



Selfs Point Sewage Treatment Plant Expansion Project

NATURAL VALUES ASSESSMENT

18th December 2023

For TasWater

TSW001



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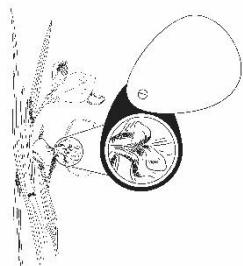
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EXECUTIVE SUMMARY

As part of the proposal to decommission the sewage treatment plant at Macquarie Point, TasWater are investigating upgrades to the existing Selfs Point Sewage Treatment Plant (STP). The development at Selfs Point will include expansion and upgrades to the existing facilities to adequately and sustainably process the increased sewage volume.

TasWater has engaged North Barker Ecosystem Services (NBES) to complete a natural values assessment of the proposal; this includes recommendations to reduce impacts to natural values, and comment on compliance with environmental legislation.

A summary of values and recommendations for avoidance and mitigation is as follows:

Vegetation Communities

The proposal will have no impact on any native vegetation communities. The proposed development occurs entirely in modified land (TASVEG 4.0 unit – FUM). These modified areas are dominated by introduced species, both in terms of plant cover and species diversity. Declared weeds, including WoNS are abundant within the modified land.

Threatened Flora

No threatened flora species listed under either the TSPA or EPBCA were observed during the survey nor are likely to occur, given the highly modified nature of the development footprint.

Threatened Fauna and Threatened Fauna Habitat

No threatened fauna will be directly impacted as a result of the proposal. However, 25 *Eucalyptus globulus* trees that constitute potential swift parrot foraging habitat will be impacted by the proposed expansion of the STP.

Initial recommendations on avoidance of impacts to *Eucalyptus globulus* mapped within the Selfs Point STP have resulted in a reduction in impacts from the initial 55 trees (which were identified in a baseline DGPS tree survey of the site) down to 25 trees. Given the locations of the remaining 25 trees, the projects already compact design and the already limited space for developing there is no further scope for avoidance.

Impacts to the swift parrot have been assessed under the EPBCA Matters of National Environmental Significance Significant Impact Guidelines 1.1 and it has been determined that the proposal is not considered to pose any risk in resulting in a significant impact to the species.

It is recommended that all identified swift parrot foraging habitat trees within 30 m of the boundary of the proposed project area footprint are clearly marked and exclusion zones are established around them to avoid unnecessary impact during the construction phase of the project.

The swift parrot is known to utilise foraging habitat in the broader area. The potential for collision risk has been assessed and the risks associated with the proposal has been deemed to be very low. Specific collision risk mitigation is not considered to be warranted.

In acknowledgment that there are known records of parrots utilising foraging habitat in similar peri-urban environments in the broader area, we recommend the action is referred to the Minister to demonstrate due diligence. In our opinion the action does not warrant further assessment as a controlled action.

Introduced Flora

The risks of the spread of declared and environmental weeds can be managed through the adoption of a project-specific *Weed and Hygiene Management Plan* (WHMP) which has been developed for the proposal. This document details weed and hygiene prescriptions for contractors and outlines primary and secondary weed control and requirements including wash-down stations and auditing



procedures. The principals from the following NRE documents are utilised in the report and should be adhered to:

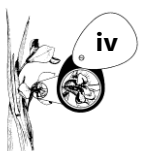
- *Keeping it clean - A Tasmanian field hygiene manual to prevent the spread of freshwater pests and pathogens* (Allen and Gartenstein, 2010)
- *Tasmanian Coastal Works Manual. A best practice management guide for changing coastlines.* (Page and Thorp, 2010)
- *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania* (DPIPWE, Stewart and Askey-Doran, 2015)
- *Wetlands and Waterways Works Manual* (DPIPWE, 2003)

A follow-up weed inspection of the project area is recommended to establish if treatment is warranted for the proliferation of weeds due to the project disturbance – this should be undertaken in spring or summer and at least 6 months (but not longer than 2 years) after works are completed.



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1. PROJECT DETAILS

1.1. BACKGROUND

TasWater are investigating options for expansion of the existing sewerage treatment plant (STP) at Self's Point – referred to as the 'project area' (Figure 1). The proposal includes upgrades to the existing treatment plant including the addition of new infrastructure, carparks and laydown areas. The expansion and upgrading of the existing plant, combined with the future decommissioning of the Macquarie Point Sewage Treatment Plant, will deliver improved environmental outcomes and will enable the treatment of up to 24.9 megalitres of Hobart's wastewater per day.

TasWater has engaged North Barker Ecosystem Services (NBES) as part of an iterative design process to reduce impacts to natural values and ensure compliance with environmental legislation. NBES previously assessed an earlier version of the footprint in 2016². Due to changes in the footprint and the time since the previous natural values surveys, NBES was engaged to complete an updated natural values assessment (NVA). The project area of the NVA survey was defined by TasWater and consists of the existing STP, the adjacent decommissioned artificial wetlands and road frontage (Figure 1). The project area totals ~4.90 ha.

This NVA report includes recommendations to reduce impacts to natural values and ensure compliance with environmental legislation.

1.2. METHODS

The assessment was undertaken in accordance with the *Guidelines for Natural Values Surveys*³. Field surveys were undertaken by NBES ecologists as follows:

- targeted DGPS tree survey – 26th September 2023
- natural values assessment, including targeted threatened flora survey - 4th of December 2023.

Native vegetation was mapped in accordance with units defined in TASVEG 4.0⁴. Non-native types were treated collectively as modified land as defined under the TASVEG grouping (units beginning with F). The site was surveyed using a meandering area search technique⁵.

Location data for tree survey was recorded using a DGPS (± 0.30 cm accuracy), all other location data was recorded using a handheld GPS and/or GPS mobile app (± 5 m accuracy).

Additional survey effort was applied to habitats suitable for threatened species and/or vegetation communities (under the Tasmanian *Threatened Species Protection Act 1995* [TSPA], the Tasmanian *Nature Conservation Act 2002* [NCA], and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* [EPBCA]), and to 'declared' weeds listed under the Tasmanian *Biosecurity Act 2019* (BSA) and associated *Biosecurity Regulations 2022* and Weeds of National Significance (WoNS) under the *Australian Weed Strategy 2017- 2027*.

Botanical nomenclature follows the current census of Tasmanian plants⁶

The Natural Values Atlas (NVA) database was consulted for records of threatened species and vegetation types within a 5 km radius. The possibility of the project area supporting threatened values known from within this radius has been considered in the interpretation of results and discussion; however, due to the nature of the proposal (limited impacts to a small highly modified area), only species previously reported from within 500 m are presented in the report for discussion.

