

Weed species	Zone A	Zone B
Cirsium arvense var. *arvense* (Californian thistle)		✓
Cytisus scoparius (English broom)		✓
Digitalis purpurea (foxglove)	Class A	
Erica lusitanica (Spanish heath)		✓
Genista monspessulana (Montpellier Broom)		✓
Nassella trichotoma (serrated tussock)	✓	
Pilosella aurantiaca subsp. *aurantiaca* (orange hawkweed)	✓	
Rubus fruticosus (blackberry)		✓
Senecio jacobaea (ragwort)		✓
Ulex europaeus (gorse)		✓

There are no *Phytophthora cinnamomi* records on the NVA within 5 km of the survey area, and there were no obvious signs of *Phytophthora cinnamomi* in the vegetation communities surveyed. However, the root rot disease could potentially be present, particularly at the lower elevations at the Liapootah end of the southern transmission line option. Although the vegetation within the disturbance footprint is generally forest and grassland types with low *Phytophthora* susceptibility (Schahinger et al., 2003), the *Eucalyptus amygdalina* forest and woodland on dolerite (DAD) vegetation community which occurs at

[18] Foxglove (*Digitalis purpurea*) was listed as a declared weed under the *Biosecurity Act 2019* in February 2025. According to the Foxglove (*Digitalis*) Biosecurity Program, designated areas have been specified as areas requiring regulatory measures to prevent, eliminate or minimise the risk and impact of *Digitalis* species in Tasmania. The management objectives for Biosecurity Weed Management Class A are eradication and prevention, whereby "these areas generally have localised, but limited infestations or no *Digitalis*. The management outcome is achieving and maintaining the total absence of *Digitalis* from within identified biosecurity weed management Class A areas. All gazetted Reserved Land, which includes the land within the Tasmanian Wilderness World Heritage Area, are deemed to be biosecurity weed management Class A (unless otherwise noted)." According to the interactive map (available from NRE Tasmania Foxglove (*Digitalis*) website accessed 25/03/2025) showing the designated areas for foxglove management in Tasmania, the survey area falls within a Class A management area, thus requiring actions to eradicate foxglove.

the Liapootah end of the southern transmission line option is considered moderately susceptible to *Phytophthora* (Schahinger et al., 2003). The 20.7 ha of buttongrass moorlands are also considered moderately susceptible to the disease; however, the location of the moorlands is at the upper altitudinal range of the pathogen (Schahinger et al., 2003).

There is one record the chytrid fungus (*Batrachochytrium dendrobatidi*s), which affects frogs, within 5 km of the survey area. This 2009 record is located near Black Bobs approximately 1.5 km northeast of the southern transmission line option disturbance footprint.

Therefore, hygiene measures should be implemented to prevent the spread of weeds and diseases. The standard 'Check Clean and Disinfect' protocols outlined in the *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania* (DPIPWE, 2015) should be applied to all equipment, vehicle and heavy machinery before entering the site and when moving materials between sites to prevent the introduction of weeds, *Phytophthora cinnamomi* and the chytrid fungus (*Batrachochytrium dendrobatidi*s).

The main vector of toxoplasmosis – cats – are widespread in the Central Highlands (NVA data) and have been observed within the survey area. Feral cat population dynamics, as well as introduced fallow deer and European rabbit population dynamics, are unlikely to be affected by the construction, operation or decommissioning of the Project.

Mitigation measure A: **A biosecurity management plan** will be prepared and implemented in accordance with the *Arrive Clean Leave Clean guidelines* (Commonwealth of Australia, 2015) and the *Weed and Disease Planning and Hygiene Guidelines – Preventing the spread of weeds and diseases in Tasmania* (DPIPWE, 2015). The plan will aim to prevent the spread of weeds and diseases (e.g. *Phytophthora cinnamomi* and the chytrid fungus *Batrachochytrium dendrobatidis*) and to achieve targeted eradication of the known declared weeds (Californian thistle, English broom, foxglove, Spanish heath, Montpellier broom, orange hawkweed, blackberry, ragwort, serrated tussock and gorse) infestations within the disturbance footprint where practicable, prior to construction commencing. Efforts should target eradication of foxglove, orange hawkweed, serrated tussock, English broom and Montpellier broom in particular.

The plan will include measures for training on weed and disease management to be provided to all staff, contractors, subcontractors and visitors, including responsibilities.

Application of herbicides, if required, must be undertaken by a suitably qualified weed contractor in approved areas only. Identification of weeds and application of herbicide must be recorded by the weed contractor and provided to Hydro Tasmania to be entered into the corporate Hydro Tasmania GIS; declared weed observation records will be supplied to the Tasmanian Natural Values Atlas database.

Tasmania Parks and Wildlife (PWS) will be notified when weed control actions are taken within the Tarraleah Conservation Area.

Monitoring and treatment for weeds in areas disturbed by the Project will continue for the duration of construction and for a period of five years post-construction at 6 monthly intervals within the Tarraleah Conservation Area and for at least two years post-construction elsewhere. A report will be prepared demonstrating implementation of the Biosecurity Management Plan.

4.9 Sites of geoconservation significance

The **20.7 ha** of buttongrass moorland communities that will be impacted by the construction of the pipeline form part of the Western Tasmania Blanket Bogs site of geoconservation significance (ID 2527), the statement of significance being 'the most extensive organosol (i.e. peat) terrain in Australia and the Southern Hemisphere'. There is over one million ha of buttongrass moorland in Tasmania (Kitchener and Harris). The construction and operation of the pipeline is unlikely to impact the extent or condition of the organosols underlying the buttongrass moorland above, as these flammable peats are unlikely to be subjected to any changes in the fire regime due to construction nor operation of the conveyance infrastructure. Further, the loss of 0.002% of the Tasmanian extent of buttongrass moorland communities from the construction of the Project will not affect the status of this organosol terrain as the most extensive in Australia and the Southern Hemisphere.

4.10 Formal reserves

The Project will have a direct impact on the Tarraleah Conservation Area. Up to approximately **13.7** ha of the disturbance footprint for the Tarraleah Redevelopment fall within the Tarraleah Conservation Area, of which **0.5** ha of non-native vegetation are associated with the potential minor upgrades to the Lyell Highway – Butlers Gorge Road intersection if required to facilitate access (subject to a separate approvals process than the Tarraleah Redevelopment but included here to capture cumulative impacts), **2.3** ha are associated with the temporary explosive magazine and its access track, and **10.9** ha are associated with the permanent surge tower and associated rising main, access track and 22 kV distribution line. There are **10.4** ha of native vegetation within the disturbance footprint within the Tarraleah Conservation Area, most of which is wet forest dominated by *Eucalyptus tasmaniensis* (Figure 3.80). The temporary clearance required for the explosive magazine encompasses **1.3** ha of *Eucalyptus tasmaniensis* over rainforest (WDR) and **0.1** ha of *Leptospermum* forest (NLE). Approximately **0.4** ha of a *Cytisus scoparius* (English broom, declared weed) infestation and **1.0** ha of *Eucalyptus tasmaniensis s* over rainforest (WDR) within the reserve falls within the proposed easement widening corridor for the 22 kV distribution line.

The **13.7** ha within the disturbance footprint constitute 1.4% of the 967.2 ha reserve area. The **10.4** ha of native vegetation within the disturbance footprint within the conservation area constitute 1.2% of the approximately **870.8** ha of mapped native vegetation within the reserve.

The proponent intends to request that Tasmania Parks and Wildlife Service (PWS) conduct a parallel Reserve Activity Assessment (Level 3) for the Tarraleah Conservation Area alongside the Environmental Impact Assessment process under the *Environmental Management and Pollution Control Act 1994* (EMPC Act). The surge shaft and tower – i.e. a large freestanding tank – proposed within the reserve are required to manage hydraulic transients and other aspects of the waterway's hydraulic performance. This location was selected because it is the topographical high directly above and between the headrace and power tunnels.

The surge shaft will be connected to the waterway by a connection chamber at its base, which in turn will be directly connected to the waterway tunnel. The shaft is approximately 265 m deep and 5 m in diameter. It will be lined with shotcrete if required at depth, and it will be lined with steel for the top 50 m.

The surge tower will be constructed from welded 3 m high sections made up of three curved plates that will be craned into place and welded in-situ. The surge tower will receive the water pumped from the existing Pump Pond No. 2 via a rising main connected to the pump station. The surge tower will be connected to the pumping station via a rising main that runs from the pump station at the No. 1 Pond to the surge tower. This is the point at which water pumped from No. 1 Pond enters the power scheme.

Wet forest dominated by *Eucalyptus tasmaniensis* (gum-topped stringybark) is proposed for clearance to accommodate the surge tower, rising main, access track and distribution line. Specifically, the Project will require the clearing of **9.3** ha of *Eucalyptus tasmaniensis* over rainforest (WDR) and **1.0** ha *Eucalyptus tasmaniensis* forest with broad-leaf shrubs (WDB) within the Tarraleah Conservation Area. Neither *Eucalyptus delegatensis* forest with broad-leaf shrubs nor *Eucalyptus delegatensis* over rainforest are listed as threatened under either the NC Act or the EPBC Act. The clearance of a total of **10.4** ha of *Eucalyptus tasmaniensis*-dominated native vegetation represents approximately 1.6% of the **653.3** ha of mapped *Eucalyptus tasmaniensis*-dominated native vegetation and approximately 1.2% of the native vegetation mapped within the reserve. In addition to the clearance and conversion of native vegetation within the disturbance footprint, authors of the fire risk assessment (Fire Risk Consultants, 2025) have recommended the following actions within the bushfire risk management zone be undertaken regularly to reduce risk:

- thinning out understorey vegetation to provide horizontal separation between fuels
- prune low-hanging tree branches (<2m from the ground) to provide vertical separation between fuel layers
- prune larger trees to maintain horizontal separation between canopies
- remove trees within tree fall distance of the surge tower
- remove fallen limbs, sticks, leaf, and bark litter
- brush cutting/mowing grass to less than 100mm height during the fire danger period
- maintain vegetation clearances around vehicular access and water supply points
- remove any high flammability plant species, replace with low-flammability species.

The indicative distance from the surge tower to the outer boundary of the bushfire risk management zone to achieve BAL-12.5 separation distance is 67 m; a detailed Construction Bushfire Mitigation Plan will be developed and implemented for each new infrastructure component.

The Tasmanian Wilderness World Heritage Area (TWWHA) will not be directly impacted by construction nor operation of the Tarraleah Redevelopment Project. Some areas in the TWWHA to the south of the Project would see elements of the Project (in the absence of vegetation) were someone present to take in the view. Due to the inaccessibility and low visitation numbers of many of the locations from which views to the Redevelopment are possible, the visual impact is considered to be of low magnitude. For instance, the surge tower will be highly visible from Mt Hobhouse and Majors Lookout, situated to the southwest of this infrastructure; however, this lookout is currently not accessible by means of any tracks or paths. Views to elements of the Redevelopment are possible from some sections of some walking tracks and inside the TWWHA (e.g. Mount King William, Lake St Clair, Mount Rufus, and the Gingerbread track) but these are very distant (further than 15 km) and over time, as the revegetation program takes effect and the new features in the landscape age, their visibility will be reduced. It is concluded, therefore, that there will be no substantive visual amenity or wilderness value impacts provided the recommended mitigation measures are undertaken. Impacts to the flow regime in the relevant reaches of the River Derwent within the TWWHA are addressed in the Tarraleah Redevelopment Aquatic Ecology Assessment (Entura, 2025).

4.11 Informal reserves

The Tarraleah Redevelopment Project will result in the loss of up to **105.4 ha** of informal reserves on Permanent Timber Production Zone (PTPZ) land or other Sustainable Timber Tasmania managed land (98 ha excluding the transmission line). As of 30 June 2025, there were 124,000 ha of informal reserves on PTPZL or other STT-managed land across Tasmania, and 21,500 ha on other (non-STT-managed) public land. The most affected vegetation communities within the informal reserves include dry eucalypt forest (up to 57.9 ha including the transmission line, 53.3 excluding the transmission line) and pure buttongrass moorland (20.7 ha). There are over one million ha of buttongrass moorland in Tasmania (Kitchener & Harris, 2013). The loss of **20.7 ha** or 0.0021% of the Tasmanian extent of buttongrass moorland (including pure buttongrass moorland and buttongrass moorland with emergent shrubs) is unlikely to have a major impact on the reservation status of this vegetation type. The loss of up to **61.8 ha** of eucalypt forests communities (55.8 excluding the transmission line), up to **3.7 ha** of non-eucalypt forest communities (3.1 ha excluding the transmission line), and up to **20.7 ha** of buttongrass moorlands within informal reserves is also unlikely to have a major impact on the reservation status of these communities. The loss of **0.5 ha** of the threatened subalpine *Diplarrena latifolia* rushland (MDS) represents 0.083 of one percent of the 600-ha statewide extent of this vegetation community and 0.1 of one percent of the 498-ha extent of subalpine *Diplarrena latifolia* rushland within the Tasmanian Reserve Estate.

4.12 Tasmanian Permanent Native Forest Estate

There are up to **133.5** ha of native forest communities as defined in the *Tasmanian Regional Forest Agreement Act 2002* (Cth) within the Tarraleah Redevelopment Project disturbance footprint west of the Niver River (excluding the transmission line disturbance footprint). The clearance and conversion of an additional **55.9** ha (northern transmission line option) or **48.8** ha (southern transmission line option) of these forest communities on a single property (PID 3385073), which is expected to be undertaken in less than 5 years, would be considered “broad-scale clearance or conversion” under the *Permanent Native Forest Estate Policy.* There are a further **123.1** ha of native forest within the disturbance footprint associated with the main infrastructure on a single property (PID 3384222) that would also be considered broad-scale clearance or conversion. Broad-scale clearance or conversion of the native forest estate is prohibited unless the proposed project is deemed by the Minister administering the *Forest Practices Act 1985* to be “new significant infrastructure” that is of “substantial public benefit[19].” The proponent, Hydro Tasmania, will be required to seek this determination by the Minister. None of the other land parcels within the disturbance footprint contain 20 ha or more of native forest communities, and therefore clearance of native forest on these parcels is not considered to be “broad scale” as defined in the *Permanent Native Forest Estate Policy*.

[19] “Significant infrastructure” includes powerlines, public roads and the easements within which they are contained and infrastructure associated with Projects of State or Regional Significance. “Substantial public benefit” is determined by the Minister administering the *Forest Practices Act 1985* following consideration of a socio-economic analysis of the proposal prepared by an independent third party, the conservation benefits arising from the proposal, and consideration of comments received on the socio-economic analysis and any conservation benefits by relevant agencies and authorities within the Tasmanian Government.

5. Compiled recommended mitigation and management measures

5.1.1 General fauna protection measures

General fauna measure A: Any pits and trenches (e.g. for the pipeline or underground distribution lines) required will remain open for the shortest time possible and, where practicable, will not be open during periods of heavy rain or forecast weather events that may cause inundation. A suitably qualified person will inspect open excavations (pits and trenches) for fauna – within five hours after sunrise, before sunset and prior to backfilling. Work will not commence until inspections are complete. Trapped fauna will be recorded, including location, species and condition.

General fauna measure B: Habitat trees (hollow-bearing trees important for arboreal mammals and hollow-nesting birds) within the disturbance footprint will be avoided as far as practicable, with a root protection buffer zone applied. The buffer radius will equal the length of the habitat tree's diameter at breast height (DBH) multiplied by twelve.

5.1.2 Vegetation management measures

Measure A. A final Project disturbance footprint (within the Project disturbance footprint presented within this report) will be established based on the Project's final design and construction method. The disturbance footprint and vegetation clearing exclusion zones will be clearly shown on Project plans, communicated to all construction personnel and physically marked on site. Vegetation clearing will be limited to the minimum necessary to construct and operate the Project. A vegetation clearance plan will be developed and implemented as part of the Construction Environmental Management Plan (CEMP) that will specify appropriate procedures to ensure that vegetation clearance is minimised.

Measure B. Hazard trees associated with the Project's 220 kV transmission line and 22 kV distribution lines will be identified and assessed by a suitably qualified arborist prior to construction. Trees marked for removal or trimming will be checked for fauna use of tree hollows by a suitably qualified person before removal. If native fauna are found using hollows of trees that must be cleared, , a permit to 'Take' under the TSP Act and/or NC Act will be required.

Measure C. *Diplarrena latifolia* (western flag-iris) within subalpine *Diplarrena latifolia* rushland and buttongrass (*Gymnoschoenus sphaerocephalus*) within buttongrass moorlands in the disturbance footprint will be stockpiled as close as possible to their original location. After construction, they will be spread over areas no longer required for operation.

Sites rehabilitated in accordance with the Risk Management Plan will be progressively monitored during construction and for at least five years following completion within the Tarraleah Conservation Area and for at least two years elsewhere, or until success criteria in the plan are achieved. Monitoring of subalpine *Diplarrena latifolia* rushland and buttongrass moorlands will be undertaken by a suitably qualified ecologist to ensure re-establishment of *Diplarrena latifolia* (western flag-iris) and *Gymnoschoenus sphaerocephalus* (buttongrass) meets the success criteria.

5.1.3 *Sphagnum* peatland mitigation and monitoring measures

- **Measure A.** A monitoring program will be implemented to assess any hydrogeological impacts on the *Sphagnum* peatland located approximately 400 m upstream (northwest) of Mossy Marsh Pond, either from the change in discharge from No. 2 Canal or from groundwater changes due to the construction and operation of the tunnel. Monitoring began in 2023 and will continue until five years after construction is completed. The program has three components: groundwater monitoring, aerial imagery, and vegetation condition assessments: **Groundwater monitoring:** Groundwater levels on the northwestern side of the peatland have been recorded by a piezometer installed in January 2023. Monitoring using this piezometer will continue until five years post-construction.
- **Aerial imagery:** The extent of the peatland has been monitored since September 2024 through a drone program capturing high-resolution imagery. Extent measurements will be used to assess expansion or contraction of the community and potential correlation with Project construction or operation. Drone surveys will be undertaken twice yearly—at the end of summer (when impacts from reduced rainfall and recharge are most evident) and at the end of spring (when growth is greatest). Imagery will include both photographic and thermal infrared data to map peatland extent.
- **Vegetation assessments:** Suitably qualified ecologists will undertake a formal vegetation condition assessment no more than six months before construction, to provide a current baseline beyond the December 2024 assessment. Condition will also be assessed at five years post-construction to identify any substantial change.

Mitigation Measure B. An offset for potential impacts to the *Sphagnum* peatland downstream of No. 2 Canal (~400 m upstream of Mossy Marsh Pond) will be secured before construction begins. The offset will involve protecting a *Sphagnum* peatland area larger than the 3 ha Mossy Marsh patch, under a covenant and approved conservation management plan in accordance with the NC Act. It will also align with the *EPBC Act Environmental Offsets Policy* (2012) and *Offsets Assessment Guide* (2012). Hydro Tasmania has identified a suitable 9.5 ha offset site in Western Tasmania. Entura ecologists have verified this site contains high-quality *Sphagnum* peatland, listed as threatened under the NC Act and as an endangered ecological community under the EPBC Act (Alpine *Sphagnum* Bogs and Associated Fens). The peatland at this site is in similarly excellent condition to Mossy Marsh. Hydro Tasmania is in ongoing negotiations with the property owner to acquire freehold title.

5.1.4 Threatened flora management and mitigation measures

Threatened flora exclusion zones of 5 m from the outermost plant will be established for:

- The *Barbarea australis* (native wintercress) plants at the Nive River and the Pump Pond wall locations.
- The *Pomaderris elachophylla* (small-leaf dogwood) plants at the No. 2 Canal location and the two locations along the Lake King William to Derwent Pumps distribution line alignment.

Exclusion zones will be shown on Project plans, communicated to all construction personnel and physically marked on site.

If new occurrences of threatened flora are detected during construction, exclusion zones of at least 5 m from the outermost plant will be established. If avoidance is not possible, a permit to 'Take' under the TSP Act will be required.

The final disturbance footprint for the northern transmission line (if selected) will be designed to minimise impacts to *Westringia angustifolia* (narrowleaf westringia) plants at proposed sites for Towers 3 and 14. Where *W. angustifolia* plants can be avoided, exclusion zones will be shown on Project plans, communicated to construction personnel and physically marked on site. Where avoidance is not possible a permit to 'Take' in accordance with the TSP Act and/or NC Act will be required.

5.1.5 Tasmanian devil and spotted-tailed quoll management and mitigation measures

Management of dens. A suitably qualified ecologist will survey suitable denning habitat (mature dry and wet eucalypt forest) within the disturbance footprint at least 30 days before construction begins at each site. The survey will locate possible Tasmanian devil or quoll den sites, including wombat burrows, and determine the occupant species and if any are active maternal carnivore dens, in accordance with the *Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil* (Environment Strategic Business Unit, 2023). Camera traps may be used to confirm activity and determine the occupant species.

- If a Tasmanian devil or quoll den is identified, management will follow the above guidelines and advice from NRE Tasmania. Where avoidance is not possible, a decommissioning plan will be prepared and a permit to 'Take' in accordance with the TSP Act and/or NC Act will be required.
- If an active wombat burrow is found within the disturbance footprint, it will be closed in accordance with NRE Tasmania advice, and a permit to 'Take' in accordance with the NC Act will be required.

Unexpected den find protocol. If an unexpected den is discovered during construction, surface works will cease at the den location. A suitably qualified ecologist will determine whether the den is used by a native or non-native animal.

  - If non-native, works may continue.
  - If native, no surface works will recommence within 50 m of the den until a permit to 'Take' under the TSP Act and/or NC Act is obtained.

Roadkill management plan. A Roadkill Management Plan (RkMP) will be prepared to minimise vehicle strike risk. The plan will apply to roads assessed as likely to experience a 10% or greater increase in night-time traffic (defined as one hour before sunset to one hour after sunrise) due to construction. The plan will follow the *Caring for Nature - Reducing Roadkill* guidelines (PWS, 2006) and address elevated risks for threatened species that scavenge on roadkill carcasses (Tasmanian devils, spotted-tailed quolls, eastern quolls, and Tasmanian wedge-tailed eagles). Mitigation measures will include:

- Minimising night-time construction traffic where practicable.
- Reducing Project vehicle night-time speed limits by at least 10 km/hr on all roads that are expected to experience a 10% or greater increase in night-time traffic volume due to Project construction (Appendix F)
- Environmental training for site workers covering threatened species awareness, reporting procedures for vehicle strikes and roadkill, and recommended rescue procedures (e.g. reporting to Bonorong Wildlife Rescue on 0447 264 625)
- Reporting Project-related vehicle strikes and threatened species roadkill to Hydro Tasmania within 24 hours
- Investigating Project-related threatened species roadkill incidents within three working days
- Installing advisory signs in high-risk areas
- Continuing verge maintenance along Oldina Drive and Butlers Gorge Road to maintain visibility and reduce browsing

- Prompt removal of roadkill carcasses along Oldina Drive and Butlers Gorge Road, as soon as safe, to reduce scavenger attraction.

5.1.6 Eagle management and mitigation measures

Eagle nest searches. As at June 2025, there are no known eagle nests within 1 km of the disturbance footprint excluding the transmission line. There are four eagle nests that are within 1 km of the northern transmission line option and one eagle nest within 500 m of the southern transmission line option.

Annual eagle nest searches will be undertaken before the start of construction and repeated until construction is complete, to identify new or previously unknown eagle nests and to monitor the condition of known nests. Searches and activity checks will follow the Tasmanian EPA's *Guide to Eagle Nest Searches and Activity Checks (*EPA Tasmania, 2023), the Tasmanian FPA's *Fauna Technical Note No. 1: Eagle nest searching, activity checking and nest management* (Forest Practices Authority, 2023), and the *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment, Water, Heritage and the Arts, now DCCEEW, 2010a). Searches will be guided by the FPA's eagle nesting habitat models (FPA, 2014a).

For all eagle nests either within 500 m or 1 km line-of-sight of proposed surface works, no surface works will occur within these buffers during the breeding season (July to January inclusive, and July to February in late breeding seasons) unless the nest is confirmed inactive for that breeding season. Where required, nest activity checks will be undertaken during the breeding season before relevant works commence, and nest activity checks will be repeated annually until construction of the relevant infrastructure is complete.
An annual report summarising the results of eagle nest search results will be prepared and provided to the EPA upon request. Any previously unrecorded raptor nests, or failures to locate previously recorded nests, will be reported to the Tasmanian Natural Values Atlas (NVA) as soon as practicable. Photographs and descriptions of known nests re-located during surveys will be provided to the NVA as soon as practicable after each search.

Roadkill management plan (RkMP). The RkMP will be implemented during construction to reduce the risk of vehicle strike with eagles, which are slow to take flight due to their large size.

Anti-coagulant rodenticides, especially second-generation anticoagulant rodenticides (SGARs; brodifacoum, bromadiolone, difethialone, difenacoum and flocoumafen), that pose a risk of secondary poisoning of raptors will be avoided during all phases of the Project, including at the new power station on the Nive River.

Powerline collision and electrocution risk for birds.

The new 22 kV power distribution lines will be designed and built in accordance with TasNetworks standards, which seek to minimise electrocution risk and collision risk for avifauna.

5.1.7 Masked owl mitigation measures

Anti-coagulant rodenticides – especially second-generation anticoagulant rodenticides (SGARs; brodifacoum, bromadiolone, difethialone, difenacoum and flocoumafen) – that pose a secondary poisoning risk to raptors, will be avoided during all phases of the Project, including at the new power station on the Nive River.

Powerline collision and electrocution risk for birds. To minimise electrocution and collision risk for birds, the new 22 kV power distribution lines will be designed and built in accordance with TasNetworks standards.

5.1.8 Weeds and diseases mitigation measures

A Biosecurity Management Plan will be prepared and implemented in accordance with the *Arrive Clean, Leave Clean* guidelines (Commonwealth of Australia, 2015) and the *Weed and Disease Planning and Hygiene Guidelines – Preventing the spread of weeds and diseases in Tasmania* (DPIPWE, 2015). The plan will aim to:

- Prevent the spread of weeds and diseases (e.g. *Phytophthora cinnamomi* and the chytrid fungus *Batrachochytrium dendrobatidis*), and
- Eradicate, where practicable, known declared weed infestations within the disturbance footprint prior to construction.

  Targeted eradication efforts will focus on foxglove, orange hawkweed, serrated tussock, English broom and Montpellier broom.

The plan will also include training in weed and disease management for all staff, contractors, subcontractors and visitors, outlining responsibilities.

If herbicides are required, application will be undertaken only by a suitably qualified weed contractor in approved areas. Weed identification and herbicide use will be recorded by the contractor and provided to Hydro Tasmania for entry into the corporate GIS; declared weed observation records will be supplied to the Tasmanian Natural Values Atlas database.

Tasmania Parks and Wildlife (PWS) will be notified when weed control actions are taken within the Tarraleah Conservation Area.

Monitoring and treatment of weeds in areas disturbed by the Project will continue throughout construction and for at least five years post-construction at 6 monthly intervals within the Tarraleah Conservation Area and for at least two years post-construction elsewhere. A report will be prepared demonstrating implementation of the Biosecurity Management Plan.

