Appendix A

Information required by Tasmania Parks and Wildlife Service to address the EIS guidelines

Hydro Tasmania

Acknowledgement of Country

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.

Contents

Appendices

Tables

Figures

Executive summary

Components of the Tarraleah Redevelopment project (the Project) are located within the Tarraleah Conservation Area, which requires assessment and authorisation under the *National Parks and Reserves Management Act 2002* (NPRMA). These components are a permanent surge facility, including the associated rising main, access tracks, and 22 kV distribution line for power supply; a temporary explosive magazine during the construction phase only; and a new access road off Fourteen Mile Road.

The proponent, Hydro Tasmania, has nominated a construction disturbance footprint with a maximum area of 13.7 hectares, of which 10.4 hectares has been field verified as native vegetation that may be subject to clearance. Most of the native vegetation within the disturbance footprint for the surge facility is mature (i.e. not harvested for timber in recent decades) wet eucalypt forest dominated by *Eucalyptus tasmaniensis* (gum-topped stringybark) trees. No threatened flora species were recorded within the disturbance footprint within the Tarraleah Conservation Area. Although listed threatened fauna species may forage over the area, the Project is unlikely to impact breeding habitat or important habitat features.

Fire risk and risks to water quality can be managed if appropriate plans and measures are implemented.

The potential for Aboriginal heritage to be located in the disturbance footprint is considered low.

A new access track will connect Fourteen Mile Road to the surge tower and rising main construction area, and an existing access road off Butlers Gorge Road to Mossy Marsh Canal will be upgraded to meet construction requirements. Both access points will be appropriately controlled by a road closure gate and/or security fence, which will remain in situ for the Project's operation. Appropriate security fencing will also be installed around infrastructure for both security purposes and as a means of alerting the public who may be using the Conservation Area for recreation, research, education and other purposes.

The Tasmania Parks and Wildlife Services (PWS) will initiate a Level 3 Reserve Activity Assessment (RAA) for assessment, public consultation and decision making in parallel with the assessment of the Environmental Impact Statement (EIS) prepared by Hydro Tasmania to meet the project-specific guidelines published by the Environment Protection Authority Tasmania in August 2024, under its obligations pursuant to the *Environmental Management and Pollution Control Act 1994* (EMPCA). To facilitate the RAA in parallel to the EIS assessment, PWS has identified additional information requirements relevant to the RAA process, which are provided Appendix B.

Overall, it has been determined that the Project is not inconsistent with the purpose of the reservation of the Tarraleah Conservation Area as specified in Schedule 1 of the *Nature Conservation Act 2002*. Furthermore, it has been determined that the Project is not inconsistent with the management objectives for a Conservation Area as specified in Schedule 1 of the *National Parks and Reserves Management Act 2002*.

1. Project description

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. Components of the proposal are located within the Tarraleah Conservation Area, which requires assessment and authorisation under the *National Parks and Reserves Management Act 2002* (NPRM Act). The Tasmania Parks and Wildlife Service (PWS), the managing authority for the Tarraleah Conservation Area, will undertake a Level 3 Reserve Activity Assessment (RAA) for assessment, public consultation and decision making. The RAA will be undertaken alongside the Environment Protection Authority Tasmania's Environmental Impact Assessment process for the Tarraleah Redevelopment under the *Environmental Management and Pollution Control Act 1994* (EMPC Act). The purpose of this document is to address the Environmental Impact Statement (EIS) guidelines relevant to the RAA (Environment Protection Authority, 2024). The RAA is the process by which PWS implements the requirement of the *Tasmanian Reserve Management Code of Practice* that all new activities in reserves are to be subject to an environmental impact assessment.

The Tarraleah Redevelopment Project (the Project) will require the following infrastructure within the Tarraleah Conservation Area: a surge facility, including the associated rising main, access, and 22 kV distribution line for power supply; a temporary explosive magazine during the construction phase; an access road off Fourteen Mile Road; and potential minor upgrades to the Lyell Highway – Butlers Gorge Road intersection if required to facilitate access (Figure 1.1).

The surge facility will be constructed on the hilltop directly to the west of Tarraleah Village. The location of the surge facility has been determined to minimise the height of the surge tower while being in close enough proximity to the power station to operate efficiently. The surge facility consists of:

- A surge shaft, approximately 265 m deep and 5 m diameter and directly connected to the headrace tunnel by a connection chamber at its base. It will be lined with shotcrete if required at depth and steel for approximately the top 50 m. The surge shaft will be excavated into Jurassic dolerite.
- A surge tower will be constructed of welded 3 m high steel sections at a diameter of 14 m to a final height of approximately 70 m. The tower will be finished in silver paint. The surge tower will also receive water from No. 2 Pond via a rising main connected to the pump station.
- A connection chamber to the headrace tunnel to enable raised bore development and construction of an orifice connection to assist with regulating surge flows.

The surge facility is required to control sudden fluctuations in water pressure through both the collection of water when water pressure is high, as well as the release of water when pressure is low, hence improving the dynamic abilities of the water conveyance tunnels.

The surge shaft will be constructed using a raise borer, which will drill a pilot hole down to the connection chamber. Upon completion of the shaft excavation, shaft lining with shotcrete (below 50 m depth if required) and steel (in the upper 50 m) will be installed. The surge tower construction (same location) will commence after the shaft construction operation has been completed and demobilised. Reinforced concrete foundations will be constructed to receive the tower sections. 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 be approximately 70 m high (above ground level) and 16 m in diameter. Plant, equipment and machinery on-site may include raised boring equipment, a 60-tonne slew crane, concrete pumps, and telehandler dry hire cranes.

The No. 2 Canal downstream of Derwent Pumps is proposed to be retained. Water in this conveyance will be captured by the Project via a pump station and rising main connecting No. 2 Pond to the base on the surge tower. The pump station will be located off Fourteen Mile Road in close proximity to No. 2 Pond. During operation, the pump station will reduce the flow required to be delivered from Lake King William to the power station by supplying water from the catchments that feed No. 2 Pond. When the scheme is not operating, water from No. 2 Pond will be pumped via the surge shaft connection chamber to the headrace tunnel and pipeline into Lake King William.

The pump station facility will include:

- A suction main inlet that will be integrated into the No. 2 Pond outlet and connected to the pump station.
- A pump station, housing three pump sets in parallel with variable speed drives, will pump water at high pressure (up to a maximum of 6 m3/s) via the rising main to the surge facility (Figure 1.1). The pump station will have above ground superstructure with a below ground concrete substructure. The superstructure will have a steel frame to support an internal crane as well as steel sheet and/or precast concrete walls with a steel roof. The pump station will be distanced from Fourteen Mile Road in order to provide a vegetation screen between the station and road.
- A 0.8 km rising main from the pump station that connects to an inlet in the surge tower. The rising main will run adjacent to the surge tower access road. The rising main will be constructed from standard Glass Reinforced Polymer (GRP) pipeline sections in nominally 12 m lengths. The pipeline will comprise of mostly buried pipe near the pump station building, with a section crossing Fourteen Mile Road. At the end of the rising main, at the base of the surge tower, a check-valve will prevent dewatering of the surge tower in case of a failure in the rising main pipe system. The remaining pipe lengths between the valve and the surge tower inlet will be made of steel.
- Surge tank; switchyard and hardstand as well as other minor ancillary structures.

As at July 2025, there was no reserve management plan for the Tarraleah Conservation Area. The reserve is 967.2 hectares (ha) in total area and lies within the Central Highlands local government area. The Tarraleah Conservation Area is classified as category IV by the International Union for Conservation of Nature (IUCN), which are areas primarily managed for the maintenance of habitats or to meet the requirements of specific species (IUCN, 1994).

The Tarraleah Redevelopment Project is also within close proximity to the Tasmanian Wilderness World Heritage Area (TWWHA). At its closest point, at the proposed western portal, the disturbance footprint is approximately 25 m from the TWWHA boundary on the opposite side of Canal No 1.

Hydro Tasmania is not aware of other development proposals within the Tarraleah Conservation Area.

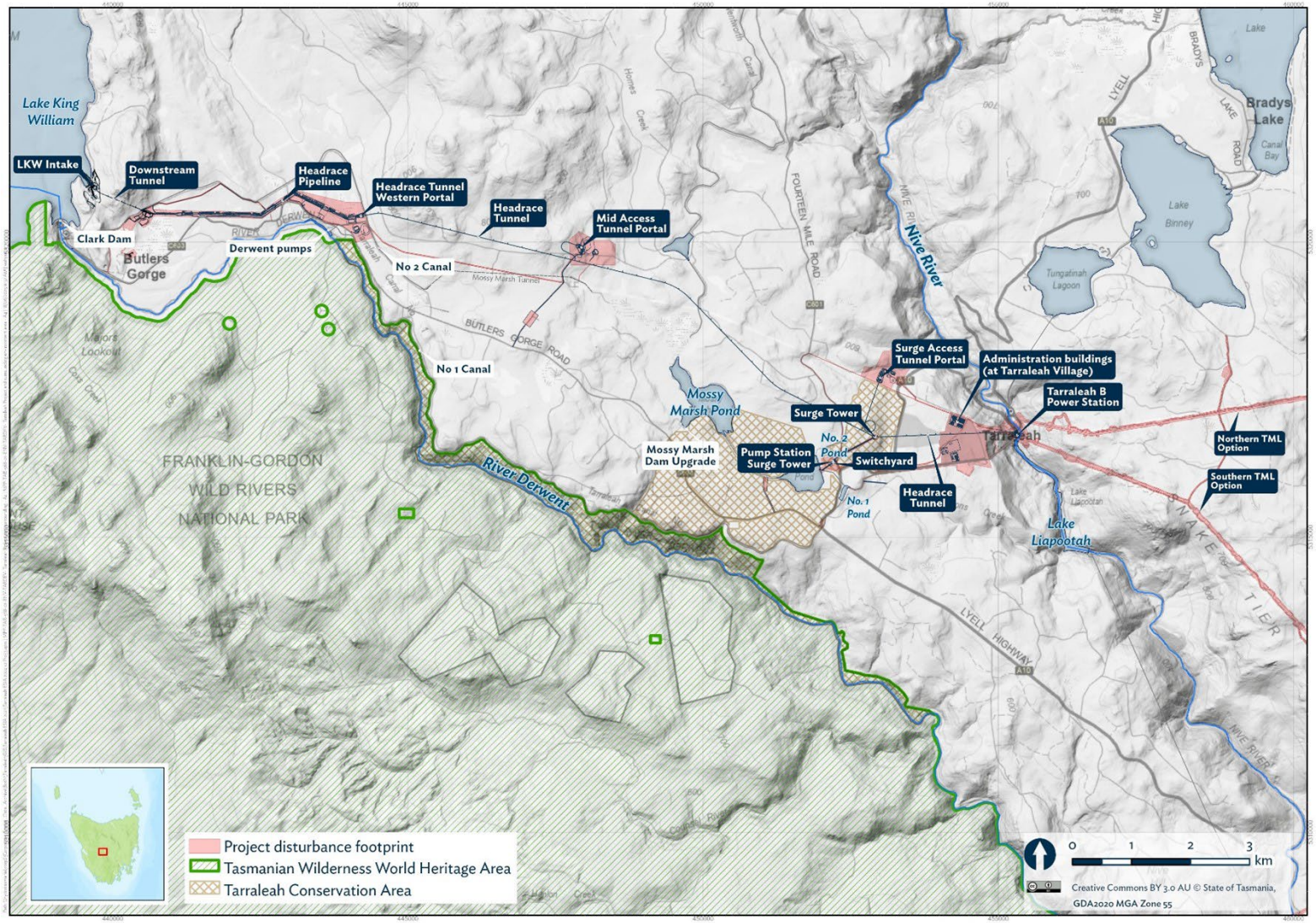


Figure 1.1: Proposed Tarraleah Redevelopment infrastructure and formal reserves

2. Site plans

Figure 2.1 provides an overview of the proposed construction schedule for the Project works within the Tarraleah Conservation Area (i.e. surge facility, pump station and rising main).

The construction disturbance footprint (for which approval is being sought through the Environmental Impact Assessment process) and the nominal operational footprint (subject to final detailed design) are shown for infrastructure proposed within the Tarraleah Conservation Area in Figure 2.2 and Figure 2.3. The dimensions of the proposed infrastructure, areas of permanent vegetation removal, and area of vegetation to be rehabilitated post-construction are shown in Figure 2.4. All areas not required for operation will be rehabilitated.

The proposed location of the surge tower is 2,812 m to the north east of the TWWHA.