² North Barker Ecosystem Services (2016)

³ DPIPWE (2015)

⁴ Kitchener and Harris (2013)

⁵ Goff *et al.* (1982)

⁶ de Salas and Baker (2023)



1.3. LIMITATIONS

The field survey was undertaken in early summer. Values that are seasonal or require specific germination triggers may have been absent or undetectable. Fauna habitat, including the presence of hollows and nests, was assessed from ground level only.

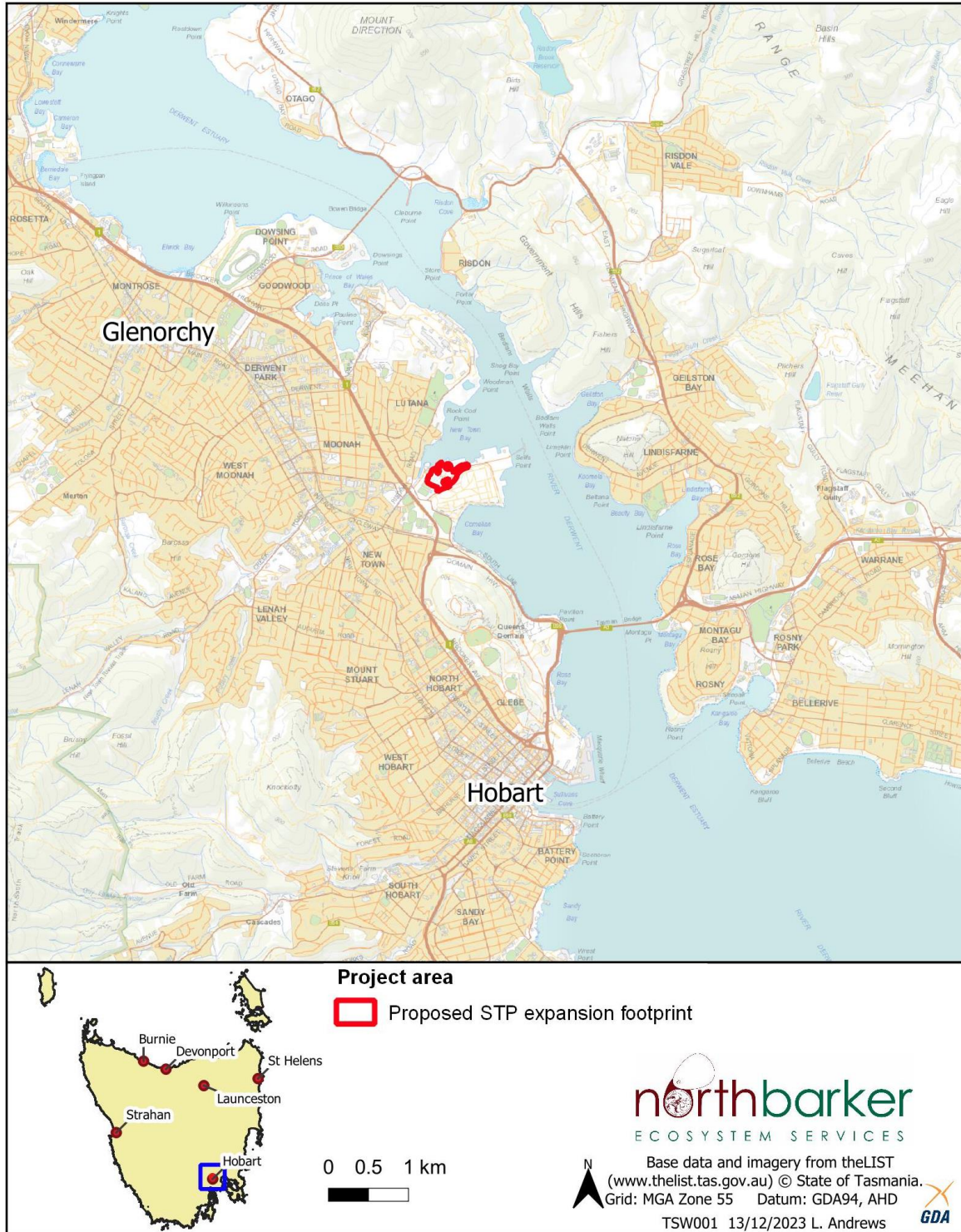


Figure 1: Locality of the project area.

2. SITE VALUES

2.1. VEGETATION COMMUNITIES

The project area is highly modified and is comprised entirely of non-native vegetation. No listed threatened ecological communities under the NCA or the EPBCA occur. Distribution of vegetation is displayed in Figure 2.

2.1.1. Modified land (FUM)

The project area consists of entirely modified land (TASVEG 4.0 unit -FUM), covering ~ 4.90 ha. (Figure 2). The project area can be broken down into different areas based on the current land uses. The vegetation for each area is described below.

Existing Selfs Point Sewage Treatment Plant

The current footprint of the Selfs Point STP consists almost entirely of existing sewage treatment infrastructure, such as buildings and treatment ponds, and hard surfaces, such as roads and paths (Plate 1).

Vegetation in this area is highly managed, with lawns that are frequently mowed and scattered planted trees, such as Monterey cypress (*Cupressus macrocarpa*) and bottlebrushes (Plate 2). Introduced species, such as *Bromus catharticus*, *Digitaria sanguinalis*, *Polygonum aviculare* and *Plantago coronopus*, are widespread and abundant.

A small number of native species are present around the treatment plant, though they are a minor component of the species diversity of the area. Some of these species, such as *Correa alba var. alba* and *Lomandra longifolia* are likely not natural occurrences as they occur in garden plantings. Similarly, the *Eucalyptus globulus* scattered along the boundary of the treatment plant are likely to have been planted given their size and occurrence within the highly managed landscape.



Plate 1. Selfs Point Sewage Treatment Plant.



Plate 2. Typical composition of the FUM in the Selfs Point STP.

Decommissioned artificial wetland

The decommissioned artificial wetland makes up the south-western section of the project area, covering ~2.2 ha (Figure 2). The area historically received treated effluent flows from the Selfs Point STP, and was decommissioned in 2012⁷. Since being decommissioned, the area has remained unmanaged and has transformed into a landscape dominated by introduced and declared species (Plate 3). No wetland habitat elements remain. Introduced species such as, *Polypogon monspeliensis*, *Cynosurus echinatus*, *Euphorbia peplus* and *Helminthotheca echioides* and widespread and common. Declared weeds, including WoNS, such as African boxthorn and blackberry form dense patches (Plate 4). Native species are essentially absent, with *Ficinia nodosa* being one of the only remnant wetland species present.



Plate 3. Decommissioned artificial inland wetland where the proposed expansion of the STP will occur.

⁷ TasWater (2020)



Plate 4. Declared weeds, such as blackberry (WoNS) form dense thickets in the decommissioned artificial wetland.