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Appendices

A Flora list for the Tarraleah Redevelopment survey area

Key: i – introduced, D – declared weed in Tasmania, e – endemic, r – rare under the TSP Act, en – endangered under the TSP Act, En – endangered under the EPBC Act

Species name	Common name	Status
DICOTYLEDON		
Apiaceae		
Conium maculatum	hemlock	i
Hydrocotyle hirta	Hairy pennywort	
Hydrocotyle sibthorpioides	Lawn marshpennywort	
Hydrocotyle muscosa	Mossy pennywort	
Oreomyrrhis eriopoda	Australian caraway	
Asteraceae		
Bedfordia linearis subsp. *linearis*	Slender blanketleaf	e
Bedfordia salicina	Tasmanian blanketleaf	e
Brachyscome spathulata	Spoonleaf daisy	
Cassinia aculeata	Dolly bush	
Celmisia asteliifolia	Silver snowdaisy	e
Cirsium arvense var. *arvense*	Californian thistle	i, D
Cirsium vulgare	Spearthistle	i
Coronidium monticola	Mountain everlasting	
Coronidium scorpiodes	Curling everlasting	
Cotula alpina	Alpine buttons	
Cotula australis	Southern buttons	
Euchiton japonicus	Common cottoleaf	
Euchiton sp.	Cottonleaf	
Hypochoeris radicata	Cats' ear	i
Lagenophora stipitata	Blue bottledaisy	
Leontodon saxatilis	Hairy hawkbit	i
Olearia algida	Alpine daisybush	
Olearia argophylla	Musk daisybush	

Species name	Common name	Status
Olearia erubescens	Moth daisybush	
Olearia glandulosa	Swamp daisybush	
Olearia persoonioides	Geebung daisybush	e
Olearia phlogopappa	Dusty daisybush	
Olearia pinifolia	Prickly daisybush	e
Olearia viscosa	Viscid daisybush	
Ozothamnus hookeri	Scaly everlastingbush	
Ozothamnus rosmarinifolius	Swamp everlastingbush	
Ozothamnus thyrsoideus	Arching everlastingbush	
Pilosella aurantiaca subsp. *aurantiaca*	Orange hawkweed	i, D
Senecio gunnii	Mountain fireweed	
Senecio jacobaea	Ragwort	i, D
Senecio linearifolius	Fireweed groundsel	
Senecio minimus	Shrubby groundsel	
Senecio sp.	Groundsel	
Solenogyne gunnii	Hairy flat-herb	
Sonchus oleraceus	Common sowthistle	i
Taraxacum officinale	Dandelion	i
Boraginaceae		
Myosotis laxa	Lesser forgetmenot	i
Myositis sp.	Forgetmenot	i
Brassicaceae		
Barbarea australis	Native wintercress	E, e, en
Cardamine hirsuta	Hairy bittercress	i
Cardamine sp.	Bittercress	
Nasturtium sp.	Watercress	i
Rorippa sp.	Bittercress	i
Campanulaceae		
Lobelia pedunculata	Matted pratia	
Lobelia surrepens	Mud pratia	
Wahlenbergia sp.	Native bluebell	
Caryophyllaceae		
Cerastium glomeratum	Sticky mouse-ear	i
Cerastium sp.	Mouse-ear	i
Casuarinaceae		

Species name	Common name	Status
Allocasuarina littoralis	Black sheoak	
Clusiaceae		
Hypericum japonicum	Matted st johns-wort	
Crassulaceae		
Crassula helmsii	Swamp stonecrop	
Crassula sieberiana	Rock stonecrop	
Cunoniaceae		
Bauera rubioides	Wiry bauera	
Eucryphia lucida	Leatherwood	e
Droseraceae		
Drosera peltata	Pale sundew	
Elatinaceae		
Elatine gratioloides	Waterwort	
Elaeocarpus		
Aristotelia peduncularis	Heartberry	e
Ericaceae		
Acrothamnus hookeri	Mountain beardheath	
Acrotriche serrulata	Ants delight	
Epacris acuminata	Claspleaf heath	e
Epacris gunnii	Coral heath	
Epacris impressa	Common heath	
Epacris lanuginosa	Swamp heath	
Epacris sp.	Heath	
Erica lusitanica	Spanish heath	i, D
Gaultheria hispida	Copperleaf snowberry	e
Leptecophylla parvifolia	Mountain pinkberry	e
Monotoca empetrifolia	Mat broomheath	e
Monotoca glauca	Goldy wood	
Oxylobium ellipticum	Golden shaggypea	
Richea gunnii	Bog candleheath	e
Richea sprengelioides	Rigid candleheath	
Sprengelia incarnata	Pink swampheath	
Styphelia nesophila	Prickly beardheath	
Escalloniaceae		
Anopterus glandulosus	Tasmanian laurel	e

Species name	Common name	Status
Euphorbiaceae		
Beyeria viscosa	Pinkwood	
Poranthera microphylla	Small poranthera	
Fabaceae		
Almaleea subumbellata	Wiry bushpea	
Bossiaea cordigera	Wiry bossia	
Bossiaea riparia	Leafless bossia	
Cytisus scoparius	English broom	i, D
Daviesia latifolia	Hop bitterpea	
Genista monspessulana	Montpellier Broom	i, D
Lotus corniculatus	Birdsfoot-trefoil	i
Lotus sp.	Birdsfoot-trefoil	i
Lupinus polyphyllus	Garden lupin	i
Lupinus sp.	Lupin	i
Oxylobium arborescens	Tall shaggypea	
Oxylobium ellipticum	Golden shaggypea	
Pultenaea dentata	Swamp bushpea	
Pultenaea gunnii	Golden bushpea	
Pultenaea juniperina	Prickly beauty	
Ulex europaeus	Gorse	i, D
Fagaceae		
Nothofagus cunninghamii	Myrtle beech	
Gentinaceae		
Centaurium erythraea	Common centaury	i
Geraniaceae		
Geranium brevicaule	Alpine cranesbill	
Geranium potentilloides	Mountain cranesbill	
Geranium sp.	Cranesbill	
Pelargonium australe	Southern storksbill	
Gunneraceae		
Gunnera cordifolia	Tasmanian mudleaf	
Haloragaceae		
Gonocarpus micranthus subsp. *micranthus*	Creeping raspwort	
Gonocarpus montanus	Mountain raspwort	
Gonocarpus sp.	Raspwort	

Species name	Common name	Status
Gonocarpus tetragynus	Common raspwort	
Gonocarpus teucrioides	Forest raspwort	
Myriophyllum sp.	Watermilfoil	
Hydrangeaceae		
Hydrangea macrophylla	Hydrangea	i
Lamiaceae		
Ajuga australis	Australian bugle	
Ajuga reptans	European bugle	i
Prostanthera lasianthos var. lasianthos	Christmas mintbush	
Prunella vulgaris	Selfheal	i
Westringia angustifolia	Narrowleaf westringia	r
Lentibulariaceae		
Utricularia sp.	Bladderwort	
Liliaceae		
Narcissus sp.	daffodil	i
Linaceae		
Linum catharticum	White flax	i
Lydopodiaceae		
Lycopodium fastigiatum	Mountain clubmoss	
Menyanthaceae		
Ornduffia reniformis	Running marshflower	
Mimosaceae		
Acacia dealbata subsp. *dealbata*	Silver wattle	
Acacia leprosa var. graveolens	Varnish wattle	
Acacia melanoxylon	Blackwood	
Acacia mearnsii	Black wattle	
Acacia mucronata	Caterpillar wattle	
Monimiaceae		
Atherosperma moschatum	Sassafras	
Myrtaceae		
Baeckea gunniana	Alpine heathmyrtle	
Eucalyptus amygdalina	Black peppermint	
Eucalyptus dalrympleana subsp. *lutruwita*	Mountain white gum	
Eucalyptus gunnii subsp. *gunnii*	Cider gum	
Eucalyptus obliqua	Stringybark	

Species name	Common name	Status
Eucalyptus tasmaniensis	Gumtopped stringybark	e
Eucalyptus nitens	Shining gum (plantation tree)	i
Eucalyptus pauciflora subsp. *pauciflora*	Cabbage gum	
Eucalyptus regnans	Giant ash	
Eucalyptus rodwayi	Swamp peppermint	e
Eucalyptus subcrenulata	Alpine yellow gum	e
Eucalyptus viminalis subsp. *viminalis*	White gum	
Leptospermum lanigerum	Woolly tea tree	
Leptospermum scoparium	Common tea tree	
Melaleuca pallida	Yellow bottlebrush	
Melaleuca squamea	Swamp honeymyrtle	
Melaeuca squarrosa	Scented paperbark	
Melaleuca virens	Prickly bottlebrush	e
Oleaceae		
Notelaea ligustrina	Native olive	
Onagraceae		
Epilobium sp.	willowherb	
Oxalidaceae		
Oxalis exilis	Feeble woodsorrel	
Oxalis magellanica	Snowdrop woodsorrel	
Oxalis perennans	Grassland woodsorrel	
Oxalis sp.	Woodsorrel	
Pittosporaceae		
Billardiera longiflora	Purple appleberry	e
Pittosporum bicolor	Cheesewood	
Plantaginaceae		
Callitriche stagnalis	Mud waterstarwort	i
Plantago lanceolata	Ribwort plantain	i
Plantago major	Great plantain	
Plantago paradoxa	Hairtuft plantain	
Polygalaceae		
Comesperma volubile	Blue lovecreeper	
Polygonaceae		
Muehlenbeckia axillaris	Matted lignum	r
Muehlenbeckia gunnii	Forest lignum	

Species name	Common name	Status
Rumex crispus	Curled dock	i
Potamogetonaceae		
Potamogeton cheesemanii	Floating pondweed	
Potamogeton sp.	Pondweed	
Primulaceae		
Lysimachia arvensis	Scarlet pimpernel	i
Proteaceae		
Banksia marginata	Silver banksia	
Cenarrhenes nitida	Native plum	e
Hakea epiglottis	Beaked needlebush	e
Hakea lissosperma	Mountain needlebush	
Hakea microcarpa	Smallfruit needlebush	
Lomatia polymorpha	Mountain guitarplant	e
Lomatia tinctoria	Guitarplant	e
Orites diversifolius	Variable orites	e
Persoonia gunnii	Mountain geebung	e
Persoonia juniperina	Geebung	
Telopea truncata	Tasmanian waratah	e
Ranunculaceae		
Clematis aristata	Mountain clematis	
Clematis sp.	Clematis	
Ranunculus amphitrichus	River buttercup	
Ranunculus lappaceus	Woodland buttercup	
Ranunculus repens	Creeping buttercup	i
Ranunculus scapiger	Gully buttercup	
Ranunculus sp.	Buttercup	
Ranunculus triplodontus	Threetooth buttercup	
Rhamnaceae		
Pomaderris apetala subsp. *apetala*	Common dogwood	
Pomaderris elachophylla	Small-leaf dogwood	r
Rosaceae		
Acaena echinata	Spiny sheepsburr	
Acaena novae-zelandiae	Common buzzy	
Prunus sp.	Plum	i
Rosa rubiginosa	Sweet briar	i

Species name	Common name	Status
Rubus fruticosus agg.	blackberry	i, D
Rubus gunnianus	Alpine raspberry	e
Rubus parvifolius	Native raspberry	
Rubiaceae		
Asperula conferta	Common woodruff	
Coprosma hirtella	Coffeeberry	
Coprosma nitida	Mountain currant	
Coprosma quadrifida	Native currant	
Cotoneaser sp.	Cotoneaster	i
Galium aparine	Cleavers	i
Galium australe	Tangled bedstraw	
Rutaceae		
Nematolepis squamea	Satinwood	
Zieria arborescens subsp. arborescens	Stinkwood	
Salicaceae		
Populus sp.	Poplar	i
Santalaceae		
Exocarpos humifusus	Mountain native-cherry	e
Leptomeria drupacea	Erect currantbush	
Scrophulariaceae		
Digitalis purpurea	Foxglove	i, D
Euphrasia collina	Eyebright	
Euphrasia gibbsiae	Mountain eyebright	
Gratiola peruviana	Southern brooklime	
Verbascum thapsus	Great mullein	i
Verbascum virgatum	Twiggy mullein	i
Veronica calycina	Hairy speedwell	
Veronica gracilis	Slender speedwell	
Stackhousiaceae		
Stackhousia monogyna	Forest candles	
Stylidiaceae		
Stylidium graminifolium	Narrowleaf triggerplant	
Thymelaeaceae		
Pimelea drupacea	Cherry riceflower	
Pimelea ligustrina subsp. ligustrina	Tall riceflower	

Species name	Common name	Status
Pimelea linifolia	Slender riceflower	
Pimelea nivea	bushmans bootlace	e
Pimelea pauciflora	Poison riceflower	
Tremandraceae		
Tetratheca procumbens	Spreading pinkbells	
Urticaceae		
Urtica incisa	Scrub nettle	
Violaceae		
Viola betonicifolia subsp. *betonicifolia*	Showy violet	
Viola hederacea subsp. *hederacea*	Ivyleaf violet	
Winteraceae		
Tasmannia lanceolata	Mountain pepper	
GYMNOSPERMAE		
Pinaceae		
Pinus radiata	Radiata pine	i
Podocarpaceae		
Pherosphaera hookeriana	Mount Mawson pine	e, vu
Phyllocladus aspleniifolius	Celerytop pine	e
Podocarpus lawrencei	Mountain plumpine	
MONOCOTYLEDON		
Cyperaceae		
Carex appressa	Tall sedge	
Carex breviculmis	Shortstem sedge	
Carex fascicularis	Tassel sedge	
Carex gaudichaudiana	Fen sedge	
Carex sp.	Sedge	
Carpha alpina	Alpine strawsedge	
Eleocharis acuta	Common spikesedge	
Ficinia nodosa	Kobby clubsedge	
Gahnia grandis	Cutting grass	
Gymnoschoenus sphaerocephalus	Buttongrass	
Isolepis fluitans	Floating clubsedge	
Lepidosperma filiforme	Common rapiersedge	
Lepidosperma longitudinale	Spreading swordsedge	
Uncinia riparia	River hooksedge	

Species name	Common name	Status
Uncinia tenella	Delicate hooksedge	
Schoenus apogon	Common bogsedge	
Schoenus sp.	Bogsedge	
Iridaceae		
Diplarrena latifolia	Western flag-iris	e
Diplarrena moraea	White flag-iris	
Libertia pulchella	grassflag	
Juncaceae		
Juncus articulatus	Jointed rush	i
Juncus astreptus	Rigid rush	e
Juncus australis	Southern rush	
Juncus bassianus	Forest rush	
Juncus bulbosus	Bulbous rush	i
Juncus pauciflorus	Looseleaf rush	
Juncus procerus	Tall rush	
Juncus sarophorus	Broom rush	
Juncus sp.	Ruah	
Luzula flaccida	Pale woodrush	
Luzula sp.	Woodrush	
Liliaceae		
Dianella revoluta	Spreading flaxlily	
Dianella tasmanica	Forest flaxlily	
Drymophila cyanocarpa	Turquoise berry	
Orchidaceae		
Acianthus sp.	Mosquito-orchid	
Caladenia alpina	Alpine finger-orchid	
Caladenia carnea	Pink fingers	
Caladenia sp.	Finger-orchid	
Chiloglottis cornuta	Green bird-orchid	
Chiloglottis grammata	Small bird-orchid	e
Chiloglottis sp.	Bird-orchid	
Chiloglottis triceratops	Three-horned bird-orchid	e
Corybas sp.	helmet orchid	
Cyrtostylis sp.	Gnat orchid	
Gastrodia sesamoides	Potato orchid	

Species name	Common name	Status
Pterostylis decurva	Summer greenhood	
Pterostylis melagramma	Black-stripe leafy greenhood	
Pterostylis sp.	Greenhood	
Thelymitra sp.	sun-orchid	
Poaceae		
Agrostis capillaris	Brown-top bent	
Agrostis stolonifera	Creeping bent	i
Anthosachne scabra	Rough wheatgrass	
Anthoxanthum odoratum	Sweet vernal	i
Arrhenatherum elatius var. *bulbosum*	Bulbous oatgrass	i
Australopyrum pectinatum	Prickly wheatgrass	
Deyeuxia monticola	Mountain bentgrass	
Deyeuxia sp.	Bentgrass	
Dichelachne sp.	Plumegrass	
Hierochloe redolens	Sweet holygrass	
Holcus lanatus	Yorkshire fog	i
Microlaena stipoides var. *stipoides*	Weeping grass	
Microlaena tasmanica	Tasmanian ricegrass	e
Poa annua	Winter grass	i
Poa gunnii	Gunns snowgrass	e
Poa labillardierei	Silver tussockgrass	
Poa sieberiana var. *sieberiana*	Grey tussockgrass	
Poa sp.	Tussockgrass	
Poa tenera	Scrambling tussockgrass	
Rytidosperma sp.	Wallabygrass	
Restionaceae		
Baloskion australe	Southern cordrush	
Empodisma minus	Spreading roperush	
Calorophus elongatus	Long roperush	
Hypolaena fastigiata	Tassel roperush	
Leptocarpus tenax	Slender twinerush	
Typhaceae		
Typha sp.	Cumbungi species	i
Xanthorrhoeaceae		
Lomandra longifolia	Sagg	

Species name	Common name	Status
Xyridaceae		
Xyris muelleri	Roundhead yelloweye	e
PTERIDOPHYTA		
Aspleniaceae		
Asplenium flabellifolium	Necklace fern	
Blechnaceae		
Blechnum fluviatile	Ray waterfern	
Blechnum nudum	Fishbone waterfern	
Blechnum pennamarina subsp. *alpina*	Alpine waterfern	
Blechnum wattsii	Hard waterfern	
Dennstaedtiaceae		
Histiopteris incisa	Batswing fern	
Hypolepis rugosula	Ruddy groundfern	
Pteridium esculentum subsp. *esculentum*	Bracken	
Dicksoniaceae		
Dicksonia antarctica	Soft treefern	
Dryopteridaceae		
Polystichum proliferum	Mother shieldfern	
Gleicheniaceae		
Gleichenia alpina	Alpine coralfern	
Gleichenia microphylla	Scrambling coralfern	
Sticherus tener	Silky fanfern	
Grammitidaceae		
Notogrammitis billardierei	Common fingerfern	
Hymenophyllaceae		
Hymenophyllum flabellatum	Shiny filmyfern	
Hymenophyllum peltatum	Alpine filmyfern	
Ophioglossaceae		
Ophioglossum lusitanicum subsp. coriaceum	Adders-tongue	
BRYOPHYTA		
Lycopodiaceae		
Lycopodiella lateralis	Slender clubmoss	
Sphagnaceae		
Sphagnum sp.	Peat moss	

B Tarraleah golf course camera trap survey results

Key: (i) introduced

Species	Common name	Conservation status		Detection events
		TSP Act	EPBC Act	
Mammals				
Felis catus	Cat (i)			3
Isoodon obesulus	Southern brown bandicoot			
Macropus rufogriseus	Bennetts (red-necked) wallaby			
Perameles gunnii gunnii	Eastern barred bandicoot (Tasmania)	Not listed	Vulnerable	1
Sarcophilus harrisii	Tasmanian devil	Endangered	Endangered	3
Tachyglossus aculeatus	Short-beaked echidna			
Thylogale billardierii	Tasmanian pademelon			
Trichosurus vulpecula	Common brushtail possum			
Vombatus ursinus tasmaniensis	Bare-nosed wombat			
Birds				
Anthochaera paradoxa	Yellow wattlebird			
Colluricincla harmonica	Grey shrike-thrush			
Dacelo novaeguineae	Kookaburra (i)			
Gallinula mortierii	Tasmanian native hen			
Malurus cyaneus	Superb fairy-wren			
Platycercus caledonicus	Green rosella			
Strepera fuliginosa	Black currawong			
Turdus merula	Common blackbird (i)			
Zoothera lunulata	Bassian thrush			
Invertebrates				
Heteronympha penelope	Shouldered brown butterfly			

C Mature dry forest camera trap survey results

Key: (i) introduced

Species	Common name	Conservation status		Detection events
		TSP Act	EPBC Act	
Mammals				
Antechinus swainsoni	Dusky antechinus			
Cercartetus nanus	Eastern pygmy possum			
Dasyurus maculatus maculatus	Spotted-tailed quoll	Rare	Vulnerable	5
Felis catus	Cat (i)			14
Isoodon obesulus	Southern brown bandicoot			
Macropus rufogriseus	Bennetts (red-necked) wallaby			
Oryctolagus cuniculus	European rabbit			
Potorous tridactylus	Long-nosed potoroo			
Rattus lutreolus	Swamp rat			
Rattus rattus	Black rat (i)			
Sarcophilus harrisii	Tasmanian devil	Endangered	Endangered	18
Tachyglossus aculeatus	Short-beaked echidna			
Thylogale billardierii	Tasmanian pademelon			
Trichosurus vulpecula	Common brushtail possum			
Vombatus ursinus tasmaniensis	Bare-nosed wombat			
Birds				
Acanthorhynchus tenuirostris	Eastern spinebill			
Colluricincla harmonica	Grey shrike-thrush			
Corvus tasmanicus	Forest raven			
Dacelo novaeguineae	Kookaburra (i)			
Malurus cyaneus	Superb fairy-wren			
Melanodryas vittata	Dusky robin			
Melithreptus affinis	Black-headed honeyeater			
Menura novaehollandiae	Superb lyrebird (i)			
Pachycephala olivacea	Olive whistler			
Petroica rodinogaster	Pink robin			
Podargus strigoides	Tawny frogmouth			

Rhipidura fuliginosa	Grey fantail			
Sericornis humilis	Tasmanian scrubwren			
Strepera fuliginosa	Black currawong			
Zoothera lunulata	Bassian thrush			
Reptiles				
Tiliqua nigrolutea	Blotched blue-tongue lizard			

D Likelihood of occurrence of threatened species and communities

Key:

PMST - Protected Matters Search Tool

NVA – Natural Values Atlas

Survey – recorded during field surveys for the Project

Migratory – includes Wetland and Terrestrial Migrants

Likely to occur: species records in 5 km and suitable habitat

Potential to occur: species no records in 5 km but suitable habitat

Unlikely to occur: no species records in 5 km and no suitable habitat

Unlikely to be resident: occasional individual may move over the suitable habitat

Note that shading indicates that a species or community is known or likely to occur the survey area.

D.1 Threatened ecological communities

Community	Conservation Category		Source	Distribution	Potential for occurrence
	NC Act	EPBC Act			
Alpine *Sphagnum* Bogs and Associated Fens	Threatened	Endangered	PMST	*Sphagnum* peatland (TASVEG code ASP) is one of the components of the Alpine *Sphagnum* Bogs and Associated Fens community, which is listed as an endangered ecological community under the EPBC Act. This community occurs in south eastern Australia and Tasmania.	Community was recorded during field surveys and mapped on TASVEG within the survey area. **Known to occur.**
Lowland Native Grasslands of Tasmania	Not listed	Endangered	PMST	This community is comprised of two major sub-types differentiated by the dominant native tussock-grass species; Lowland *Poa labillardierei* Grassland (GPL) and Lowland *Themeda triandra* Grassland (GTL). A typically treeless	Community was not recorded during field surveys and not mapped on TASVEG within the survey area. **Unlikely to occur.**

Community	Conservation Category		Source	Distribution	Potential for occurrence
	NC Act	EPBC Act			
				community (or have a very sparse tree/shrub layer) which generally occurs on valley flats to low slopes at elevations up to 600 m ASL.	
Tasmanian Forests and Woodlands dominated by black gum or Brookers gum (*Eucalyptus ovata / E. brookeriana*)	Threatened	Critically Endangered	PMST	This community now mainly occurs as scattered remnants in lowland areas on damp sites. Most remnants are found in the north-west, northern slopes and the eastern parts of Tasmania. It also occurs on King Island and some other Bass Strait islands.	Community was not recorded during field surveys and not mapped on TASVEG within the survey area. **Unlikely to occur.**
Tasmanian white gum (*Eucalyptus viminalis*) wet forest	Threatened	Critically Endangered	PMST	This community is found across all Tasmanian bioregions but is mainly found within the Northern Slopes and Ben Lomond bioregions in the north of the state.	Community was not recorded during field surveys and not mapped on TASVEG within the survey area. **Unlikely to occur.**

D.2 Threatened flora species

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
Acacia axillaris	Midlands wattle	Vulnerable	Vulnerable	PMST	0	N/A	A shrub to 4 m with narrow pointed leaves mostly occurring along watercourses or around soaks but can extend further into surrounding areas. Occurs in the lowland pastoral and agricultural region of the Midlands, in north and east-central Tasmania, and Mt Barrow in the subalpine/montane zone of northeast Tasmania (Department of the Environment, 2014).	No NVA records within 5 km of disturbance footprints. Outside of known range, and species not recorded in the survey area during flora surveys. Species **unlikely to occur**.
Amphibromus neesii	Southern swampgrass	Rare	Not listed	NVA	1	30/01/2004	Tufted perennial grass to 1.2 m tall. In Tasmania, species found in damp ground around marshes, lagoons, river flats, pools and streams (Threatened Species Section, 2016f).	One record within 5 km of the southern transmission line option approximately 4 km east of Wayatinah Lagoon. Species was not recorded in the survey area during the flora surveys. Species **unlikely to occur.**
Asperula scoparia subsp. *scoparia*	Prickly woodruff	Rare	Not listed	NVA	9	25/05/2021	A small perennial rhizomatous herb with white flowers that forms mats (Threatened Species Section,	There are nine NVA records within 5 km of redevelopment works last recorded from May 2021 on

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							2011a). Known from grassy woodland and tall eucalypt forest often in hilly and rocky sites.	Butlers Gorge Road to the west of the disturbance footprints east of Lake King William. Suitable tall eucalypt forest habitat has been verified within the survey area; however, this species was not recorded during the flora surveys therefore is **unlikely to occur**.
Barbarea australis	Native wintercress	Endangered	Endangered	NVA	159	27/03/2024	An annual or short-lived perennial herb occurring along flood-prone rocky river systems. Endemic to Tasmania, known from about 11 river systems extending from northern Tasmania to rivers flowing south from the Central Highlands (Threatened Species Section, 2010a).	There are NVA records within 5 km of disturbance footprints and suitable riverine habitat within the River Derwent. The species was recorded during flora surveys on the Nive River upstream of the Tungatinah Power Station, and downstream of Liapootah Dam in 2019 and on the dam wall at Pump Pond No. 2 in 2023. Species **is known to occur in the aquatic survey area, as well as the upstream dam wall of Tarraleah Pump Pond No. 2, and in the Nive River where the southern transmission**

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								line terminates at Liapootah.
Carex capillacea	Yellowleaf sedge	Rare	Not listed	NVA	1	29/12/1986	Slender perennial sedge that occurs in marshy habitat and short alpine herbfields associated with snow patches around the Central Highlands at altitudes of 600-1400 m. It has also been recorded from the north-west at Arm River Flats. Tarraleah is listed in the Notesheet as one of the key sites for the species (Threatened Species Unit, 2003a).	There is one historic record within 5 km of the disturbance footprints last recorded in December 1986 with poor location accuracy of 2.5 km. Species was not recorded during the flora surveys therefore is **unlikely to occur**.
Carex gunniana	Mountain sedge	Rare	Not listed	NVA	3	3/01/2022	Perennial sedge that occurs in wet eucalypt forest and sandy heathlands, margins of streams, damp grasslands within dry forest and rough pasture (Threatened Species Section, 2016a).	There are three records within 5 km of the disturbance footprints last recorded in January 2022 on the western shore of Tungatinah Lagoon north of the survey area. The other two records are on the western shore of Tungatinah Lagoon and approximately 1,100 m north of Wayatinah Lagoon. Limited suitable habitat within the survey

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								area and species not recorded during flora surveys therefore species **unlikely to occur.**
Colobanthus curtisiae	Curtis' colobanth	Rare	Vulnerable	PMST	0	N/A	Small perennial herb growing to 40 mm high. Requires bare ground for recruitment from seed and responds well to some disturbance such as grazing. Endemic to Tasmania, extending from the Central Plateau to Ben Lomond in the north, to Fingal Tier in the east and Kempton in the south. Grows in grassland to grassy woodland areas and occurs on gentle slopes with elevations between 160 m in lowland areas and 1300 m in alpine areas (Threatened Species Unit, 2001).	No NVA records within 5 km of disturbance footprints. No suitable habitat within survey area, and species not recorded during flora surveys therefore species **unlikely to occur**.
Eucalyptus gunnii subsp. *divaricata*	Miena cider gum	Endangered	Endangered	PMST	0	N/A	Small to medium sized tree which is endemic to the Central Plateau in Tasmania with dull green foliage. Juvenile foliage is glaucus and bluish green. Occurs as grassy open woodland at the	No NVA records within 5 km of disturbance footprints. Outside of altitudinal and known range, not recorded during flora surveys. Species **unlikely to occur**.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							exposed edges of treeless flats or hollows (frost hollows) around yingina / Great Lake between 865–1150 m AHD (Threatened Species Section, 2010b).	
Euphrasia scabra	Yellow eyebright	Endangered	Not listed	NVA	41	16/01/2024	Annual herb with creamy yellow flowers 9 to 12 mm long and 8 mm wide. In Tasmania, this species is known to occur in the Eastern Tiers near Fingal, near Lake Sorell and near Hobart. Populations in the north from St Marys to Rocky Cape are now believed to be extinct. This species occurs in moist herb/sedge communities in grassy leads in marshes or in drier open grassy areas on hills at the headwaters of creeks (Threatened Species Unit, 2002).	There are NVA records within 5 km of the disturbance footprints with a plant count of over 1,000 on the northwestern shore of Tungatinah Lagoon north of the survey area, last recorded in January 2024. No suitable habitat in survey area. Species not recorded during flora surveys therefore species **unlikely to occur.**
Glycine latrobeana	Clover glycine	Vulnerable	Vulnerable	NVA	1	31/10/1987	A small prostrate perennial herb up to 10 cm tall which resembles clover. It grows in dry forest and woodland and native grasslands (Carter	One NVA record within 5 km of the southern transmission line option. The survey area was outside the known range of the species, and it