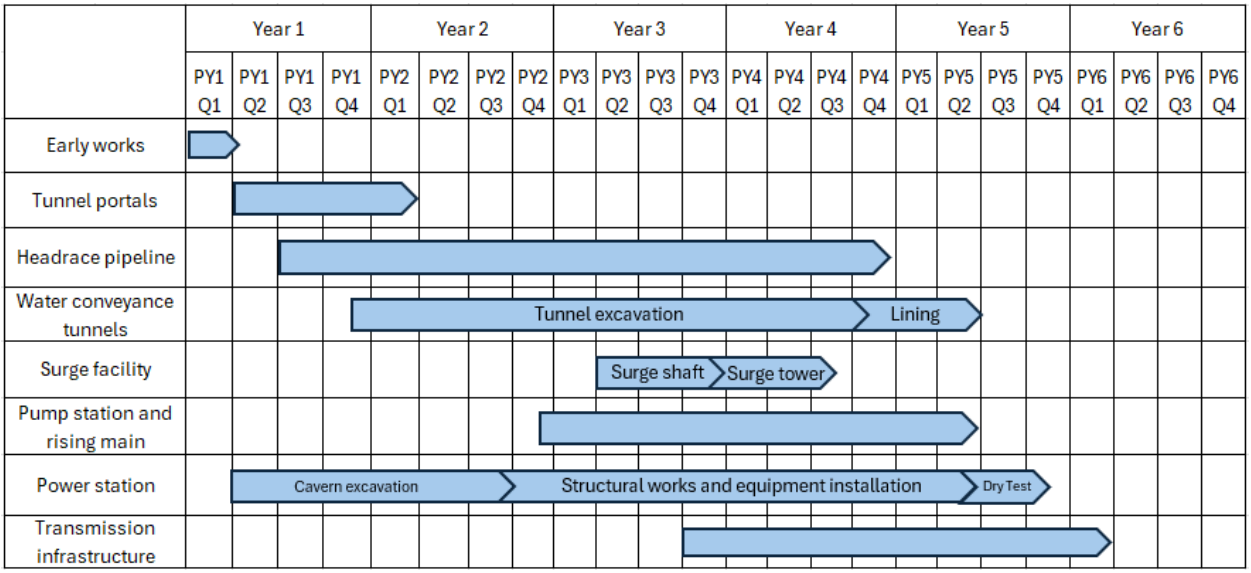


Figure 2.1: Tarraleah Redevelopment construction schedule

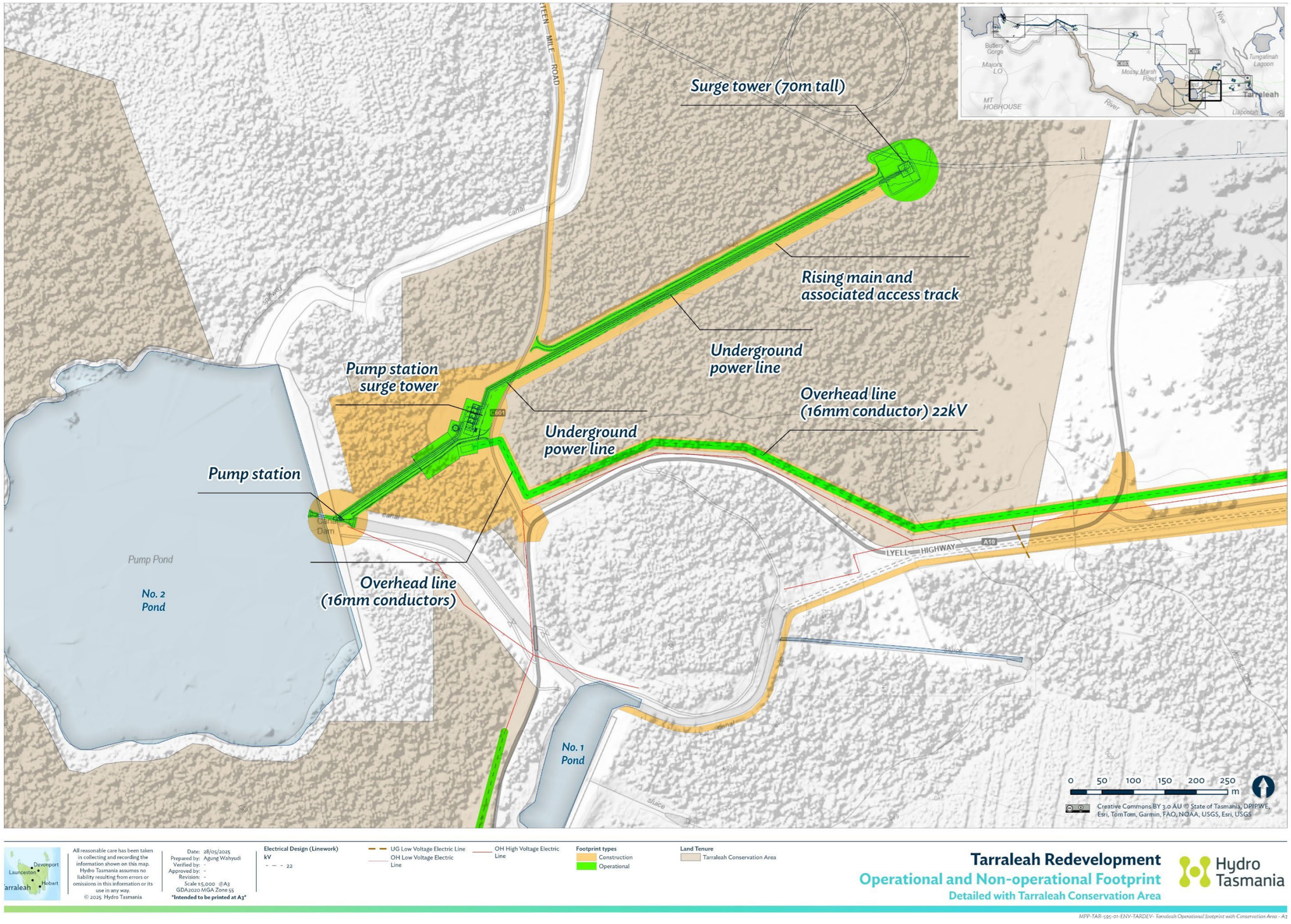


Figure 2.2: Construction disturbance footprint and nominal operational footprint of the surge facility and power supply

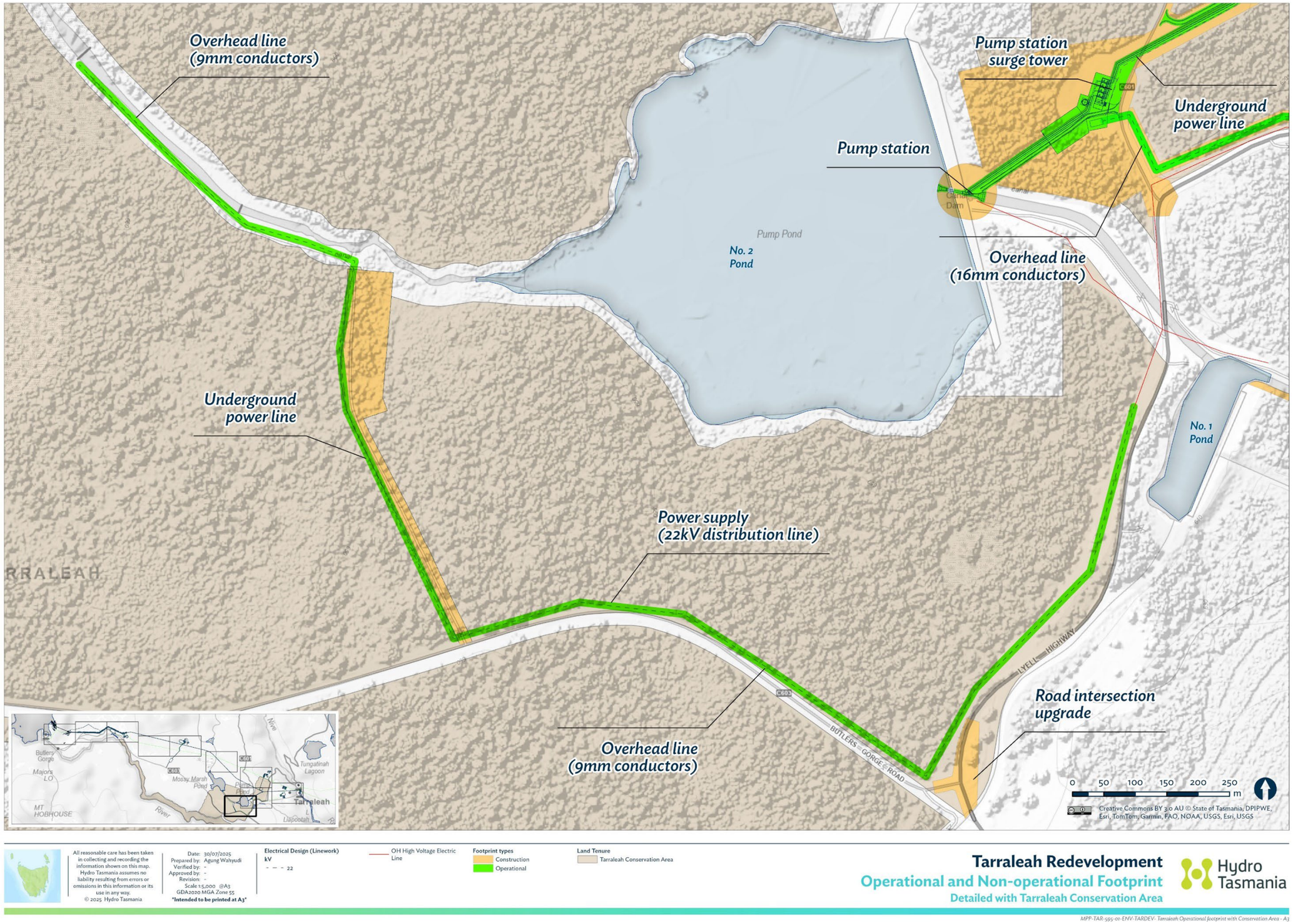
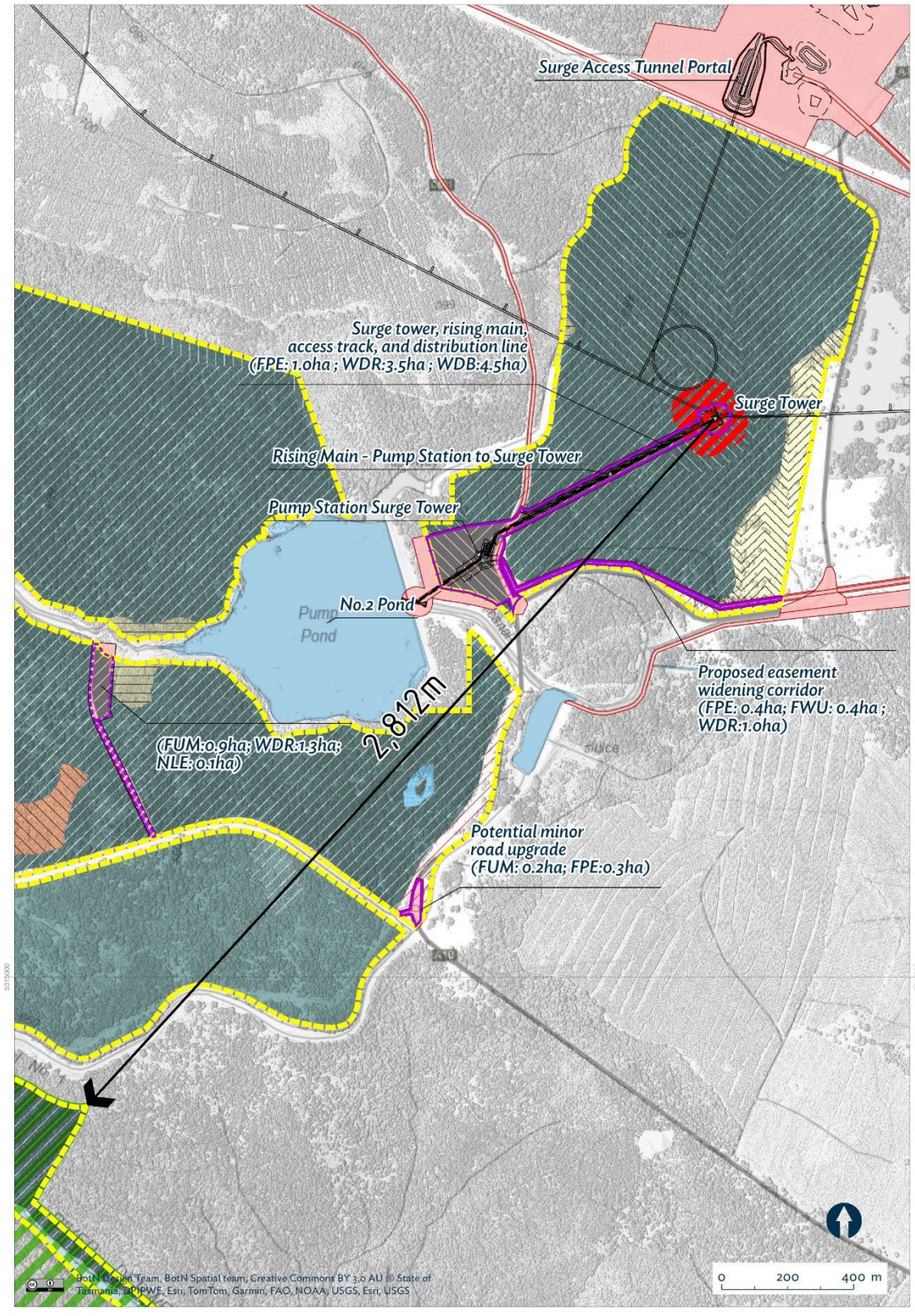
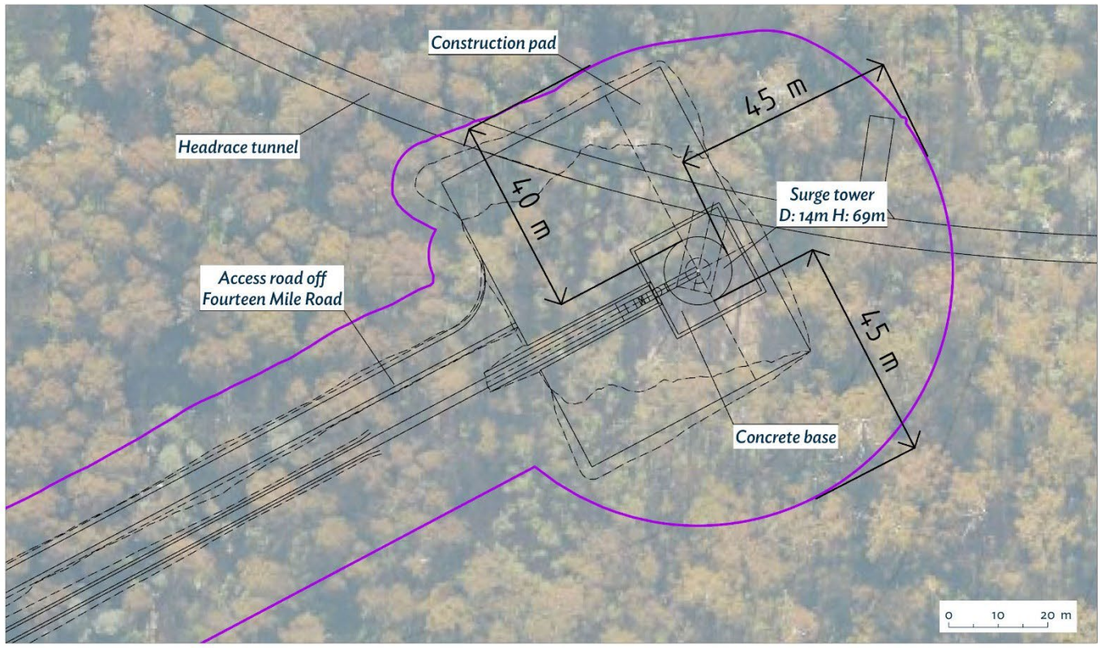
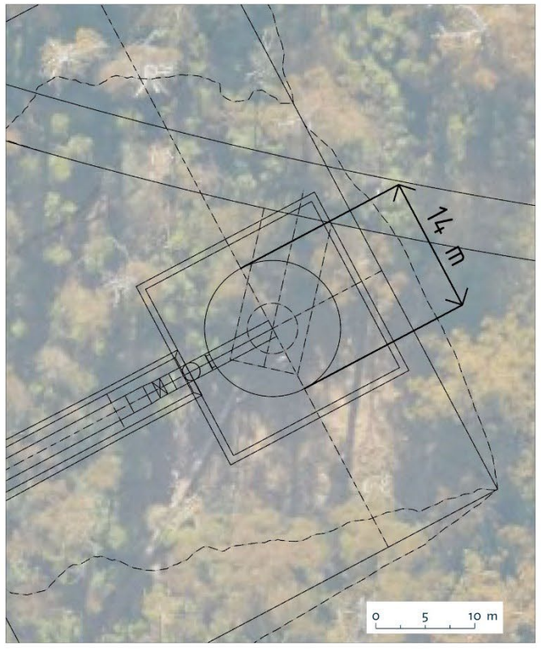