Road reserve

In front of the Selfs Point STP, the project area consists of a narrow corridor in the road reserve (Figure 2, Plate 5). This area is largely managed with signs of mowing present and weed spraying. Common introduced roadside species, such as *Dactylis glomeratus*, *Hypochaeris radicata* and *Plantago lanceolata* are abundant in this area. There were some native grasses, such as *Austrostipa stipoides* and *Rytidosperma caespitosum* observed in low abundances.



Plate 5. Typical composition of the road reserve in the project area.



Figure 2: NBES mapped vegetation classified using TASVEG 4.0 units within the project area.

2.2. THREATENED FLORA

No flora species listed under either the TSPA or EPBCA were observed during the survey. Due to the modified nature and small size of the project area, it is unlikely that any additional values were overlooked.

2.2.1. Threatened flora recorded within 500 m of the project area

One species listed as threatened under the TSPA has previously been recorded within 500 m of the project area, according to the Natural Values Atlas⁸, within a confined and conspicuous part of Newtown Rivulet. This species, *Bolboschoenus caldwellii* (r/-) has been recorded five times in New Town Rivulet, south-west of the project area, and remains extant at that site⁹. The project area was searched extensively and no suitable habitat for this species is present nor is it likely to have been overlooked in season.

2.3. THREATENED FAUNA AND THREATENED FAUNA HABITAT

No signs characteristic of threatened fauna, such as scats, prints, dens, or diggings were observed. Our fauna habitat assessment established that the proposed clearance footprint does not contain any observable habitat elements that could be considered critical (either in terms of scale or specific value) to the persistence of threatened fauna species at a local level or higher.

Eucalyptus globulus trees that are of a size that can be considered as potential foraging habitat for the swift parrot (*Lathamus discolor*) (e/CR) are present.

2.3.1. Swift parrot (*Lathamus discolor*) (e/CR)

The swift parrot (*Lathamus discolor*) spends its winter in south-eastern mainland Australia before migrating to Tasmania in late winter/early spring to breed. During the breeding season, nectar from Tasmanian blue gum (*Eucalyptus globulus*) and black gum (*Eucalyptus ovata*) flowers is the primary food source for the species. These eucalypts are patchily distributed, and their flowering patterns are erratic and unpredictable, often leading to only a small proportion of swift parrot habitat being available for breeding in any one year. Swift parrots breed in tree hollows in mature eucalypts within foraging range of a flower source¹⁰. This species is listed as endangered under the TSPA and critically endangered under the EPBCA.

In a baseline targeted DGPS tree survey of the project area by NBES, a total of 55 *Eucalyptus globulus* trees were identified and mapped. All 55 of the *E. globulus* trees are considered to be plantings rather than native remnants. These trees are nonetheless of a size that can be considered as having potential foraging value for the swift parrot. No suitable nesting trees were observed within the project area with the trees not supporting viable hollows (nor indeed hollows of any note).

Of the 55 trees mapped within and surrounding the existing STP, 25 fall within the current design footprint (Figure 3).

According to the Natural Values Atlas⁸, the swift parrot has been previously recorded six times within 500 m of the project area, with the most recent record being from 2014 – it is thus plausible the species could utilise the trees on site.

⁸ Department of Natural Resources and Environment (2023)

⁹ Further commentary relating to the likelihood of occurrence of these species can be found in Appendix B.

¹⁰ Habitat descriptions for these species are informed by threatened species note sheets available for the species at the Threatened Species Link (<https://www.threatenedspecieslink.tas.gov.au/Pages/default.aspx>).





Figure 3: Suitable swift parrot foraging habitat as identified during baseline DGPS tree survey.

2.3.2. Threatened fauna recorded within 500 m of the project area

According to the Natural Values Atlas⁸, four threatened fauna species have been recorded within 500 m of the project area.

- Tasmanian wedge-tailed eagle - *Aquila audax* subsp. *fleayi*
- white-bellied sea eagle - *Haliaeetus leucogaster*
- swift parrot - *Lathamus discolor*
- Derwent River seastar - *Marginaster littoralis*

Of these, the swift parrot (*Lathamus discolor*) (e/CR), is the only species with any chance of occurring within the project area (other than irrelevant over-flights) given there are potential foraging trees for the species present¹¹.

The Tasmanian wedge-tailed eagle (*Aquila audax* subsp. *fleayi*) (e/E) and the white bellied sea-eagle (*Haliaeetus leucogaster*) (v/-) are considered to have very-low potential to occur¹¹. These eagle species are considered likely to be local visitors that may forage over and around the project area on occasion but have no meaningful habitat in the footprint. They are not considered possible to be negatively impacted by the proposed development given the lack of meaningful foraging habitat and absence of nesting habitat.

The Derwent River seastar (*Marginaster littoralis*) (e/CR) is a marine species that has historically (1969) been recorded in Cornelian Bay. It has been proposed that the species has hybridised with the New Zealand sea star (*Patiriella regularis*) and is now extinct¹²



Plate 6. The *Eucalyptus globulus* trees planted around the Selfs Point STP provide a potential foraging resource for swift parrots (e/CR).

¹¹ Habitat descriptions for these species are informed by threatened species note sheets available for the species at the Threatened Species Link (<https://www.threatenedspecieslink.tas.gov.au/Pages/default.aspx>).

¹² Elgin (2022)

2.4. INTRODUCED FLORA

Introduced flora species were ubiquitous across the project area with declared, WoNS and environmental weeds being widespread and abundant. Of the 96 recorded species, 69 species (or ~72 %) are introduced (Appendix A).

2.4.1. Declared Weeds

Seven of these species are listed as 'declared' under the BSA (Plate 8). Five of these species are additionally listed as a Weed of National Significance (WoNS). Many of these declared species are occur as moderate infestations across many the project area, mostly in the decommissioned artificial wetland area (Figure 4). Declared weeds and WoNS observed, and their general extent within the project area is described in Table 1.

Within 5 m of the project area in the road reserve ~55 (+/- 5) serrated tussock (*Nassella trichotoma*) (WoNS) individuals were recorded. These records occur around previously known occurrences of the species¹³. Though these plants do not occur in the project area, given their proximity, there is a chance they could spread into the project area, noting this is a class A weed for the municipality.