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							and Sutter, 2010).). It occurs on the East Coast, in the north, north-west and the Midlands.	was not recorded during flora surveys therefore species **unlikely to occur**.
Hovea tasmanica	Rockfield purplepea	Rare	Not listed	NVA	17	10/10/2014	Spindly erect shrub found on dry, rocky ridges or slopes in forest and riverine scrub (Threatened Species Section, 2016b).	There are 17 NVA records within 5 km of the disturbance footprints, last recorded in October 2014 on the Nive River downstream of Lake Liapootah spillway south of the survey area. No suitable habitat encountered during surveys. Species not recorded during flora surveys therefore species **unlikely to occur**.
Lepidium hyssopifolium	Basalt peppercress	Vulnerable	Vulnerable	PMST	0	N/A	An erect, weedy looking, much-branched herb to 50 cm in the Brassicaceae family. It grows in dry, warm and fertile areas in Tasmania, on flat ground, from an altitude of 40 to 500 m (Threatened Species Unit, 2003b). Occurs from the East Coast, through the northern Midlands, southern Midlands and Derwent Valley.	No NVA records within 5 km of disturbance footprints. Outside of altitudinal and known range, not recorded during flora surveys. Species **unlikely to occur**.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
Leucochrysum albicans subsp. *tricolor*	Hoary sunray	Endangered	Endangered	PMST	0	N/A	Perennial herb with greenish-yellow flowers that occurs in the west and on the Central Plateau and the Midlands, mostly on basalt soils in open grassland. Would have originally occupied *Eucalyptus pauciflora* woodland and tussock grassland, though most of its habitat is now converted to pasture or cropland (Threatened Species Section 2017a).	No NVA records within 5 km of disturbance footprints. The survey area is outside the known range of the species, and it was not recorded during flora surveys therefore species **unlikely to occur**.
Machaerina gunnii	Slender twigsedge	Rare	Not listed	NVA	1	5/12/2022	Perennial sedge to 70 cm that inhabits wet moors, creeks and riverbanks and can extend into poorly drained sedgy/ grassy forest and woodland (Threatened Species Section, 2016e).	One NVA record within 5 km of the disturbance footprints on the western shore of Tungatinah Lagoon. Species was not recorded during the flora surveys. Species **unlikely to occur.**
Muehlenbeckia axillaris	Matted lignum	Rare	Not listed	NVA	14	7/12/2021	A small prostrate, straggling or trailing shrub forming patches to 80 cm in diameter. Occurs in moist gravely places along rivers or rocky places on the Central Plateau, extending out to the north-east, north-west	There are NVA records within 5 km of the disturbance footprints, most recently recorded in December 2021 on the Nive River upstream of Tungatinah Power Station. Four records are within 5 km

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							and west of the State (Threatened Species Unit 2003c).	of the southern transmission line option south of the survey area between Clark Dam and Wayatinah Lagoon recorded in February 2019. Species recorded at one location along the River Derwent during flora surveys. Therefore, the species is **known to occur** within the survey area.
Pherosphaera hookeriana	Mount Mawson pine	Vulnerable	Not listed	NVA	28	14/03/2022	A small conifer that grows up to 5 m in height and occurs in montane areas (Threatened Species Section 2016c). It grows in a range of habitats, including alpine and coniferous heath, eucalypt woodland, rainforest dominated by *Athrotaxis cupressoides* (pencil pine), the margins of streams and highland lakes, and *Sphagnum* bogs.	There are NVA records within 5 km of the disturbance footprints along the River Derwent south and south-east of the survey area, the most recent record from March 2022. Species was recorded at one location along the River Derwent between Clark Dam and Wayatinah Lagoon during flora surveys in 2021. Therefore, the species is **known to occur** within the survey area.
Pilularia novae-hollandiae	Australian pillwort	Rare	Not listed	NVA	1	21/02/1991	Aquatic or semi-aquatic fern that grows in mud or silt of shallow rivers and on	There is one NVA record within 5 km of the disturbance footprints from

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							seasonally inundated margins of creeks and rivers. The species is known from the Central Plateau and Midlands (Threatened Species Section, 2003).	February 1991 on the Nive River approx. 240 m downstream of Tungatinah Power Station. There is no suitable habitat within the survey area. The flows downstream of the power station can be quite strong and would not allow the establishment of continued persistence of this species. The species was not recorded during 2018 to 2024 flora surveys therefore species is considered **unlikely to occur**.
Pimelea curviflora var. *gracilis*	Slender curved rice flower	Rare	Not listed	NVA	23	15/10/2016	A much-branched slender shrub with wiry erect branches to 100 cm tall (Threatened Species Unit 2005b). Occurs in wet eucalypt forest.	There are NVA records within 5 km of the disturbance footprints, the most recent record from October 2016 downstream of the Pump Pond east of Mossy Marsh. Potential suitable wet eucalypt forest habitat present within the survey area, however species was not recorded during the flora surveys. Species **unlikely to occur**.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
Pomaderris elachophylla	Small-leaf dogwood	Vulnerable	Not listed	NVA	587	25/06/2024	A slender, woody shrub to 3 m with small leaves and branches with a dense covering of hairs (Threatened Species Unit 2003d). It occurs in wet eucalypt forests to wet shrubby woodlands.	There are 68 records of *Pomaderris elachophylla* totalling a count of more than 2,000 plants within 5 km of the disturbance footprints. This species was recorded in multiple locations on Butlers Gorge Road. The species was also recorded along the Lake King William to Derwent Pumps distribution line alignment and on the edge of the western Portal and Pipeline footprint. There are also four NVA records on the River Derwent upstream of Wayatinah Lagoon in addition to two records west of Wayatinah Lagoon. Species **known to occur** within the survey area.
Pseudocephalozia paludicola	Alpine leafy liverwort	Not listed	Vulnerable	PMST	0	N/A	An erect or nearly erect light green liverwort that arises from a system of leafless, pale stolons. A subalpine species that occurs around the west and on the central highlands and eastern	No NVA records within 5 km of disturbance footprints. Outside of altitudinal and known range, not recorded during flora surveys between 2018 and 2024. Species **unlikely to occur**.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							mountains where it has been found in wet ground in subalpine grassland, moorland and *Sphagnum* areas (Threatened Species Unit 2003e).	
Pterostylis pratensis	Liawenee greenhood	Vulnerable	Vulnerable	PMST	0	N/A	Small terrestrial greenhood orchid to 15 cm tall that is known only from the Central Highlands at an altitude of 850 to 1,100 m. It occurs in subalpine *Poa labillardierei* tussock grassland with patches of often stunted *Olearia algida* and *Hakea microcarpa* (Threatened Species Section 2008).	No NVA records within 5 km of disturbance footprints. Outside of known range, nearest records are over 34 km to the northeast. No suitable Poa tussock grassland and not recorded during flora surveys. Species **unlikely to occur**.
Uncinia elegans	Handsome hooksedge	Rare	Not listed	NVA	61	1/12/2018	A tufted perennial plant that occurs in a wide range of forest types including wet eucalypt forest, dry eucalypt forest and open grassy woodlands. It is most often associated with damp grassy habitats and can occur on disturbed sites (Threatened Species Section 2017b).	There are NVA records within 5 km of the disturbance footprints totalling a count of more than 69 plants, last recorded from December 2018. Species recorded from along the Lyell Highway, Fourteen Mile Road, between the Lyell Highway and Nive River upstream of Tungatinah Power Station, and along

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								Victoria Valley Road east of Dee Lagoon. Entura ecologists searched the location of the NVA records, particularly the location of the July 2017 record of this species which is within the disturbance footprint for the surge facility. Several plants of an *Uncinia* species were recorded in the disturbance footprint but were confirmed the Tasmanian herbarium to be *Uncinia riparia* (river hooksedge). The species was not recorded during flora surveys therefore species **unlikely to occur.**
Viola cunninghamii	Alpine violet	Rare	Not listed	NVA	1	22/01/2001	Perennial herb with leaves that grow in a tufted rosette with white or pale violet flowers. In Tasmania, occurs in short alpine herbfield, grassland and grassy heath in the higher parts of the eastern and central mountains (Threatened Species Section 2012).	One record within 5 km of the disturbance footprints. No suitable habitat within survey area and the species was not recorded flora surveys therefore species **unlikely to occur.**

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
Westringia angustifolia	Narrowleaf westringia	Rare	Not listed	NVA	224	19/02/2024	A shrub to 3 m tall with slender spreading branches. With white to pale lilac flowers (Threatened Species Unit 2003f). Grows in dry, shrubby understorey, often on dolerite and often on riverbanks.	There are NVA records within 5 km of the disturbance footprints along Butlers Gorge Road, River Derwent, and Nive River totalling over 800 plants. Species recorded in December 2022 at two locations on the northern transmission alignment, at three locations on the River Derwent in March 2023 and along Butlers Gorge Road during flora surveys. Species **known to occur.**

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
Xerochrysum palustre	Swamp everlasting	Vulnerable	Vulnerable	NVA	6	7/05/2021	Perennial yellow paper daisy 30 to 120 cm high, that occurs in wet habitats including sedgeland and rushland dominated wetlands, grassy to sedgy wet heathlands and heathy open *Eucalyptus ovata* woodlands (Threatened Species Section 2016b). In Tasmania, the species has a scattered distribution in the northeast, east coast, Central Highlands and midlands at altitudes below 700 m AHD (Threatened Species Section 2016d).	There are six NVA records within 5 km of the disturbance footprints. The records are located in areas of lowland *Poa* grassland (540 m AHD) approximately 2 km south of the northern transmission line alignment. No suitable habitat within the survey area. Species was not recorded during flora surveys. Species **unlikely to occur**.

D.3 Threatened fauna species

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
Mammals								

Dasyurus maculatus maculatus	Spotted-tailed quoll	Rare	Vulnerable (Tasmanian population)	NVA	9	1/10/2014	A medium-sized carnivorous marsupial found in a variety of habitats, however, forest elements such as rainforest and wet and dry eucalypt forest are important components of their habitat (Threatened Species Section 2022a).	There are nine records within 5 km of the disturbance footprints. Six of these records are historic (pre-1957) and three are more recent: 1985 and 2014. There was also a roadkill record from June 2025 on Butlers Gorge Road (Hydro Tasmania dataset). During the camera trap monitoring program targeting game trails within the mature dry eucalypt forests within the disturbance footprint, there were 5 spotted-tailed quoll detection events at 3 different camera sites. Two of these detection events were by 2 of the cameras deployed in *Eucalyptus tasmaniensis* dry forest and woodland (DDE) within the northern transmission line option disturbance footprint; 3 were in this forest type within the Tarraleah Village disturbance footprint. There is eucalypt forest that is potentially suitable

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								habitat within the survey area. No dens were recorded during surveys. Species **known to occur**.
Dasyurus viverrinus	Eastern quoll	Not listed	Endangered	NVA	20	27/03/2023	A small carnivorous marsupial found in a range of vegetation types including open grassland (including farmland), tussock grassland, grassy woodland, dry eucalypt forest, coastal scrub and alpine heathland, but tends to be absent from large tracts of wet eucalypt forest and rainforest (Threatened Species Scientific Committee 2015).	There are 17 records on the NVA within 5 km of the disturbance footprints with the most recent NVA record being from March 2023 which was a carcass observation on the Lyell Highway north of the intersection with Wayatinah Road at the end of the southern transmission line option. There was also a roadkill record from January 2025 on Butlers Gorge Road (Hydro Tasmania dataset). The shrubby dry forests within the disturbance footprint are not optimal habitat due to the absence of open, grassy understorey (Jones and Barmuta, 2000). **Unlikely to be resident** within survey area but **may occur** in low density on

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								occasion, particularly moving along anthropogenic linear features such as roads and easements.
Perameles gunnii gunnii	Eastern barred bandicoot	Not listed	Vulnerable	NVA	14	10/05/2007	A small marsupial with long pink nose and large ears and characteristic pale bars across its hindquarters. Occurs in a range of agricultural habitats across Tasmania where improved pasture is interspersed with patches of native bush (Department of the Environment, Water, Heritage and the Arts 2008).	NVA records within 5 km of the disturbance footprints; the most recent being from May 2007. Most of these records are in the vicinity of the proposed transmission line route. One additional record from the Project's targeted camera trap survey within the Tarraleah Golf Course in February 2024 (one detection in 1,163 camera trap days/nights). No suitable habitat present within the disturbance footprint. Species **may occur in the disturbance footprint in the distribution line easement** along Oldina Road adjacent to the Tarraleah Golf Course

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								(which is outside of the disturbance footprints) where it is **known to occur** based on detection via camera trapping.
Sarcophilus harrisii	Tasmanian devil	Endangered	Endangered	NVA	67	11/06/2024	A medium-sized carnivorous marsupial that occurs in a wide range of habitats across Tasmania including forest, woodland, agricultural areas and forest plantations (DEWHA, 2009).	There are 67 NVA records of the Tasmanian devil within 5 km of the main redevelopment infrastructure disturbance footprint west of the Nive River, with the most recent records being roadkill records on the Lyell Highway at Tarraleah on 11 June 2024 and another on the same day on Butlers Gorge Road 5 km west of Tarraleah. There were also three roadkill records identified in the Hydro Tasmania data collected on Butlers Gorge Road from June 2024, January 2025 and September 2025. The camera trap monitoring program at the Tarraleah golf course detected

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								Tasmanian devils on 16 December 2023, 24 February 2024, and 7 March 2024. During the camera trap monitoring program targeting game trails within the mature dry eucalypt forests within the disturbance footprint, there were 18 Tasmanian devil detection events at 8 camera sites. Eight of these devil detection events were by the 3 cameras deployed in *Eucalyptus tasmaniensis* dry forest and woodland (DDE) within the northern transmission line option disturbance footprint; two were in this forest type within the Tarraleah Village disturbance footprint. Two of these detection events were from a camera deployed within *Eucalyptus amygdalina* forest and woodland on dolerite (DAD) within the southern

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								transmission line option disturbance footprint. Six of these detection events by 3 cameras deployed within the *Eucalyptus dalrympleana - Eucalyptus pauciflora* forest and woodland (DDP) within the western portal and pipeline disturbance footprints. There is forest and broad-leaf scrub that is potentially suitable foraging habitat, and mature eucalypt forest that is potentially suitable denning habitat within the survey area. No dens were recorded. Tasmanian devils may also forage in easements, regenerating cleared land, and plantations for silviculture within the survey area. Tasmanian devil scats were observed in the survey area in *Eucalyptus tasmaniensis* forest with broad-leaf

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								shrubs (WBD), *E. tasmaniensis* forest over rainforest (WDR), *E. tasmaniensis* dry forest (DDE) and cleared weed infested land (FWU). **Known to occur**.
Birds								
Previously *Accipiter novaehollandiae*, now *Tachyspiza novaehollandiae*	Grey goshawk	Endangered	Not listed	NVA	13	8/11/2023	In Tasmania, the Grey Goshawk is a large, pure white raptor, up to 55 cm long with a wingspan of up to 110 cm. Females are almost twice as heavy as males. It occurs at low densities throughout Tasmania. The species nests in mature wet forest, usually in the vicinity of a watercourse. They have large ranges, hunting from perches in the forest canopy and eating small mammals, birds and insects, and sometimes carrion. The grey goshawk is threatened by loss of	There are 13 NVA sighting records within 5 km of the disturbance footprints, with the last record from November 2023. There were three grey goshawk sightings during Entura surveys, including one near Mossy Marsh Lagoon (October 2018) and two near Lake King William (June 2024). There are no known nests within 1 km of the disturbance footprint. The species is **known to occur** in the survey area. However, there is no suitable nesting habitat within the disturbance footprint.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							nesting habitat including mature wet forest, riparian forest and blackwood swamp forest through clearing for plantations or pasture.	
Actitis hypoleucos	Common sandpiper	Not listed	Migratory	PMST	0	N/A	A small sandpiper found along all coastlines of Australia and in many areas inland. When in Australia, the population is concentrated in northern and western Australia (Department of the Environment 2022a).	No suitable habitat as primarily a coastal dwelling and marine species. No NVA records within 5 km of disturbance footprints. Species **unlikely to occur**.
Apus pacificus	Fork-tailed swift	Not listed	Migratory	PMST	0	N/A	A medium to large blackish swift with a white band across the rump. It has a slim body, long narrow wings and a deeply forked tail. Migratory species which occurs in Australia between October and mid-April. They are almost exclusively aerial within the species'	No NVA records within 5 km of disturbance footprints. There are only 20 records from Tasmania which are along the north, east coast and south east coast or near coastal, there are no records from the Central Plateau. Species **unlikely to occur**.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							Australian distribution, where they occur over a range of habitats both inland and on coasts (Department of the Environment 2022b). They sometimes occur above wet eucalypt forest or open forest.	
Aquila audax fleayi	Tasmanian wedge-tailed eagle	Endangered	Endangered	NVA		24/06/2024	A large brown-black eagle that occurs across Tasmania. Important habitat for the species is nesting habitat, which is defined as patches of eucalypt forest of predominantly old growth trees greater than 10 ha in area (Threatened Species Section 2022b).	The aerial (helicopter) nest searches, undertaken 13-14 April 2023 and 6 June 2024, 13 May 2025 and 21 May 2025 in all areas within 2 km of the disturbance footprint including both transmission line options, confirmed that there are three known wedge-tailed eagle nests within 1 km of the proposed northern transmission line alignment: • nest #2298 which is located 343 m south of the disturbance footprint.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								• nest #1700 which is located 771 m south of the disturbance footprint. • nest #3176 which is located 688 m south of the disturbance footprint. • A new nest (#3577) discovered by Entura ecologists on 21 May 2025 located within 500 m of the disturbance footprint. • There is also one nest (#738) within 500 m of the proposed southern transmission line alignment. • There are additional wedge-tailed eagle nests recorded as present on the NVA and confirmed present during aerial nest

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								searches that are located between 1 and 2 km of the min disturbance e footprint including nests #3071, #1411, #1568 and #3454. There also nests within 1 to 2 km of the northern transmission line option including nests #1013, #1082, #1908, #2831, #2905, #3453, and #3461. • The species has been sighted flying overhead during field surveys. • **Known to occur** within the survey area based on sightings during field surveys and **known to nest** within 1 km of the

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								disturbance footprint.
Calidris acuminata	Sharp-tailed sandpiper	Not listed	Migratory	PMST	0	N/A	A small to medium-sized wader that spends its non-breeding season in Australia over summer. Prefers muddy edges of shallow fresh or brackish waters, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. In Tasmania, they mostly occur in coastal areas in the east from George Town to Hobart, with scattered records on the north-west coast, and west coast from Henty River and Port Davey (Department of the Environment 2022c.	No NVA records within 5 km of the disturbance footprints. No suitable wetland habitat within survey area. **Unlikely to occur**.
Calidris ferruginea	Curlew sandpiper	Not listed	Critically endangered	PMST	0	N/A	Small, slim sandpiper that mainly occurs on intertidal mudflats in sheltered coastal areas and around non-tidal swamps, lakes and lagoons near the coast.	No NVA records within 5 km of the disturbance footprints. No suitable wetland habitat within survey area. **Unlikely to occur**.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							They mostly occur in coastal eastern Tasmania, but also at several sites in the northwest (Department of the Environment 2022d).	
Calidris melanotos	Pectoral sandpiper	Not listed	Migratory	PMST	0	N/A	Small to medium-sized sandpiper that occurs in coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. The species is a rare visitor to Tasmania, with records existing for Cape Portland, Orielton Lagoon-Sorell, Barilla Bay, Clear Lagoon, Cameron Inlet and Flinders Island (Department of the Environment 2022e).	No NVA records within 5 km of the disturbance footprints. No suitable wetland habitat at the site and species is very rare in Tasmania. **Unlikely to occur**.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
Ceyx azureus diemenensis	Tasmanian azure kingfisher	Endangered	Endangered	NVA	1	1/01/2002	A small brightly coloured kingfisher with a long slender black bill and red legs. This species inhabits the forested margin of rivers. The breeding range in Tasmania is considered to be western and northwestern near-coastal Tasmania (Threatened Species Section 2012).	There is one record within 5 km of the northern transmission line disturbance footprint from January 2002 at Station Bay in Dee Lagoon. No known occurrences in River Derwent or Nive River. This record will no longer be within 5 km of the disturbance footprint if the southern transmission line is selected for construction. **Unlikely to occur**.
Gallinago hardwickii	Latham's snipe	Not listed	Vulnerable/Migratory	NVA	10	3/02/2021	Medium-sized wader that occurs in permanent and ephemeral wetlands up to 2000 m AHD. May be found in a variety of vegetation types or communities including tussock grasslands with rushes, reeds and sedges, coastal and alpine heathlands, lignum or tea-tree scrub,	Ten NVA records within 5 km of the disturbance footprints including at Tungatinah Lagoon, Lake Binney, Lake King William, and two records in Tarraleah Village with questionable locational accuracy. There are also three historic records from Dee Lagoon with poor locational accuracy of 18.5 km. Potentially

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							buttongrass plains, alpine herbfields and open forest (Department of the Environment 2022g). This species is widespread in Tasmania, with the alpine areas of the Central Plateau historically supporting large colonies of Latham's snipe (Naarding 1983).	suitable buttongrass moorland habitat was verified within survey area. **Potential to occur**.
Haliaeetus leucogaster	White-bellied sea-eagle	Vulnerable	Marine	NVA	20	6/06/2024	A large eagle with white breast and grey wings which occurs along the coastline (including offshore islands) of mainland Australia and Tasmania. In Tasmania, nesting habitat is forest with old-growth eucalypts within 5 km of the coast (nearest coast including shores, bays, inlets and peninsulas), rivers, lakes or farm dams (Threatened Species Section 2006).	There 20 observation records on the NVA within 5 km, but **no known** nests that have most recently been used by white-bellied sea-eagles within 1 km of the disturbance footprints. However, this eagle species may use known wedge-tailed eagle nests within 2 km of the disturbance footprint in future breeding seasons. **Likely to occur** and **potential to nest** within 1

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								km of the disturbance footprint.
Hirundapus caudacutus	White-throated needletail	Not listed	Vulnerable	NVA	3	6/01/1981	A large swift with a thickset, cigar-shaped body, stubby tail and long pointed wings. Migratory species, almost exclusively aerial within its Australian distribution. Although they occur over most types of habitats, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings (Department of the Environment 2022g).	Three historic NVA records within 5 km of the disturbance footprints, from 1900 and 1981, with poor location accuracy of 18.5 km. **Potential to occur** as it is almost exclusively aerial and occurs over most habitat types.
Lathamus discolor	Swift parrot	Endangered	Critically Endangered	NVA	36	30/03/2025	A small bright green parrot with red under the wings and a red face. Breeding range (foraging and nesting habitat) is mostly within 10 km of the coast (including shores, bays,	There are 36 records of the swift parrot on the NVA within 5 km of the disturbance footprints with the most recent records are of 11 sightings in February and March 2025 northeast of the

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							inlets or peninsulas) predominantly in eastern and southeastern Tasmania, although there is breeding in some years on the central north and northwest coasts of Tasmania (Threatened Species Scientific Committee 2016). Foraging habitat is *Eucalyptus globulus* dry and wet forest and *E. ovata* forest during breeding season. Nesting habitat is forest with large eucalyptus trees with hollows in close proximity to foraging habitat (Threatened Species Scientific Committee 2016). Following breeding, birds move westwards to the Central Plateau and western Tasmania as blue gum flowering declines and other	pipeline alignment. There is also another record from March 2025 1.6 km to the north of the of Tarraleah. There is one observation located 1.8 km northwest of Tungatinah Lagoon of a swift parrot in *E. tasmaniensis* dry forest include “Feeding on lerps and flowering Euc” (NVA).. The survey area is outside the breeding range of the species. **Known to occur** based on records of the species foraging within the survey area, but **unlikely to nest** within the survey area.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							eucalypts begin to flower elsewhere, including *Eucalyptus tasmaniensis.* The parrots are nomadic during the post-breeding period, appearing wherever there is a suitable nectar source in the west and north of the state.	
Neophema chrysostoma	Blue-winged parrot	vulnerable	Vulnerable	NVA	8	3/01/2024	A small olive-green parrot with a large dark blue patch on the wings. They inhabit a range of habitats from coastal, sub-coastal and inland areas in north-western, central and eastern parts of Tasmania (DCCEEW 2023). They favour grasslands and grassy woodlands and are often found near wetlands (DCCEEW 2023). They forage near or on the ground for seeds of a wide range of native and introduced	There are six records on the NVA within 5 km of the disturbance footprint. Three of the records are historic from 1981 and earlier, with low accuracy +/- 18,500 m. There are recent records around Bradys Lake north of the survey area from February and December 2022. There most recent record from January 2024 is from Dee Lagoon. However, the species is **unlikely** to occur because of the absence of suitable foraging habitat.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							grasses, herbs and shrub (DCCEEW 2023).	
Numenius madagascariensis	Eastern curlew	Endangered	Critically endangered / Migratory	PMST	0	N/A	The largest migratory shorebird with a characteristic long down-curved bill. During the non-breeding season in Australia, the eastern curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats. Eastern curlews are rarely recorded inland (Department of the Environment 2015b).	No suitable habitat as coastal dwelling species in Tasmania. No records on NVA within 5 km of the disturbance footprints. Outside known Tasmanian range. **Unlikely to occur**.
Pterodroma leucoptera leucoptera	Gould's petrel	Not listed	Endangered	PMST	0	N/A	Small, slightly built petrel about 70 cm in length. It is a pelagic marine species spending much of its time foraging at sea and coming ashore only to breed. Breeds on Cabbage Tree Island off	No NVA records within 5 km of the disturbance footprints. Outside of species range and no suitable habitat. **Unlikely to occur**.

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							the coast of mid north NSW (Department of the Environment 2022i).	
Tyto novaehollandiae castanops	Tasmanian masked owl	Endangered	Vulnerable	NVA	40	30/01/2025	Large barn owl with buff to chestnut coloured facial disk. Inhabits a range of forest and woodland habitats including agricultural and forest mosaics. The highest densities are in the east and north and the lowest densities occur in the west of Tasmania (DEWHA, 2010).	There are 33 NVA records within 5 km of main disturbance footprint, 4 within northern transmission line, and three within southern transmission line. Detection of characteristic screeches by passive acoustic monitoring confirmed the occurrence of the species within the survey area near the existing Tarraleah Power Station. There are no known masked owl nests within 5 km of the disturbance footprints. Most recent record from January 2025 in a forestry coupe approx. 4.9 km north of the survey area. Large habitat trees recorded within the survey area were assessed as unlikely to be suitable nest trees by a species

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
								expert, and call-playback surveys in September to December 2024 did not detect any owls (Appendix E). **Known to occur** but **unlikely to nest** within the survey area.
Frogs								
Litoria raniformis	Green and gold frog	Vulnerable	Vulnerable	PMST	0	N/A	Large green tree frog to 80 cm long that breeds in permanent freshwater lagoons with a dense cover of aquatic vegetation in Lowland areas in Tasmania (Clemann & Gillespie, 2012).	There are no records within 5 km of the of the disturbance footprints. Outside of species range and no suitable wetland habitat with emergent vegetation. **Unlikely to occur**.
Fish								
Galaxias johnstoni	Clarence galaxias	Endangered	Endangered	NVA	2	17/12/1988	Small freshwater fish up to 127 mm that is only found in central Tasmania, restricted to a few headwaters in the Clarence and Nive River catchments. Adult galaxias occupy stream,	Two historic records from Wentworth Hills within 5 km of the disturbance footprints with poor locational accuracy of 5 km. Disturbance footprints outside the known distribution of the

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							marsh and lake habitats (Threatened Species Unit Listing Statement 1998).	species in the Nive River catchment. **Unlikely to occur**.
Prototroctes maraena	Australian grayling	Vulnerable	Vulnerable	PMST	0	N/A	Dark green to dark grey fish with silvery sides and a dark mid-lateral stripe to 30 cm. An anadromous species where fish are born in freshwater, then migrate to the ocean as juveniles where they grow into adults before migrating back into freshwater to spawn (Fulton 1990).	No NVA records within 5 km of the disturbance footprints. Outside the known range of the species. **Unlikely to occur**.
Invertebrates								
Dasyurotaenia robusta	Tasmanian devil tapeworm	Rare	Not listed	NVA records of host species	0 of the parasite, 67 of the host species	N/A	This tapeworm is uniquely hosted by the Tasmanian devil.	There are no records of Tasmanian devil carcass dissection results, and as such it is unknown whether the parasite species occurs within the Tasmanian devil population within the survey area. **Unknown**

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
Oreixenica ptunarra	Ptunarra brown butterfly	Vulnerable	Endangered	PMST	0	N/A	A small brown and orange butterfly endemic to Tasmania and restricted to five areas of the state: the Midlands, Steppes, Northwest Plains, Eastern Highlands and the Central Plateau. The species is found in areas where there is a significant cover of Poa tussock. The preferred habitat includes *Poa* tussock grassland Poa tussock grassland with scattered *Hakea microcarpa* shrubs and *Eucalyptus* grassy open woodland over Poa tussock (Threatened Species Section 1998).	There are no records within 5 km of the of the disturbance footprints. Nearest known records are over 20 km to the north of the survey area. No suitable *Poa* tussock grassland habitat within the Project survey area. **Unlikely to occur**.
Plesiothele fentoni	Lake Fenton trapdoor spider	Endangered	Not listed	NVA	3	10/02/2022	Small burrow inhabiting spider to 1.5 cm in length, with a yellow brown strongly patterned abdomen (Threatened Species Section 2017c). The	There are 3 records (all from 2022) on the NVA within 5 km of the survey area. **Unlikely to occur** due to the absence of mossy patches that the species requires to make

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
							species was until recently only known from Lake Fenton in the Mount Field National Park, where it occurs in subalpine woodland. It has since been recorded from the Wentworth Hills area near Tarraleah and south-west Tasmania in the Hartz National Park. At Wentworth Hills, the species was excavated from its holes in moss beds in tall wet forest. The potential habitat for the spider is described as 'mossy patches within rainforest, mixed forest and mature wet forest (particularly those with rainforest species in the understorey (Threatened Species Section 2017c).	its burrows within suitable wet eucalypt forest with rainforest understorey (e.g. *Eucalyptus tasmaniensis* forest over rainforest).
Lizards								
Carinascincus greeni	Alpine cool-skink,	Not listed	Endangered	PMST	0	N/A	Found exclusively in high altitude boulder	There is no suitable habitat at elevations

Species	Common Name	Conservation Category		Source	NVA record count (sum)	Last record	Habitat	Potential for occurrence
		TSP Act	EPBC Act					
	northern snow skink						fields (~800 – 1270 m elevation), with a 'sky island' distribution in central and southern Tasmania.	above 800 m. Nearest record is from 2017 located near Lake St Clair lodge, 18.5 km to the northwest of Tarraleah. **Unlikely to occur**
Carinascincus microlepidotus	Boulder cool-skink, southern snow skink	Not listed	Endangered	PMST	0	N/A	Occurs in alpine rocky heath fields, subalpine woodlands, scree slopes, lake edges above the treeline in mountainous areas (~800-1270 m).	There is no suitable habitat at high altitudes. The entire range of the northern snow skink occurs within protected areas. Nearest record from 1962 located 21 km to northwest of Tarraleah **Unlikely to occur**

E Tasmanian masked owl assessment by Biodiversity Maintenance Australia

Acoustic monitoring and on-ground surveys at Tarraleah to assess occupancy for roosting/nesting by Tasmanian Masked Owls

Report prepared for Entura
February 2025

Biodiversity Maintenance Australia

RESEARCH · MONITORING · RESERVE DESIGN

Cover Photo

Location of acoustic recorders in the Tarraleah area.