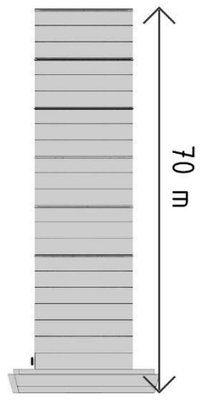
Figure 2.3: Construction disturbance footprint and nominal operational footprint of the temporary explosive magazine, power supply, and potential minor road intersection upgrade







The surge tower will be constructed of welded 3m high sections at a diameter of 14m for an overall height of 70m. The tower sections will consist of three curved plates that will be craned into place and welded in-situ



The surge shaft will be constructed at depth of 50m

Figure 2.4: Infrastructure detailed design and siting within the Tarraleah Conservation Area

3. Project alternatives

Of the six Project options described in **EIS Chapter 3.0**, two do not include any construction within the Tarraleah Conservation Area:

- The status quo option, which would involve maintaining the current scheme. This has not been deemed a viable option as it does not adequately address the environment, flexibility or reliability concerns that underpin the need for investment and is therefore not considered sustainable in the longer term. In particular, the risk of an environmental incident posed by the ageing canals was deemed unacceptable.
- The decommissioning option, which would involve retiring the whole scheme once its asset condition is assessed to be untenable. Although viable, this option has not been deemed comprehensive in addressing key problems in the current scheme such as scheme inflexibility and reliability risks.

The proposed location of the surge facility is constrained by the geology and topography as well as the tunnel alignment. It must be in close enough proximity to the proposed new power station on the Nive River to operate effectively, and the top of the surge tower must be located higher than Lake King William. Several locations for the new power station were assessed during the feasibility studies and design development. These assessments showed that the proposed location, adjacent to the existing Tarraleah Power Station, best meets the Project objectives for the following reasons:

- It is located on west bank of Nive River and eliminates requirements for both penstock and access bridges across the Nive Rive.
- It maximises head available and therefore scheme output.
- The existing terrace provides space for construction and implementation of permanent and temporary flood proofing and limits the extent of in-river works.
- Therefore, there are no other sites for the surge tower within sufficient vicinity of the power station that meet these requirements.
- The proposed site within the Tarraleah Conservation Area also minimises the overall height of the surge tower, due to the site being at a topographical high on the hilltop to the west of Tarraleah Village. Due to these engineering constraints, no other alternatives for the surge facility were considered.
- The Project's proximity to the TWWHA is unavoidable due to the layout of the existing Tarraleah hydropower scheme for which end of life assets must be replaced. Furthermore, redevelopment infrastructure has been preferentially sited within previously cleared areas to make use of existing infrastructure and easements to minimise native vegetation clearing. The Project alternatives that would provide a greater distance from the TWWHA than redevelopment are the status quo (not viable) and decommissioning options (inferior option).

4. Consistency with management objectives

Pursuant to Schedule 1 of the Tasmanian *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.*" Works within the Tarraleah Conservation Area are likely to have impacts on some natural values due to native vegetation clearance and installation of infrastructure. Siting and design for proposed infrastructure within the Conservation Area has sought to avoid and minimise impacts to significant species and cultural heritage; native vegetation clearance will be minimised to the greatest extent practicable. The Project is unlikely to change the current commercial or recreational use of the site. Table 4.1 demonstrates that the Project is not inconsistent with the management objectives for a Conservation Area as specified in Schedule 1 of the NPRM Act nor is it inconsistent with the purpose of reservation as specified in Schedule 1 of the NC Act.

Table 4.1: Project consistency with management objectives for a Conservation Area under the NPRM Act

Conservation area objective under Schedule 1 of the NPRM Act	Assessment of Project consistency
To conserve natural biological diversity	Extensive monitoring (e.g. passive acoustic monitoring for Tasmanian masked owl, three aerial raptor nest searches, ground searches for threatened flora and evidence of threatened fauna species such as Tasmanian devil scat) has been undertaken within the Tarraleah Conservation Area to ensure significant species and their important habitat features are avoided. The maximum footprint of construction works within the Conservation Area is 13.7 ha (i.e. 1.4%) of the 967.2 ha reserve. The 10.4 ha of native vegetation within the construction disturbance footprint constitute 1.2% of the mapped native vegetation within the reserve.
To conserve geological diversity	There is a listed geoconservation feature – the Western Tasmania Blanket Bogs (site ID 2527) – within the Tarraleah Conservation Area, identifiable by the buttongrass moorland vegetation above. There is one verified patch of buttongrass moorland with emergent shrubs in the Tarraleah Conservation Area, however this is outside the disturbance footprint. Project construction and operation will not impact any buttongrass moorlands within the Conservation Area.
To preserve the quality of water and protect catchments	Where potential for impact to water quality has been assessed, mitigations have been applied for the Project which will ensure that water quality performance criteria are met in the receiving environment (including the stretch of the River Derwent and Mossy Marsh Creek that are within the Tarraleah Conservation Area). These mitigations include the capture and treatment (for pH and sediment removal) of all site wastewater, no discharge of water to small creeks or the River Derwent within the TWWHA or Tarraleah Conservation Area, the use of substantial dilution within the water conveyance for nitrate and ammonia to ensure acceptable concentrations, and the application of water quality performance criteria for receiving waters. Refer **EIS Section 5.1** for further detail.

Conservation area objective under Schedule 1 of the NPRM Act	Assessment of Project consistency
To conserve sites or areas of cultural significance	No Aboriginal heritage sites have been recorded within the Tarraleah Conservation Area. No Aboriginal heritage sites were identified during surveys of proposed infrastructure between Tarraleah No. 1 Pond and the surge tower location and the potential for artefacts is considered very low due to absence of predictive attributes and low ground surface visibility. In the event of artefact identification, an Unanticipated Discovery Plan (UDP) will be implemented. Irrespective of the presence of heritage sites, the area is culturally significant to the Tasmanian Aboriginal community. Community consultation has begun and is ongoing to determine mitigation strategies for broader landscape values. Historic heritage values west of the Lyell Highway opposite Tarraleah Golf Course include archaeological remains associated with early Hydro construction villages. A 22 kV distribution line will be installed along the Lyell Highway; the construction of the power supply infrastructure is unlikely to impact these Hydro village remains (**EIS Section 5.13**).
To provide for the controlled use of natural resources including special species timber harvesting, and including as an adjunct to utilisation of marine sources.	Tarraleah Conservation Area is not currently used for the controlled use of natural resources. The native forest within the reserve is primarily dominated by *Eucalyptus tasmaniensis* (not a specialty timber species) and does not contain specialty timber (i.e. rainforest) species of harvestable size.
To provide for exploration activities and utilisation of mineral resources	The proposed works within the Tarraleah Conservation Area is not considered to be for exploration or utilisation of mineral resources. Therefore, this objective does not apply to the Project.
To provide for the taking, on an ecologically sustainable basis, of designated game species for commercial or private purposes, or both.	The Tarraleah Conservation Area is not listed as part of the areas available for public land hunting in Tasmania (NRE Tasmania, 2024).
To provide for other commercial or industrial uses of coastal areas.	No coastal areas will be impacted within the Tarraleah Conservation Area as a result of the Project works. As such there will be no impacts on commercial or industrial uses of coastal areas.
To encourage education based on the purposes of reservation and the natural or cultural values of the conservation area, or both.	Aside from the 13.7 ha designated Project works area in the Tarraleah Conservation Area, the remainder of the Conservation Area will remain accessible for education purposes during construction.
To encourage research, particularly that which furthers the purposes of reservation.	Aside from the 13.7 ha designated Project works area in the Tarraleah Conservation Area, the remainder of the reserve will remain accessible for research purposes during construction. The passive acoustic monitoring for Tasmanian masked owl conducted within the conservation area as part of the ecological surveys conducted by Entura has contributed to refinement of the species-specific detector technology (Entura, 2025).

Conservation area objective under Schedule 1 of the NPRM Act	Assessment of Project consistency
To protect the conservation area against, and rehabilitate the conservation area following, adverse impacts such as those of fire, introduced species, diseases and soil erosion on the conservation area's natural and cultural values and on assets within and adjacent to the conservation area.	During construction and following completion of the surge facility, the vegetation adjacent to the new infrastructure will be maintained perpetually as a hazard management area with a minimum separation distance from the surge tower to the bushfire-prone vegetation (Figure 2.4) to achieve a BAL-12.5 separation distance based on a FDI 50 within Table 2.6 of *AS3959:2018 Construction of Buildings in Bushfire-prone Areas.* All temporary works sites set up to support construction works throughout the Project will be rehabilitated in accordance with a rehabilitation plan prepared prior to construction. This will include the temporary explosive magazine within the Tarraleah Conservation Area. Sediment and erosion control and weed management protocols will also be put in place to avoid and minimise impacts across the entire Project area, including the Tarraleah Conservation Area.
To encourage appropriate tourism, recreational use and enjoyment (including private uses) consistent with the conservation of the conservation area's natural and cultural values	Aside from the 13.7 ha designated disturbance footprint within the Tarraleah Conservation Area, the remainder of the reserve will remain accessible for tourism and recreation purposes during construction of the Project. However, Butlers Gorge Road will be closed during construction and access to the Conservation Area will be by Fourteen Mile Road only.
To encourage cooperative management programs with Aboriginal people in areas of significance to them in a manner consistent with the purposes of reservation and the other management objectives.	An Aboriginal Heritage Officer has been involved in all heritage assessments intersecting the Tarraleah Conservation Area. Opportunities for broader Aboriginal community participation in field surveys have not arisen; however, community engagement on cultural values in the broader redevelopment area is planned (**EIS Section 5.13**).