Table 1. Extent of declared and WoNS species found within the project area

Species	WoNS Status	BSA Class	Extent
African boxthorn <i>Lycium ferocissimum</i>	YES	B	Abundant and forms thick patches in the decommissioned artificial wetlands. Occurs as isolated plants elsewhere.
blackberry <i>Rubus fruticosus</i>	YES	B	Abundant and forms thick patches in the decommissioned artificial wetlands. Occurs as isolated plants elsewhere.
boneseed <i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	YES	B	Occurs as patches of plants in the decommissioned artificial wetlands. Occurs as isolated plants elsewhere.
English broom <i>Cytisus scoparius</i>	YES	B	Occurs as isolated plants in the decommissioned artificial wetlands
fennel <i>Foeniculum vulgare</i>	-	B	Occurs as patches of plants in the decommissioned artificial wetlands. Occurs as isolated plants elsewhere.
Montpellier broom <i>Genista monspessulana</i>	YES	B	Occurs as individual or groups of seedlings in the decommissioned artificial wetlands.
white weed <i>Lepidium draba</i>	-	B	Occurs as patches of plants in the decommissioned artificial wetlands.

2.4.2. Non-declared Weeds

Additionally, many species classified as 'environmental weeds'¹⁴ were observed across the project area (Appendix A). Environmental weeds with low abundance, such as cotoneaster, mirror bush and sweet pittosporum (Plate 8), had their locations recorded (Figure 4). The individual locations of other weeds, such as spear thistle, capeweed, and dock, that were widespread and abundant, were not recorded, though their presences in an area was noted.

Environmental weed observed within the project area include:

- Cotoneaster (*Cotoneaster glaucophyllus* var. *serotinus* and *Cotoneaster pannosus*)

¹³ Pre NBES surveying in 2016 for TasWater's project on decommissioning the sewage treatment plant at Macquarie Point

¹⁴ Department of Natural Resources and Environment (2023)

- English ivy (*Hedera helix*)
- Mirror bush (*Coprosma repens*)
- Sweet pittosporum (*Pittosporum undulatum*)
- Tufted gazania (*Gazania linearis*)



Plate 7. English broom (WoNS), one of the seven declared weeds present within the project area.



Plate 8. Sweet pittosporum, one of the many environmental weeds present.

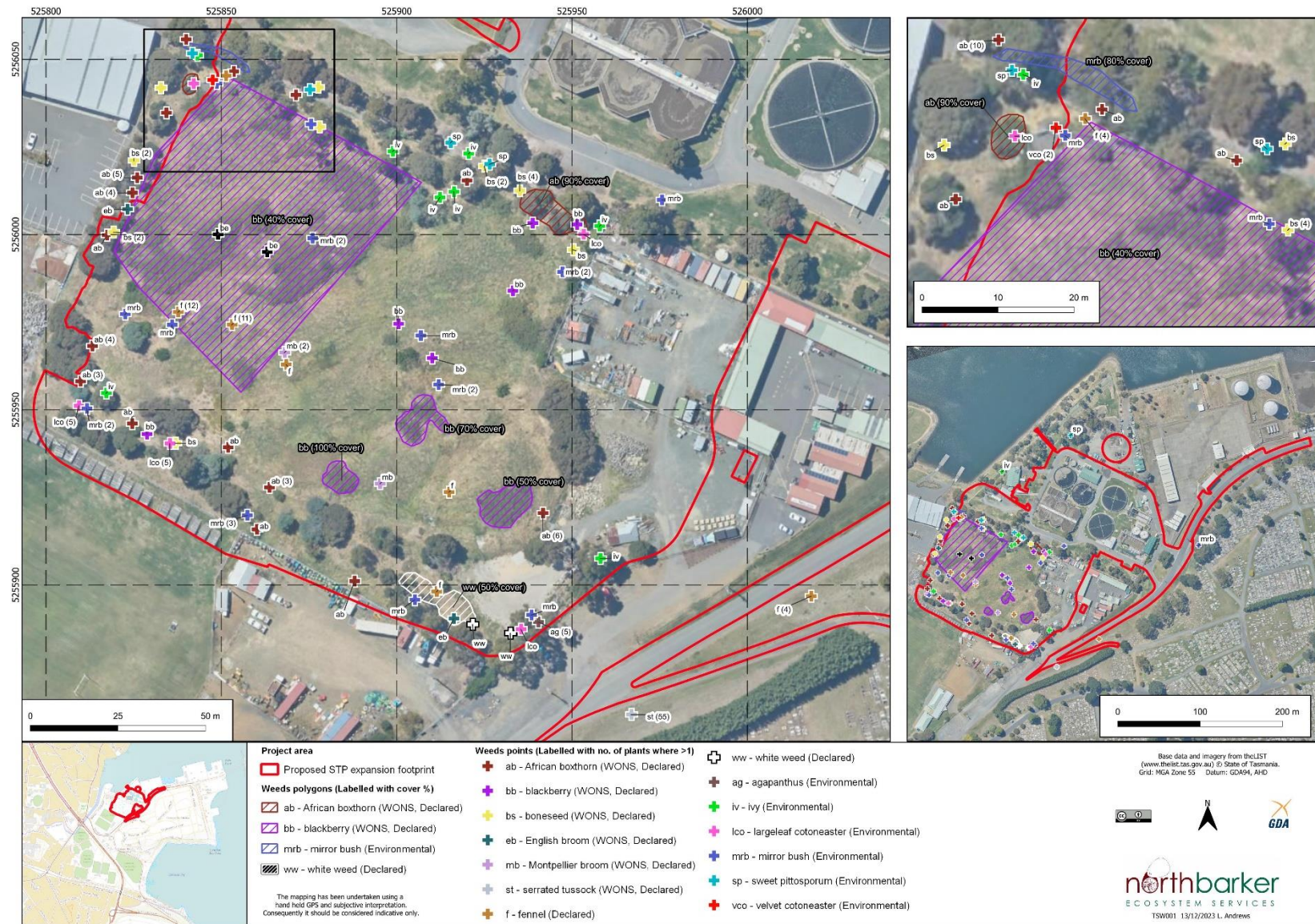


Figure 4: Declared and environmental weeds within the project area.

3. IMPACT ASSESSMENT, SCOPE FOR MITIGATION, AND RECOMMENDATIONS

Overall, our field investigation has established that the project can reasonably be achieved without significant risk to conservation significant values, particularly with respect to the avoidance of swift parrot habitat and with the context of the relatively low habitat value of the trees that remain in the footprint and will require removal. Impacts to all other values (within our scope) will be negligible and manageable within the Selfs Point STP expansion and upgrade project.

3.1. VEGETATION COMMUNITIES

The proposed development area contains no native vegetation communities as the project area is comprised entirely of highly modified land. As such there will be no impact to native vegetation communities from the expansion and upgrade works. As such, no specific mitigation or management is required.

3.2. THREATENED FLORA

No threatened flora species were recorded in the project area, and the chances of any species occurring is considered very low. It is not expected that any threatened flora will be impacted by the proposed development. As such, no specific mitigation or management is required.