E.1 Background

Biodiversity Maintenance Australia (BMA) was engaged by Entura to analyse and interpret acoustic data collected at Tarraleah in 2023/24 for the presence of Tasmanian masked owl calls. Where the frequency and nightly detection rate of calls indicated likely regular use by masked owls and/or the timing of calls during the night indicated likely use for roosting/nesting, more detailed on-ground searches for roost/nest hollows were undertaken, including one call playback survey. The locations where acoustic recorders were deployed at Tarraleah is shown in Figure 1 and 2.

Observations from several years of passive acoustic monitoring suggest that a minimum of 21 nights of continuous acoustic recording is required to achieve a high confidence of use of a site by masked owls. Further, deployment of acoustic recorders during the typical breeding season of the masked owl (i.e. spring-summer) is more likely to detect use of a site by masked owls for nesting (Phil Bell, Charley Gros and Matt Webb, unpublished data).

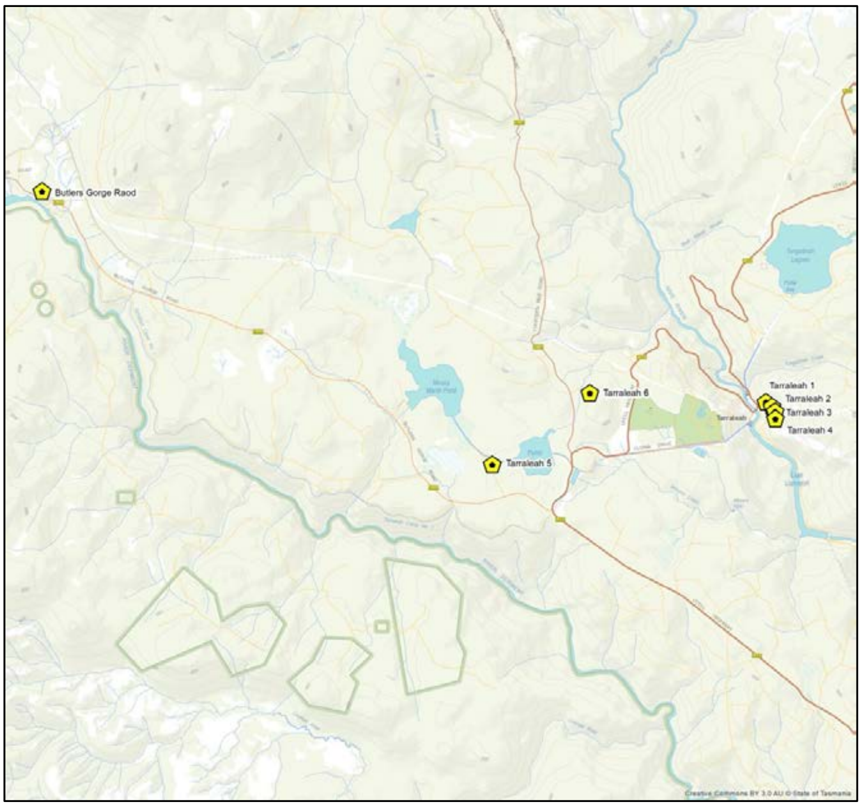

Figure 1. Locations where acoustic recorders were deployed at Tarraleah overlaid on a topographic map (yellow hexagons = locations where acoustic recorders were deployed).

Figure 2. Locations where acoustic recorders were deployed at Tarraleah overlaid on recent satellite imagery (yellow hexagons = locations where acoustic recorders were deployed).

E.2 Results

E.2.1 Acoustic analysis

The analysis of acoustic data presented in this report was for detecting masked owl screech calls only and for a basic assessment of the frequency and timing of call detections.

A site is the area around an acoustic recorder within which masked owl calls can be detected by an acoustic recorder i.e. detection area. The size of the detection area is influenced by several environmental variables such as topography, vegetation structure and density, wind, and rain. For the purposes of this report a site is defined as the area around the location of an acoustic recorder within a circle with a radius of 200m (i.e. approximately 12.5ha).

Acoustic Recorder Butlers Gorge Road

Location of acoustic recorder: GR 443596E 5320467N (GDA 94) Butlers Gorge Road near Lake King William (Figure 3)
Vegetation type: TASVEG 4.0 mapping unit *'Eucalyptus dalrympleana* forest (WDA)'
Acoustic recorder deployment period: 27 September – 27 October 2023; 8 December – 29 December 2023

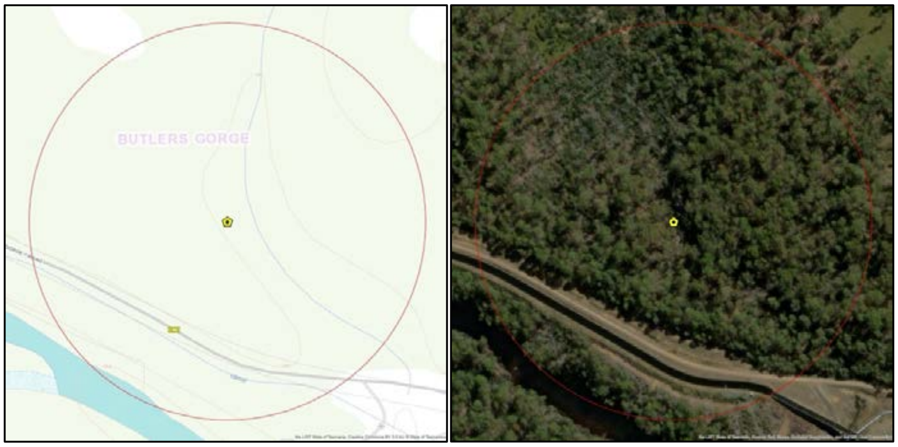

Figure 3. Satellite imagery and topographic detail within 200m (detection area) of the location of Butlers Gorge Road acoustic recorder. The site is in eucalypt forest between 650 and 670m asl on the western side of a drainage line running south to the Derwent River.

An acoustic recorder was deployed at Butlers Gorge Road for 52 nights (dusk to dawn) over the period 27 September - 29 December 2023. No masked owl screech calls were detected.
Based on the absence of masked owl calls over 52 nights (i.e. during spring and summer which is the typical breeding period for the masked owl) it was considered unlikely that masked owls used habitat in the vicinity of the Butlers Gorge Road acoustic recorder during the survey period. Hence, a more detailed on-ground survey for use of the site by masked owls was not considered warranted.

Acoustic Recorder Tarraleah 1

Location of acoustic recorder: GR 455522E 5316986N (GDA 94) near power station - in easement (Figure 4)

Vegetation type: TASVEG 4.0 mapping unit 'Permanent easement (FPE)' adjacent to *'Eucalyptus delegatensis* dry forest and woodland (DDE)'

Acoustic recorder deployment period: 27 September – 27 October 2023

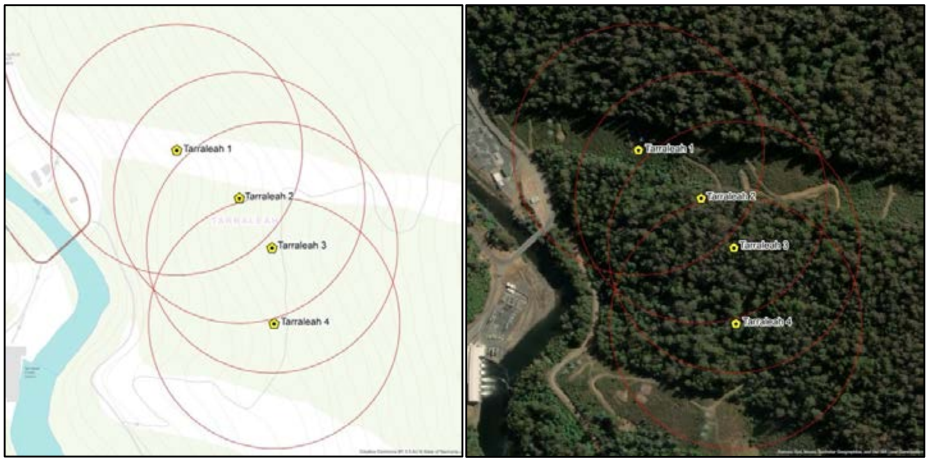

Figure 4. Satellite imagery and topographic detail within 200m (detection area) of Tarraleah 1-4 acoustic recorder locations. The broader site is in an easement and eucalypt forest between 370m and 510m asl on westerly facing slopes. The distance between acoustic recorder Tarraleah 1 and Tarraleah 4 was approximately 300m.

An acoustic recorder was deployed at Tarraleah 1 for 31 nights (dusk to dawn) over the period 27 September to 27 October 2023. Five masked owl screech calls were detected over three nights (2, 5 and 11 October 2023) (Figure 5). Four of the five calls were detected around dusk (Figure 6).

Based on a low frequency of calls during the recording period, a low nightly detection rate of 9.7% (i.e. 3 of 31 recording nights) and 4 of the 5 calls around dusk, it was considered possible that masked owls regularly used the Tarraleah 1 site. However overall, it was considered that further on ground assessment at Tarraleah 1 was not warranted.

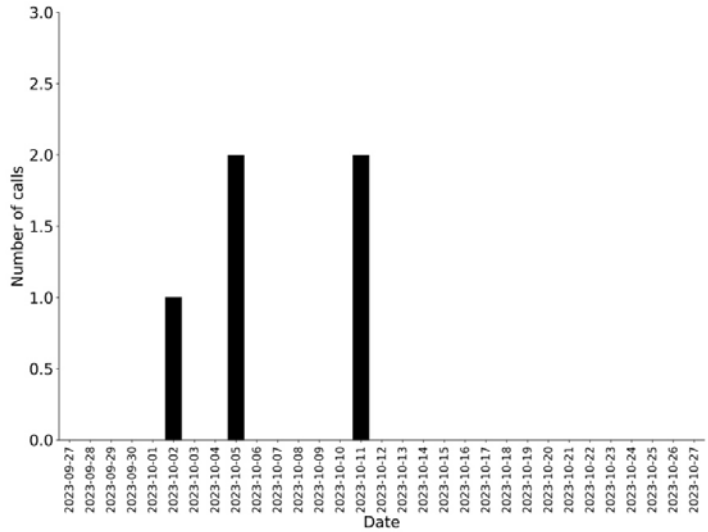

Figure 5. Frequency of masked owl call detections at Tarraleah 1 on a nightly basis (between dusk and dawn) over a 31-night deployment period between 27 September and 27 October 2023.

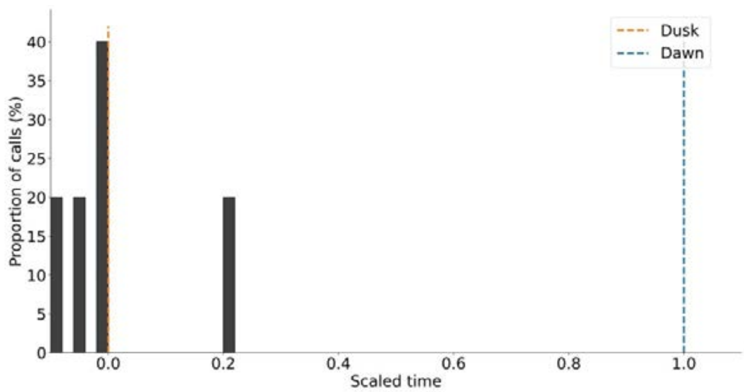

Figure 6. Timing of masked owl call detections between dusk and dawn at Tarraleah 1 on a nightly basis over a 31-night deployment period between 27 September and 27 October 2023.

Acoustic Recorder Tarraleah 2

Location of acoustic recorder: GR 455622E 5316909N (GDA 94) near power station in easement/forest edge (Figure 4)

Vegetation type: TASVEG 4.0 mapping unit *'Eucalyptus delegatensis* dry forest and woodland (DDE)'

Acoustic recorder deployment period: 8 November – 6 December 2023

An acoustic recorder was deployed at Tarraleah 2 for 28 nights (dusk to dawn) over the period 8 November to 6 December 2023. Four masked owl screech calls were detected over two nights (22 November and 3 December 2023) (Figure 7). Two of the four calls were detected around dusk (Figure 8). Based on a low frequency of calls, a low nightly detection rate of 7.1% (i.e. 2 of 28 recording nights) and 3 of the 4 calls around dusk, it was considered possible that masked owls regularly used Tarraleah 2. However overall, it was considered that further on ground assessment at Tarraleah 2 was not warranted.

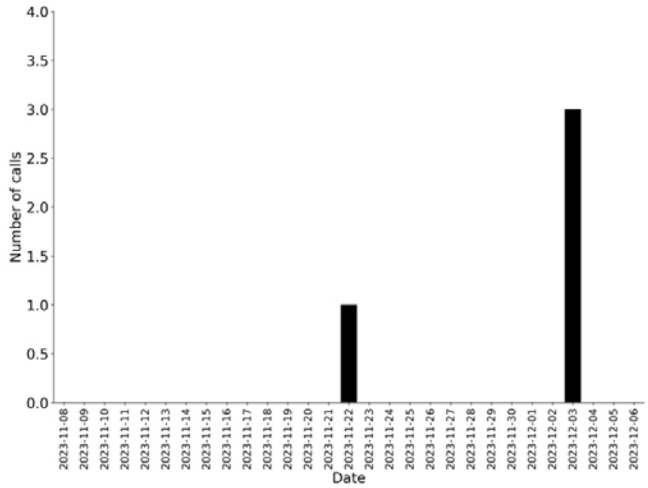

Figure 7. Frequency of masked owl call detections at Tarraleah 2 on a nightly basis (between dusk and dawn) over a 28-night deployment period between 8 November and 6 December 2023.

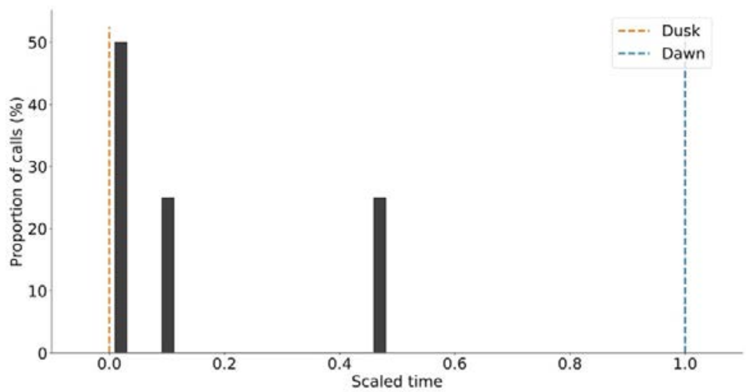

Figure 8. Timing of masked owl call detections between dusk and dawn at Tarraleah 2 on a nightly basis over a 28-night deployment period between 8 November and 6 December 2023.

Acoustic Recorder Tarraleah 3

Location of acoustic recorder: GR 455674E 5316830N (GDA 94) near power station - in forest (Figure 4)
Vegetation type: TASVEG 4.0 mapping unit *'Eucalyptus delegatensis* dry forest and woodland (DDE)'
Acoustic recorder deployment period: 8 December 2023 – 7 January 2024; 17 January – 20 February 2024

An acoustic recorder was deployed at Tarraleah 3 for 64 nights (dusk to dawn) over the period 8 December 2023 to 20 February 2024. Two masked owl screech calls were detected on one night (30 January 2024).

Based on a very low frequency of calls over the recording period, a very low nightly detection rate of 1.6% (i.e. 1 of 64 recording nights) it was considered unlikely that masked owls regularly used Tarraleah 3 during the period 8 December 2023 to 20 February 2024. Hence, a more detailed on-ground survey for use of Tarraleah 3 by masked owls was not considered warranted.

Acoustic Recorder Tarraleah 4

Location of acoustic recorder: GR 455677E 5316709N (GDA 94) near power station deeper in forest (Figure 4)

Vegetation type: TASVEG 4.0 mapping unit *'Eucalyptus delegatensis* forest with broad-leafed shrubs (WDB)'
Acoustic recorder deployment period: 20 February – 26 March 2024; 26 March – 9 May 2024; 9 – 17 May 2024
An acoustic recorder was deployed at Tarraleah 4 for 87 nights (dusk to dawn) over the period 20 February - 17 May 2024. Sixty-four (64) masked owl screech calls were detected over this period. There was no evidence of dusk or dawn calling by masked owls at Tarraleah 4 (Figures 10, 12 & 14). However, based on a high frequency of calls over the recording period and a high nightly detection rate of 24.1% (i.e. 21 of 87 recording nights) it was considered likely that masked owls regularly used Tarraleah 4 during the period 20 February to 17 May 2024 (Figures 9, 11 & 13). Hence, a more detailed on-ground survey for use of Tarraleah 4 by masked owls was warranted.

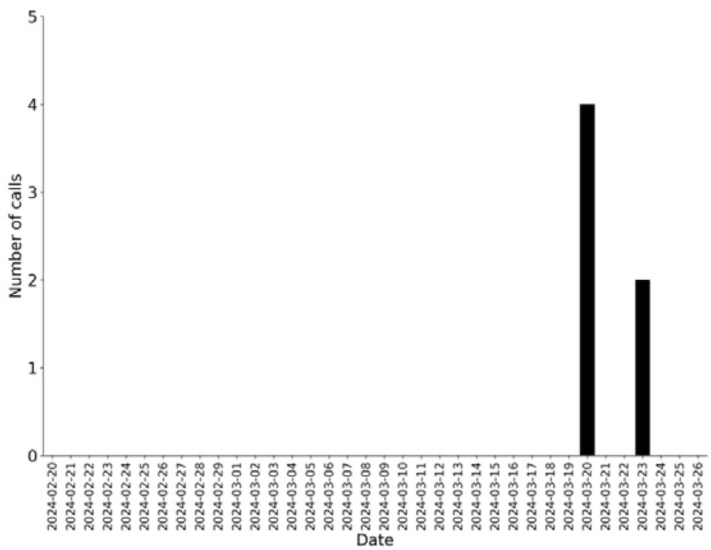

Figure 9. Frequency of masked owl call detections at Tarraleah 4 on a nightly basis (between dusk and dawn) over a 35-night deployment period between 20 February and 26 March 2024.

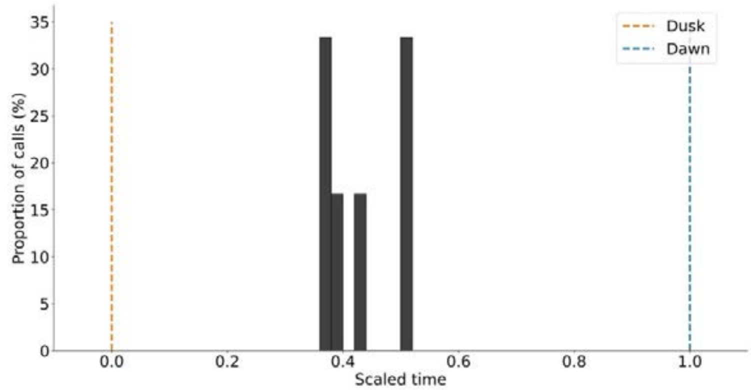

Figure 10. Timing of masked owl call detections between dusk and dawn at Tarraleah 4 on a nightly basis over a 35-night deployment period between 20 February and 26 March 2024.

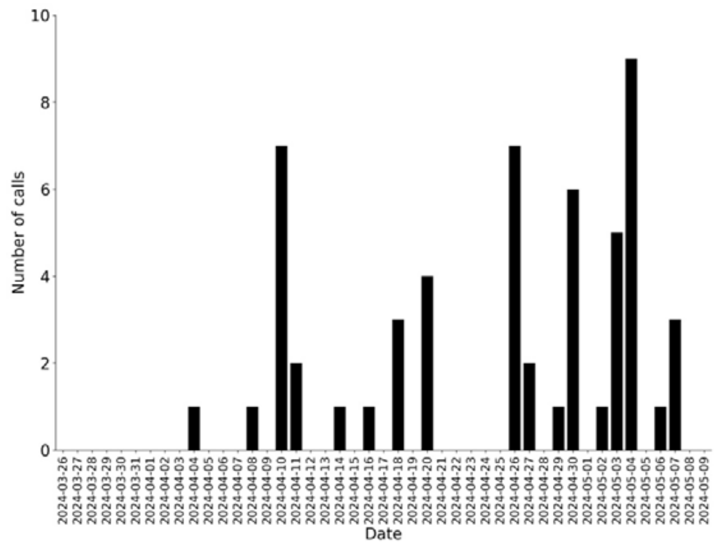

Figure 11. Frequency of masked owl call detections at Tarraleah 4 on a nightly basis (between dusk and dawn) over a 45-night deployment period between 26 March and 9 May 2024.

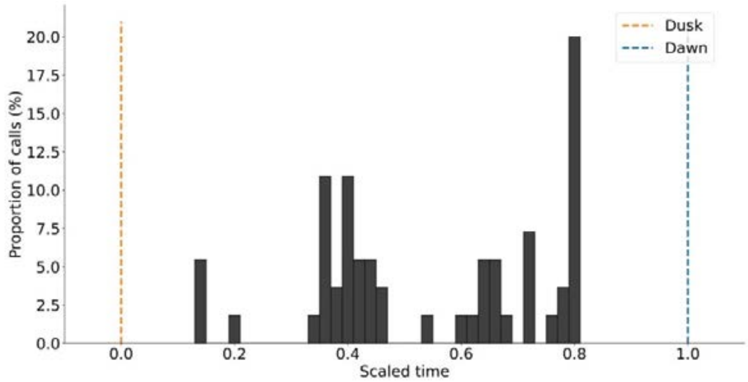

Figure 12. Timing of masked owl call detections between dusk and dawn at Tarraleah 4 on a nightly basis over a 45-night deployment period between 26 March and 9 May 2024.

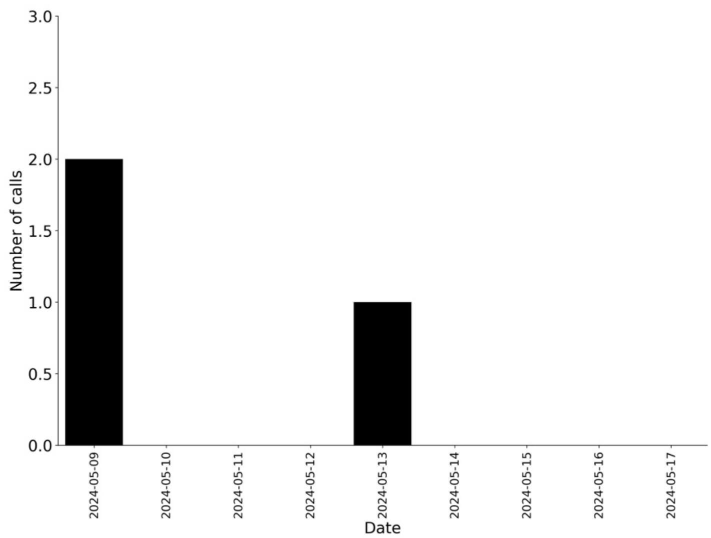

Figure 13. Frequency of masked owl call detections at Tarraleah 4 on a nightly basis (between dusk and dawn) over a 9-night deployment period between 9 and 17 May 2024.

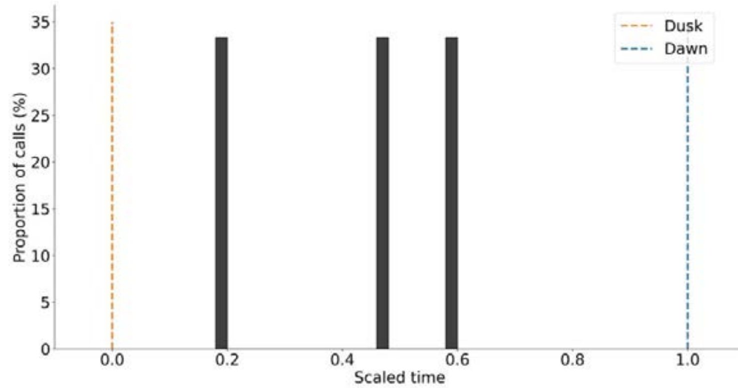

Figure 14. Timing of masked owl call detections between dusk and dawn at Tarraleah 4 on a nightly basis over a 9-night deployment period between 9 and 17 May 2024.

Acoustic Recorder Tarraleah 5

Location of acoustic recorder: GR 451012E 5315954N (GDA 94) across from proposed explosive magazine, on the access track to the canal which runs between Mossy Marsh Dam and No. 2 Pond north of Butlers Gorge Road (Figure 15)

Vegetation type: TASVEG 4.0 mapping unit *'Eucalyptus delegatensis* forest with broad-leafed shrubs (WDB)'

Acoustic recorder deployment period: 21 October-12 December 2024

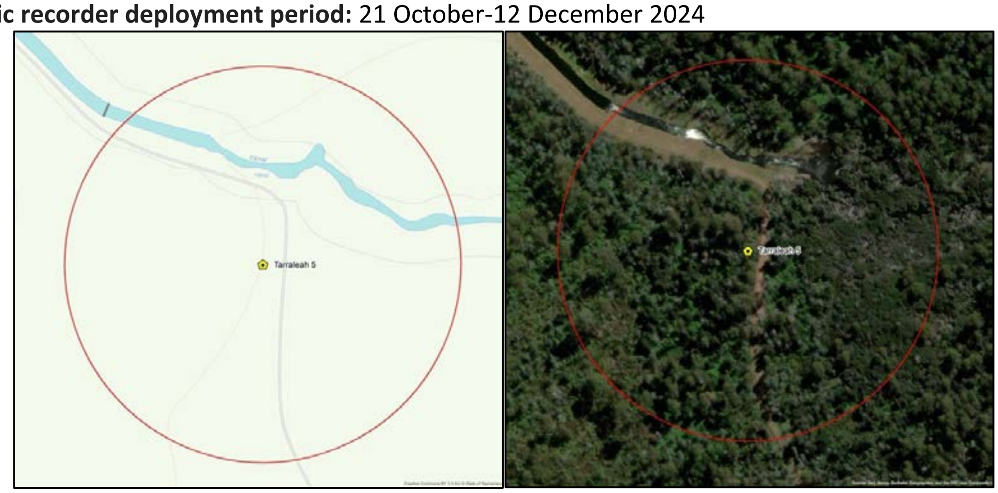

Figure 15. Satellite imagery and topographic detail within 200m (detection area) of Tarraleah 5 acoustic recorder location. The site is located at about 650 asl in native eucalypt forest.