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 (IUCN, 1994). The Project is not inconsistent with the objectives of an IUCN category IV reserve (Table 4.2).

Table 4.2: Project consistency with objectives of an IUCN Category IV reserve

IUCN Category IV Objective	Assessment of Project consistency
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	Extensive monitoring (e.g. passive acoustic monitoring for Tasmanian masked owl, three aerial raptor nest searches, ground searches for threatened flora and evidence of threatened fauna species such as Tasmanian devil scat) has been undertaken within the Tarraleah Conservation Area to ensure significant species and their important habitat features are avoided. The maximum footprint of construction works within the conservation area is 13.7 ha (i.e. 1.4%) of the 967.2 ha reserve. The 10.4 ha of native vegetation within the construction disturbance footprint constitute 1.2% of the mapped native vegetation within the reserve. **Not inconsistent**

IUCN Category IV Objective	Assessment of Project consistency
Facilitate scientific research and environmental monitoring as primary activities associated with sustainable resource management	Aside from the 13.7 ha (i.e. 1.4% of the 967.2 ha reserve) designated Project works area in the Tarraleah Conservation Area, the remainder of the reserve will remain accessible for research purposes during construction. The passive acoustic monitoring for Tasmanian masked owl conducted within the Conservation Area as part of the ecological surveys conducted by Entura (Entura, 2025) has contributed to refinement of the species-specific detector technology. **Not inconsistent**
Develop limited areas for public education and appreciation of the characteristics of the habitats concerned and of the work of wildlife management	Aside from the 13.7 ha (i.e. 1.4% of the 967.2 ha reserve) designated Project works area in the Tarraleah Conservation Area, the remainder of the Conservation Area will remain accessible for education purposes during construction. **Not inconsistent**
Eliminate and thereafter prevent exploitation or occupation inimical to the purposes of designation	A new access track will connect Fourteen Mile Road to the surge tower and rising main construction area, and an existing access road off Butlers Gorge Road to Mossy Marsh Canal will be upgraded to meet construction requirements. Both access points will be appropriately controlled by a road closure gate and/or security fence, which will remain in situ for the Project's operation. Appropriate security fencing will also be installed around infrastructure for both security purposes and as a means of alerting the public who may be using the Conservation Area for recreation, research, education and other purposes. **Not inconsistent**

5. Assessment of impact to wilderness values

Although all Project works and infrastructure are proposed in locations outside of the TWWHA, the objectives of the TWWHA Management Plan (TWWHAMP) require proponents to assess any activities that may cause adverse impacts on the reserve's aesthetic and wilderness values.

5.1 Visual impact to the TWWHA

As part of the Visual Impact Assessment prepared for the EIS, a wilderness impact assessment explicitly considering the TWWHA was undertaken (Inspiring Place, 2025). Refer **EIS Section 5.14** for further information.

The Landscape and Visual Impact Assessment completed a viewshed analysis over a 25km distance from the redevelopment area. Based on the viewshed analysis elements of the Redevelopment are partially visible (in the presence of vegetation) from Wylds Craig, Mount Hobhouse, Mount Shakespeare and the Mount King William ranges. However, the investigation did not include unmarked tracks or routes (i.e. those that are not available on publicly accessible maps/GIS layers) to Mount Hobhouse, Mount Shakespeare and Mount King William II and III. Therefore, it is considered that the sensitivity to change and magnitude of visual and landscape character impact at these locations, is low to negligible due to their very low visitation.

There is limited visibility to the mid-access tunnel infrastructure and the transmission line (northern option) from along the Wylds Craig track, and views to the surge tower and limited glimpses of the transmission line from last kilometre of the track, including the summit. Hydro Tasmania completed a visual simulation of the redevelopment from the summit of Mt King William I, located approximately 25.35 km from the site. The tower would be seen in the far view (>20 km), where line and shape dominate and the colour and texture of structures become indistinguishable. Additionally, vegetated ridges form the backdrop to the surge tower, thereby further reducing its discernibility in the wider field of view. While the surge tower may still be discernible, particularly under scrutiny and with longer viewing duration, the impact on the wilderness and recreational experience of viewers is considered low, given the distance and the extent to which the infrastructure is visually subsumed into the background.

Similarly to Mount King William I, the redevelopment would be viewed from Wylds Craig track at a distance greater than 19km suggesting that infrastructure would be difficult to distinguish given the distance and the vegetated backdrop. Furthermore, the approach to the walking track and the composition of the view from the track are characterised by an already modified landscape containing hydroelectric infrastructure and forestry coupes, with the proposed redevelopment being consistent with the existing landscape and visual character.

Management measures to further reduce impacts to wilderness and aesthetic values are described in detail in **EIS Section 5.14**.

5.2 Assessment of Impact on Wilderness Values

An assessment of impact to wilderness value was subsequently undertaken to evaluate the magnitude of impact on the wilderness value of viewing opportunities within the TWWHA. The assessment was based on the effect of each element of the redevelopment on the component variables of wilderness value in the National Wilderness Inventory (NWI, 2015). Specifically, the assessment rates the magnitude of impact on wilderness value variables (remoteness from settlement, remoteness from access, apparent naturalness, and biophysical naturalness) of the TWWHA areas with views to the redevelopment (including Mount Hobhouse, Mount Shakespeare, Wylds Craig and the Mount King William Ranges), as low, moderate, or high.

Overall, the magnitude of impact of the proposed development on the experience of wilderness and/or recreation experience for those visiting the TWWHA is considered to be low. This is because the visible features are small in scale compared to the expanse of the setting and will be seen in conjunction with existing disturbances, with which they do not contrast strongly enough to be visually incompatible. In other words, changes to the visual character of the wider landscape setting are compatible with the existing character.

It is acknowledged that visibility of those viewable aspects of the Redevelopment may be marginally higher during the construction phase, and prior to site remediation and rehabilitation taking effect to reduce the impact of exposed soil and rock and screen new built elements. However, timely and comprehensive environmental management and rehabilitation, as well as the adoption of the visual mitigation strategies recommended in the LVIA, will minimise these impacts.

5.3 Impacts to the River Derwent within the TWWHA

There are approximately 23 km of the River Derwent downstream of the Clark Dam within the TWWHA. These reaches have experienced altered flow regimes since the 1938 commissioning of the Tarraleah Hydropower Scheme. Hydrological modelling indicates that the Tarraleah Redevelopment Project would result in further diversion of water from the channel of the River Derwent within the TWWHA by reducing the overall frequency and magnitude of spills. To mitigate the impact of a reduced spill/high flow regime to the River Derwent downstream of Clark Dam, planned spill events of sufficient magnitude and frequency to maintain geomorphic processes, habitat and species values in the TWWHA, including habitat suitability for the riverine plant *Barbarea australis,* are proposed during the operation of the redeveloped scheme.

Potential impacts and recommended mitigations to avoid impacts to the River Derwent downstream of the Clark Dam are described in detail in **EIS Section 5.4**.

6. Biological diversity and natural values

The 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). Both the desktop and field-based components of the assessment were undertaken by qualified ecologists from Entura.

The desktop assessment of biodiversity and natural values was originally undertaken in September 2019 and was most recently updated in February 2025. It included a search of the following online datasets:

- Tasmanian Vegetation Map (TASVEG 4.0)
- The Tasmanian Natural Values Atlas (NVA) – a search for records within 5 km of the disturbance footprint
- The EPBC Act Protected Matters Search Tool (PMST)
- The Tasmanian Geoconservation Database
- The Tasmanian ListMap layer of modelled wilderness value.

Additionally, a desktop-based roadkill review was undertaken in May 2025, for which the method is detailed in Section 2.2 of the Tarraleah Redevelopment Project Terrestrial Ecology Assessment (Entura, 2025).

Flora and fauna field surveys have been undertaken between late 2018 and May 2025. The flora survey method involved two suitably qualified Entura ecologists walking over the survey area in a systemic manner and recording all flora species (including introduced, non-native species) encountered, such that sufficient sample area within the disturbance footprint was covered to correctly attribute the vegetation community mapping and to collect a comprehensive list of the flora species present. All flora species encountered during the survey were recorded on a computer tablet with GPS capability using Entura's Environmental Field Observation System (EFOS), which records data using fields that are consistent with the NVA database. Nomenclature for flora follows the current Census of Tasmanian Vascular Plants (de Salas and Baker, 2024). Dominant and co-dominant flora species were recorded in all vegetation communities that were encountered so that the community could be attributed to the appropriate TASVEG vegetation Tasmanian Vegetation Mapping Units (Kitchener and Harris, 2013). The boundaries and extent of the TASVEG communities were mapped on Entura's corporate GIS. All EFOS records and verified vegetation community mapping is regularly sent to the Department of Natural Resources and Environment Tasmania (NRE Tasmania).

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, burrows, shelters). Targeted surveys were undertaken for wedge-tailed eagle and white-bellied sea-eagle nests (three aerial helicopter searches over three years, with the most recent in May 2025), Tasmanian masked owl (*Tyto novaehollandiae castanops*) potential nesting/roosting habitat, and bare-nosed wombat (*Vombatus ursinus tasmaniensis*) burrows. During the aerial raptor nest search on 21 May 2025, the vegetation community mapping was again confirmed from the air.

Section 4.9 of the Tarraleah Redevelopment Terrestrial Ecology Assessment (Entura, 2025) provides a detailed description of the potential impacts to biological diversity and natural values within the Tarraleah Conservation Area.

6.1 Vegetation communities

The construction disturbance footprint nominated a maximum of 13.7 ha that may be subject to vegetation clearance, of which 10.4 ha has been field verified as native vegetation (Table 6.1). 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 TASVEG 4.0 mapped native vegetation within the reserve. The clearance of up to a total of 10.4 ha of *Eucalyptus tasmaniensis*-dominated native vegetation represents 1.6% of the approximately 653.3 ha of mapped *Eucalyptus tasmaniensis*-dominated forest in the Tarraleah Conservation Area.

Approximately 3.3 ha of the disturbance footprint proposed within the reserve have been verified as modified (non-native) communities (Table 6.2).

Most of the native vegetation within the disturbance footprint for the surge facility is mature (i.e. not harvested for timber in recent decades) wet eucalypt forest dominated by *Eucalyptus tasmaniensis* (gum-topped stringybark) trees, which formed the canopy to a height of 40 to 45 m (Figure 6.1). *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* (ivyleaf violet) and *Hydrocotyle hirta* (hairy pennywort).

Figure 6.1: *Eucalyptus tasmaniensis* forest over broad-leaf shrubs at the proposed surge facility site

Table 6.1: Extent of verified native vegetation communities proposed for clearance within the disturbance footprint in the Tarraleah Conservation Area for the surge facility, temporary explosives magazine, potential minor intersection upgrade, and power supply

TASVEG 4.0 native vegetation community (VEGCODE)	Area to be temporarily cleared in the disturbance footprint within the Tarraleah Conservation Area (ha)	Area to be permanently cleared in the disturbance footprint within the Tarraleah Conservation Area (ha)	Total (ha)
Eucalyptus tasmaniensis forest with broad-leaf shrubs (WDB)	0.0	1.0	1.0
E. tasmaniensis forest over rainforest (WDR)	1.3	8.0	9.3
Leptospermum forest (NLE)	0.1	0.0	0.1
Total	**1.4**	**9.0**	**10.4**

Table 6.2: Extent of modified (non-native) communities within the disturbance footprint in the Tarraleah Conservation Area for the surge facility, temporary explosives magazine, potential minor intersection upgrade, and power supply

TASVEG 4.0 modified community (VEGCODE)	Area to be cleared in the disturbance footprint within the Tarraleah Conservation Area (ha)
Permanent easement (FPE)	1.7
Extra-urban miscellaneous (FUM)	1.2
Weed infestation (FWU)	0.4
Total	**3.3**

6.2 Flora

There were no threatened flora species recorded within the disturbance footprint within the Tarraleah Conservation Area. Entura ecologists searched the location of the NVA records for *Uncinia elegans* (handsome hooksedge) during a flora survey undertaken in September 2022, which is listed as rare under the Tasmanian *Threatened Species Protection Act 1995* (TSP Act) – particularly the location of the July 2017 records of this species which are within the disturbance footprint for the surge facility. Several plants of an *Uncinia* species were recorded in this area, and sample specimens was taken under 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) and *Uncinia tenella* (delicate hooksedge), which are not listed as a threatened species. No *Uncinia elegans* plants were recorded within the disturbance footprint.

A list of the native flora species recorded by Entura ecologists within the Tarraleah Conservation Area during surveys undertaken for the Tarraleah Redevelopment Project is provided in Appendix A.

6.3 Fauna

The general 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 recorded using EFOS.