3.3. THREATENED FAUNA AND THREATENED FAUNA HABITAT

Four threatened fauna species have been recorded from within 500 m of the project area. However, based on the habitat and location, only the swift parrot has any likelihood of meaningful interaction with habitat and subsequent potential impacts, with this species having a moderate likelihood of occurring in the project area (albeit with large interannual variation) and the potential for impacts to the species from the expected loss of habitat discussed below.

3.3.1. Swift parrot (*Lathamus discolor*) (e/CR)

Changes to the design footprint as a result of recommendations made by NBES has reduced the potential impact to swift parrot foraging habitat significantly. Figure 5 illustrates avoidance measures (changes to STP footprint) that have been undertaken to limit the overall number of trees impacted as well as restricting impacts to those we determined to be trees of lesser foraging value. The 30 trees that are avoided in the process were deemed to have the highest foraging value within the site for the species¹⁵ and were thus targeted to be retained; they also had a better landscape position for unobstructed usage by the species and transit across the Derwent River to known breeding habitat within 10 km.

Given the locations of the remaining 25 trees within the footprint (being centred around the existing STP), the projects already compact design, and the already limited space for developing, there is not considered to be any reasonable further scope for avoidance while addressing the needs of the project. Impacts to the swift parrot have been assessed under the EPBCA Matters of National Environmental Significance: Significant Impact Guidelines 1.1 and it has been determined that the proposal is not considered to pose any risk in resulting in a significant impact to the species¹⁵.

3.3.1.1. Collision risk – windows, wires, fences and potential flight paths

As trees with foraging value will remain adjacent to the proposed development, there will be the future potential for the species to fly through and/or around the STP while the adjacent food trees are in use. Bird strike (flying collision) with windows and fences (infrastructure that is associated with the expansion of the Selfs Point STP) is recognised as a potential source of mortality¹⁶ for the swift parrot. Birds tend

¹⁵ North Barker Ecosystem Services (2023)

¹⁶ Pfenningworth (2008)

to suffer elevated mortality rates in built-up areas within foraging habitat¹⁷. To mitigate bird strike, the upgrade and expansion works must consider the following:

In terms of collisions with windows, risks may be divided into two categories: a) reflections, and b) transparency¹⁸.

- a) When seen from the outside of a building, glass often has a reflective quality, mirroring the sky, trees and other features. Some types are worse than others. The reflectivity increases when glass is seen at an oblique angle, regardless of whether the glass is transparent or tinted. Birds do not understand that a reflection is false. Instead, they perceive a continuation of their habitat and try to fly to it, resulting in collisions. This a particular risk for short distance flights such as take offs.
- b) Birds cannot differentiate between clear glass and unobstructed airspace; it is invisible to them. Glass lobbies, balconies, windows or glass walls that meet at a corner, or aligned windows (windows installed parallel to each other, on opposite sides of the building) provide an unobstructed view of habitat and sky on the other side of the building and are particularly dangerous: birds perceive a passageway and attempt to fly straight through. Also, transparent windowpanes mimic tinted reflective panes when little or no light is visible behind them.

In terms of wires, these can be a collision risk on account of being effectively invisible to birds from particular angles and light conditions: essentially another form of transparency.

Collision risk for these kinds of elements are most severe when birds are taking low direct flights, such as may occur between foraging patches, or when the collision risk element is at the same height as adjacent habitat, such as on slopes.

To consider collision risk to the swift parrot on the site from the proposal, we have thus considered, the distribution of swift parrot foraging trees that will be retained on the site with respect to ingress / egress, site topography and their proximity to existing infrastructure or proposed design elements.

Within the existing treatment plant are a small number of buildings all which have little to no potential collision risks associated with them given their proximity to potential foraging habitat on the site and the size and number of windows. An 8 ft. high chain link fence borders the northwestern boundary of the site which is in proximity of potential foraging habitat that is to be retained. The height of this fence is well below the canopy height of nearby trees. Thus, the existing fence poses a very low collision risk. We consider the proposal to be a very low collision risk for the swift parrot on account of the low likelihood of their regular presence in the area, the fact that the design elements are not lying in any highly likely flight paths that would be at collision risk height, in addition to lack of potential reflectivity issues in relation to swift parrot (much of the site will consist of sewage treatment plant infrastructure including treatment and processing ponds). If birds were to be on site and moving between trees, it is most likely they would be coming and going from the Derwent River to trees that have been identified for retention (Figure 3).

Given that collision risk can in many cases be mitigated after construction with retrofitted solutions to reflections and transparency, we consider it sufficient for the proponent to be required to report any cases of bird collision (with photo evidence for identification) to the Council on an annual basis and for the Council to have scope, if a collision mortality with a threatened species occurs, to compel the proponent to implement post-hoc collision mitigation measures to the degree necessary as informed by a collision mitigation plan prepared by a suitably qualified consultant at that time. A template for the proponent to collect collision data is provided in Appendix D.

¹⁷ Swift Parrot Collision risk informed by; Pfennigwerth (2008); Threatened Species Scientific Committee (2016); Threatened Species Section (2023)

¹⁸ Pfennigwerth (2008)