An acoustic recorder was deployed at Tarraleah 5 for 53 nights (dusk to dawn) over the period 21 October-12 December 2024. One masked owl screech call was detected at 3:45 am on 2 November 2024. Based on a very low frequency of calls over the recording period, a very low nightly detection rate of 1.9% (i.e. 1 of 53 recording nights) it was considered unlikely that masked owls regularly used Tarraleah 5 during the period 21 October-12 December 2024. Hence, a more detailed on-ground survey for use of Tarraleah 5 by masked owls was not considered warranted.

Acoustic Recorder Tarraleah 6

Location of acoustic recorder: GR 452620E 5317135N (GDA 94) near proposed upstream portal, within the Tarraleah Conservation Area east of Fourteen Mile Road (Figure 16)

Vegetation type: TASVEG 4.0 mapping unit *'Eucalyptus delegatensis* forest with broad-leafed shrubs (WDB)'

Acoustic recorder deployment period: 21 October-12 December 2024

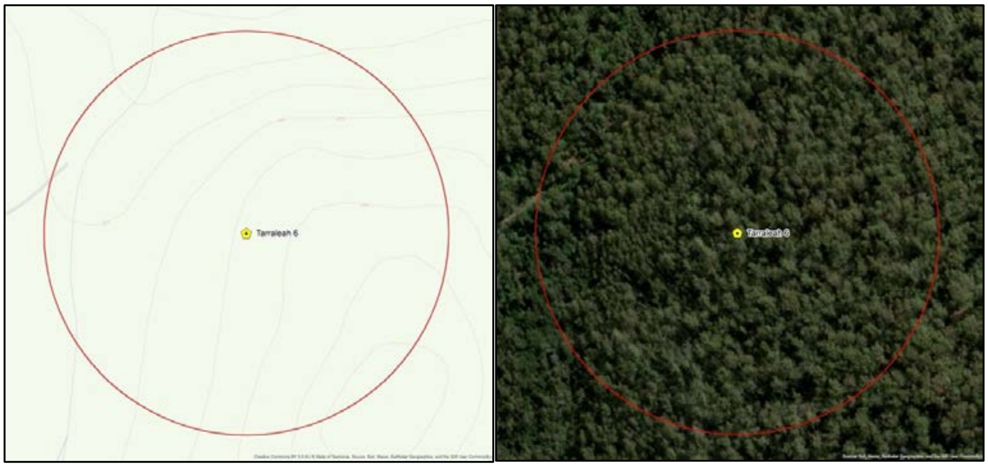

Figure 16. Satellite imagery and topographic detail within 200m of Tarraleah 6 acoustic recorder location. The site is located at about 650 asl in native eucalypt forest.

An acoustic recorder was deployed at Tarraleah 6 for 53 nights (dusk to dawn) over the period 21 October-12 December 2024. Seventeen (17) masked owl screech calls were detected over this period.

There was some evidence of dawn calling by masked owls at Tarraleah 6 (Figures 18) and a reasonably high frequency of calls over the recording period (Figure 17). However, the nightly detection rate was relatively low at 13% (i.e. 7 of 53 recording nights). Overall, the data suggested that masked owls regularly used Tarraleah 6 during the period 21 October-12 December 2024. Hence, a more detailed on-ground survey for use of Tarraleah 6 by masked owls was warranted.

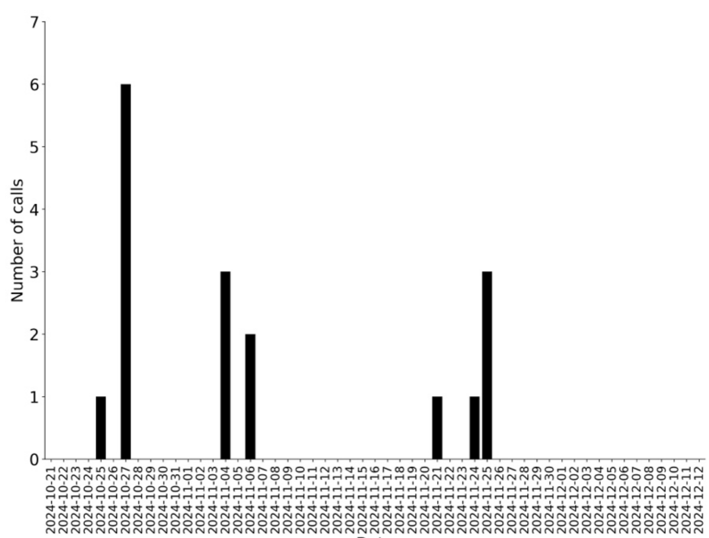

Figure 17. Frequency of masked owl call detections at Tarraleah 6 on a nightly basis (between dusk and dawn) over a 53-night deployment period between 21 October-12 December 2024.

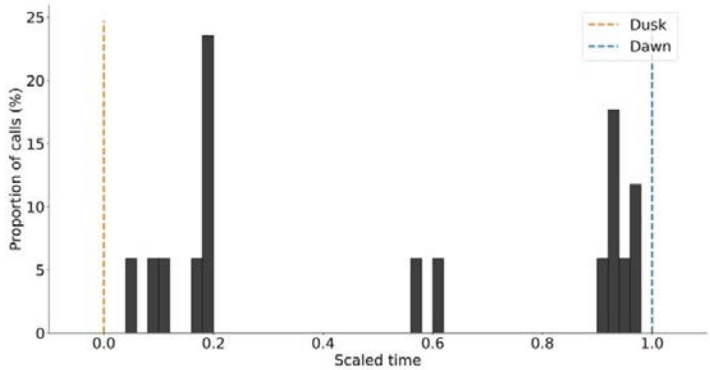

Figure 18. Timing of masked owl call detections between dusk and dawn at Tarraleah 6 on a nightly basis over a 53-night deployment period between 21 October-12 December 2024.

E.2.2 On-ground survey

Tarraleah 4

A more detailed on-ground survey was conducted at Tarraleah 4 on 22 September 2024 to search for trees with potential large hollows and other evidence of use by masked owls (e.g. pellets, whitewash, feathers), and to undertake a call playback survey during the evening.

The area within approximately 200m of acoustic recorder Tarraleah 4 was searched for large diameter trees (usually >1 m DBH) supporting potential large hollows (potential roost/nest trees). Figure 20 shows the search track in the vicinity of Tarraleah 4 and Figure 21 shows the location of trees supporting potential large hollows within the 200m radius of the acoustic recorder. Each tree location in Figure 21 is annotated with the approximate diameter of the tree.

The call playback survey (i.e. the broadcast of recorded masked owl calls in order to elicit a call or observable behavioural response from a resident masked owl) at site Tarraleah 4 on the night of 22 September 2024 failed to detect the species. Note however that the call playback survey was conducted on a windy evening and windy conditions are known to have a negative impact on the probability of detection of the Tasmanian masked owl.

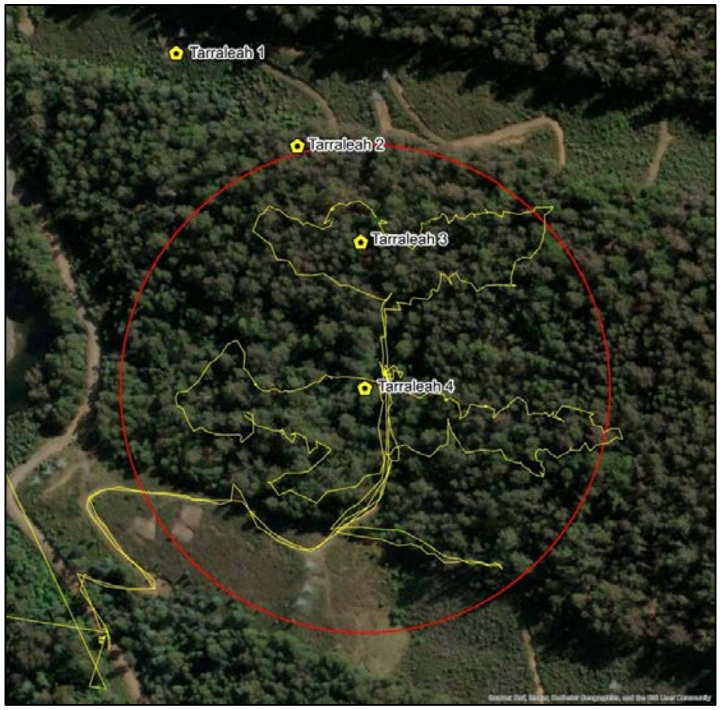

Figure 20. GPS track of search for trees supporting potential large hollows on 22 September 2024 within a 200m buffer of Tarraleah 4 (yellow closed hexagon = location of acoustic recorder; red open circle = 200m buffer around the acoustic recorder; yellow line = search track).

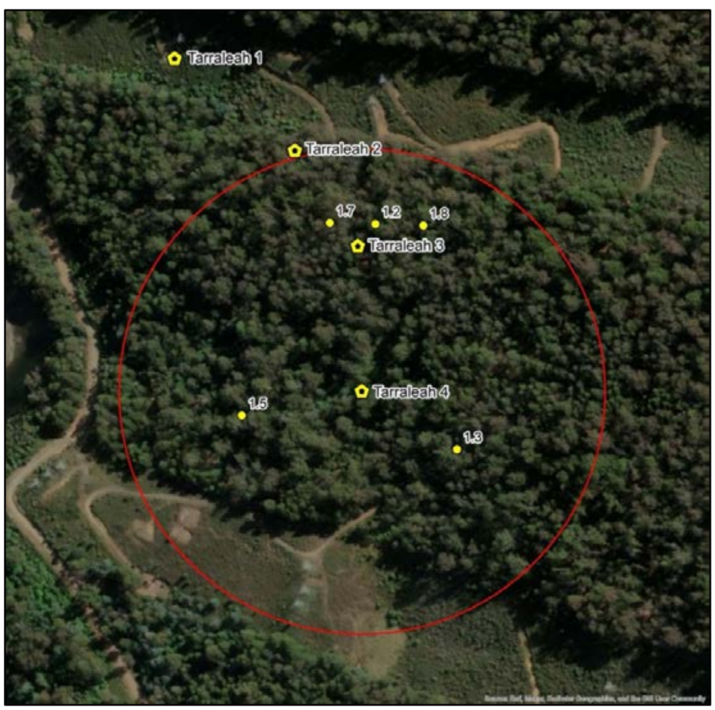

Figure 21. Location of trees with potential large hollows within a 200m buffer of Tarraleah 4 (yellow closed hexagon = location of acoustic recorder; yellow closed circles = large diameter trees annotated with approximate dbh (dbh expressed in metres); red open circle = 200m buffer around the acoustic recorder).

Tarraleah 6

A more detailed on-ground survey was conducted at Tarraleah 6 and south of Tarraleah 6 (within 150m of the approximate footprint of the proposed surge tower and access track) on 16 January 2025 to search for trees with potential large hollows and other evidence of use by masked owls (e.g. pellets, whitewash, feathers).

The area within approximately 200m of acoustic recorder Tarraleah 6 was searched for trees with potential large hollows (i.e. potential roost/nest trees). Figure 22 shows the search track in the vicinity of Tarraleah 6 and Figure 23 shows the search track within the vicinity of the proposed surge tower and access track. Much of the area within 200m of Tarraleah 6 and the proposed surge tower and access track area supported regrowth forest. No trees with potential large hollows were identified within either search area. Although the occasional large diameter tree was observed none showed the level of senescence necessary to support large hollows suitable for use by masked owls. A few large stags were observed though they were solid with little evidence of rot necessary for the development of large hollows.

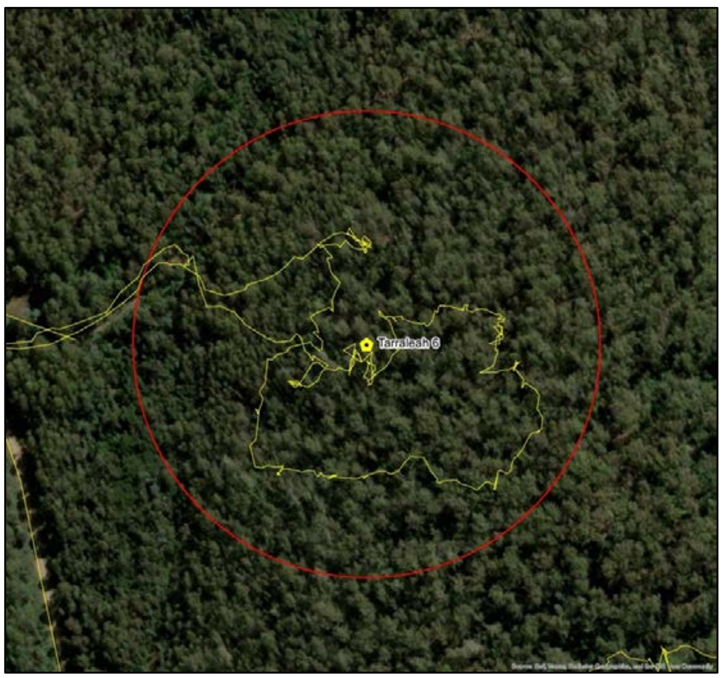

Figure 22. GPS track of search for trees supporting potential large hollows on 16 January 2025 within a 200m buffer of Tarraleah 6 (yellow closed hexagon = location of acoustic recorder Tarraleah 6; red open circle = 200m buffer around the acoustic recorder; yellow line = search track).

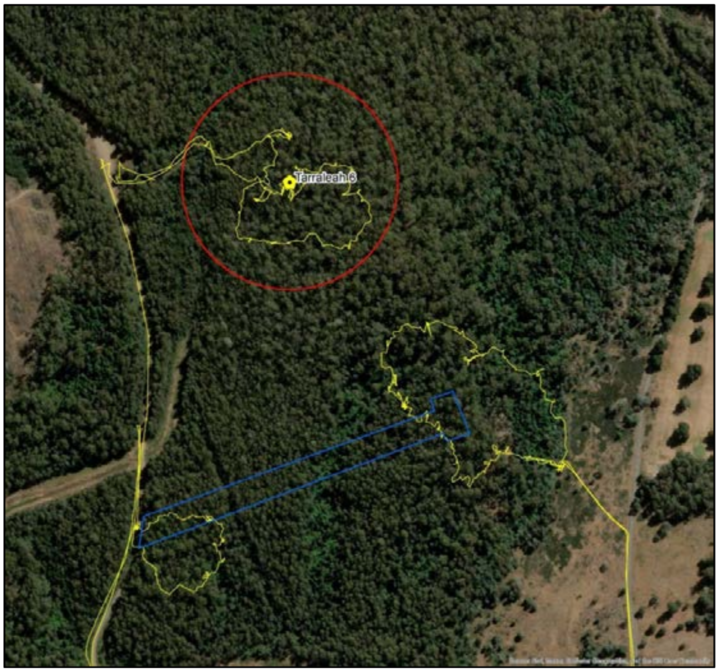

Figure 23. GPS track of search for trees supporting potential large hollows on 16 January 2025 within a 150m buffer of the approximate footprint of the proposed surge tower and access track south of Tarraleah Recorder 6 (yellow closed hexagon = location of acoustic recorder Tarraleah 6; red open circle = 200m buffer around acoustic recorder Tarraleah 6; yellow line = search track; blue line = approximate boundary of footprint of the proposed surge tower and access track).

E.3 Conclusions

Based on the results of acoustic monitoring at Tarraleah, it is considered unlikely masked owls regularly used the forest and/or tree hollows in the vicinity of the acoustic recorder at Butlers Gorge Road and Tarraleah 5.

There was evidence from acoustic monitoring that masked owls regularly used habitat in the vicinity of the acoustic recorder Tarraleah 4, though less so in the vicinity of acoustic recorders Tarraleah 1-3. However, detailed on-ground searching found only a few trees with potential large hollows at Tarraleah 4, none of which were considered to be suitable for use by masked owls. Further, the call playback survey undertaken at Tarraleah 4 failed to detect the species.

Although there was evidence from acoustic monitoring that masked owls regularly used habitat in the vicinity of the location of acoustic recorder Tarraleah 6, detailed on-ground searching found no trees with potential large hollows considered to be suitable for use by masked owls.

E.4 References

Todd, M.K., Kavanagh, R.P., Bell, P.J., and Munks, S.A. (2017) Calling behaviour of the Tasmanian Masked Owl *Tyto novaehollandiae castanops*. ***Australian Journal of Zoology*** 39: 1-15.

Gros, C., McNamara, K.K., Bell, P.J., and Webb, M.H. (2023) Detection of the endangered Tasmanian masked owl *Tyto novaehollandiae castanops* using passive acoustic monitoring. ***Corella*** 47: 56-64.

F EPBC Act Significant Impact Assessments

A proponent who proposes to take an action that will have or is likely to have a significant impact on Matter of National Environmental Significance (MNES) must refer that action to the Federal Environment Minister for assessment. The tables below detail Entura's significant impact assessment for each relevant MNES against the guidelines in the *EPBC Act Policy Statement 1.1* (DEWHA 2013), with each relevant significant impact criterion assessed.

F.1 Alpine *Sphagnum* Bogs and Associated Fens

Topic	Criteria	Assessment
EPBC Act status	Critically endangered	
Description and occurrence	Distribution and general habitat requirements	The Alpine *Sphagnum* Bogs and Associated Fens ecological community occurs across alpine, subalpine and montane landscapes of Tasmania, Victoria, New South Wales and the Australian Capital Territory in permanently wet areas, such as along streams, drainage lines, valley edges and valley floors (Department of the Environment, 2015a). In Tasmania, the ecological community is represented by the *Sphagnum* peatland vegetation community. This community mostly occurs on the Central Plateau and in the Mersey River catchment where it typically occurs in river valleys, on sandstone shelves with impeded drainage and sites adjacent to lakes and streams above 600 m elevation (Department of Natural Resources and Environment Tasmania, 2022).
	Ecology	*Sphagnum* peatland contains one or more species of *Sphagnum* moss (e.g. *Sphagnum cristatum*, *S. falcatulum*). (Department of Natural Resources and Environment Tasmania, 2022). *Sphagnum* peatlands characteristically are dominated by moss beds which can form large, rolling hummocks, and have an absence of trees. Low shrubs are commonly present.
	Occurrence within the Project site	There is a *Sphagnum* peatland community northwest of Mossy Marsh on the western bank of an unconfined channel that conveys water from the No. 2 Canal to Mossy Marsh Pond at an elevation of 660 mAHD. The *Sphagnum* peatland at Mossy Marsh Pond has an almost complete cover (90%) of *Sphagnum* moss interspersed sedges and shrubs. *Eucalyptus rodwayi* is present as a scattered overstorey tree. A formal vegetation condition assessment undertaken on 25 January 2024 using the Tasmanian Vegetation Condition Assessment (VCA) method (Michaels et. al., 2020), whereby all flora species were recorded within each of five random 0.25 ha *Sphagnum* peatland sample sites, determined that the patch had a high (77 out of 100) condition score.

Topic	Criteria	Assessment
Threats and recovery	Generally recognised threats to the species	The main threats to the Alpine *Sphagnum* Bogs and Associated Fens ecological community identified in the Recovery Plan (Department of the Environment, 2015a) are: • climate change • fire frequency and intensity • grazing and trampling by domestic stock • weed infestation • water infrastructure including aqueducts and hydro developments • high off-track recreation • peat and *Sphagnum* harvesting • timber harvesting • ground-water extraction.
	Recovery actions	Recovery actions identified in Department of the Environment (2015a) include: • Plan and manage the effects of fire on the ecological community. • Minimise the impacts of weeds (woody and nonwoody) on the ecological community. • Avoid and minimise the impacts from livestock on the ecological community. • Avoid and minimise impacts of infrastructure and development. • Avoid and minimise impacts of recreational activities. • Avoid impacts from resource use (e.g. *Sphagnum* and timber harvesting, groundwater extraction), and mitigate past impacts, where possible.
Impact description	• **There are potential indirect impacts on the *Sphagnum* peatland from hydrogeological changes initiated by the partial decommissioning of Canal No. 2 which may cause an alteration in the floristic composition of the vegetation community to the extent that it transitions into a different community.** • **Proposed tunnel excavation works may cause groundwater drawdowns in some of the surrounding areas; tunnel pressurisation during operation may lead to leakage of water through the joints and faults in the bedrock causing changes in floristic composition.**	
Significant impact assessment (EPBC Act Policy Statement 1.1, DEWHA 2013).	Reduce the extent of an ecological community	The hydrogeological assessment indicated that the groundwater conditions beneath the *Sphagnum* peatland are maintained by rainfall and not Canal No. 2. In addition, the peatland is not geologically connected to the tunnel to the extent that there will be an impact. Therefore, the action is **unlikely** to result in indirect impacts that would reduce the extent of *Sphagnum* peatland.
	Fragment or increase fragmentation of an ecological community, for	There **will be no** direct impacts (e.g. vegetation clearing) that will fragment the ecological community.

Topic	Criteria	Assessment
	example by clearing vegetation for roads or transmission lines	
	Adversely affect habitat critical to the survival of an ecological community	The hydrogeological assessment indicated that the groundwater conditions beneath the *Sphagnum* peatland are maintained by rainfall and not Canal No. 2. In addition, the peatland is not geologically connected to the tunnel to the extent that there will be an impact. Therefore, the action is **unlikely** to adversely affect habitat critical to the survival of the *Sphagnum* peatland.
	Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns	The hydrogeological assessment indicated that the groundwater conditions beneath the *Sphagnum* peatland are maintained by rainfall and not Canal No. 2. In addition, the peatland is not geologically connected to the tunnel to the extent that there will be an impact. Therefore, the action is unlikely to modify or reduce groundwater levels, or substantial alter surface water drainage patterns that would impact the *Sphagnum* peatland. However, due to uncertainty surrounding the understanding of the groundwater dynamics and the magnitude of the potential impact on the *Sphagnum* peatland, a precautionary approach has been taken in considering that this threatened ecological community is **likely** to be significantly impacted by the Project.
	Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	The hydrogeological assessment indicated that the groundwater conditions beneath the *Sphagnum* peatland are maintained by rainfall and not Canal No. 2. In addition, the peatland is not geologically connected to the tunnel to the extent that there will be an impact. Therefore, the proposed action is unlikely to cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species. However, due to uncertainty surrounding the understanding of the groundwater dynamics and the magnitude of the potential impact on the *Sphagnum* peatland, a precautionary approach has been taken in considering that this threatened ecological community is **likely** to be significantly impacted by the Project.
	Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, by assisting invasive species, that are harmful to the listed ecological community, to become established	The implementation of hygiene measures to prevent the introduction of weeds and diseases means that the Project is **unlikely** to introduce harmful or invasive species that would affect the *Sphagnum* peatland. Noting that the peatland is not within the disturbance footprint and will not be directly impacted by the Project.

Topic	Criteria	Assessment
	Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community by causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community	The Project **will not** introduce fertilisers, herbicides or other chemicals or pollutants into the ecological community. The mid-tunnel portal is over 1.5 km to the northwest of the *Sphagnum* peatland. Any process water that includes nitrates produced by construction blasting will be intercepted by erosion and sediment control measures on-site and disposed of via No. 2 Canal which flows past the *Sphagnum* peatland however, the level of nitrate will be only marginally higher than current levels. The canal is lower than the *Sphagnum* peatland, and therefore in most conditions any nitrate-loaded water will flow past the peatland and is unlikely to affect the peatland.
	Will the action interfere substantially with the recovery of the ecological community	The hydrogeological assessment indicated that the groundwater conditions beneath the *Sphagnum* peatland are maintained by rainfall and not Canal No. 2. In addition, the peatland is not geologically connected to the tunnel to the extent that there will be an impact. Therefore, the proposed action is **unlikely** to interfere substantially with the recovery of the ecological community.
Conclusion	**The proposed action may have a significant impact on the Alpine *Sphagnum* Bogs and Associated Fens ecological community (i.e. the *Sphagnum* peatland vegetation community), despite the hydrogeological assessment's indication that impacts are unlikely. However, because of uncertainty surrounding the understanding of the groundwater dynamics and the magnitude of the potential impact on the *Sphagnum* peatland, a precautionary approach is taken in considering that this threatened ecological community may be significantly impacted by the Project.**	

F.2 Tasmanian devil (*Sarcophilus harrisii*)

Topic	Criteria	Assessment
EPBC Act status		Endangered
Life history and occurrence	Distribution and general habitat requirements	Occurs in forests, woodland and agricultural areas across Tasmania (DEWHA 2009). Preferred habitat for the Tasmanian devil includes open forests and woodlands and they are less commonly found in tall or dense wet forests (DEWHA, 2009). Devils are not territorial, but they have home ranges of 400 to 2,670 ha with a mean home range of 1,330 ha (Pemberton 1990). Home ranges also overlap (Pemberton, 1990). Dens are typically underground burrows (such as old wombat burrows) in dense riparian vegetation, thick grass tussocks and caves (Environment Strategic Business Unit, 2023). Potential denning habitat for the Tasmanian devil includes areas of well-drained soil, log piles or sheltered overhangs such as cliffs, rocky outcrops or rock piles, knolls, caves and earth banks, free from risk of inundation and with at least one entrance through which a devil could pass (FPA, 2025). Within plantations, windrow piles can offer potential denning habitat. Windrows comprised of large diameter debris (e.g. the stumps and logs from an original native forest conversion) are more likely to be stable and long-lasting in the landscape, and can be considered to be high-quality potential denning habitat (FPA, 2025). Tasmanian devil dens are notoriously difficult to confirm without the assistance of tracking technology (e.g. remote camera, hair capture trap, radio/GPS tracking etc) and so all refuges with an entrance size big enough for a devil or quoll to pass through can be considered suitable (FPA, 2025).
	Ecology	Devils are primarily a nocturnal species. They will emerge during the day to sunbathe or forage for food, but mostly rest in hollow logs, caves, dense vegetation, dens or burrows. Young devils are more likely to be active during the day but are generally crepuscular (active around dawn and dusk). Devils are mostly solitary and do not defend territories. Devils habitually use latrines as a means of communication with other devils that overlap with their home range (DPIPWE, 2013).
	Occurrence within the Project site	There are 67 NVA records of the Tasmanian devil within 5 km of the disturbance footprints, of which 32 records are carcass observations on the Lyell Highway and Fourteen Mile Road. There are three roadkill records on Butlers Gorge Road from June 2024, January 2025 and September 2025 (Hydro Tasmania data). During the camera trap monitoring program at the Tarraleah Golf Course targeting eastern barred bandicoots, Tasmanian devils were detected on three occasions: in December 2023, February 2024, and in March 2024. During the camera trap monitoring program targeting game trails within the

Topic	Criteria	Assessment
		mature dry eucalypt forests within the disturbance footprint, there were 18 Tasmanian devil detection events at 8 camera sites. Eight of these devil detection events were by the 3 cameras deployed in *Eucalyptus tasmaniensis* dry forest and woodland (DDE) within the northern transmission line option disturbance footprint; two were in this forest type within the Tarraleah Village disturbance footprint. Two of these detection events were from a camera deployed within *Eucalyptus amygdalina* forest and woodland on dolerite (DAD) within the southern transmission line option disturbance footprint. Six of these detection events by 3 cameras deployed within the *Eucalyptus dalrympleana - Eucalyptus pauciflora* forest and woodland (DDP) within the western portal and pipeline disturbance footprints. There is suitable foraging habitat within the survey area; no dens were recorded during surveys. Of all of the suitable mature eucalypt forest in the disturbance footprint, one area (less than 1 ha in extent) of mature *Eucalyptus tasmaniensis* forest with broad-leaf shrubs within the surge tower footprint were classified as having "high" availability of mature habitat features (i.e., contained at least 8 trees over 100 cm diameter at breast height per hectare).
Threats and recovery	Generally recognised threats to the species	The main identified threats are Devil Facial Tumour Disease (DFTD) and roadkill. DFTD has caused a significant decline (up to 80%) in devil populations (Cunningham et. al 2021). Roadkill is a major cause of mortality for Tasmanian devils because they feed on carcasses from roads.
	Recovery actions	The main recovery actions for the species include: • reducing the spread of DFTD (e.g. by moving devils, dead or alive). • avoid the destruction of dens or potential denning habitat. • avoid disturbance at maternal dens. • reduce roadkill mortality.
Impact description	• **Approximately 140.0 ha of native forest and scrubland is within the disturbance footprint excluding the transmission line, which will cause a loss of foraging habitat if cleared.** • **The up to 92.2 ha of mature (i.e. not harvested for timber in recent decades) eucalypt forest within the total disturbance footprint may contain suitable Tasmanian devil denning features, although no suitable denning features were found (all wombat burrows within the disturbance footprint appeared to be occupied by wombats or not recently used by any species).** • **Construction could result in an increase in noise and vibration and night-time lighting disturbing breeding in a maternal den if one occurs within 50 m of the works.** • **Construction activities, particularly night-time lighting, vibrations and noise associated with the 24/7 underground works, may interfere with typical devil foraging behaviour at the localised construction site during the construction period, whereby devils and/or prey species may avoid these sites. The avoidance**	

Topic	Criteria	Assessment
	of these sites is unlikely to materially reduce prey availability or foraging success given that the species is highly mobile. • **The Project will also result in an increase of 10% or more in night-time traffic volume (i.e. vehicle movements) on transport routes associated with construction works during construction, which could result in an increase in roadkill mortalities.**	
Significant impact assessment (EPBC Act Policy Statement 1.1, DEWHA 2013).	Lead to a long-term decrease in the size of a population	Roadkill has been identified as a threatening process for the Tasmanian devil. Increased road mortality of devils during the construction phase of the Project could potentially lead to a long-term decrease in the size of the devil population. However, roadkill mitigation measures will be implemented which will mean that the Project is **unlikely** to lead to a long-term decrease in the size of a population of the Tasmanian devil.
	Reduce the area of occupancy of the species	The loss of up to **92.2 ha** of mature eucalypt forest within the disturbance footprint (including transmission line) which may contain den sites and denning habitat may reduce the area of occupancy. However, this reduction in area of occupancy is not significant given that it represents 0.18 of one percent of the area of occupancy of the species, which is estimated to be 64,000 km^2. Within the disturbance footprint, there are •places where devils could hide and shelter during the day, particularly in the form of dense vegetation •areas of native vegetation with a mosaic of open and closed understorey that would provide hunting opportunities to Tasmanian devils •adequate sources of food for Tasmanian devils including macropod species such as the Tasmanian pademelon. However, surveys did not record features associated with suitability for maternal denning. The wombat burrows recorded within the disturbance footprint or within 50 m of the disturbance footprint all appeared to either be unused by any species (e.g. due to vegetation growing within the burrow entrance or a mass of spiderwebs across the entrance) or to be in use by wombats (e.g. due to piles of fresh wombat scat being recorded within 5m of the burrow entrance).
	Fragment an existing population into two or more populations	The clearing of up to **140.0ha** of native forest and scrubland is **unlikely** to fragment an existing population into two or more populations. The vegetation clearance will remove an area of native habitat but not to the extent that it will provide a landscape barrier to the movement of Tasmanian devils. They will still be able to move around the storage and in the broader landscape; devils are known to occupy modified areas. Devils may use power line easements as preferred movement corridors (Andersen et al., 2017).