According to Entura ecologists' assessment (Entura, 2025), the threatened species known to occur or with potential to occur within the disturbance footprint within the Tarraleah Conservation Area include:

- The Tasmanian devil (*Sarcophilus harrisii*), which is listed as endangered under both the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and the TSP Act
- The spotted-tailed quoll (*Dasyurus maculatus maculatus*), which is listed as vulnerable under the EPBC Act and as rare under the TSP Act
- The Tasmanian wedge-tailed eagle (*Aquila audax fleayi*), which is listed as endangered under both the EPBC Act and the TSP Act
- The Tasmanian masked owl (*Tyto novaehollandiae castanops*), which is listed as vulnerable under the EPBC Act and as endangered under the TSP Act

The migratory swift parrot (*Lathamus discolor*), which is listed as critically endangered under the EPBC Act and endangered under the TSP Act, may occasionally forage on eucalypt flowers as it migrates north after breeding closer to the coast; however, this species is not resident within the Tarraleah Conservation Area. The clearance of eucalypts within the reserve is unlikely to materially impact migrating swift parrot foraging behaviour or success given the widespread nature of eucalypt trees in the rest of the reserve and in the Central Highlands bioregion.

The targeted threatened fauna surveys relevant to the Tarraleah Conservation Area included habitat tree searches, aerial raptor nest searches in all areas within 2 km of the disturbance footprint, and passive acoustic monitoring for Tasmanian masked owls in potentially suitable nesting habitat. Further, all fauna species encountered during flora and fauna surveys were recorded using EFOS including indirect evidence of fauna presence which included potential carnivore den sites, of which none were recorded in the Tarraleah Conservation Area.

No important conservation features (e.g. mature habitat values such as large tree hollows, highly sensitive or primitive species) were recorded during flora and fauna surveys.

6.3.1 Habitat trees

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 RFA. Two habitat trees of 223 cm and 293 cm diameter-at-breast-height (DBH), respectively, were recorded on the western side of the existing track to the proposed temporary explosive magazine in the Tarraleah Conservation Area (Figure 6.2).

These trees have been avoided in the reference design; access track upgrades (e.g. widening) will be undertaken on the eastern side of the existing track, and the vegetation clearance for the temporary explosive magazine area will also be restricted to the eastern side of the existing access track. Furthermore, the following proposed management measure TB11 (**EIS Chapter 8**) will further protect habitat trees within and near the disturbance footprint: "Habitat trees (hollow-bearing trees important for arboreal mammals and hollow-nesting birds) within the disturbance footprint will be avoided to the greatest extent practicable within a root protection buffer zone the radius of which is equal to the length of the habitat tree's diameter at breast height (DBH) multiplied by twelve."

Figure 6.2: Two *Eucalyptus tasmaniensis* habitat trees on the western side of the access track to the proposed temporary explosive magazine

Four large *Eucalyptus tasmaniensis* trees of the following DBH were also recorded in the disturbance footprint for the surge tower: 164 cm, 121 cm, 110 cm and 108 cm. Although these four trees were greater than 100 cm DBH, they did not contain visible hollows.

6.3.2 Potential impacts to resident Tasmanian devils and possibly spotted-tailed quolls

The native vegetation communities within the disturbance footprint within the Tarraleah Conservation Area – *Eucalyptus tasmaniensis* forest with broad-leaf shrubs (WDB), *E. tasmaniensis* forest over rainforest (WDR), and *Leptospermum* forest (NLE) – constitute potential foraging habitat for the Tasmanian devil and the spotted-tailed quoll. These native mammalian carnivores may also forage over permanent easements. There are 67 records of the Tasmanian devil on the 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. Clearance of 10.4 ha of native forest within the Tarraleah Conservation Area for the Project may reduce the quality of Tasmanian devil foraging habitat, although the species is known to forage over modified areas as well as native forests. Foraging success is unlikely to be impacted due to the species' mobile nature, large territory size, and nocturnal nature (construction works within the reserve will be undertaken during daylight hours). The anticipated habitat loss of 10.4 ha of native forest within the Tarraleah Conservation Area is unlikely to substantially impact one Tasmanian devil home range.

Although no potential den sites were identified during field surveys, a suitably qualified person will undertake a targeted den survey within the suitable mature eucalypt forest habitat within the disturbance footprint prior to construction. See management measure TB8 in **EIS Chapter 8.0.**

Both native mammalian carnivore species are also susceptible to vehicle strike and roadkill, due to their tendency to scavenge on carrion of other roadkilled species such as Tasmanian pademelons, Bennetts wallabies and common brush-tailed possums. A traffic impact assessment (Pitt & Sherry, 2025) identified that 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 both Butlers Gorge Road, Fourteen Mile Road and the section of the Lyell Highway between the Butlers Gorge Road intersection and Paddy's Quarry, which are the roads that intersect or border the Tarraleah Conservation Area. Two Tasmanian devil carcasses have been recorded on Butlers Gorge Road (in 2024 and 2025), four Tasmanian devil carcasses have been recorded on Fourteen Mile Road (between 2005 and 2014), and one Tasmanian devil carcass has been recorded on the section of Lyell Highway between the Butlers Gorge Road intersection and Paddy's Quarry. A roadkill management plan (see management measure TB9 in **EIS Chapter 8.0**) will be developed and implemented to avoid increasing roadkill risk, committing to measures including but not limited to:

- Minimising night-time construction traffic to the greatest extent practicable.
- Reducing Project vehicle night-time speed limits by at least 10 km/hr within the work site.
- Environmental training for site workers including threatened species awareness, reporting procedures for vehicle strike and roadkill incidents, and recommended rescue procedures when sick, injured, or orphaned wildlife are found (e.g. reporting to Bonorong Wildlife Rescue on 0447 264 625).
- Reporting Project-related vehicle strikes and roadkill incidents involving threatened species to Hydro Tasmania within 24 hours.
- Completing an investigation of Project-related threatened species roadkill incidents within 3 working days.
- Increasing awareness of fauna on roads with advisory signs in high roadkill risk areas.
- Continuing routine maintenance of the verges of Oldina Drive and Butlers Gorge Road to maintain visibility and reduce browsing.
- Reducing the risk of scavengers being attracted to carrion on roads by removing roadkill carcasses, as soon as it is safe to do so, along Oldina Drive and Butlers Gorge Road.

The significant impact assessment undertaken for the EPBC Act determined that the Project is unlikely to have a significant impact on the Tasmanian devil because of the implementation of pre-construction den surveys (and den management protocol) and the implementation of mitigation measures to avoid roadkill.

There are nine records of the spotted-tailed quoll from within 5 km of the entire Tarraleah Redevelopment disturbance footprint, with only three records from since 1985. 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). 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. The anticipated habitat loss of 10.4 ha of native forest within the Tarraleah Conservation Area is unlikely to substantially impact one spotted-tailed quoll home range. **The significant impact assessment undertaken for the EPBC Act determined that the Project 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* (DELWP, 2016). Further, pre-construction den surveys and implementation of a roadkill management plan will mitigate anticipated Project impacts.**

6.3.3 Raptor nest searches

Both the wedge-tailed eagle (*Aquila audax fleayi*) and the white-bellied sea-eagle (*Haliaeetus leucogaster*) are sensitive to disturbance, which can cause nest desertion during the breeding season (Threatened Species Section, 2006). Further, construction activities could disturb breeding birds of the grey goshawk (*Tachyspiza novaehollandiae*) within 100 m of a nest (Threatened Species Section, 2023). Therefore, a raptor nest survey was undertaken in three years (outside of the eagle constraint management period, to avoid disturbing breeding eagles) to identify if any eagle nests were present within 2 km of the disturbance footprint, including the two options for the 220 kV transmission line. The nest searching was undertaken in accordance with the nest searching protocols as described in the Tasmanian EPA's *Guide to Eagle Nest Searches and Activity Checks* (Environment Protection Authority, 2023) and in the *Fauna Technical Note No. 1: Eagle nest searching, activity checking and nest management* (Forest Practices Authority, 2023) on 13 April 2023, 6 June 2024, 13 May 2025 and 21 May 2025. A systematic transect survey method was used, and the Wedge-tailed Eagle Nesting Habitat Model (Forest Practices Authority, 2014) was used to identify focus areas for the survey. 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 NVA database as soon as practicable after the flight.

No raptor nests (e.g. eagle, grey goshawk) were identified within 2 km of the components of the Project disturbance footprint that fall within the Tarraleah Conservation Area. Therefore, no threatened raptor species are anticipated to be impacted by the redevelopment works within the Tarraleah Conservation Area.

Raptors such as eagles will not be at increased risk of electrocution because the new overhead components of the 22 kV distribution lines for power supply will be designed and built in accordance with TasNetworks standards that aim to minimise collision and electrocution risk to avifauna. Raptors such as eagles will not be at increased risk of collision with the portion of new 22 kV distribution line between Butlers Gorge Road and the Mossy Marsh Outlet (north of the proposed temporary explosive magazine) nor the portion from the pump station to the surge tower because they will be underground. The overhead components of the 22 kV distribution lines proposed in the reserve pose a much lower eagle collision risk than power lines in open areas where eagles prefer to hunt. Given that the proposed overhead 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, collision risk for raptors (including eagles) within the Tarraleah Conservation Area is considered negligible.

Anti-coagulant rodenticides, especially second-generation anticoagulant rodenticides (SGARs; brodifacoum, bromadiolone, difethialone, difenacoum and flocoumafen) pose a particularly problematic secondary poisoning risk to raptors (Pay et al. 2021). The habit of raptors such as eagles of feeding on carrion exposes it to secondary poisoning (e.g. via ingestion of rabbits laced with pindone). **Eagles will not be at increased risk of secondary poisoning from rodenticides as the use of SGARs will be avoided during all phases of the Project.**

6.3.4 Tasmanian masked owl passive acoustic monitoring and nest tree searches

There is no critical habitat defined in the Conservation Advice for the Tasmanian masked owl (*Tyto novaehollandiae castanops*) (Department of the Environment, Water, Heritage and the Arts, now DCCEEW, 2010), nor is there a recovery plan for the species; additionally, there is no habitat for masked owls listed on the Register of Critical Habitat. However, suitable nest hollows within habitat trees constitute habitat features that are critical to successful breeding cycles. Targeted masked owl nesting habitat surveys were therefore undertaken in accordance with the Tasmanian Forest Practices Authority's *Fauna Technical Note No. 17: Identifying masked owl habitat* (2016) and in accordance with more current advice from species experts (Dr. Phil Bell). An initial desktop analysis identified areas likely to have assemblages of large trees that could form Tasmanian masked owl breeding habitat. The analysis to identify potentially suitable masked owl nesting habitat used aerial imagery, TASVEG forest type and forest canopy tree height (derived from LiDAR) to indicate the presence of large trees, as well as tree DBH data recorded during field surveys. Potential breeding habitat identified in the desktop analysis was ground-truthed to verify the presence of large trees (greater than 100 cm DBH) with hollows. The forested area of the disturbance footprint within the Tarraleah Conservation Area did contain some tall trees of at least 100 cm DBH. A 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 (Figure 6.3), which remained deployed for 53 nights (dusk to dawn) over the period between 21 October 2024 and 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; specifically, 17 masked owl screech calls were detected over this period (Figure 6.4, Figure 6.5). 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 this area during the period 21 October-12 December 2024.

The masked owl nest tree search was undertaken by Dr Phil Bell of Biodiversity Maintenance Australia and Ray Brereton, Senior Ecologist at Entura, 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. Refer Appendix D of the Terrestrial Ecology Assessment (Entura, 2025) for the full Tasmanian masked owl assessment prepared by Biodiversity Maintenance Australia, from which Figures 6.4 to 6.6 are sourced.

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.

All areas not covered by water bodies or artificial structures are considered potentially suitable Tasmanian masked owl foraging habitat. Construction activities are unlikely to reduce prey availability or foraging success given that the species is highly mobile with large territories, and that works within the Tarraleah Conservation Area will be undertaken during the daytime when masked owls are not active.