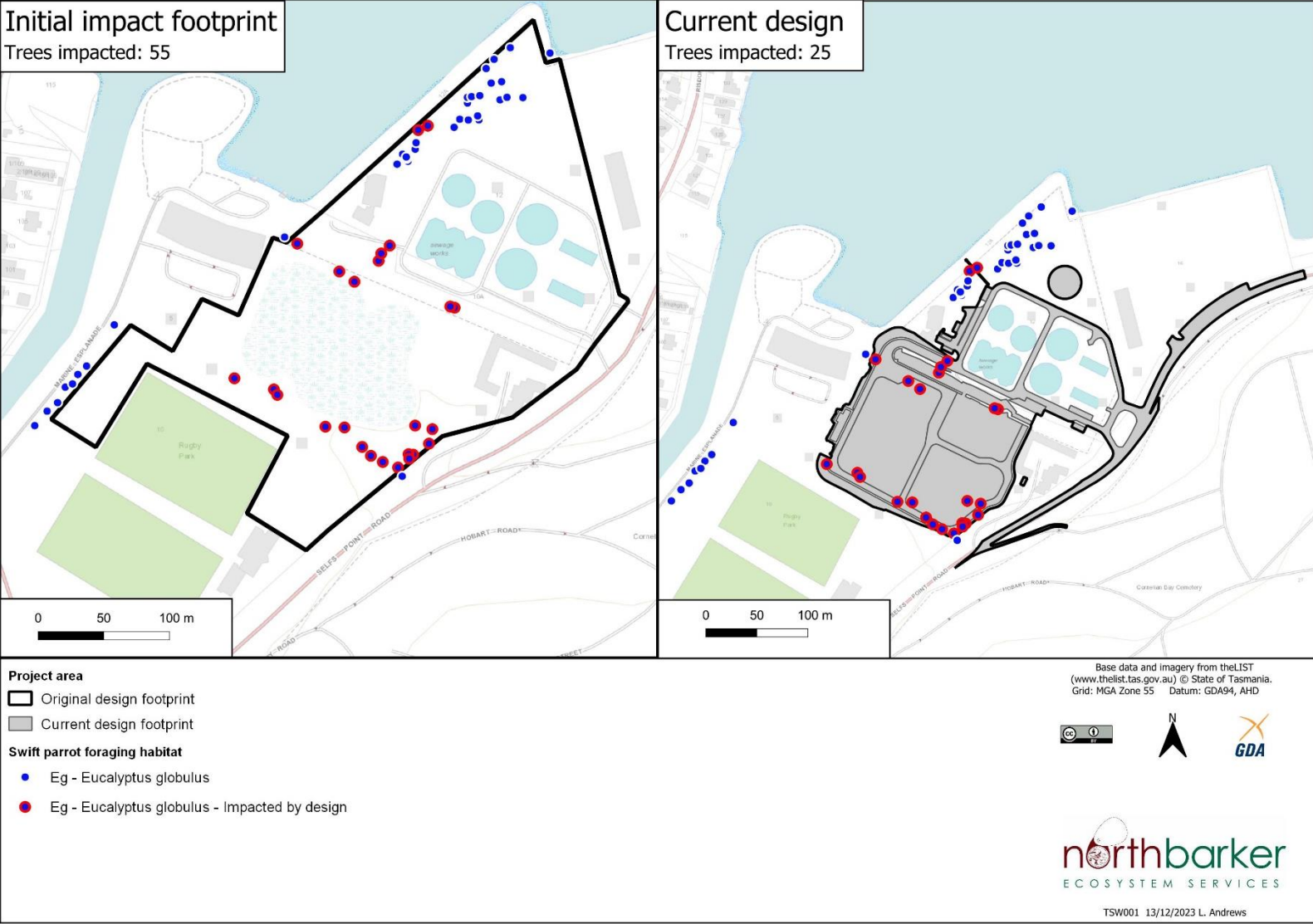


Figure 5. Comparison of impacts from initial design footprint to current proposed design. Reduction in impacts to potential swift parrot foraging habitat trees from 55 to 25. Higher value foraging habitat has been avoided through a redesign of the development footprint.

3.4. INTRODUCED FLORA

The proposed works pose a high risk of spreading weeds locally (or further) and worsening infestations through creating new disturbance niches. Table 2 details declared weed species present on the site and scope for mitigation.

3.4.1. Potential for mitigation

The risks of the spread of declared and environmental weeds can be managed through the adoption of a project-specific *Weed and Hygiene Management Plan* (WHMP) which has been which developed for the proposal. This document details weed and hygiene prescriptions for contractors and outlines primary and secondary weed control and requirements including wash-down stations and auditing procedures. The principals from the following NRE documents are utilised in the report and should be adhered to:

- *Keeping it clean - A Tasmanian field hygiene manual to prevent the spread of freshwater pests and pathogens* (Allen and Gartenstein, 2010)
- *Tasmanian Coastal Works Manual: A best practice management guide for changing coastlines.* (Page and Thorp, 2010)
- *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania* (DPIPWE, Stewart and Askey-Doran, 2015)
- *Wetlands and Waterways Works Manual* (DPIPWE, 2003)

A follow-up weed inspection of the project area is recommended to establish if treatment is warranted for the proliferation of weeds due to the project disturbance – this should be undertaken in spring or summer and at least 6 months (but not longer than 2 years) after works are completed.

Table 2: Declared weeds found within the site and potential for mitigation.

Species	BSA Class	Extent	Potential for mitigation
African boxthorn <i>Lycium ferocissimum</i>	B	Abundant and forms thick patches in the decommissioned artificial wetlands. Occurs as isolated plants elsewhere.	High
blackberry <i>Rubus fruticosus</i>	B	Abundant and forms thick patches in the decommissioned artificial wetlands. Occurs as isolated plants elsewhere.	High
boneseed <i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	B	Occurs as patches of plants in the decommissioned artificial wetlands. Occurs as isolated plants elsewhere.	High
English broom <i>Cytisus scoparius</i>	B	Occurs as isolated plants in the decommissioned artificial wetlands	High
fennel <i>Foeniculum vulgare</i>	B	Occurs as patches of plants in the decommissioned artificial wetlands. Occurs as isolated plants elsewhere.	High
Montpellier broom <i>Genista monspessulana</i>	B	Occurs as individual or groups of seedlings in the decommissioned artificial wetlands.	High
white weed <i>Lepidium draba</i>	B	Occurs as patches of plants in the decommissioned artificial wetlands.	High

Though serrated tussock (WoNS) was not found within the project area, given its proximity to the project area, the species will need to be appropriately managed as to not increase infestations or to spread the species.

4. LEGISLATIVE IMPLICATIONS

4.1. COMMONWEALTH *ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999*

The EPBCA is structured for self-assessment, with guidelines and criteria available to assist any person who proposes to take an action to decide whether they should submit a referral to the national Department of Climate Change, Energy, the Environment and Water for a decision by the Minister on whether assessment and approval is required under this Act.

Under this Act, an action will require approval from the Minister if the action has, will have, or is likely to have, a significant impact on a MNES, which includes all species and communities listed as threatened and/or migratory under this Act, as well as world heritage values.

In acknowledgment that there are known records of parrots utilising foraging habitat in similar peri-urban environments in the broader area¹⁹, we recommend the action is referred to the Minister to demonstrate due diligence. In our opinion the action does not warrant further assessment as a controlled action.

Our assessment against the EPBCA significant impact criteria for the critically endangered *Lathamus discolor* has shown the proposal is not considered to pose any risk in resulting in a significant impact to the species.

4.2. TASMANIAN *THREATENED SPECIES PROTECTION ACT 1995*

Under the TSPA, a person cannot knowingly without a permit 'take' a listed species. The definition of 'take' encompassing actions that kill, injure, catch, damage, destroy and/or collect threatened species or vegetation elements that support threatened species, *e.g.*, nests and dens.

No action is required under this Act.

4.3. TASMANIAN *BIOSECURITY ACT 2019*

According to the provisions of the Tasmanian *Biosecurity Regulations 2022*, administered under the Tasmanian *Biosecurity Act 2019*, Class A localities are areas in which eradication is deemed feasible (generally due to the existence of a targeted management plan) and is the responsibility of the landowner or land manager, or in the case of disturbance the development proponent.

Class B municipalities are those which host moderate or large infestations of the declared weed that are not deemed eradicable because the feasibility of effective management is low at this time. Therefore, the objective is containment of infestations. This includes preventing spread of the declared weed from the municipality or into properties currently free of the weed or which have developed or are implementing a locally integrated weed management plan for that species. As well there is a requirement to prevent spread of the weeds to properties containing sites for significant flora, fauna, and vegetation communities.