Topic	Criteria	Assessment
	Adversely affect habitat critical to the survival of a species	The Tasmanian Forest Practices Authority's Fauna Technical Note No. 10: Identifying devil and quoll habitat (2025) states that '"Significant habitat for the Tasmanian devil is a patch of potential denning habitat where a 'cluster' of three or more entrances (large enough for a devil to pass through) occur within 100 m of each other and where no other clusters may be found within a 1 km radius (i.e. an isolated cluster). These are given the highest priority for protection because (a) there is the potential for multiple individuals to be breeding there, so disturbance could have a particularly high local impact and (b) these features would imply that denning habitat is limited in the area, and its loss would be most likely to exert a high long term impact on the local population."' No significant habitat, as defined by this technical note, was found, nor were any devil dens identified was found within the disturbance footprint. The survey guidelines for the Tasmanian devil (Environment Strategic Business Unit, 2023) state that "Essential habitat for devils includes: •Places to hide and shelter during the day, such as dense vegetation, hollow logs, burrows, or caves, •Native vegetation with a mosaic of open and closed understory which provides hunting opportunities, •Suitable maternal denning areas with one or a combination of well-drained soil types suitable for burrows, sheltered overhangs such as cliffs, rocky outcrops, knolls, caves and earth banks, and log piles with at least one entrance through which a devil could pass, and •An adequate prey base or source of food. For devils, the combination of these features within the area is more important than the presence of any particular vegetation community." Within the disturbance footprint, there are •places where devils could hide and shelter during the day, particularly in the form of dense vegetation •areas of native vegetation with a mosaic of open and closed understorey that would provide hunting opportunities to Tasmanian devils •adequate sources of food for Tasmanian devils including macropod species such as the Tasmanian pademelon. However, surveys did not record features associated with suitability for maternal denning. The wombat burrows recorded within the disturbance footprint or within 50 m of the disturbance footprint all appeared to either be unused by any species (e.g. due to vegetation growing within the burrow entrance or a mass of spiderwebs across the entrance) or to be in use by wombats (e.g. due to piles of fresh wombat scat being recorded within 5m of the burrow entrance).

Topic	Criteria	Assessment
		Denning habitat is critical to the survival of the Tasmanian devil. The clearance of up to **92.2 ha** of mature eucalypt forest may result in the loss of denning features, although no suitable denning features were found (all wombat burrows within the disturbance footprint appeared to be occupied by wombats or unused by any species).. However, den surveys will be undertaken prior to vegetation and any dens found in accordance with the guidelines for den survey and management (Environment Strategic Business Unit, 2023). Therefore, the action is unlikely to adversely affect habitat critical to the survival of the species due to the implementation of the den management protocol. If loss of denning habitat occurs, the scape of the loss is unlikely adversely affect the Tasmanian devil due to their large territory sizes and wide-ranging nature.
	Disrupt the breeding cycle of a population	The clearance of up to **92.2 ha** of mature eucalypt forest may result in the loss of denning features, although no suitable denning features were found (all wombat burrows within the disturbance footprint appeared to be occupied by wombats or unused by any species). Of all of the suitable mature eucalypt forest in the disturbance footprint, one areas (less than 1 ha in extent) of mature *Eucalyptus tasmaniensis* forest with broad-leaf shrubs within the surge tower footprint were classified as having “high” availability of mature habitat features (i.e., contained at least 8 trees over 100 cm diameter at breast height per hectare). Construction could also result in an increase in light, noise and vibration disturbing breeding in maternal dens. Both activities **could** disrupt the breeding cycle of up to one individual female given the size of a female home range (400 to 2,670 ha) (Pemberton, 1990). However, den surveys will be undertaken prior to vegetation and any dens found in accordance with the guidelines for den survey and management (Environment Strategic Business Unit, 2023). Therefore, the action is unlikely to disrupt the breeding cycle of an individual female devil or the local population in the Central Highlands area.
	Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The clearing of up to **140.0 ha** of potentially suitable native vegetation foraging habitat (forest and scrub) is **unlikely** to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline given that the loss of habitat would only cause the partial loss of a home range (between 5% and 36% of an individual home range). Noting that Tasmanian devil ranges can overlap and therefore any devils whose home range is partially affected could be absorbed in the surrounding area.
	Result in invasive species that are harmful to a	Feral cats are already present in the Tarraleah area and there were three camera trap detections of cats within the

Topic	Criteria	Assessment
	critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.	survey area on the Tarraleah Golf Course and 14 detections in the mature dry forests within the disturbance footprint. Therefore, the feral cat population dynamics are unlikely to be affected by the construction and operation of the Project; therefore, the Project is **unlikely** to result in the introduction of harmful or invasive species.
	Introduce disease that may cause the species to decline	Devil Facial Tumour Disease observations has been present in the Central Highlands since 2017 (Woods et al., 2018). Therefore, any activities associated with the Project **will not** increase the risk of spread of the disease given that it is endemic to the area. Further, toxoplasmosis is vectored by the pathogen *Toxoplasma gondii* which is present in the faeces of infected cats (Fancourt et al., 2014). Reasonably high seroprevalence of toxoplasmosis has been recorded in Tasmanian devils (Hollings et al., 2013), but with no confirmed cases of clinical toxoplasmosis. While high seroprevalence in larger marsupial carnivores indicates they are highly susceptible to *T. gondii* infection, they are evidently less likely to succumb to acute disease than other marsupial guilds (Fancourt et al., 2014). Feral cats are already abundant in northern Tasmania, and their population dynamics are unlikely to be affected by the construction and operation of the Project.
	Will the action interfere substantially with the recovery of the species	The clearing of up to **140.0ha** of potentially suitable native vegetation foraging habitat (forest and scrub) is **unlikely** to interfere substantially with the recovery of the species as it will only impact partially on the home ranges of the species. No potential denning features were found within the disturbance footprint other than wombat burrows, but these appeared to be inhabited by wombats or unused by any species. Of all of the mature eucalypt forest in the disturbance footprint, one area (less than 1 ha in extent) of mature *Eucalyptus tasmaniensis* forest with broad-leaf shrubs within the surge tower footprint were classified as having "high" availability of mature habitat features (i.e., contained at least 8 trees over 100 cm diameter at breast height per hectare). Den surveys will be undertaken prior to vegetation clearing and any dens found will be managed in accordance with the guidelines for den survey and management (Environment Strategic Business Unit, 2023). Also, the implementation of mitigation measures to prevent roadkill (e.g. vehicle speed limits, minimising night-time movements) means that the action is unlikely to interfere substantially with the recovery of the species.
Conclusion	**The proposed action is unlikely to have a significant impact on the Tasmanian devil because of the implementation of a pre-construction den survey and management protocol and the implementation of mitigation measures to minimise roadkill. The anticipated habitat loss is unlikely to substantially impact one home range.**	

F.3 Spotted-tailed quoll – Tasmanian population (*Dasyurus maculatus maculatus*)

Topic	Criteria	Assessment
EPBC Act status	Vulnerable	
Life history and occurrence	Distribution and general habitat requirements	A medium-sized carnivorous marsupial that occurs at low densities across Tasmania in wet forests and coastal habitats. Den sites can include rock crevices, hollow logs, windrows, clumps of vegetation, caves, boulder tumbles, under buildings, and burrows (DELWP, 2016). Significant habitat is all potential denning habitat within the core range (FPA, 2025). Spotted-tailed quolls appear to be opportunistic in their den selection (though maternal dens are likely to be selected from the highest quality den sites), so any potential denning habitat retained for Tasmanian devils should suffice for spotted-tailed quolls in most cases (FPA, 2025). Within plantations, windrow piles can offer potential denning habitat. Windrows comprised of large diameter debris (e.g. the stumps and logs from an original native forest conversion) are more likely to be stable and long-lasting in the landscape, and can be considered to be high-quality potential denning habitat (FPA, 2025). Potential denning habitat for the spotted-tailed quoll includes 1) any forest remnant (>0.5ha) in a cleared landscape that is structurally complex (high canopy, with dense understorey and ground vegetation cover), free from the risk of inundation, or 2) a rock outcrop, rock crevice, rock pile, burrow with a small entrance, hollow logs, large piles of coarse woody debris and caves (FPA, 2025). Spotted-tailed quoll dens are notoriously difficult to confirm without the assistance of tracking technology (e.g. remote camera, hair capture trap, radio/GPS tracking etc) and so all refuges with an entrance size big enough for a devil or quoll to pass through can be considered suitable (FPA, 2025).
	Ecology	Adults are solitary and occupy large home ranges. Female home ranges vary in size between 191 to 470 ha, whilst male home ranges are larger between 359 and 5,512 ha in area (Troy, 2014). Both female and male home ranges overlap (DELWP, 2016). Spotted-tailed quolls are nocturnal hunting on the ground and in trees. They take a wide variety of prey including mammals, birds, reptiles and invertebrates, although medium-sized mammals form the bulk of the diet (DELWP, 2016). They are also known to scavenge on carcasses (DELWP, 2016).
	Occurrence within the Project site	There are nine records within 5 km of the disturbance footprints. Six of these records are historic (pre-1957) and three are more recent: 1985 and 2014. There is one roadkill record on Butlers Gorge Road from June 2025 (Hydro Tasmania data). During the camera trap monitoring program targeting game trails within the mature dry eucalypt forests within the disturbance footprint, there

Topic	Criteria	Assessment
		were 5 spotted-tailed quoll detection events at 3 different camera sites. Two of these detection events were by 2 of the cameras deployed in *Eucalyptus tasmaniensis* dry forest and woodland (DDE) within the northern transmission line option disturbance footprint; 3 were in this forest type within the Tarraleah Village disturbance footprint. Within the survey area, there is wet and dry eucalypt forest that is potentially suitable foraging habitat. No dens were found during surveys. Of all of the suitable mature eucalypt forest in the disturbance footprint, one area (less than 1 ha in extent) of mature *Eucalyptus tasmaniensis* forest with broad-leaf shrubs within the surge tower footprint were classified as having "high" availability of mature habitat features (i.e., contained at least 8 trees over 100 cm diameter at breast height per hectare).
Threats and recovery	Generally recognised threats to the species	The main identified threats are habitat clearance and fragmentation, roadkill mortality and competition with introduced predators such as feral cats (DELWP, 2016). The threat of the disease toxoplasmosis, caused by the intestinal parasite of cats - the protozoan *Toxoplasma gondii*, to this species is not well understood but is common in marsupials as both a subclinical infection and an overt disease. Quolls may contract the disease through exposure to cat faeces, food or water that has been contaminated by cat faeces, or through eating the flesh of animals that contain the parasite. Toxoplasmosis-associated neurological effects may cause quolls to be more susceptible to predation and motor vehicles strike (Fancourt, 2010).
	Recovery actions	The main recovery actions for the species include: • reduce the rate of habitat loss and fragmentation • manage the threat posed by introduced predators (e.g. feral cats) • reduce the frequency of road mortality.
Impact description	• **Approximately 140.0ha of native forest and scrubland is within the disturbance footprint excluding the transmission line, which will cause a loss of foraging habitat if cleared.** • **The up to 92.2 ha of mature (i.e. not harvested for timber in recent decades) eucalypt forest within the total disturbance footprint may contain suitable spotted-tailed quoll denning features, although no potential denning features were found within the disturbance footprint other than wombat burrows; wombat burrows within the disturbance footprint appeared to be inhabited by wombats or not recently used by any species. Of all of the suitable mature eucalypt forest in the disturbance footprint, one area (less than 1 ha in extent) of mature *Eucalyptus tasmaniensis* forest with broad-leaf shrubs within the surge tower footprint were classified as having "high" availability of mature habitat features (i.e., contained at least 8 trees over 100 cm diameter at breast height per hectare).**	

Topic	Criteria	Assessment
	• **Construction could result in an increase in noise and vibration and night-time lighting disturbing breeding in a maternal den if one occurs within 50 m of the works.** • **Construction activities, particularly night-time lighting, vibrations and noise associated with the 24/7 underground works, may interfere with quoll foraging behaviour at the localised construction site during the construction period, whereby quolls and/or prey species may avoid these sites.** • **The Project will also result in an increase of 10% or more in night-time traffic volume (i.e. vehicle movements) on transport routes associated with construction works during construction, which could result in an increase in roadkill mortalities.**	
Significant impact assessment (EPBC Act Policy Statement 1.1, DEWHA 2013).	Important population	There is a national recovery plan for the spotted-tailed quoll (DELWP, 2016) which identifies important populations for the species. Populations may be classified as being of importance to the long-term survival and recovery of the species if they are stronghold populations within a region (i.e. areas of high abundance), and that have been the focus of long-term research and have good baseline data available that will increase the understanding of the species' ecology (DELWP, 2016). Important populations in Tasmania include: • Freycinet National Park research population • Central-north Tasmania (including Great Western Tiers to Narawntapu) stronghold & research population • Cradle Mountain National Park stronghold & research population • Far northwestern Tasmania (including the Smithton and Marrawah regions) stronghold & research population • Takone to Upper Natone (south-south west of Burnie) stronghold & research population • Eastern Tiers/northern Midlands (including Nugent and Ross regions) stronghold population • Southern forests/South Coast (including the Hastings region) stronghold population • Gordon River system stronghold population • South-west Cape stronghold population. However, the area around Tarraleah has **not been identified** as an area with an important population of the spotted-tailed quoll (DELWP, 2016).
Conclusion	**The proposed action is unlikely to have a significant impact on the spotted-tailed quoll because it will not affect an important population as defined in the *Spotted-tailed quoll Recovery Plan* (DEWLP, 2016). Furthermore, pre-construction den surveys and implementation of a roadkill management plan will mitigate anticipated Project impacts. The anticipated habitat loss is unlikely to substantially impact one home range.**	

F.4 Eastern quoll (*Dasyurus viverrinus*)

Topic	Criteria	Assessment
EPBC Act status	**Endangered**	
Life history and occurrence	Distribution and general habitat requirements	A small carnivorous marsupial which is widespread in Tasmania although appears to be less common in the wetter west of the State (Threatened Species Scientific Committee, 2015). The species is found in a '*range of vegetation types including open grassland (including farmland), tussock grassland, grassy woodland, dry eucalypt forest, coastal scrub and alpine heathland, but is typically absent from large tracts of wet eucalypt forest and rainforest*' (Threatened Species Scientific Committee, 2015).
	Ecology	The eastern quoll is nocturnal and only occasionally forages during daylight hours. It is an opportunistic carnivore that takes live prey and scavenges. Dens are made under rocks, in underground burrows or fallen logs (Threatened Species Scientific Committee, 2015). The area of occupancy for the eastern quoll has been estimated to be 2,300 and 2,500 km^2 (Threatened Species Scientific Committee, 2015). The species is not territorial and home ranges overlap. The average home range size has been recorded as 44 ha for male eastern quolls and 35 ha for females (Godsell 1983).
	Occurrence within the Project site	There are 20 records on the NVA within 5 km of the disturbance footprints with the most recent NVA record being from March 2023 which was a carcass observation on the Lyell Highway north of the intersection with Wayatinah Road at the end of the southern transmission line option. There is also a more recent roadkill record from January 2025 on Butlers Gorge Road (Hydro Tasmania data). There is no potentially suitable habitat in the form of tussock grassland and grassy woodland forest within the survey area. However, there is shrubby dry forest within the disturbance footprint which is not suitable habitat due to their dense shrubby understorey (Jones and Barmuta, 2000). No dens were recorded during the surveys and no images of the species were captured at the golf course camera trap monitoring site over 1,163 camera trap days and nights nor during the mature dry forest camera trap survey over 1,318 camera trapping nights. **Unlikely to be resident** within the survey area but may occur in low density on occasion, particularly moving along anthropogenic linear features such as roads and easements. For example, at the Liapootah end of the southern transmission linen option where there are open grasslands in the vicinity of the Wayatinah Village.
Threats and recovery	Generally recognised threats to the species	Identified threats to the species include predation by feral cats and climate change (Cunningham et al., 2022). Roadkill can also have localised impacts on the eastern quoll as they are attracted to roads to feed on carcasses (Jones, 2000). The threat of the disease toxoplasmosis, caused by the intestinal parasite of cats - the protozoan *Toxoplasma*

Topic	Criteria	Assessment
		gondii, to this species is not well understood but is common in marsupials as both a subclinical infection and an overt disease. Quolls may contract the disease through exposure to cat faeces, food or water that has been contaminated by cat faeces, or through eating the flesh of animals that contain the parasite. Toxoplasmosis-associated neurological effects may cause quolls to be more susceptible to predation or motor vehicles strike (Fancourt, 2010).
	Recovery actions	The main recovery actions identified in the Conservation Advice (Threatened Species Scientific Committee, 2015) for the species include: • Implement feral cat control measures particularly on Bruny Island and at relict population on mainland Tasmania. • Reduce roadkill mortality.
Impact description	• **Clearing of up to 112.3 ha of shrubby dry eucalypt forest that may constitute sub-optimal habitat for the eastern quoll; however, no eastern quolls were detected during the camera trap monitoring program targeting mature dry eucalypt forests within the disturbance footprint.** • **An increase in night-time traffic due to construction, resulting in an increase in roadkill risk for all nocturnal and crepuscular fauna.**	
Significant impact assessment (EPBC Act Policy Statement 1.1, DEWHA 2013).	Lead to a long-term decrease in the size of a population	Roadkill has been identified as a threatening process for the eastern quoll. Increased traffic volumes during the construction phase of the Project could potentially lead to increased vehicle strikes of threatened mammalian carnivores, especially given these three species' tendency to scavenge on other roadkill carcasses on roads; however, there appears not to be a resident population of eastern quolls within the survey area. Any resident population is likely to be of very low density given the absence of suitable habitat. Additionally, as outlined above in the mitigation section the implementation of the roadkill mitigation measures would ensure the Project **would not** lead to a long-term decrease in the size of a population.
	Reduce the area of occupancy of the species	The loss of **up to 112.3ha** of dry forest habitat within the disturbance footprint represents 0.07 of one percent of the area of occupancy of the species, which is **unlikely** to materially reduce the area of occupancy of the species, especially given the apparent absence of a resident population of eastern quolls.
	Fragment an existing population into two or more populations	The loss of **up to 112.3ha** of dry eucalypt forest (potential foraging and dispersal habitat) within the disturbance footprint is **unlikely** to fragment an existing population into two or more populations. The vegetation clearance will remove an area of potential sub-optimal habitat (due to the dense shrubby understorey) but not to the extent that it will provide a landscape barrier to the movement of the eastern quoll.

Topic	Criteria	Assessment
	Adversely affect habitat critical to the survival of a species	The loss of **up to 63.5 ha** of mature dry forest habitat (potential denning habitat) within the disturbance footprint, that may contain den sites and denning habitat, could result in destruction of den sites. However, given the apparent absence of a resident population of eastern quolls, this area to be cleared is unlikely to contain eastern quoll dens and thus is unlikely to adversely affect habitat that is critical to survival of the species.
	Disrupt the breeding cycle of a population	The clearing of **up to 63.5 ha** of mature dry forest could result in the loss of potentially suitable denning habitat. Construction could also result in an increase in noise and vibration disturbing breeding in maternal dens. However, there are **unlikely** to be maternal dens within the Project area due to the apparent absence of a resident population of eastern quolls and the lack of open understorey in the mature dry forests within the disturbance footprint preferred by eastern quolls.
	Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The loss of **up to 112.3 ha** of dry eucalypt forest (potential foraging and dispersal habitat) within the disturbance footprint **may** potentially modify, destroy, remove, isolate or decrease the availability or quality of eastern quoll habitat. However, it is unlikely to do so to the extent that the species is likely to decline given the apparent absence of a resident population of eastern quolls within the survey area and the dense, shrubby understorey of these dry forests that is sub-optimal for this species which prefers open, grassy understories.
	Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.	Feral cats are already present in the Tarraleah area and there were 17 camera trap detections of cats during camera trap surveys at the Tarraleah Golf Course and mature dry forest within the disturbance footprint. Therefore, the feral cat population dynamics are unlikely to be affected by the construction and operation of the Project; therefore, the Project is **unlikely** to result in the introduction of harmful or invasive species.
	Introduce disease that may cause the species to decline	The disease toxoplasmosis is vectored by cats, which are abundant in northern Tasmania and were observed within the survey area. Feral cat population dynamics are unlikely to be affected by the construction and operation of the Project. Thus, with the implementation of hygiene measures to prevent the introduction of weeds and diseases, the Project is **unlikely** to result in the introduction of disease that may cause a species to decline (e.g. toxoplasmosis).
	Will the action interfere substantially with the recovery of the species	The loss **up to 63.5 ha** of less preferred shrubby dry mature eucalypt forest habitat within the project disturbance footprint, which may contain den sites or denning habitat, could impact at least one home range. However, the dry forest within the disturbance footprint is unlikely to be preferred habitat due to the shrubby, dense understorey that is not preferred by the species. The implementation of

Topic	Criteria	Assessment
		mitigation measures to prevent roadkill (e.g. daylight vehicle movements) means that the action is **unlikely** to interfere substantially with the recovery of the species given that roadkill mortality is one of the major recognised threats to the species.
Conclusion	**The proposed action is unlikely to have a significant impact on the eastern quoll given the apparent absence or low density of a resident population of eastern quolls and due to the absence of preferred open dry forest or grassland or grassy woodland habitat. Furthermore, den surveys and a roadkill management plan implemented to avoid and minimise impacts to the Tasmanian devil and spotted-tailed quoll will also mitigate Project impacts to the eastern quoll.**	

F.5 Eastern barred bandicoot (*Perameles gunnii gunnii*)

Topic	Criteria	Assessment
EPBC Act status	Vulnerable	
Life history and occurrence	Distribution and general habitat requirements	The species primarily occurs in the northeast, north west and the south east of Tasmania where it is most abundant. The species is least abundant in the midland and eastern coastal areas (DEWHA, 2008a). The eastern barred bandicoot occurs in mosaic habitats of pasture and remnant native forest, often with a significant amount of cover such as that provided by weeds like gorse and blackberry (Threatened Species Section, 2025).
	Ecology	The species occurs in open habitats including woodlands and open forests with a grassy understorey, and native and exotic grasslands (DEWHA, 2008a). They require ground shrubs (including gorse and blackberry), tussock grasses and sedges to provide shelter and nest sites. Eastern barred bandicoots are omnivorous although they mainly eat invertebrates include root-eating grubs such as cockchafers and corbies which they dig from the ground leaving their distinctive small conical holes. They also feed on beetles, earthworms, berries and fungi.
	Occurrence within the Project site	There are 14 NVA records of the species within 5 km of the disturbance footprints. The most recent record on the NVA was from May 2007 on the Lyell Highway northwest of Tarraleah. The only potentially suitable habitat, in the form of open grassland interspersed with patches of native vegetation (DEWHA, 2008a), is at the Tarraleah Golf Course, which is not included in the disturbance footprint. However, the distribution line easement along Oldina Drive crosses the southeastern corner of the suitable habitat associated with the Tarraleah Golf Course. One image of a single eastern barred bandicoot (*Perameles gunnii*) was captured by camera trap on 20 February 2024 during the targeted camera trap monitoring program, undertaken for eastern barred bandicoots within the Tarraleah Golf Course between 8 December 2023 and 9 May 2024. A total of 1,163 camera trap days and nights were captured. No images of eastern barred bandicoots were captured during the mature dry forest camera trap survey over 1,318 camera trapping nights. Species may occur in the disturbance footprint in the distribution line easement along Oldina Road adjacent to the Tarraleah Golf Course (which is outside of the disturbance footprints).
Threats and recovery	Generally recognised threats to the species	Identified threats in the conservation advice (DEWHA, 2008a) include: • habitat loss and degradation, in particular; loss of ground cover through clearing of habitat for urban development and overgrazing • predation by feral cats (*Felis catus*) and dogs (*Canis familiaris*)

Topic	Criteria	Assessment
		• Toxoplasmosis (*Toxoplasma gondii*), for which cats are the primary host, is a highly contagious parasite which can cause death in bandicoots.
	Recovery actions	Relevant conservation and recovery actions in the conservation statement (DEWHA, 2008a) include: • identify populations of high conservation priority • manage threats to areas of habitat • encourage landowners to retain or replant native vegetation, avoid overgrazing and not slash or burn areas where bandicoots occur • develop and implement a management plan for the control and eradication of feral cats and dogs in the local region • encourage responsible cat ownership, including night curfews for cats • develop and implement suitable hygiene protocols to protect against outbreaks of *Toxoplasma gondii* parasite.
Impact description	**Disturbance associated with the distribution line upgrade of the less than 0.1 ha of existing easement in the Tarraleah Golf Course along Oldina Drive, which may be suitable foraging habitat. Bandicoots may temporarily avoid this small roadside component of the Golf Course during active works.**	
Significant impact assessment (EPBC Act Policy Statement 1.1, DEWHA 2013).	Important population	The conservation statement does not identify important populations and does not include the Central Plateau within the range of the species. However, the camera trapping and NVA records indicates that there is local population of eastern barred bandicoots of a low abundance present.
	Lead to a long-term decrease in the size of an important population of a species	The Project will result in disturbance to less than 0.1 ha of existing easement adjacent to Oldina Road, which may be potential foraging habitat for the eastern barred bandicoot. The disturbance of this potentially suitable foraging habitat **will not** lead to a long-term decrease in the size of an important population of a species.
	Reduce the area of occupancy of an important population	The disturbance to less than 0.1 ha of existing easement adjacent to Oldina Road, which may be potential foraging habitat for the eastern barred bandicoot, **will not** reduce the area of occupancy of an important population as it represents only negligible fraction of the estimated area of occupancy of the species
	Fragment an existing important population into two or more populations	The disturbance to less than 0.1 ha of existing easement adjacent to Oldina Road, which may be potential foraging habitat for the eastern barred bandicoot, **will not** fragment an existing important population into two or more populations as the distribution line is adjacent Oldina Road which already forms a boundary to the area of suitable habitat.