Figure 6.3: Wildlife Acoustics Song Meter SM4 acoustic recorder deployed in Tarraleah Conservation Area

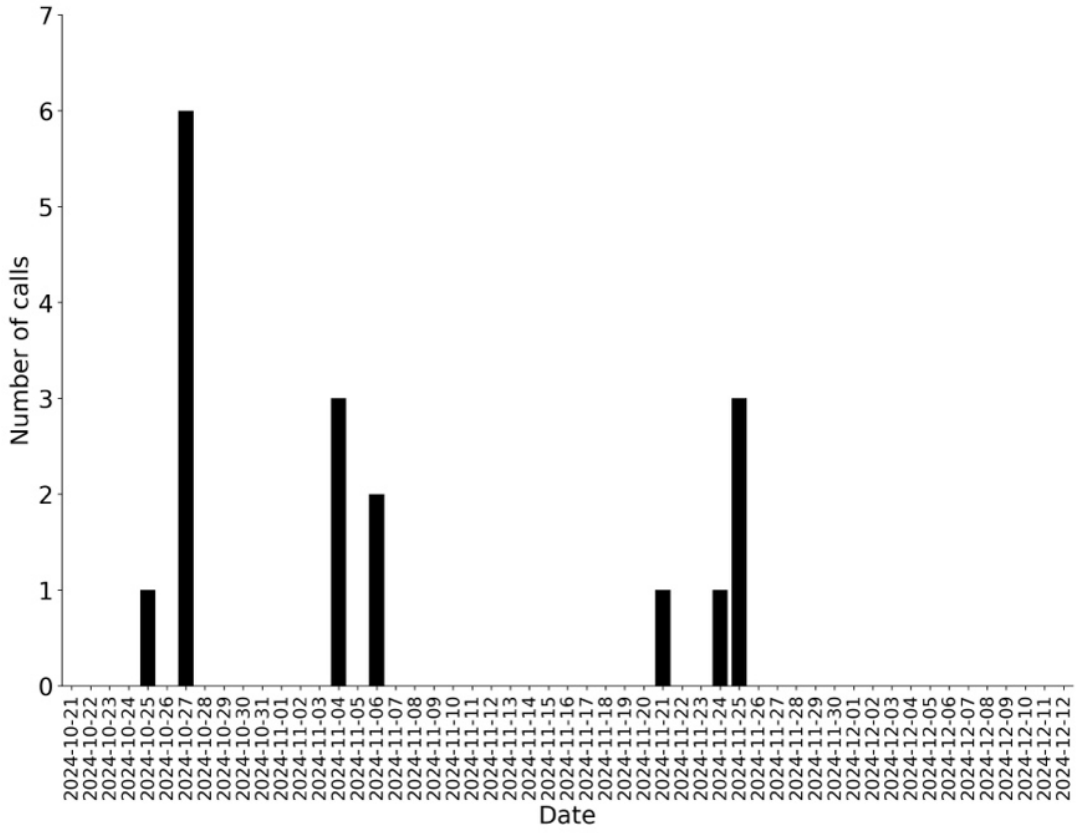


Figure 6.4: Results of passive acoustic monitoring within the Tarraleah Conservation Area during peak screech detection period

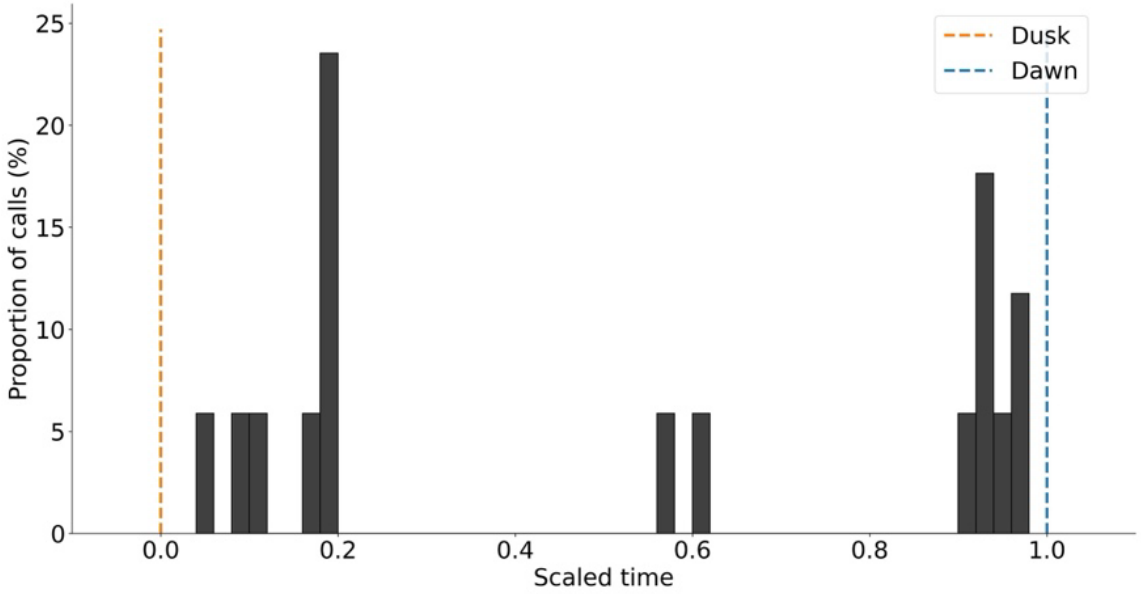


Figure 6.5: Timing of masked owl call detections between dusk and dawn on a nightly basis over a 53-night deployment period between 21 October-12 December 2024

Figure 6.6 shows the search track in the vicinity of the recorder and the search track within the vicinity of the proposed surge tower and access track. Much of the area within 200 m of the recorder 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.

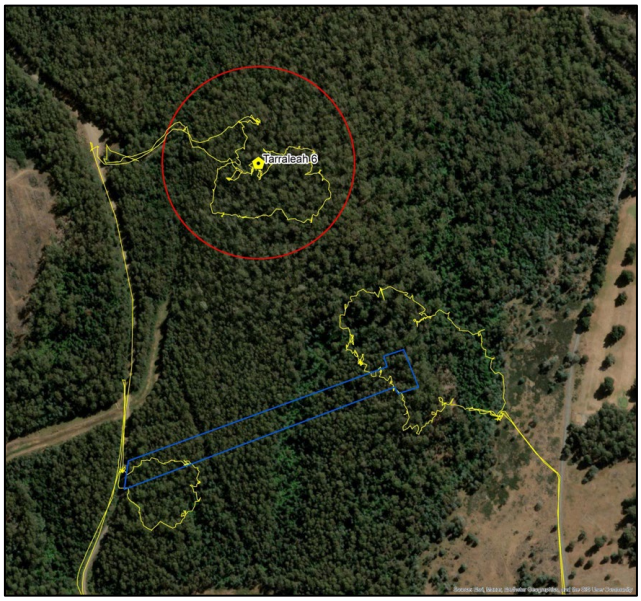


Figure 6.6: GPS track of search for trees supporting potential large hollows on 16 January 2025 within a 200 m buffer of the recorder, and within a 150 m buffer of the proposed surge tower and access track to the south of the recorder (yellow closed hexagon = location of acoustic recorder; red open circle = 200 m buffer around the acoustic recorder; yellow line = search track, blue line = approximate boundary of footprint of the proposed surge tower and access track)

In conclusion, although there was evidence from acoustic monitoring that masked owls regularly used habitat in the vicinity of the location of acoustic recorder within the Tarraleah Conservation Area, detailed on-ground searching found no trees with potential large hollows considered to be suitable for use by masked owls. **The Tarraleah Redevelopment Project is unlikely to have an 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, and (3) the new overhead components of the 22 kV distribution lines for power supply will be designed and built in accordance with TasNetworks standards that aim to minimise electrocution and collision risk to avifauna; in addition, the portion of the new 22 kV distribution line between Butlers Gorge Road and the Mossy Marsh Outlet (north of the proposed temporary explosive magazine) and the portion from the pump station to the surge tower will be underground thus posing no increased collision risk to raptors such as the masked owl.**

Anti-coagulant rodenticides, especially second-generation anticoagulant rodenticides (SGARs; brodifacoum, bromadiolone, difethialone, difenacoum and flocoumafen) pose a particularly problematic secondary poisoning risk to raptors (Pay et al. 2021). The habit of raptors including masked owls of feeding on carrion exposes it to secondary poisoning (e.g. via ingestion of rabbits laced with pindone). **Masked owls will not be at increased risk of secondary poisoning from rodenticides as the use of SGARs will be avoided during all phases of the Project.**

6.4 Summary of potential impacts

The Project will have a direct impact on the biodiversity and natural values of the Tarraleah Conservation Area, but the impact is not expected to be significant. Extensive monitoring (e.g. passive acoustic monitoring for Tasmanian masked owl, three aerial raptor nest searches, ground searches for threatened flora and evidence of threatened fauna species such as Tasmanian devil scat) has been undertaken within the Tarraleah Conservation Area to ensure significant species and their important habitat features are avoided. The maximum footprint of construction works within the Conservation Area is 13.7 ha (i.e. 1.4%) of the 967.2 ha reserve. The 10.4 ha of native vegetation within the construction disturbance footprint constitute 1.2% of the mapped native vegetation within the reserve. Therefore, the Project is not inconsistent with the management objective to conserve biological diversity.

The clearance of up to 10.3 ha of wet eucalypt forest within the disturbance footprint in the Tarraleah Conservation Area constitutes removal or degradation of habitat for native fauna species, including resident Tasmanian devils and, potentially, sparse numbers of spotted-tailed quolls. Resident Tasmanian devils, and potentially sparse numbers of spotted-tailed quolls, may be impacted if den sites are not identified and disturbance avoided; these two carnivores may also be at increased risk of roadkill on Butlers Gorge Road, Fourteen Mile Road and the Lyell Highway if an appropriate roadkill management plan is not implemented during the construction phase.

Up to four *Eucalyptus tasmaniensis* habitat trees at the surge tower may require removal to accommodate the proposed infrastructure.

There are no known Tasmanian eagle species, grey goshawk or Tasmanian masked owl nests within 2 km of the components of the Project disturbance footprint that fall within the Tarraleah Conservation Area. There will be no increased collision risk nor electrocution risk associated with the new 22 kV distribution lines for avifauna. The foraging behaviour and success of swift parrots passing through the area post-breeding will not be impacted.

7. Threats to natural values

7.1 Weeds

Five declared weed species were recorded during flora surveys within the vicinity of the Tarraleah Conservation Area:

- *Cirsium arvense* var. *arvense* (Californian thistle) recorded outside the Conservation Area along the Lyell Highway south of the surge tower and north of the Butlers Gorge intersection, and along the canal between Mossy Marsh Pond and No 2. Pond northwest of the proposed temporary explosives magazine.
- *Pilosella aurantiaca* subsp. *aurantiaca* (orange hawkweed) recorded along the Lyell Highway, south of the surge tower in the Conservation Area.
- *Digitalis purpurea* (foxglove) recorded outside of the Conservation Area off Fourteen Mile Road, and at the Tarraleah Golf Course and Village which are across the road (Lyell Highway) from the Conservation Area.
- *Cytisus scoparius* (English broom) was recorded as a significant infestation that extends from along the Lyell Highway into the Conservation Area. It was also recorded outside the Conservation Area along the canal between Mossy Marsh Pond and No 2. Pond northwest of the proposed temporary explosives magazine. English broom is also recognised as Weed of National Significance.
- *Erica lusitanica* (Spanish heath) was recorded in the Conservation Area south of the pump station and No. 2 Pond.

The Central Highlands municipality is a Zone A, or Class A [1] municipality for orange hawkweed and foxglove, respectively. The objective of weed management in Zone A municipalities is '*Implement integrated control program for eradication and prevent future occurrences.'* It is a Zone B municipality for English broom, Californian thistle and Spanish heath and 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*.'

- To ensure these, and any other weeds identified in the broader Project area [2], do not spread beyond their current scope, an appropriate biosecurity management plan will be prepared and implemented in accordance with the Arrive Clean Leave Clean guidelines (Commonwealth of Australia, 2015) and Weed and Disease Planning and Hygiene Guidelines – Preventing the spread of weeds and diseases in Tasmania (DPIPWE, 2015). Eradication of Zone A declared weeds will be pursued to the greatest extent practicable in accordance with the General Biodiversity Duty and the Biosecurity Management Plans under the Biosecurity Act 2019.
- Overall, if the Biosecurity Management Plan detailed in management measure TB7 is implemented (**EIS Chapter 8.0**), the works within the Tarraleah Conservation Area will not introduce weeds.

7.2 Diseases

There are no records on the NVA within 5 km of the disturbance footprint (which includes the Tarraleah Conservation Area) of *Phytophthora cinnamomi,* and there were no symptoms of infection (i.e. dieback in susceptible species) recorded during field surveys of the disturbance footprint. There are no NVA records of chytrid fungus (*Batrachochytrium dendrobatidi*s) within 5 km of the disturbance footprint. *P. cinnamomi* and *B. dendrobatidi*s are unlikely to be introduced to the Project area by construction vehicles and personnel as an appropriate weed and disease management plan will be prepared and implemented in accordance with the *Arrive Clean Leave Clean* guidelines (Commonwealth of Australia, 2015) and *Weed and Disease Planning and Hygiene Guidelines – Preventing the spread of weeds and diseases in Tasmania* (DPIPWE, 2015).

The transmissible cancer Devil Facial Tumour Disease is known to be endemic to the region; there have been observations of affected Tasmanian devils on the Central Plateau since 2017 (Woods et al., 2018).

---

[1] 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.

[2] Outside of the proposed disturbance footprint, other weed species were recorded within the Tarraleah Conservation Area by Entura ecologists during field surveys: *Anthoxanthum odoratum*, *Cirsium vulgare*, *Holcus lanatus*, *Hypocharis radicata, Hydrangea macrophylla, Leontodon saxatilis, Linum catharticum, Lysimachia arvensis, Prunella vulgaris,* and *Ranunculus repens.*

No other declared diseases listed under the *Biosecurity Regulations 2022* are known to occur within the disturbance footprint within the Tarraleah Conservation Area, and none are likely to be introduced by the Project.

Overall, if the Biosecurity Management Plan detailed in management measure TB7 is implemented (**EIS Chapter 8.0**), the works within the Tarraleah Conservation Area will not introduce disease.

7.3 Pest animals

Introduced European rabbits (*Oryctolagus cuniculus*) are listed as declared pests under the *Biosecurity Regulations 2022,* for which scats have been recorded in the Tarraleah Golf Course during fauna surveys. No other declared pest animals listed under the *Biosecurity Regulations 2022* are known to occur within the Tarraleah Conservation Area, and none are likely to be introduced by the Project. Introduced fallow deer (*Dama dama*) are also known to occur in the region, whereby the closest deer record to the Tarraleah Conservation Area on the NVA is from 2023 and is 6.2 km to the northeast of the proposed surge tower site, near the northern shore of Lake Binney. The Project is unlikely to affect the population dynamics of introduced herbivores.