The relevant statutory weed management plans define the Hobart City Council as a Class B municipality for infestations of all the declared weeds recorded in the project area.

4.4. TASMANIAN *ENVIRONMENTAL MANAGEMENT AND POLLUTION CONTROL ACT 1994*

The proposed expansion and upgrade to the Selfs Point STP is being assessed as a Level 2 Activity by Tasmania's Environment Protection Authority (EPA) under the Tasmanian *Environmental Management and Pollution Control Act 1994* (EMPCA). This will require the preparation of an Environmental Impact Assessment (EIS).

¹⁹ Department of Natural Resources and Environment (2023)

4.5. TASMANIAN PLANNING SCHEME

In consideration of the requirements of the *Land Use Planning and Approvals Regulations Act 2014* (LUPAA), each municipal area incorporates development standards and codes under the appropriate local provisions. The project area is located entirely within the Hobart City Council area, which is currently subject to the provisions of the *Hobart Interim Planning Scheme 2015*. The Hobart City Council is currently transitioning to the Tasmanian Planning Scheme (TPS) and is likely to be in effect in the coming months. As such, we have addressed the TPS in this report on the basis that it will not be assessed under the interim schemes.

It is anticipated that with the avoidance that has been achieved and the recommendations provided in this report, any planning zones and code provisions can be adequately addressed to meet the permit requirements of the Tasmanian Planning Scheme.

4.5.1. Zoning

The proposed project area is currently zoned as under three different land uses; the existing STP is zoned as Utilities (Zone 28), the decommissioned artificial wetlands zoned as Recreation (Zone 18) and the road reserve is zoned as Community Purpose (Zone 17). The transition to the Tasmanian Planning Scheme will see the retention of the existing zoning, with minor changes expected²⁰.

4.5.2. Code Provisions

The project area is currently subject to the Coastal Inundation Hazard Area (C116.SLR), and Coastal Erosion Hazard Area (C116.CEH) code provisions. The transition to the Tasmanian Planning Scheme will see changes to these, notably with the additional of the Natural Assets Code (C7) and Waterways and Coastal Protection Area provision²¹.

Exemptions under the Natural Asset Code (C7.4)

The proposed development is exempt from assessment under the Natural Assets Code as it meets the definition of the use and development exemptions outlined in the code (C7.4.1b).

(C7.4.1) The following use or development is exempt from this code:
(b) development assessed as a Level 2 Activity.

Therefore, the proposed upgrades do not need to be assessed against the provisions of the Natural Assets Code.

²⁰ Hobart City Council (2023a)

²¹ Hobart City Council (2023b)

5. CONCLUSION AND RECOMMENDATIONS

Overall, the impacts associated with the proposed expansion and upgrades at the Selfs Point STP are limited to highly modified environments. The impacts to natural values, such as threatened fauna habitat, is negligible. Specific recommendations are summarised below for minimising impacts and ensuring legislative compliance.

5.1. VEGETATION COMMUNITIES

The proposal will have no impact on any native vegetation communities. The proposed development occurs entirely in modified land (TASVEG 4.0 unit – FUM). These modified areas are dominated by introduced species, both in terms of plant cover and species diversity. Declared weeds, including WoNS are abundant within the modified land.

5.2. THREATENED FLORA

No threatened flora species listed under either the TSPA or EPBCA were observed during the survey nor are likely to occur, given the highly modified nature of the development footprint.

5.3. THREATENED FAUNA AND THREATENED FAUNA HABITAT

No threatened fauna will be directly impacted as a result of the proposal. A minor amount (25 *E. globulus*) of sub-optimal foraging habitat for the swift parrot will be impacted.

5.3.1. Swift parrot (*Lathamus discolor*) (e/CR)

Multiple iterations of the development footprint have resulted in avoidance of many trees that provide potential foraging habitat for swift parrots (e/CR).

Of the 55 *Eucalyptus globulus* (foraging trees) that were initially identified during the baseline DGPS tree survey 30 have been avoided through a reduction in the project area footprint.

Importantly, the 30 trees that have been avoided through the reduction in the STP footprint are considered to be the best potential foraging value trees on the site. These trees are located on the margin of the River Derwent, and away from the current STP and offer an unobstructed flight path to / from the Meehan Range.

The remaining 25 trees that have been identified cannot be avoided and are in and/or have TPZ overlap with the development footprint. The impact to this threatened fauna habitat has been assessed in a SIA²², and it has been determined that the proposal is not considered to pose any risk in resulting in a significant impact to the species.

It is recommended that all identified swift parrot foraging habitat trees within 30 m of the boundary of the proposed project area footprint are clearly marked and exclusion zones are established around them to avoid unnecessary impact during the construction phase of the project.

The swift parrot is known to utilise foraging habitat in the broader area. The potential for collision risk has been assessed and the risks associated with the proposal has been deemed to be very low. Specific collision risk mitigation is not considered to be warranted. We consider it sufficient for the proponent to be required to report any cases of bird collision (with photo evidence for identification) to the Council on an annual basis and for council to have scope, if a collision mortality with a threatened species occurs, to compel the proponent to implement post-hoc collision mitigation measures to the degree necessary as informed by a collision mitigation plan prepared by a suitable qualified consultant at that time.

²² North Barker Ecosystem Services (2023)

5.4. INTRODUCED FLORA

The risks of the spread of declared and environmental weeds can be managed through the adoption of a project-specific *Weed and Hygiene Management Plan* (WHMP) which has been developed for the proposal. This document details weed and hygiene prescriptions for contractors and outlines primary and secondary weed control and requirements including wash-down stations and auditing procedures. The principals from the following NRE documents are utilised in the report and should be adhered to:

- *Keeping it clean - A Tasmanian field hygiene manual to prevent the spread of freshwater pests and pathogens* (Allen and Gartenstein, 2010)
- *Tasmanian Coastal Works Manual. A best practice management guide for changing coastlines.* (Page and Thorp, 2010)
- *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania* (DPIPWE, Stewart and Askey-Doran, 2015)
- *Wetlands and Waterways Works Manual* (DPIPWE, 2003)

A follow-up weed inspection of the project area is recommended to establish if treatment is warranted for the proliferation of weeds due to the project disturbance – this should be undertaken in spring or summer and at least 6 months (but not longer than 2 years) after works are completed.