Topic	Criteria	Assessment
	Adversely affect habitat critical to the survival of a species	The disturbance to less than 0.1 ha of existing easement adjacent to Oldina Road, which may be potential foraging habitat for the eastern barred bandicoot, is **unlikely** to affect habitat critical to the survival of a species.
	Disrupt the breeding cycle of an important population	The disturbance to less than 0.1 ha of existing easement adjacent to Oldina Road, which is not breeding habitat, **will not** disrupt the breeding cycle of an important population.
	Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The disturbance to less than 0.1 ha of existing easement adjacent to Oldina Road, which may be potential foraging habitat for the eastern barred bandicoot, is **unlikely** to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
	Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	The implementation of hygiene measures to prevent the introduction of weeds and diseases means that the Project is **unlikely** to introduce harmful or invasive species. However, feral cats are already present in the Tarraleah area and there were three detections of cats within the survey area on the Tarraleah Golf Course. The feral cat population dynamics are unlikely to be affected by the construction and operation of the Project; therefore, the Project is **unlikely** to result in the expansion of the feral cat population.
	Introduce disease that may cause the species to decline.	The disease toxoplasmosis is vectored by cats, which are abundant in northern Tasmania and were observed within the survey area. Feral cat population dynamics are unlikely to be affected by the construction and operation of the Project. Thus, with the implementation of hygiene measures to prevent the introduction of weeds and diseases, the Project is **unlikely** to result in the introduction of disease that may cause a species to decline (e.g. toxoplasmosis).
	Interfere substantially with the recovery of the species.	The disturbance to less than 0.1 ha of existing easement adjacent to Oldina Drive, which may be potential foraging habitat for the eastern barred bandicoot, is **unlikely** to interfere substantially with the recovery of the species.
Conclusion	**The temporary construction disturbance to less than 0.1 ha of existing easement, which may be potential foraging habitat for the eastern barred bandicoot, and installation of a distribution line along Oldina Drive is unlikely to have a significant impact on the eastern barred bandicoot. Eastern barred bandicoots may avoid the area during active construction works (e.g. installation of the poles and stringing of the lines). Construction of the distribution line is unlikely to impact foraging success of this species, and the easement will continue to be used by the eastern barred bandicoot throughout the operational phase.** **There are no roadkill records of this species on the transport routes with a 10% or greater increase in night-time traffic anticipated during construction of the main Project or the associated transmission line options. However, there are four NVA sighting records near Tarraleah Village on the Lyell Highway and Oldina Drive. The exiting speed limit on Oldina Drive is 60 kmph slowing to a posted speed limit of 25**	

Topic	Criteria	Assessment
	kmph approaching Tarraleah Village. Based on the paucity of eastern barred bandicoot detections during the camera trapping program, no roadkill records on the transport routes and the low speed limit on Oldina Drive, it is considered unlikely that the eastern barred bandicoot vehicle strike risk will be significantly increased.	

F.6 Tasmanian wedge-tailed eagle (*Aquila audax fleayi)*

Topic	Criteria	Assessment
EPBC Act status	**Endangered**	
Life history and occurrence	Distribution and general habitat requirements	The Tasmanian subspecies population of the wedge-tailed eagle occurs throughout Tasmania, foraging across a broad range of habitats from coastal dunes to mountain peaks. Nesting habitat is generally restricted to forests of predominantly mature eucalypts on sheltered aspects or locations (Threatened Species Section, 2006). Wedge-tailed eagle territories range from one pair per 20-30 km² (2,000-3,000 ha) in a mosaic of dry eucalypt forest and open habitats in the lowland areas of eastern and northern Tasmania and are typically much larger in the highlands of central Tasmania and south-western Tasmania (Department of the Environment, 2025).
	Ecology	The wedge-tailed eagle is Tasmania's largest raptor which feeds on both live prey and carrion. Eagles take a wide range of vertebrate prey namely reptiles, birds and mammals (including introduced rabbits and hares). Adult eagles are resident on their territories throughout the year. However, juvenile birds disperse widely after leaving their parents.
	Occurrence within the Project site	This species has been observed flying over the survey area and there are five nests verified within 1 km of the disturbance footprint. Nest #3577 and nest #2298 are both located within 500 m of the northern alignment option, and nest #3176 and nest #1700 are located within 1 km of the northern option. Nests #2298 and # 3577 therefore may be disturbed by proposed works if they are active when works are undertaken within 500 m or 1 km line-of-sight of the nest. There is also one nest (nest #738) located within 500 m of the southern alignment option, which therefore may be disturbed by proposed works if the nest is active when works are undertaken within 500 m or 1 km line-of-sight of the nest. There is a maximum of 0.4 ha of potentially suitable future eagle nesting habitat within the disturbance footprint. This potentially suitable future eagle nesting habitat falls within the disturbance footprint and may be removed or modified, as modelled with a suitability score of at least 3 of a possible 8, where 8 is the highest suitability value.

Topic	Criteria	Assessment
		Note that considering scores 3 through 8 as potentially suitable habitat is recommended by Tasmanian FPA *Technical Note 6* (FPA, 2014a).
Threats and recovery	Generally recognised threats to the species	The main threats to the wedge-tailed eagle identified in the Tasmanian eagle recovery plan (Threatened Species Section, 2006) are: • disturbance to nesting eagles which can result in nest desertion. • destruction of nest trees or clearing of surrounding vegetation. • risks of collisions with tall structures (e.g. power lines, wind turbines, guy wires).
	Recovery actions	Recovery actions include: • reduce the proportion of nests subject to disturbance. • develop and apply protocols for effective eagle management during all land development. • reduce the number of eagle collisions and electrocutions caused by wind and power structures.
Impact description	**Construction activities within 1 km of known nests may disturb a breeding pair, and up to 0.4 ha of potential future nesting habitat is within the disturbance footprint and may be cleared.**	
Significant impact assessment (EPBC Act Policy Statement 1.1, DEWHA 2013).	Lead to a long-term decrease in the size of a population	There are two existing transmission lines within the northern transmission line option and three in the southern transmission line option; one which will be decommissioned and replaced with a new line and towers. As such, the new transmission line is not expected to introduce a novel nor increased collision nor electrocution risk to the landscape. The new 22 kV power distribution lines will be designed and built in accordance with TasNetworks standards, which seek to minimise electrocution risk and collision risk for avifauna. There are two known eagle nests within 500 m of the northern transmission line option and one known nest within 500 m of the southern transmission line option. No construction activity will occur within 500 m of either nest during the breeding season (July to January inclusive) if these nests are active. The use of the SGAR class of chemicals for rodent control will be avoided during all phases of the proposed action to prevent secondary poisoning of eagles. Therefore, the action is **unlikely** to lead to a long-term decrease in the size of a population through the disturbance of breeding birds causing a breeding failure.
	Reduce the area of occupancy of the species	Eagles are highly mobile, and prey availability will not be materially reduced, nor will their flights be impeded by proposed infrastructure. As no nests will be disturbed, it is unlikely that the project will cause shifts in eagle pairs'

Topic	Criteria	Assessment
		territories in the region. Therefore, the action is **unlikely** to reduce the area of occupancy of the species.
	Fragment an existing population into two or more populations	Eagles are highly mobile, and their flights will not be impeded by proposed infrastructure, given that there are two existing transmission lines at the location of the proposed alignment. As no nests will be disturbed, it is unlikely that the project will cause shifts in eagle pairs' territories in the region. Therefore, the action is **unlikely** to fragment an existing population into two or more populations.
	Adversely affect habitat critical to the survival of a species	There are two known eagle nests within 500 m of the northern transmission line option and one known nest within 500 m of the southern transmission line option. No construction activity will occur within 500 m of either nest during the breeding season (July to January inclusive) if these nests are active. The up to 0.4 ha of modelled potentially suitable future eagle nesting habitat within the disturbance footprint is unlikely to be critical to the survival of the species, given the large territory size (minimum 2,000 ha). Therefore, the proposed action is **unlikely** to adversely affect habitat critical to the survival of a species.
	Disrupt the breeding cycle of a population	There are two known eagle nests within 500 m of the northern transmission line option and one known nest within 500 m of the southern transmission line option. No construction activity will occur within 500 m of any eagle nest during the breeding season (July to January inclusive) if these nests are active. Therefore, the action is **unlikely** to disrupt the breeding cycle at these nests at any stage of construction or operation of the Project.
	Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	There are two known eagle nests within 500 m of the northern transmission line option and one known nest within 500 m of the southern transmission line option. No construction activity will occur within 500 m of these nests during the breeding season (July to January inclusive) if these nests are active. Given the large territories of Tasmanian eagles (minimum 2,000 ha), the removal of up to 0.4 ha of potentially suitable future eagle nesting habitat is unlikely to cause the species to decline (e.g. it is too small a proportion of one territory to result in competition for suitable nest trees). Therefore, the action is **unlikely** to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
	Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or	The implementation of hygiene measures to prevent the introduction of invasive species means the Project is **unlikely** to result in the introduction of harmful or invasive species.

Topic	Criteria	Assessment
	critically endangered species' habitat.	
	Introduce disease that may cause the species to decline	The implementation of hygiene measures to prevent the introduction of weeds and diseases means that Project is **unlikely** to result in the introduction of disease that may cause the species to decline.
	Will the action interfere substantially with the recovery of the species	There are two known eagle nests within 500 m of the northern transmission line option and one known nest within 500 m of the southern transmission line option. No construction activity will occur within 500 m of these nests during the breeding season (July to January inclusive) if these nests are active. Therefore, the action is **unlikely** to interfere substantially with the recovery of the species.
Conclusion	**The proposed action is unlikely to have a significant impact on the wedge-tailed eagle because there will be no construction activity during the breeding season (July to January inclusive, or July to February inclusive in late years) within 500 m or 1 km line-of-sight of active eagle nests. New eagle nests will be searched for annually and added to these constraints. In addition, secondary poisoning will be avoided by selecting appropriate rodenticides. Further, the new 22 kV power distribution lines will be designed and built in accordance with TasNetworks standards, which seek to minimise electrocution risk and collision risk for avifauna.**	

F.7 Tasmanian masked owl (*Tyto novaehollandiae castanops*)

Topic	Criteria	Assessment
EPBC Act status	**Vulnerable**	
Life history and occurrence	Distribution and general habitat requirements	The Tasmanian masked owl inhabits a range of forest and woodland habitats including agricultural and forest mosaics (DEWHA, 2010). The Tasmanian masked owl is endemic to Tasmania, including several near-shore islands, although it is absent from King Island and the Furneaux Group (NVA data). The highest densities are in the east and north of the State and the lowest densities occur at elevations greater than 600 m and in the western half of the State (DEWHA, 2010). The area of occupancy of the Tasmanian masked owl has been estimated to be 1,000 km^2 (Garnett & Baker, 2021).
	Ecology	The Tasmanian masked owl is active at night and roosts during the day. It preys on vertebrates, predominately introduced rodents and rabbits on agricultural land, and arboreal marsupials, terrestrial mammals and native birds in less disturbed habitats (DEWHA, 2010). Masked owls have large territories in the order of 1,000 to 2,000 ha (Todd, 2012; Young et al., 2020). The territories of paired male and female masked owls usually overlap, however actual territory sizes will vary depending on habitat quality (Todd 2012). Suitable nesting trees for the masked owl include those with large hollows with an entrance usually larger than 15 cm diameter. Large hollows are found in

Topic	Criteria	Assessment
		large trees, and trees over 100 cm diameter-at-breast height (DBH) have been found to have a higher probability of containing hollows suitable for masked owls than smaller diameter trees (Forest Practices Authority, 2014).
	Occurrence within the Project site	The nearest known nest is approximately 54 km to the southeast of the disturbance footprint. Detection of characteristic screeches by passive acoustic monitoring confirmed the occurrence of the species within the survey area near the existing Tarraleah Power Station and the within the Tarraleah Conservation Area. Large habitat trees recorded within the survey area were assessed as unlikely to be suitable nest trees by a species expert, and call-playback surveys in September to December 2024 did not detect any owls (Appendix E).
Threats and recovery	Generally recognised threats to the species	Recognised threats to the subspecies include habitat clearing and fragmentation (from agriculture, forestry and residential development), loss of nesting habitat through tree dieback, secondary poisoning, collision mortality and competition for tree hollows (DEWHA, 2010).
	Recovery actions	Relevant recovery actions outlined in the conservation advice (DEWHA, 2010) include: • monitor known territories and locations to identify key threats. • monitor the progress of recovery, including the effectiveness of management actions. • confirm known sites of high conservation priority. • minimise disturbance in areas where the Tasmanian masked owl is known to breed. • investigate formal conservation arrangements, management agreements and covenants on private land to protect important breeding areas. • investigate inclusion of important breeding areas on crown land in reserve tenure if not already reserved.
Impact description	**Up to 196.5 ha of native eucalypt forest may be cleared in the total disturbance footprint, which will reduce the extent of masked owl foraging habitat; however, this loss is unlikely to reduce prey availability or foraging success given that the highly mobile species has large territories in the order of 1,000 to 2,000 ha (10 to 20 km²) (Todd, 2012; Young et al., 2020). Masked owls hunt in many other types of habitat.** **Construction activities, particularly night-time lighting, vibrations and noise associated with the 24/7 underground works, may interfere with typical masked owl foraging behaviour at the localised site during the construction period, whereby the species or its prey species avoid these sites. The avoidance of these sites is unlikely to materially reduce prey availability or foraging success given that the species is highly mobile with large territories.**	
Significant impact assessment (EPBC Act Policy	Important population	No important populations have been defined for the Tasmanian masked owl in the conservation advice (DEWHA, 2010), nor is there a recovery plan for the species. The Tasmanian subspecies has been determined to be a distinct population of a biological entity under section

Topic	Criteria	Assessment
Statement 1.1, DEWHA 2013).		517 of the EPBC Act, and it is assumed that there is a single population in Tasmania. Given the low population size and large territory size of the Tasmanian masked owl, the entire Tasmanian masked owl population is assumed to be an important population. Therefore, for the purposes of this assessment, it is assumed that a significant impact on a Tasmanian masked owl territory constitutes a significant impact on the Tasmanian masked owl population (or important population of the Tasmanian masked owl).
	Lead to a long-term decrease in the size of an important population of a species	Tasmanian masked owls hunt for their food by taking live prey; there is no evidence of the species scavenging carrion such as roadkill carcasses on highways. Therefore, the increased construction traffic associated with the proposed action is not expected to pose a roadkill mortality risk. The desktop identification of potential nesting habitat within 150 m of the disturbance footprint, on-ground verification of four potentially suitable habitat patches with sufficiently mature trees, long-term passive acoustic monitoring at these four sites, and nest tree assessment at one site where screeches were detected as to indicate nearby roosting or nesting, are the most comprehensive and up-to-date survey methods yet developed; the Tasmanian FPA's *Fauna Technical Note 17* (2016) and NRE Tasmania's guidance are expected to be updated to recommend these modern survey methods. There are no known nest trees within the disturbance footprint nor within 150 m, and powerline collision or electrocution are very unlikely; therefore, the proposed action is **unlikely** to lead to a long-term decrease in the size of an important population of a species.
	Reduce the area of occupancy of an important population	This species is highly mobile and regularly occupies modified areas; therefore, the proposed action is **unlikely** to reduce the area of occupancy of an important population.
	Fragment an existing important population into two or more populations	The proposed infrastructure will not be a barrier to masked owl movement across the landscape; therefore, the proposed action is **unlikely** to fragment the existing Tasmanian population into two or more populations.
	Adversely affect habitat critical to the survival of a species	Nest hollows constitute habitat features that are considered important to the survival of the species. The desktop identification of potential nesting habitat within 150 m of the disturbance footprint, on-ground verification of four potentially suitable habitat patches with sufficiently mature trees, long-term passive acoustic monitoring at these four sites, and nest tree assessment at one site where screeches were detected as to indicate nearby roosting or nesting are the most comprehensive and up-to-date survey methods yet developed; the Tasmanian FPA's *Fauna Technical Note 17* and NRE Tasmania's guidance are expected to be updated to recommend these modern survey methods. These targeted surveys did not identify any evidence of nesting within the disturbance footprint

Topic	Criteria	Assessment
		nor within 150 m; therefore, the proposed action is **unlikely** to adversely affect habitat critical to the survival of a species.
	Disrupt the breeding cycle of an important population	Destruction of a nest tree, or noise or vibration disturbance of an active nest within 150 m of works would constitute a disruption to the breeding cycle of the Tasmanian masked owl. The desktop identification of potential nesting habitat within 150 m of the disturbance footprint, on-ground verification of four potentially suitable habitat patches with sufficiently mature trees, long-term passive acoustic monitoring at these four sites, and nest tree assessment at one site where screeches were detected as to indicate nearby roosting or nesting are the most comprehensive and up-to-date survey methods yet developed; the Tasmanian FPA's *Fauna Technical Note 17* and NRE Tasmania's guidance are expected to be updated to recommend these modern survey methods. These targeted surveys did not identify any evidence of nesting within the disturbance footprint nor within 150 m; therefore, the proposed action is **unlikely** to disrupt the breeding cycle of an important population.
	Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Foraging habitat** The masked owl may forage over the entire disturbance footprint. Up to **196.51 ha** of native eucalypt forest may be cleared, which may temporarily change the prey species composition of the area; however, this loss of native forest is unlikely to reduce prey availability or foraging success given that the highly mobile species has large territories in the order of 1,000 to 2,000 ha (10 to 20 km²) (Todd, 2012; Young et al., 2020). Construction activities, particularly night-time lighting, vibrations and noise associated with the 24/7 underground works, may interfere with typical masked owl foraging behaviour at the localised site during the construction period, whereby the species or its prey species avoid these sites. The avoidance of these sites is unlikely to materially reduce prey availability or foraging success given that the species is highly mobile with large territories and that the passive acoustic monitoring did not indicate that there was a widespread and common use of the Tarraleah area for foraging. **Nesting habitat** Nest hollows constitute habitat features that are considered important to the survival of the species. The desktop identification of potential nesting habitat within 150 m of the disturbance footprint, on-ground verification of four potentially suitable habitat patches with sufficiently mature trees, long-term passive acoustic monitoring at these four sites, and nest tree assessment at one site where screeches were detected as to indicate nearby roosting or nesting are the most comprehensive and up-to-date survey methods yet developed; the Tasmanian FPA's *Fauna Technical Note 17* and NRE Tasmania's guidance are

Topic	Criteria	Assessment
		expected to be updated to recommend these modern survey methods. These targeted surveys did not identify any evidence of nesting within the disturbance footprint nor within 150 m; therefore, the proposed action is **unlikely** to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
	Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	The introduced honeybee (*Apis mellifera*) may construct hives in tree hollows suitable for masked owl nesting, effectively competing with the masked owl for these critical habitat features. The Project is **unlikely** to result in the introduction of harmful invasive species such as honeybees.
	Introduce disease that may cause the species to decline.	The implementation of hygiene measures to prevent the introduction of weeds and diseases means that Project is **unlikely** to result in the introduction of disease that may cause the species to decline.
	Interfere substantially with the recovery of the species	The species' habit of feeding on rabbits and introduced rodents exposes it to secondary poisoning (e.g. via ingestion of rabbits laced with pindone). Anti-coagulant rodenticides, especially second-generation anticoagulant rodenticides (SGARs; brodifacoum, bromadiolone, difethialone, difenacoum and flocoumafen) also pose a particularly problematic secondary poisoning risk to raptors (Pay et al., 2021). It is recommended that use of the SGAR class of rodenticide chemicals be avoided during all phases of the proposed action, including at the switchyard. Destruction of a nest tree, or noise or vibration disturbance of an active nest within 150 m of works may interfere with the recovery of the species if suitable tree hollows for nesting are limited within the territory. Similarly, night-time lighting and dust may disturb an active nest within 150 m of works. The desktop identification of potential nesting habitat within 150 m of the disturbance footprint, on-ground verification of four potentially suitable habitat patches with sufficiently mature trees, long-term passive acoustic monitoring at these four sites, and nest tree assessment at one site where screeches were detected as to indicate nearby roosting or nesting are the most comprehensive and up-to-date survey methods yet developed; the Tasmanian FPA's *Fauna Technical Note 17* and NRE Tasmania's guidance are expected to be updated to recommend these modern survey methods. These targeted surveys did not identify any evidence of nesting within the disturbance footprint nor within 150 m. Therefore, given the avoidance of the SGAR class of rodenticide chemicals, the proposed action is **unlikely** to interfere substantially with the recovery of the species.
Conclusion	**The proposed action is unlikely to have a significant impact on the Tasmanian masked owl because (1) foraging success will not be impacted due to the mobile nature and large territory size of the species, (2) there are no known nest trees within 150 m of**	

Topic	Criteria	Assessment
	the disturbance footprint, and as such breeding will not be disturbed, (3) secondary poisoning will be avoided by selecting appropriate rodenticides, and (4) the new 22 kV power distribution lines will be designed and built in accordance with TasNetworks standards, which seek to minimise electrocution risk and collision risk for avifauna, and (5) the spans of new distribution line proposed in open areas (e.g. the distribution lines running along Oldina Drive and through the Tarraleah Village) where avifauna are at increased risk of collision will use more visible 16 mm diameter conductors, which will minimise collision risk for bird species.	

F.8 Swift parrot (*Lathamus discolor*)

Topic	Criteria	Assessment
EPBC Act status	**Critically endangered**	
Life history and occurrence	Distribution and general habitat requirements	Breeding range (foraging and nesting habitat) is mostly within 10 km of the coast (including shores, bays, inlets or peninsulas) predominantly in eastern and southeastern Tasmania, although there is breeding in some years on the central north and northwestern coasts of Tasmania (Threatened Species Scientific Committee, 2016). Foraging habitat is *Eucalyptus globulus* dry and wet forest and *E. ovata* forest during breeding season. Nesting habitat is forest with large eucalypt trees with hollows in close proximity to foraging habitat (Threatened Species Scientific Committee, 2016).
	Ecology	The parrots are nomadic during the post-breeding period, appearing wherever there is a suitable nectar source and can appear almost anywhere in Tasmania including the west and north. In some years birds move westwards across the Central Plateau and western Tasmania as blue gum flowering in eastern and southeastern Tasmania declines and other eucalypts begin to flower, including *Eucalyptus tasmaniensis* which flowers January to March and *E. obliqua* which flowers December to March.
	Occurrence within the Project site	There are 36 swift parrot records on the NVA within 5 km of the disturbance footprints, with the most recent records being 11 sightings in February and March 2025 northeast of the pipeline alignment. There is also another record from March 2025, 1.6 km to the north of the of Tarraleah. One sighting of a post breeding foraging event in February 2023 - observation notes from a swift parrot record located 1.8 km northwest of Tungatinah Lagoon in *E. tasmaniensis* dry forest include "Feeding on lerps and flowering Euc" (NVA data). There were also two records from February 2022 near Mossy Marsh, approximately 1 km south of mid-point of the tunnel, in *Eucalyptus tasmaniensis* wet forest, which were recorded during flora and fauna surveys conducted for this project. There is also an NVA record of a swift parrot on Butlers Gorge Road approximately 600 m southwest of the Pump Pond.

Topic	Criteria	Assessment
Threats and recovery	Generally recognised threats to the species	The main threats to the swift parrot in Tasmania identified in the National Swift Parrot Recovery Plan (DCCEEW, 2024b) are: • predation of nestlings and incubating females by the introduced sugar glider (*Petaurus breviceps*). • habitat loss and degradation of breeding and foraging habitat through land clearing, forestry operations. • wildfire which can result in disruption of flowering events and maturation of nectar-rich plant species may be reduced resulting in reduction of foraging resources and can also alter future hollow availability.
	Recovery actions	Recovery actions include: • review and update management prescriptions for swift parrots for use in the forest industry and Local Government land use planning and approvals processes across the breeding and non-breeding range of swift parrots. • enhance quality and extent of existing breeding habitat in Tasmania through strategic plantings. • develop and implement strategies to reduce predation from sugar gliders. • install nesting boxes suitable for swift parrots in areas of low sugar glider predation to enhance swift parrot breeding success. • raise public awareness of the risks of collisions and how these can be minimised. • encourage and support the protection, conservation management and restoration of swift parrot nesting and foraging habitat through agreements with landowners, incentive programs and community Projects.
Impact description	**Swift parrots are not known to nest within the Central Highlands.** **Within the disturbance footprint, there are up to approximately 88 ha of mature wet and dry eucalypt forest which may be used in some years as post-breeding foraging resources namely large *Eucalyptus tasmaniensis, E. dalrympleana, E. pauciflora*, and *E. rodwayi* trees. The forest types which contain these tree species impacted by the proposed action have not been identified as priority foraging habitat nor are they within the breeding range of the swift parrot, Post-breeding swift parrot foraging success in the Central Highlands is unlikely to be impacted given the wide-ranging nature of this species and the temporary nature of foraging in this region as the species migrates north.**	
Significant impact assessment (EPBC Act Policy Statement 1.1, DEWHA 2013).	Lead to a long-term decrease in the size of a population	Swift parrots may use flowering resources in mature eucalyptus forests on the Central Plateau namely those that contain *Eucalyptus tasmaniensis, E. dalrympleana, E. pauciflora,* and *E. rodwayi* trees. *Eucalyptus tasmaniensis* dry and wet forests are extensive within the IBRA7 Central Highlands bioregion; 301,977 ha of this forest type are mapped within the bioregion. There are also 16,643 ha of *E dalrympleana-Eucalyptus pauciflora* dry forest and 5,302

Topic	Criteria	Assessment
		ha of *Eucalyptus rodwayi* dry forest in the Central Highlands bioregion. There are 12,941.7 ha of *Eucalyptus obliqua* wet forest in the Central Highlands bioregion (Forest Practices Authority, 2025). These forest types in this region of Tasmania have not been identified as priority foraging habitat, nor are they within the core Swift Parrot breeding range. Therefore, the loss of up to **88** ha or **0.03%** of these potentially suitable mature eucalypt forest types in the Central Highlands that may be used on occasions depending on flowering frequency which could be between 2 to 4 years or up to 7 years is **unlikely** to lead to a long-term decrease in the size of a population.
	Reduce the area of occupancy of the species	Swift parrots may use flowering resources in mature eucalyptus forests on the Central Plateau namely those that contain *Eucalyptus tasmaniensis, E. dalrympleana, E. pauciflora,* and *E. rodwayi* trees. *Eucalyptus tasmaniensis* dry and wet forests are extensive within the IBRA7 Central Highlands bioregion; 301,977 ha of this forest type are mapped within the bioregion. There are also 16,643 ha of *E dalrympleana-Eucalyptus pauciflora* dry forest and 5,302 ha of *Eucalyptus rodwayi* dry forest in the Central Highlands bioregion. There are 17,692 ha of *Eucalyptus obliqua* wet forest in the Central Highlands bioregion (Forest Practices Authority, 2025). These forest types in this region of Tasmania have not been identified as priority foraging habitat, nor are they within the core Swift Parrot breeding range. Therefore, the loss of up to **88** ha or **0.03%** of these potentially suitable mature eucalypt forest types in the Central Highlands that may be used on occasions depending on flowering frequency which could be between 2 to 4 years or up to 7 years is **unlikely** to reduce the area of occupancy the species. Particularly given that the species could occur anywhere in Tasmanian post-breeding.
	Fragment an existing population into two or more populations	Swift parrots are highly mobile species and can travel between flowering eucalypts in a fragmented landscape particularly during the post-breeding period in Tasmanian where they can occur over a large part of the state. The landscape within which the Project is located is already characterised by a history of forestry activity which has created a mosaic of forest ages from recent clear fall operations, through regrowth to some remnant mature forests. Therefore, clearance of a relatively small area of native vegetation eucalypt forest within the disturbance footprint within the context of the extensive area of eucalypt forests on the Central Plateau is **unlikely** to fragment an existing population into two or more populations. Note only 17.7 ha of the project area will be permanently cleared for infrastructure and that the remaining cleared areas for lay down areas and stockpiles that are not required post-construction will be rehabilitated to native forest. Therefore, the landscape impacts of clearing will be minimal.