Cats (*Felis catus*) are known to occur in the Project area, particularly near the Tarraleah Village and Golf Course. Cats are a recognised threat to bandicoots, birds, and a range of other native wildlife; feral and domestic cats may compete with native carnivores and reduce their abundance. It is not expected that the cat population in the local region will be impacted by the Project.

Overall, if the Biosecurity Management Plan detailed in management measure TB7 is implemented (**EIS Chapter 8.0**), the works within the Tarraleah Conservation Area will not introduce pest animals.

8. Implications for the Comprehensive, Adequate and Representative (CAR) reserve system

Australia has a National Reserve System which is based on a scientific framework to ensure that Australia progressively extends protection to examples of all its ecosystems. The scientific framework has an objective to develop a 'comprehensive, adequate and representative' (CAR) system of protected areas. The goal of a CAR system of reserves for Australia has been endorsed by all Australian governments as signatories to the *National Strategy for Conservation of Australia's Biological Diversity (2010)* and the *National Forest Policy Statement (1992).*

The main component of the National Reserve System are formal reserves, which are reserves that are equivalent to the IUCN Protected Area Management Categories I, II, III, IV, or VI as defined by the IUCN Commission for National Parks and Protected Areas (1994). In Tasmania, formal reserves are protected under the NC Act either as National Parks, Nature Reserves, Regional Reserves, Conservation Areas or Conservation Covenants. The Tarraleah Conservation Area is a category IV – habitat or species management area.

According to the Forest Practices Authority's 2022 *State of the forests* report, there are approximately 91,000 ha of tall (i.e. wet) *Eucalyptus tasmaniensis* forest (e.g. *E. tasmaniensis* forest with broad-leaf shrubs and *E. tasmaniensis* forest over rainforest) in the formal Tasmanian reserve estate and approximately 268,000 ha in total statewide. The 10.3 ha of *E. tasmaniensis* forest proposed for clearance within the disturbance footprint within the Tarraleah Conservation Area therefore constitutes approximately one-tenth of one percent of the extent of this forest community within the formal Tasmanian reserve estate and 0.004% of the statewide extent.

Regarding the Tasmanian Native Forest Estate, which includes Permanent Timber Production Zone Land managed by Sustainable Timber Tasmania, there are 145,654 ha of tall *E. tasmaniensis* forest in the IBRA4 Central Highlands bioregion as at June 2024 as reported in the Tasmanian Forest Practices Authority's annual report 2023–24. The 10.3 ha of *E. tasmaniensis* forest that will be cleared within the Tarraleah Conservation Area represents 0.007% of the bioregional extent of this forest community.

There are also informal reserves that form part of the CAR reserve system; informal reserves are areas of State Forest other than a Forest Reserve that are managed as a Protection Zone under the Management Decision Classification (MDC) system or other administrative reserves on public land including some *Crown Lands Act 1976* reserves and Future Potential Production Forest Land under the *Forestry (Rebuilding the Forest Industry) Act 2014*, which are managed to protect CAR values. The Project disturbance footprint intersects up to 109 ha of Informal Reserve on Permanent Timber Production Zone Land or STT managed land, of which approximately 93.0 ha are native vegetation, which may form part of wildlife habitat strips or streamside reserves to protect CAR values. Sections 3.8 and 4.10 of **Entura (2025)** provides further detail on the potential impacts to informal reserves.

9. Bushfire risk

The Project is situated within a landscape that is highly susceptible to bushfire due to the presence of dry and wet eucalypt forests, extensive areas of untreatable vegetation, and a documented history of significant bushfire events. The Project area is subject to the Bushfire-prone Areas Overlay under the Tasmanian Planning Scheme - *Central Highlands Local Provisions Schedule*. The threat of bushfire has been assessed across the entirety of the proposed disturbance footprint; see **EIS Section 5.11**.

Bushfires originating external to the Project area and accidental ignition of unplanned fires during construction or operational activities are two of the key risks identified for the Project and for the natural and cultural values in the Tarraleah vicinity. Unplanned or accidental ignition during construction or operational activities is most likely to be associated with hot works, plant and machinery, construction personnel's tobacco use, and poor maintenance of infrastructure. Management measures will be implemented to ensure good practices onsite are maintained throughout construction and operation to avoid accidental ignition.

Values at risk from bushfire within the vicinity of the Project area include:

- Ecological and cultural heritage values, including the nearby TWWHA. The main bushfire risk to natural assets within and external to the Project area is considered to come from fire regimes (planned or unplanned) that are outside tolerable fire intervals. Tolerable fire intervals within thresholds of a particular vegetation community will help maintain long-term viability, whereas fire intervals outside thresholds are likely to lead to progressive changes in the structure and floristic composition of the vegetation community, and loss of habitat for fauna utilising that vegetation community. High intensity bushfires can damage or destroy fauna habitat including:
  - tree hollows used as nests and dens by many birds and arboreal mammals
  - mature, senescing or dead trees that can be important invertebrate, bird and reptile habitat, and take a long time to replace
  - understorey species that provide nest and shelter sites as well as a food source for many bird and mammal species
  - fallen logs, bark and leaf litter that provide shelter and a food source for invertebrates, frogs, reptiles, birds, and mammals.
- Human settlements (e.g. Tarraleah Village).
- Utility infrastructure (e.g. other existing hydropower infrastructure, telephone towers, etc).

- Fire risk management measures will meet State Government guidelines for bushfire prone areas and industry best practice; these measures are described in detail in **EIS Section 5.11** (fire risk) and **EIS Chapter 8.0** (management measures). Prior to construction, a Construction Bushfire Mitigation Plan will be prepared based on strategic asset management principles with the overriding priority being preservation of life as described in **Section 5.11.3** of the EIS. Initial response capabilities will be provided by the EPC Contractor, including sufficient static firefighting water supplies and equipment fill points for the level of bushfire risk posed to the site.

Additionally, existing treatments within the relevant bushfire risk management plan for the Project area (Midlands Fire Management Area) include Hydro Tasmania's Vegetation Management Plan annual works program; Sustainable Timber Tasmania's preparedness treatments including planned burning, road management, fire towers and physically patrolling areas on days of elevated fire risk; and PWS's planned burning programs and road management.

10. Water quality and catchments

There is a narrow segment of the Tarraleah Conservation Area along the northern border of the River Derwent adjacent to the proposed headrace pipeline and western portal. Two of the streams (referred to as 'Stream 3' and 'Stream 4' by the EIS) that drain this area run through the Conservation Area before entering the River Derwent. Potential impacts to water quality in these two streams are discussed in **EIS Section 5.1**. In summary, impacts are expected to be minor/negligible if the proposed sediment, hydrocarbon and nitrate control measures detailed in management measure WQ1 (see **EIS Chapter 8.0**) are implemented, which include but are not limited to:

- Developing and implementing an erosion and sediment control plan to limit the production of sediment, control the transport of sediment off-site, and limit discharge to local waterways.
- Developing and implementing hydrocarbon management procedures to limit the risk of spills or hydrocarbon entry into the aquatic environment. This will include a spill response plan to ensure that a timely and effective response is in place, in the event of a spill.
- Using appropriate measures to treat water discharged from site that may have an increased pH due to the use of shotcrete and grouting for the tunnel lining.
- Ensuring the placement of the concrete batching plants and washouts located at each of the access portal sites is located away from drainage lines, stormwater drains, and waterbodies to ensure concrete wastewater is not transported to local waterways.
- Developing and implementing a nitrate management plan to reduce the risk of generating nitrate as a result of blasting operations.
- Additional measures will be put in place to limit the occurrence of potentially chronic or acutely toxic concentrations of nitrate in local waterways such as limiting water draining from stockpiles and the use of dilution within the current conveyances.

11. Cultural significance

The portion of the Tarraleah Conservation Area intersected by the proposed infrastructure between No. 2 Pond and the surge tower site is centred on a basaltic basin bracketed by dolerite hills. Based on a review of previous studies, this area is considered to have low to medium potential for small open sites (artefact scatters and single artefacts), with the areas of greatest potential being around the southern edges of natural plains and marshes. Some of these environments (i.e. in the vicinity of Mossy Marsh Pond and No. 2 Pond) have been inundated by historical hydro developments. No new works are planned in these areas.

The proposed new conveyance infrastructure traverses a wet gully downstream of No. 2 Pond with low potential for Aboriginal heritage sites and a moderate-angled south-west-facing dolerite ridge with no identified habitation or resource attributes. The potential for Aboriginal heritage to be located in the disturbance footprint is considered low. No Aboriginal heritage values were identified during field assessments conducted in September 2023 (see **EIS Section 5.13**). Despite the lack of artefacts identified, the area is still significant to the Tasmanian Aboriginal community as part of Country. Several culturally useful/significant plants were identified within the area, indicating a productive and highly liveable area despite nearly 200 years of dispossession and altered management regimes.

The significance of the area is not limited to individual plant/animal species, landscape types or heritage sites but instead how they were arranged to create diverse living spaces and a sustainable culturally maintained physical and spiritual environment. As with all traditional cultural values, the cultural significance of such landscapes and their constituent components can only be attributed by Aboriginal people.

The portion of the Tarraleah Conservation Area west of the Lyell Highway opposite the Tarraleah Golf Course contains the remains of two generations of Hydro Construction Village, including part of the 1930s No.2 camp (original worker's shanty town) and the later 'Top Village' built to house workers employed on the Tungatinah development. Visible evidence includes archaeological remains of houses, street layouts and services including water pipes and drains. There are no works proposed for this zone.

The TWWHA portion of the River Derwent that interests with the Tarraleah Conservation Area passes through a steep dolerite ravine and does not contain known Pleistocene sites and cultural deposits, rock art or ceremonial sites, or places associated with significant cultural resources including stone and ochre. Predictive criteria based on over 25 years' archaeological study suggests that it is extremely unlikely to contain such sites. The narrowness of the valley and steepness of terrain, which typically ranges between 10° and 50°, is extremely prejudicial to both the formation and preservation of archaeological sites and is an exclusion factor for surveys under the Forest Practices Code which is endorsed under the Tasmanian *Aboriginal Heritage Act 1975*.

Consequently, and owing to the hazards associated with surveying in this terrain, negative findings of the desktop assessment and lack of identifiable heritage impacts, no ground surveys with Aboriginal Heritage Officers and associated community consultation have been conducted of the River Derwent within the TWWHA.

12. Access points

A new access point will be constructed to support works within the Tarraleah Conservation Area. This access track will connect Fourteen Mile Road to the surge tower and rising main construction area (Figure 2.4) and will have an adjacent new distribution line for power supply.

An existing access road off Butlers Gorge Road to Mossy Marsh Canal will be used to access the eastern temporary explosive magazine. This track will be upgraded to meet construction requirements.

- These will be the only two access points that will be used to enter the Tarraleah Conservation Area for construction and operation. Both access points will be appropriately controlled by a road closure gate and/or security fence, which will remain in situ for the Project's operation. Appropriate security fencing will also be installed around infrastructure for both security purposes and as a means of alerting the public who may be using the conservation area for recreation, research, education and other purposes.
- All other access points to the Tarraleah Conservation Area will be managed by PWS according to typical protocols.

13. Conclusion

The information in this document is intended to assist the Tasmania Parks and Wildlife Services (PWS) to conduct the Level 3 Reserve Activity Assessment (RAA) in parallel with the assessment of the Environmental Impact Statement (EIS) prepared by Hydro Tasmania to meet the Tarraleah Redevelopment project-specific guidelines published by the Environment Protection Authority Tasmania in August 2024.

Overall, it has been determined that the Project is not inconsistent with the purpose of the reservation of the Tarraleah Conservation Area as specified in Schedule 1 of the *Nature Conservation Act 2002*. Furthermore, it has been determined that the Project is not inconsistent with the management objectives for a Conservation Area as specified in Schedule 1 of the *National Parks and Reserves Management Act 2002*.

14. References

Commonwealth of Australia: ANZECC / MCFFA National Forest Policy Statement Implementation Sub committee (1997). Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia. Canberra.

Commonwealth of Australia (2015). Arrive Clean, Leave Clean. Available from: https://www.agriculture.gov.au/sites/default/files/documents/arrive-clean-leave-clean.pdf. Accessed 16/06/2025.

Department of Primary Industries, Parks, Water and Environment (DPIPWE, now NRE Tasmania) (2015). Weed and Disease Planning and Hygiene Guidelines – Preventing the spread of weeds and diseases in Tasmania. Available from: https://nre.tas.gov.au/documents/weed%20%20management%20and%20hygiene%20guidelines.pdf. Accessed 16/06/2025.

Department of Natural Resources and Environment Tasmania (NRE Tasmania) (2024). *Public Land Hunting in Tasmania.* Wildlife Management. Available from: https://nre.tas.gov.au/wildlife-management/management-of-wildlife/game-management/recreational-hunting-licences/public-land-hunting-in-tasmania.