Topic	Criteria	Assessment
	Adversely affect habitat critical to the survival of a species	The Swift Parrot Recovery Plan (DCCEEW, 2024b) has identified habitat critical to the survival for the swift parrot in Tasmania based on the identified important breeding habitats for the species as '*both potential foraging habitat – which is native forest and woodland containing either Blue Gum (E. globulus) and/or Black Gum (E. ovata) as a dominant, subdominant or low density species, and potential nesting habitat – which is forests or woodlands containing hollow-bearing eucalypt trees within foraging range (~10 km) of potential foraging habitat that is old enough to flower*'. Neither *Eucalyptus globulus* forest nor *E. ovata* forest occurs on the Central Plateau; therefore, the Project will not impact habitat critical to the survival of the species.
	Disrupt the breeding cycle of a population	The survey area is outside of the known breeding range of the swift parrot. Therefore, the Project is **unlikely** to disrupt the breeding cycle of a population.
	Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Swift parrots may use flowering resources in mature eucalyptus forests on the Central Plateau namely those that contain *Eucalyptus tasmaniensis, E. dalrympleana, E. pauciflora,* and *E. rodwayi* trees. *Eucalyptus tasmaniensis* dry and wet forests are extensive within the IBRA7 Central Highlands bioregion; 301,977 ha of this forest type are mapped within the bioregion. There are also 16,643 ha of *E dalrympleana-Eucalyptus pauciflora* dry forest and 5,302 ha of *Eucalyptus rodwayi* dry forest in the Central Highlands bioregion. There are 17,692 ha of *Eucalyptus obliqua* wet forest in the Central Highlands bioregion (Forest Practices Authority, 2025). These forest types have not been identified as priority foraging habitat, nor are they within the core Swift Parrot breeding range. Therefore, the loss of up to **88** ha or **0.03%** of these potentially suitable mature eucalypt forest types that may be used on occasions depending on flowering frequency which could be between 2 to 4 years or up to 7 years is **unlikely** to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
	Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.	Sugar gliders (*Petaurus breviceps*). are a threat to breeding swift parrots and their young. However, the Central Highlands is outside the breeding range of the swift parrot. NVA records indicate that sugar gliders are already present in the Central Highlands. The implementation of hygiene measures to prevent the introduction of pests, weeds and diseases means the Project is **unlikely** to result in the introduction of harmful or invasive species.
	Introduce disease that may cause the species to decline	Psittacine beak and feather disease (PBFD) is also known as psittacine circovirus (PCV) or Psittacine Circoviral Disease (PCD). It is the most common and highly infectious viral

Topic	Criteria	Assessment
		disease among parrots. The limited number of swift parrots are vulnerable to catastrophic events, such as a PCD epidemic. The Project is unlikely to affect PCD disease dynamics. The implementation of hygiene measures to prevent the introduction of weeds and diseases means that Project is **unlikely** to result in the introduction of disease that may cause the species to decline.
	Will the action interfere substantially with the recovery of the species	No priority foraging habitat or breeding habitat or habitat critical to the survival of a species will be impacted by the Project, nor is the Project within the core breeding range of the swift parrot. The proposed infrastructure will not be a barrier to swift parrot flight during their migrations. Therefore, the Project is **unlikely** to interfere substantially with the recovery of the species.
Conclusion	**No priority foraging habitat or breeding habitat or habitat critical to the survival of a species will be impacted by the Project, nor is the Project within the core breeding range of the swift parrot. Therefore, the loss of up to 88 ha or 0.03% of potentially suitable mature eucalypt forest types that may be used on occasions depending on flowering frequency which could be between 2 to 4 years or up to 7 years is unlikely to affect the foraging behaviour or success of this species.**	

F.9 Latham's snipe (*Gallinago hardwickii*)

Topic	Criteria	Assessment
EPBC Act status	**Vulnerable, Migratory**	
Life history and occurrence	Distribution and general habitat requirements	Latham's snipe breeds in Hokkaido and highland areas of Honshu in Japan, and in Sakhalin and the nearby Kuril Islands of far eastern Russia and is a non-breeding visitor to south-eastern Australia including Tasmania (DCCEEW, 2024a). Within Australia, Latham's snipe is generally widely dispersed in low numbers, but occasionally occur in larger groups. In Tasmania, the alpine areas of the Central Plateau have historically supported large colonies of Latham's snipe (Naarding, 1983). They usually inhabit open, freshwater wetlands with low, dense vegetation where they may be found in a variety of vegetation types or communities including tussock grasslands with rushes, reeds and sedges, coastal and alpine heathlands, lignum or tea-tree scrub, buttongrass plains, alpine herbfields and open forest (DCCEEW, 2024a).
	Ecology	Latham's snipe breeds in Japan and in far eastern Russia during the boreal summer, and then migrates to Australia in late winter where it remains for the summer (before returning its breeding grounds in late February-March). Latham's snipe feed in soft mudflats or shallow water typically at night, early morning, or evening (DCCEEW, 2024a). The species is omnivorous and feeds on seeds and

Topic	Criteria	Assessment
		other plant material and on invertebrates including insects (mainly flies and beetles), earthworms, spiders, and occasionally molluscs, isopods, and centipedes (DCCEEW, 2024a).
	Occurrence within the Project site	There are 10 records on the NVA from within 5 km of the disturbance footprints including at Tungatinah Lagoon, Lake Binney, Lake King William, and two records in Tarraleah Village. There are also three historic records from Dee Lagoon with poor locational accuracy of 18.5 km. There is buttongrass moorland habitat within the survey area which may be used by Latham's snipe. However, the buttongrass moorlands are quite closed with large tussocks and few open wet areas and are unlikely suitable habitat for the species.

Threats and recovery	Generally recognised threats to the species	Identified threats in the conservation advice (DCCEEW, 2024a) include:
		• habitat loss, fragmentation and degradation caused by draining and clearing of wetlands particularly for residential and commercial development in coastal areas
		• habitat degradation caused by high-density grazing of wetlands
		• climate change
		    o increased frequency or severity of drought
		    o increase in frequency, scale or severity of fires
		• broad-leaved tea-tree invasions of northern Australia grasslands
		• hunting of in the Asia-Pacific and Russia has driven population declines.

	Recovery actions	Relevant conservation and recovery actions in the conservation statement (DCCEEW, 2024a) include: • Identify important habitat for Latham's snipe in Australia and improve legal site protection and management using international, national, and state mechanisms. • Develop guidelines for the restoration and creation of artificial wetlands to restore historic areas of important habitat which have been heavily affected by human development. • Restrict grazing or develop appropriate grazing regimes in areas of wetland known to be important habitat for Latham's snipe. • Develop and implement a climate change adaptation plan for the species. • Identify and protect drought and flood refuges in Australia.

Topic	Criteria	Assessment
Impact description	**Temporary clearing of up to 20.7 ha buttongrass moorland that may be potential, sub-optimal foraging habitat.**	
Significant impact assessment – Vulnerable species (EPBC Act Policy Statement 1.1, DEWHA 2013).	Important population	Given that the species migrates as one population to Australia, it is treated as one population (DCCEEW, 2024a).
	Lead to a long-term decrease in the size of an important population of a species	The Project will result in the loss of up to **20.7 ha** of buttongrass moorland habitat along the pipeline route. There are more than 1 million hectares of buttongrass moorland in Tasmania (Kitchener and Harris 2013). The loss of **20.7 ha** or 0.002% of the Tasmanian extent of buttongrass moorland, which is unlikely to be preferred habitat for Latham's snipe due to its closed nature and absence of open wet areas, is **unlikely** to lead to a long-term decrease in the size of an important population of the species.
	Reduce the area of occupancy of an important population	The area of occupancy of Latham's snipe is estimated to be 13,000 km^2 (range 13,000 – 20,000 km^2) (DCCEEW, 2024a). The loss of up to **20.7 ha** or 0.002% of the Tasmanian extent of buttongrass moorland, which is unlikely to be preferred habitat for the species due to its closed nature and absence of open wet areas, is **unlikely** to reduce the area of occupancy of an important population as it represents only 0.002% of the area of occupancy of the species.
	Fragment an existing important population into two or more populations	The loss of up to **20.7 ha** or 0.002% of the Tasmanian extent of buttongrass moorland, which is unlikely to be preferred habitat for the species due to its closed nature and absence of open wet areas, is **unlikely** to fragment the important population of Latham's snipe in Tasmania into two or more populations as the species is widely dispersed Tasmania (DCCEEW, 2024a).
	Adversely affect habitat critical to the survival of a species	The construction of the pipeline will result in the loss of up to **20.7 ha** of buttongrass moorland which is unlikely to be preferred habitat for the species due to its closed nature and absence of open wet areas. There are more than one million hectares of buttongrass moorland in Tasmania (Kitchener and Harris, 2013). The loss of up to **20.7 ha** or 0.002% of the Tasmanian extent of buttongrass moorland from the Project is **unlikely** to affect habitat critical to the survival of a species which is open, freshwater wetlands with low, dense vegetation (DCCEEW, 2024a).
	Disrupt the breeding cycle of an important population	The Project will result in the loss of up to **20.7 ha** of buttongrass moorland which is not breeding habitat as the birds breed in the northern hemisphere in Japan, and in Sakhalin and the nearby Kuril Islands of far eastern Russia DCCEEW, 2024a). Therefore, the Project is **unlikely** to disrupt the breeding cycle of an important population.
	Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent	The Project will result in the loss of up to **20.7 ha** or 0.002% of the Tasmanian extent of buttongrass moorland which is unlikely to be preferred habitat for the species due to its closed nature and absence of open wet areas. Therefore, the Project is **unlikely** to modify, destroy, remove or isolate

Topic	Criteria	Assessment
	that the species is likely to decline	or decrease the availability or quality of habitat to the extent that the species is likely to decline.
	Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.	The implementation of hygiene measures to prevent the introduction of weeds and diseases means that the Project is **unlikely** to introduce harmful or invasive species.
	Introduce disease that may cause the species to decline,	The implementation of hygiene measures to prevent the introduction of weeds and diseases means that the Project is **unlikely** to result in the introduction of diseases that may cause a species to decline.
	Interfere substantially with the recovery of the species	The Project will result in the loss of up to **20.7 ha** or 0.002% of the Tasmanian extent of buttongrass moorland which is unlikely to be preferred habitat for the species due to its closed nature and absence of open wet areas. Therefore, the proposed action is **unlikely** to interfere substantially with the recovery of the species.
Conclusion	**The proposed action is unlikely to have a significant impact on the Latham's snipe because the vegetation clearance will have negligible impact on the extent of buttongrass moorland (0.0021% of the Tasmanian extent) which is suitable but not preferred (grassland or grassy woodland habitat is preferred) for the Latham's snipe. Further, the buttongrass moorlands not required to house permanent infrastructure will be rehabilitated.**	
Significant impact assessment – Migratory species (EPBC Act Policy Statement 1.1, DEWHA 2013).	Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	The loss of up to **20.7 ha** or 0.002% of the Tasmanian extent of buttongrass moorland from the Project, which is unlikely to be preferred habitat for the species due to its closed nature and absence of open wet areas, **will not** modify, destroy or isolate an area of important habitat for Latham's snipe.
	Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	Feral cats are already abundant in northern Tasmania and were observed within the survey area. Therefore, the feral cat population dynamics are unlikely to be affected by the construction and operation of the Project; therefore, the Project is **unlikely** to result in the introduction of an invasive species that is harmful to the migratory species.
	Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	The loss of up to **20.7 ha** or 0.002% of the Tasmanian extent of buttongrass moorland from the Project, which is unlikely to be preferred habitat for the species due to its closed nature and absence of open wet areas, **will not** seriously disrupt the lifecycle of an ecologically significant proportion of the population of the migratory species.

Topic	Criteria	Assessment
Conclusion	**The proposed action is unlikely to have a significant impact on the Latham's snipe because vegetation clearance will have negligible impact on the extent of buttongrass moorland (0.002% of the Tasmanian extent) which is potentially suitable but unlikely to be preferred (e.g. wetland) habitat for the species. Further, the buttongrass moorlands not required to house permanent infrastructure will be rehabilitated.**	

F.10 White-throated needletail (*Hirundapus caudacutus*)

Topic	Criteria	Assessment
EPBC Act status		**Vulnerable, Marine, Migratory**
Life history and occurrence	Distribution and general habitat requirements	Migratory species, almost exclusively aerial within its Australian distribution. Although they occur over most habitats, they are probably recorded most often above wooded areas, including open forests and rainforests. However, they may also fly between trees or clearings (Threatened Species Scientific Committee, 2019).
	Ecology	The white-throated needletail is a summer visitor to Tasmania, occurring from January to April, where it forages above the tree canopy or over pastureland, rarely (if ever) coming to land. Although they have been recorded roosting in trees amongst dense foliage in the canopy or in hollows (Department of the Environment, 2019). The species is generally observed as occurring in flocks when in Australia (Department of the Environment, 2019).
	Occurrence within the Project site	There are three historic NVA records within 5 km of the disturbance footprints, from 1900 and 1981, with poor location accuracy of 18.5 km. The species has the potential to occur within the survey area as it is almost exclusively aerial and occurs over a range of habitat types including open forest. Therefore, the species could occur over the site on rare occasions.
Threats and recovery	Generally recognised threats to the species	Identified threats in Australia in the conservation advice (Threatened Species Scientific Committee, 2019) include: • collision with wind turbines, overhead wires, windows and lighthouses • insecticides causing a decline in abundance of invertebrate prey or from secondary poisoning by insecticide accumulation in the prey items • loss of roosting sites.
	Recovery actions	Relevant recovery actions include: • important habitats in Australia are identified and protected. • identify requirements of important habitat in Australia. • support initiatives to improve habitat management at key sites in Australia.

Topic	Criteria	Assessment
Impact description	**Up to 201.8 ha of native forest may be cleared, which will reduce the extent of potential roosting habitat; however, this species migrates over long distances and will roost wherever there is available habitat.**	
Significant impact assessment – Vulnerable species (EPBC Act Policy Statement 1.1, DEWHA 2013).	Important population	No important populations have been identified in the Conservation Advice (Threatened Species Scientific Committee, 2019). Therefore, the Tasmanian occurrences of the white-throated needletail are treated as an important population.
	Lead to a long-term decrease in the size of an important population of a species	The species is not dependent on terrestrial habitats and there are no known roosting sites within the survey area. Therefore, the Project is unlikely to lead to a long-term decrease in the size of an important population of the white-throated needletail.
	Reduce the area of occupancy of an important population	The species is not dependent on terrestrial habitats and there are no known roosting sites within the survey area. Therefore, the Project is **unlikely** to reduce the area of occupancy of an important population.
	Fragment an existing important population into two or more populations	The species is not dependent on terrestrial habitats and there are no known roosting sites within the survey area. Therefore, the Project is **unlikely** to fragment an existing important population into two or more populations.
	Adversely affect habitat critical to the survival of a species	The species is not dependent on terrestrial habitats and there are no known roosting sites within the survey area. Therefore, the Project is **unlikely** to adversely affect habitat critical to the survival of a species.
	Disrupt the breeding cycle of an important population	The species is a migratory species that does not breed in Australia therefore the Project **will not** disrupt the breeding cycle of an important population.
	Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The species is not dependent on terrestrial habitats and there are no known roosting sites within the survey area. Therefore, the Project is **unlikely** to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
	Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The implementation of hygiene measures to prevent the introduction of weeds and diseases means that the Project is **unlikely** to introduce harmful or invasive species.
	Introduce disease that may cause the species to decline	The implementation of hygiene measures to prevent the introduction of weeds and diseases means that the Project is **unlikely** to result in the introduction of diseases that may cause a species to decline.
	Interfere substantially with the recovery of the species	The species is not dependent on terrestrial habitats and there are no known roosting sites within the survey area. Therefore, the proposed action is **unlikely** to interfere substantially with the recovery of the species.

Topic	Criteria	Assessment
Significant impact assessment – Migratory species (EPBC Act Policy Statement 1.1, DEWHA 2013).	Important habitat	The species has rarely been recorded roosting in trees in forests and woodlands, both among dense foliage in the canopy or in hollows in mainland Australia; this species has never been recorded roosting in Tasmania. Thus, there is **no important habitat** within the survey area.
	Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	There is **no important habitat** within the survey area.
	Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	There is **no important habitat** within the survey area.
	Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	The species is not dependent on terrestrial habitats and there are no known roosting sites within the survey area. Therefore, the Project is **unlikely** to seriously disrupt the lifecycle of the white-throated needletail such that it has a significant impact on an ecologically significant proportion of its population in Australia.
Conclusion	**The proposed action is unlikely to have a significant impact on the white-throated needletail because it is an aerial species that will not be impacted by vegetation clearing or construction activities, and furthermore there is no important habitat within the disturbance footprint. The clearance of up to 201.8 ha of native forest is unlikely to affect the behaviour of the white-throated needletail whilst the species is in Tasmania.**	

F.11 *Barbarea australis* (native wintercress)

Topic	Criteria	Assessment
EPBC Act status	Endangered	
Life history and occurrence	Distribution and general habitat requirements	*Barbarea australis* is a riparian/riverine plant species found in or near the margins of river margins, in creek beds and along flood channels adjacent to the river (Threatened Species Section, 2010a). The species is endemic to Tasmania and is known from northern river systems (e.g. Mersey River) and from rivers flowing south of the Central Plateau (e.g. River Derwent, Ouse River). It is also known from the northeast of Tasmania in the North Esk River. It grows in shallow alluvial silts and gravels on sites frequently

		disturbed by fluvial processes such as cobble banks and cobble bars. It also occurs away from the main river channel in flood channels scoured by previous flood action (Threatened Species Section, 2010a).
	Ecology	*B. australis* produces large amounts of seed and after disturbance such as flooding, hundreds of seedlings can emerge in newly exposed gravel and cobble habitat (Threatened Species Section, 2010a). The species can also reproduce vegetatively with a new plant growing from the base of an existing plant (Threatened Species Unit, 2005a).
	Occurrence within the Project site	*B. australis* has been recorded within the disturbance footprint in two locations: up to 10 plants have been recorded on the bank of the Nive River where the southern transmission line option would span the river, and up to 11 plants have been recorded on the face of the dam wall above the existing outflow pipe at the Tarraleah Pump Pond No. 2.
Threats and recovery	Generally recognised threats to the species	The main identified threats to *B. australis* (Threatened Species Section, 2010a) are: • habitat loss and modification due to land clearance • increased grazing pressure from introduced herbivores such as sheep, cattle and rabbits also as more pasture has been created, the numbers of native browsers have also increased • the constructions of impoundments in the upper reaches have affected natural flows including flood events which has reduced habitat • invasion of riparian areas by exotic plants, mainly gorse (*Ulex europaeus*) and willows (*Salix* species), which excludes the establishment of native vegetation.
	Recovery actions	Recovery actions identified in the *Barbarea australis* Recovery Plan (Threatened Species Unit, 2005a) include: • manage and protect subpopulations • Boost numbers in subpopulations by encouraging seed production *in situ* and distributing seed into suitable recruitment niches • identify and map potential habitat and conduct surveys • control of willows and gorse in threatened subpopulations threatened • regular monitoring of subpopulations • manage the species for the long term.
Impact description	**The two populations within the disturbance footprint (if the southern transmission line is selected for construction) will be protected from disturbance by exclusion zones. Therefore, direct impacts on these two populations will be avoided. If the exclusion zones are not implemented, the populations could be destroyed or damaged by construction works near the dam wall and during transmission pole construction.** **The potential indirect impacts of predicted changes in the flow regime downstream from Liapootah Dam on the Nive River and Clark and Wayatinah dams on the River**	

	Derwent on the *B. australis* plants in these areas is addressed in the Tarraleah Redevelopment Aquatic Ecology Assessment (Entura, 2025).	
Significant impact assessment (EPBC Act Policy Statement 1.1, DEWHA 2013).	Lead to a long-term decrease in the size of a population	The two populations within the disturbance footprint (if the southern transmission line is selected for construction) will be protected from disturbance by exclusion zones. Therefore, direct impacts on these two known populations will be avoided and the Project **will not** lead to a long-term decrease in the size of a population.
	Reduce the area of occupancy of the species	The two populations within the disturbance footprint (if the southern transmission line is selected for construction) will be protected from disturbance by exclusion zones and the habitat will be retained. Therefore, there **will be no reduction** in the area of occupancy.
	Fragment an existing population into two or more populations	The two populations within the disturbance footprint (if the southern transmission line is selected for construction) are small and will be protected from disturbance by exclusion zones. Therefore, existing populations **will not** be fragmented.
	Adversely affect habitat critical to the survival of a species	The two populations within the disturbance footprint (if the southern transmission line is selected for construction) and their habitat will be protected from disturbance by exclusion zones and the transmission line will span the riverine habitat. Therefore, the Project **will not** adversely affect habitat critical to the survival of *B. australis*.
	Disrupt the breeding cycle of a population	The two populations within the disturbance footprint (if the southern transmission line is selected for construction) will be protected from disturbance by exclusion zones. The Project will not interfere with flowering or seed dispersal which is by water as the seeds float. Therefore, the Project **will not** disrupt the breeding cycle of either of the two *B. australis* populations in the disturbance footprint.
	Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The two populations within the disturbance footprint (if the southern transmission line is selected for construction) will be protected from disturbance by exclusion zones. Therefore, the Project **will not** modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
	Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.	The implementation of hygiene measures to prevent the introduction of weeds means that the Project is unlikely to introduce harmful or invasive species that would affect *B. australis* or their habitat. The Project is **unlikely** to result in the spread of introduced herbivores that may damage *B. australis* plants or their habitat given that introduced herbivores such as deer (*Dama dama*) and rabbits (*Oryctolagus cuniculus*) are widespread in the Central Highlands.
	Introduce disease that may cause the species to decline	The implementation of hygiene measures to prevent the introduction of weeds and diseases means that the Project is **unlikely** to introduce disease that may cause the species to decline.

	Will the action interfere substantially with the recovery of the species	The two populations within the direct disturbance footprint (if the southern transmission line is selected for construction) and their habitat will be protected from disturbance by exclusion zones. Therefore, direct impacts on these two known populations will be avoided. In addition, the Project will not disrupt flowering or seed dispersal which is by water as the seeds float. Therefore, the Project **will not** interfere substantially with the recovery of the species.
Conclusion	**The proposed action is unlikely to have a significant impact on *Barbarea australis* (native wintercress) because the two populations within the disturbance footprint (if the southern transmission line is selected for construction) will be protected from disturbance by exclusion zones and there will be no impacts on them. The proposed action will not disrupt flowering or seed dispersal which is by water as the seeds float.** **See the *Tarraleah Redevelopment Aquatic Ecology Assessment* (Entura, 2025) for potential indirect impacts due to changes in spill regime and river levels.**	

G Traffic volume increase assessment

A summary table provided by Pitt & Sherry summarising the roads assessed as part of the traffic impact assessment (Pitt & Sherry, 2025), and those with a 10% or greater increase in night-time traffic anticipated during construction. * The section of Lyell Highway between Marlborough Road and Fourteen Mile Road will only be used by large construction vehicles (HML vehicles) to bypass the tight curves on the Lyell Highway through Tarraleah.

Road	Surface type	Speed limit (kmph)	Accommodation to project sites	Transport route option to workforce accommodation at Tarraleah Village				Known night-time traffic volumes of transport route road	Increase in night-time traffic volume associated with the Project	Increase in night-time traffic ≥10% on road section/s proposed for use
				Hobart	Launceston route 1	Launceston route 2	Devonport			
Lyell Highway – Butlers Gorge Road to Oldina Drive	Sealed	100	x	x				224	≥10%	x
Lyell Highway – Oldina Drive to Tarraleah Power Station	Sealed	100	x		x	x	x	224	≥10%	x
Lyell Highway – Tarraleah Power Station to Marlborough Road	Sealed	100	x		x	x	x	224	≥10%	x
Lyell Highway – Marlborough Road to Fourteen Mile Road	Sealed	100	*					224	4.40%	
Butlers Gorge Road	Unsealed	80	x					Conservatively assume <100	≥10%	x

Road	Surface type	Speed limit (kmph)	Accommodation to project sites	Transport route option to workforce accommodation at Tarraleah Village				Known night-time traffic volumes of transport route road	Increase in night-time traffic volume associated with the Project	Increase in night-time traffic ≥10% on road section/s proposed for use
				Hobart	Launceston route 1	Launceston route 2	Devonport			
Fourteen Mile Road	Unsealed	80	x					Conservatively assume <100	≥10%	x
Oldina Drive	Sealed	25 – 60	x	x	x	x	x	Conservatively assume <100	≥10%	x
Palana Crescent	Sealed	Assumed 50	x	x	x	x	x	Conservatively assume <100	≥10%	x
Lyell Highway – Granton to New Norfolk	Sealed	60 – 80		x				5,352	3.90%	
Lyell Highway – New Norfolk to Tarraleah	Sealed	60 – 100		x				800	26.30%	x
Midland Highway	Sealed	110			x			>5,000	<10%	
Illawarra Road	Sealed	90			x			>5,000	<10%	
Tannery Road South	Sealed	50			x			>5,000	<10%	
Wellington Street	Sealed	50			x			>5,000	<10%	
Marlborough Street	Sealed	50 – 60			x			>2,000	<10%	
Cressy Road – Marlborough Street to Main Street	Sealed	50 – 100			x			@ Longford: 1,667	@ Longford: 2.4%	
Cressy Road/ Main Street	Sealed	50 – 100			x			@ Cressy: 453	@Cressy: 8.8%	

Road	Surface type	Speed limit (kmph)	Accommodation to project sites	Transport route option to workforce accommodation at Tarraleah Village				Known night-time traffic volumes of transport route road	Increase in night-time traffic volume associated with the Project	Increase in night-time traffic ≥10% on road section/s proposed for use
				Hobart	Launceston route 1	Launceston route 2	Devonport			
Saundridge Road	Sealed	50 – 100			x			Conservatively assume <200	≥10%	x
Poatina Road	Sealed	100			x			218	18.30%	x
Highland Lakes Road – Poatina Road to Marlborough Road	Sealed	80 – 100			x			131	30.50%	x
Cressy Road – Main Street to Poatina Road	Sealed	60 – 100			x			@ Cressy: 453	@Cressy: 8.8%	
Marlborough Road	Unsealed (generally)	80			x	x	x	69	145%	x
Bass Highway – Launceston to Meander Valley Road	Sealed	110				x		Hagley: 6,070	0.10%	
Meander Valley Road	Sealed	100				x		Westbury: 897	1.10%	
Exton Road	Sealed	60 – 100				x		Conservatively assume <100	≥10%	x
Bogan Road	Sealed	100				x		Conservatively assume <100	≥10%	x
Golden Valley Road	Sealed	100				x		Conservatively assume <100	≥10%	x

Road	Surface type	Speed limit (kmph)	Accommodation to project sites	Transport route option to workforce accommodation at Tarraleah Village				Known night-time traffic volumes of transport route road	Increase in night-time traffic volume associated with the Project	Increase in night-time traffic ≥10% on road section/s proposed for use
				Hobart	Launceston route 1	Launceston route 2	Devonport			
Highland Lakes Road – Golden Valley Road to Marlborough Road	Sealed	100				x		73	13.70%	x
Bass Highway – Devonport to Deloraine	Sealed	70 – 110					x	Sassafras: 4,424	1.10%	
Mole Creek Road	Sealed	80					x	1,133	4.40%	
Emu Bay Road	Sealed	40 – 60					x	3,803	1.30%	
East Parade	Sealed	60					x	>600	<10%	
Highland Lakes Road – East Parade to Meander Road	Sealed	80 – 100					x	598	8.40%	
Highland Lakes Road – Meander Road to Golden Valley Road	Sealed	80 – 100					x	73	68.50%	x
Black Bobs Road [southern transmission line option]	Unsealed	80	x					Conservatively assume <20	≥10%	x
Access Road (-42.3763, 146.5678) [southern transmission line option]	Unsealed	80	x					Conservatively assume <20	≥10%	x

Road	Surface type	Speed limit (kmph)	Accommodation to project sites	Transport route option to workforce accommodation at Tarraleah Village				Known night-time traffic volumes of transport route road	Increase in night-time traffic volume associated with the Project	Increase in night-time traffic ≥10% on road section/s proposed for use
				Hobart	Launceston route 1	Launceston route 2	Devonport			
Access Road (-42.3735, 146.5270) [southern transmission line option]	Unsealed	80	x					Conservatively assume <20	≥10%	x
Wayatinah Road [southern transmission line option]	Sealed	100	x					Conservatively assume <250	≥10%	x
Access Road (-42.2991, 146.4587) [southern transmission line option]	Unsealed	80	x					Conservatively assume <20	≥10%	x
Access Road – Tungatinah Power Station Car Park (-42.2982, 146.4581) [northern transmission line option]	Unsealed	10-20	x					Conservatively assume <20	≥10%	x
Access Road (-42.2794, 146.4549) [northern and southern transmission line options]	Unsealed	80	x					Conservatively assume <20	≥10%	x
Portal Road [northern transmission line option]	Unsealed	80	x					Conservatively assume <100	≥10%	x
Victoria Valley Road – Portal Road to Lake Echo	Unsealed	80	x					Conservatively assume <100	≥10%	x

Road	Surface type	Speed limit (kmph)	Accommodation to project sites	Transport route option to workforce accommodation at Tarraleah Village				Known night-time traffic volumes of transport route road	Increase in night-time traffic volume associated with the Project	Increase in night-time traffic ≥10% on road section/s proposed for use
				Hobart	Launceston route 1	Launceston route 2	Devonport			
Road [northern transmission line option]										
Access Road (-42.2824, 146.6086) [northern transmission line option]	Unsealed	80	x					Conservatively assume <20	≥10%	x
Lake Echo Road (-42.2834, 146.6152) [northern transmission line option]	Unsealed	80	x					Conservatively assume <20	≥10%	x
Lake Echo Road (-42.2828, 146.6159) [northern transmission line option]	Unsealed	80	x					Conservatively assume <20	≥10%	x