Department of the Environment, Water, Heritage and the Arts (now DCCEEW) (2010). Approved Conservation Advice for *Tyto novaehollandiae castanops* (Tasmanian Masked Owl). Canberra, ACT: Department of the Environment, Water, Heritage and the Arts. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/67051-conservation-advice.pdf

Department of Environment, Land, Water and Planning (DELWP) (2016). *National Recovery Plan for the Spotted-tailed Quoll* Dasyurus maculatus. Australian Government, Canberra. Available from: http://www.environment.gov.au/biodiversity/threatened/recovery-plans/spotted-tailed-quoll

de Salas, M.F. and Baker, M.L. (2024). A Census of the Vascular Plants of Tasmania, including Macquarie Island. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery, Hobart) https://flora.tmag.tas.gov.au/resources/census/

Entura (2025). Tarraleah Redevelopment – Terrestrial Ecology Assessment. Report prepared for Hydro Tasmania, June 2025. Hobart, Tasmania.

Environment Protection Authority Tasmania (2023). *Guide to Eagle Nest Searching and Nest Activity Checks*. Hobart, Tasmania.

Environment Protection Authority Tasmania (2024). *Tarraleah Redevelopment Project, Western and upstream component EIS Guidelines*, Hobart, Tasmania.

Environment Strategic Business Unit (2023). Survey Guidelines and Management Advice for Development Proposals that may impact the Tasmanian Devil (Sarcophilus harrisii). Department of Natural Resources and Environment, Tasmania.

Forest Practices Authority (2014). Eagle nesting habitat models. Fauna Technical Note No. 6, Forest Practices Authority, Hobart, Tasmania.

Forest Practices Authority (2016). Identifying masked owl habitat. Fauna Technical Note No. 17, Forest Practices Authority, Hobart, Tasmania.

Forest Practices Authority (2023). Guide to Eagle Nest Searching and Nest Activity Checks. Fauna Technical Note No. 1, Forest Practices Authority, Hobart, Tasmania.

Inspiring Place (2025). Tarraleah Redevelopment – Visual and Wilderness Impact Assessment. Report prepared for Hydro Tasmania, May 2025. Hobart, Tasmania.

IUCN (1994). *Guidelines for protected area management categories.* Commission on National Parks and Protected Areas.

Kitchener, A. and Harris, S. (2013). *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation. Edition 2*. Department of Primary Industries, Parks, Water and Environment, Tasmania.

Natural and Cultural Heritage Division (2015). *Guidelines for Natural Values Surveys - Terrestrial Development Proposals.* Department of Primary Industries, Parks, Water and Environment.

Pay, J. M., Katzner, T. E., Hawkins, C. E., Barmuta, L. A., Brown, W. E., Wiersma, J. M., Koch, A.J., Mooney, N. J. and Cameron, E. Z. (2021). Endangered Australian top predator is frequently exposed to anticoagulant rodenticides. Science of the Total Environment, 788, 147673.

Pitt & Sherry (2025). *Major Projects Program Tarraleah Redevelopment Traffic Impact Assessment.* Report prepared for Entura, July 2025.

Threatened Species Section (2006). *Threatened Tasmanian Eagles Recovery Plan 2006-2010*. Department of Primary Industries and Water, Hobart.

Threatened Species Section (2023). Grey Goshawk (*Accipiter novaehollandiae*): Species Management Profile for Tasmania's Threatened Species Link. https://www.threatenedspecieslink.tas.gov.au/Pages/Grey-Goshawk.aspx Department of Natural Resources and Environment Tasmania. Accessed on 4/1/2023.

Threatened Species Section (2025). Spotted-tailed Quoll *(Dasyurus maculatus): Species Management Profile for Tasmania's Threatened Species Link*. https://www.threatenedspecieslink.tas.gov.au/pages/spotted-tailed-quoll.aspx Department of Natural Resources and Environment Tasmania.

Woods, G. M., Fox, S., Flies, A. S., Tovar, C. D., Jones, M., Hamede, R., Pemberton, D., Lyons, A.B., & Bettiol, S. S. (2018). Two decades of the impact of Tasmanian devil facial tumor disease. *Integrative and Comparative Biology*, *58*(6), 1043-1054.

A. Native flora recorded within the Tarraleah Conservation Area

Species name	Common name	Endemic to Tasmania?
DICOTYLEDONS		
Apiaceae		
Hydrocotyle hirta	Hairy pennywort	
Hydrocotyle sibthorpioides	Lawn marshpennywort	
Asteraceae		
Bedfordia salicina	Tasmanian blanketleaf	Yes
Cassinia aculeata	Dolly bush	
Senecio minimus	Shrubby groundsel	
Senecio sp.	Groundsel	
Campanulaceae		
Wahlenbergia sp.	Native bluebell	
Clusiaceae		
Hypericum japonicum	Matted St Johns-wort	
Cunoniaceae		
Bauera rubioides	Wiry bauera	
Droseraceae		
Aristotelia peduncularis	Heartberry	Yes
Ericaceae		
Leptecophylla parvifolia	Mountain pinkberry	Yes
Euphorbiaceae		
Poranthera microphylla	Small poranthera	
Fabaceae		
Pultenaea juniperina	Prickly beauty	
Fagaceae		
Nothofagus cunninghamii	Myrtle beech	
Geraniaceae		
Geranium potentilloides	Mountain cranesbill	
Haloragaceae		
Gonocarpus tetragynus	Common raspwort	
Gonocarpus teucrioides	Forest raspwort	
Lamiaceae		
Prostanthera lasianthos var. *lasianthos*	Christmas mintbush	
Mimosaceae		
Acacia dealbata subsp. *dealbata*	Silver wattle	

Species name	Common name	Endemic to Tasmania?
Monimiaceae		
Atherosperma moschatum	Sassafras	
Myrtaceae		
Baeckea gunniana	Alpine heathmyrtle	
Eucalyptus tasmaniensis (previously *delegatensis*[3])	Gumtopped stringybark	Yes
Eucalyptus rodwayi	Swamp peppermint	Yes
Leptospermum lanigerum	Woolly tea tree	
Leptospermum scoparium	Common tea tree	
Melaleuca squamea	Swamp honeymyrtle	
Oleaceae		
Notelaea ligustrina	Native olive	
Oxalidaceae		
Oxalis sp.	Woodsorrel	
Pittosporaceae		
Billardiera longiflora	Purple appleberry	Yes
Pittosporum bicolor	Cheesewood	
Proteaceae		
Hakea microcarpa	Smallfruit needlebush	
Lomatia tinctoria	Guitarplant	Yes
Telopea truncata	Tasmanian waratah	Yes
Ranunculaceae		
Clematis aristata	Mountain clematis	
Ranunculus amphitrichus	River buttercup	
Rhamnaceae		
Pomaderris apetala subsp. *apetala*	Common dogwood	
Rosaceae		
Acaena novae-zelandiae	Common buzzy	
Rubiaceae		
Asperula conferta	Common woodruff	
Coprosma nitida	Mountain currant	
Coprosma quadrifida	Native currant	

[3] The Tasmanian subspecies of *Eucalyptus delegatensis* subsp. *tasmaniensis* has been elevated to species level *Eucalyptus tasmaniensis*. However, the *Eucalyptus delegatensis* name has been retained throughout the EIS for the Tarraleah Redevelopment Project because the TASVEG community names have not yet been changed.

Species name	Common name	Endemic to Tasmania?
Galium australe	Tangled bedstraw	
Thymelaeaceae		
Pimelea drupacea	Cherry riceflower	
Violaceae		
Viola hederacea subsp. *hederacea*	Ivyleaf violet	
Winteraceae		
Tasmannia lanceolata	Mountain pepper	
MONOCOTYLEDONS		
Cyperaceae		
Carex fascicularis	Tassel sedge	
Gahnia grandis	Cutting grass	
Uncinia riparia	River hooksedge	
Uncinia tenella	Delicate hooksedge	
Juncaceae		
Luzula sp.	Woodrush	
Liliaceae		
Dianella revoluta	Spreading flaxlily	
Dianella tasmanica	Forest flaxlily	
Orchidaceae		
Caladenia sp.	Finger-orchid	
Chiloglottis grammata	Small bird-orchid	Yes
Chiloglottis sp.	Bird-orchid	
Corybas sp.	helmet orchid	
Cyrtostylis sp.	Gnat orchid	
Gastrodia sesamoides	Potato orchid	
Pterostylis decurva	Summer greenhood	
Pterostylis sp.	Greenhood	
Poaceae		
Agrostis capillaris	Brown-top bent	
Australopyrum pectinatum	Prickly wheatgrass	
Deyeuxia sp.	Bentgrass	
Restionaceae		
Baloskion australe	Southern cordrush	
Empodisma minus	Spreading roperush	

Species name	Common name	Endemic to Tasmania?
PTERIDOPHYTA		
Aspleniaceae		
Asplenium flabellifolium	Necklace fern	
Blechnaceae		
Blechnum nudum	Fishbone 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	
Grammitidaceae		
Notogrammitis billardierei	Common fingerfern	
Hymenophyllaceae		
Hymenophyllum flabellatum	Shiny filmyfern	
Hymenophyllum peltatum	Alpine filmyfern	

B. Information required by Tasmania Parks and Wildlife Service additional to the information requested in the project-specific EIS Guidelines

1. Proposal description (in addition to s2.4 page 12 of the draft guidelines)

The proposal description must include a site plan at a suitable scale detailing components within the Tarraleah Conservation Area.

Site Plans at a suitable scale detailing:

- Final location and dimensions of proposed infrastructure in relation to the Conservation Area boundaries. Also delineate distance from Surge Tower to the TWWHA.
- Dimensions of vegetation clearance required for development footprint.
- All works including lay-down areas, staging areas, all roads (temporary or permanent) to be constructed, road structures culverts/bridges/retaining walls.
- Natural features or constraints that influenced the route planning;
- Excavation areas required for temporary or permanent infrastructure;
- Proposed timeline for works within the Conservation Area.
- Areas requiring rehabilitation following construction works; and
- Any other or similar activities associated with the proposal.

2. Project Alternatives (in addition to s13 page 13/14 of the draft guidelines)

- This section should include a detailed discussion about the rationale for the proposed infrastructure and evaluation of alternatives to the proposed siting and design. The discussion should list the different options considered and outline why the proposed concept has been selected as the most suitable option. This discussion should include all matters relevant to PWS managed land including the Tarraleah Conservation Area and the TWWHA.

3. Management objectives (clarification of s 5.3.2)

- Justification for how the proposal is not inconsistent with the purpose of reservation as specified in Schedule 1 of the Nature *Conservation Act 2002* as well as the management objectives for a Conservation Area as specified in Schedule 1 of the *National Parks and Reserves Management Act (2002).*
- The management objectives are equally important and there is no hierarchy in their application to reserve management. The proposal needs to demonstrate it is not inconsistent with each objective.

4. Biological diversity (clarification of s.5.3)

- The proposal needs to demonstrate it is consistent with the management objective to conserve biological diversity. It is recommended the following information is provided:
- Provide a Natural Values Assessment specific to the proposed development footprint within the Tarraleah Conservation Area. The assessment should be consistent with the Guidelines for Natural Values Assessment issued by NRE Tas and undertaken by a suitably qualified person. The NVA should include: A current survey of the site for natural values. Note the guidelines generally consider two years as the limit of currency, depending on circumstance. Any survey older than two years will only be accepted for assessment if it includes appropriate justification why it should be considered current.
- Survey of potential threats to natural values, such as weeds, pests and diseases posed by the development.
- Estimated disturbance area of the proposal and description of any important conservation features that will be impacted (eg mature habitat values, highly sensitive species, primitive).

- Description of impact on Tasmania's Comprehensive, Adequate and Representative (CAR) Reserve Estate by proposed clearing for development.
- Indirect impacts to surrounding biological diversity values (eg increased access pathways into reserve for weeds, pests, disease, bushfire).

5. Bushfire Risk (clarification of s.5.10)

- Identify potential sources of ignition that could cause a bushfire during the construction and operation stages.
- Identify values at risk from bushfire, particularly given proximity of the TWWHA and risk mitigation strategies.

6. Water quality and catchments (in addition to s.5.1)

- Demonstrate how the mitigation measures implemented lead to acceptable outcomes with regard to the management objective to preserve the quality of water and protect catchments.

7. Cultural significance (Extra additional information outside of draft EIS guidelines)

The proposal needs to demonstrate it is consistent with the management objective to conserve sites or areas of cultural significance. The EIS should summarise the findings of cultural heritage assessments without divulging sensitive information. A copy of the Aboriginal Heritage Assessment Report is requested to be forwarded to PWS.

It is noted that the planning report indicates no ground surveys with Aboriginal Heritage Officers and associated community consultation has been conducted on the River Derwent (Tarraleah Conservation Area) within the TWWHA. Further justification for this decision is required, including any associated advice from Aboriginal Heritage Tasmania.

8. Legal and illegal access

The proposal needs to demonstrate it can allow for compatible recreation while limiting activities that are prohibited under the National Parks and Reserve Management Regulations 2019. The following information is recommended:

- Identification of existing and new access points into land managed by the PWS and description of how access will be managed to limit illegal activities including wood cutting, hunting, recreational vehicle use and dumping of waste.