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APPENDIX A – VASCULAR FLORA SPECIES LIST

Species list - project: TSW001

Status codes:

ORIGIN	NATIONAL SCHEDULE	STATE SCHEDULE
i - introduced	EPBC Act 1999	TSP Act 1995
d - declared weed WM Act	CR - critically endangered	e - endangered
en - endemic to Tasmania	EN - endangered	v - vulnerable
t - within Australia, occurs only in Tas.	VU - vulnerable	r - rare

Sites:

38	FUM -Selfs Point Sewage Treatment Plant - E526020, N5256071	4/12/2023 Ian Jenkinson
39	FUM - Decommissioned wetlands next to Selfs Point WTP - E525885, N5255971	4/12/2023 Ian Jenkinson
40	FUM - Selfs Point Additional Species - E526093, N5255960	4/12/2023 Ian Jenkinson

Site	Name	Common name	Status
	DICOTYLEDONAE		
	APIACEAE		
39	<i>Foeniculum vulgare</i>	fennel	d
	ARALIACEAE		
38	<i>Hedera helix</i>	ivy	i
	ASTERACEAE		
38 39	<i>Arctotheca calendula</i>	capeweed	i
39	<i>Chrysanthemoides monilifera subsp. monilifera</i>	boneseed	d
39	<i>Cirsium vulgare</i>	spear thistle	i
38	<i>Conyza bonariensis</i>	flaxleaf fleabane	i
39	<i>Dimorphotheca fruticosa</i>	trailing daisy	i
39	<i>Helminthotheca echioides</i>	bristly oxtongue	i
38 40	<i>Hypochaeris radicata</i>	rough catsear	i
39	<i>Lactuca serriola f. serriola</i>	prickly lettuce	i
38 39	<i>Sonchus asper</i>	prickly sowthistle	i
39	<i>Sonchus oleraceus</i>	common sowthistle	i
39	<i>Tragopogon porrifolius subsp. porrifolius</i>	salsify	i
	BORAGINACEAE		
39	<i>Echium candicans</i>	pride of madeira	i
	BRASSICACEAE		
38 39	<i>Brassica rapa</i>	turnip	i
39	<i>Lepidium africanum</i>	common peppergrass	i
38 39	<i>Lepidium didymum</i>	lesser swinegrass	i

39	<i>Lepidium draba</i>	hoary cress	d
	CAPRIFOLIACEAE		
39	<i>Sambucus nigra</i>	black elderberry	i
	CARYOPHYLLACEAE		
38	<i>Stellaria media</i>	garden chickweed	i
	CASUARINACEAE		
38 39	<i>Allocasuarina littoralis</i>	black sheoak	
38 39	<i>Allocasuarina verticillata</i>	drooping sheoak	
	CHENOPODIACEAE		
39	<i>Atriplex prostrata</i>	creeping orache	i
39	<i>Chenopodium album</i>	fat hen	i
39	<i>Einadia nutans subsp. nutans</i>	climbing saltbush	
38 39	<i>Rhagodia candolleana subsp. candolleana</i>	coastal saltbush	
	CONVOLVULACEAE		
40	<i>Convolvulus angustissimus subsp. angustissimus</i>	blushing bindweed	
	EUPHORBIACEAE		
39	<i>Euphorbia oblongata</i>	Balkan spurge	i
39	<i>Euphorbia peplus</i>	petty spurge	i
	FABACEAE		
39	<i>Acacia dealbata subsp. dealbata</i>	silver wattle	
38 39	<i>Acacia mearnsii</i>	black wattle	
38 39	<i>Acacia melanoxylon</i>	blackwood	
38	<i>Acacia stricta</i>	hop wattle	
39	<i>Cytisus scoparius</i>	english broom	d
39	<i>Genista monspessulana</i>	canary broom	d
39 40	<i>Medicago sativa</i>	lucerne	i
40	<i>Trifolium dubium</i>	suckling clover	i
38	<i>Trifolium repens</i>	white clover	i
	FUMARIACEAE		
39	<i>Fumaria bastardii</i>	bastards fumitory	i
	GERANIACEAE		
38 39	<i>Erodium moschatum</i>	musky heronsbill	i
	LAMIACEAE		
38	<i>Lavandula stoechas var. stoechas</i>	spanish lavender	i
38	<i>Salvia verbenaca var. verbenaca</i>	wild sage	i
	MALVACEAE		
38 39	<i>Malva sylvestris</i>	tall mallow	i
	MYRTACEAE		
38	<i>Callistemon sp.</i>	bottlebrush	

38	<i>Corymbia ficifolia</i>	red flowering gum	i
38 39	<i>Eucalyptus globulus subsp. globulus</i>	tasmanian blue gum	
39	<i>Eucalyptus pulchella</i>	white peppermint	en
38	<i>Eucalyptus tenuiramis</i>	silver peppermint	en
PITTOSPORACEAE			
39	<i>Billardiera heterophylla</i>	bluebell creeper	i
38	<i>Pittosporum undulatum</i>	sweet pittosporum	i
PLANTAGINACEAE			
38 40	<i>Plantago coronopus</i>	buckshorn plantain	i
38 40	<i>Plantago lanceolata</i>	ribwort plantain	i
POLYGONACEAE			
39	<i>Acetosella vulgaris</i>	sheep sorrel	i
38 39	<i>Polygonum aviculare</i>	creeping wireweed	i
39	<i>Rumex sp.</i>	dock	
PRIMULACEAE			
39	<i>Lysimachia arvensis</i>	scarlet pimpernel	i
PROTEACEAE			
39	<i>Banksia marginata</i>	silver banksia	
RANUNCULACEAE			
39	<i>Clematis sp.</i>	clematis	
ROSACEAE			
39	<i>Cotoneaster glaucophyllus var. serotinus</i>	largeleaf cotoneaster	i
39	<i>Cotoneaster pannosus</i>	velvet cotoneaster	i
39	<i>Prunus sp.</i>		i
39	<i>Rubus fruticosus</i>	blackberry	d
39	<i>Sanguisorba minor</i>	salad burnet	i
RUBIACEAE			
38 39	<i>Coprosma repens</i>	mirrorbush	i
38 39	<i>Galium australe</i>	tangled bedstraw	
38	<i>Opercularia varia</i>	variable stinkweed	
RUTACEAE			
38	<i>Correa alba var. alba</i>	white correa	
38	<i>Philothea verrucosa</i>	fairly waxflower	
SOLANACEAE			
39	<i>Lycium ferocissimum</i>	african boxthorn	d
38 39	<i>Solanum nigrum</i>	blackberry nightshade	i
URTICACEAE			
39	<i>Urtica urens</i>	stinging nettle	i
GYMNOSPERMAE			
CUPRESSACEAE			

40	<i>Cupressus macrocarpa</i>	monterey cypress	i
	PINACEAE		
38	<i>Pinus radiata</i>	radiata pine	i
	MONOCOTYLEDONAE		
	AGAPANTHACEAE		
39	<i>Agapanthus praecox subsp. orientalis</i>	agapanthus	i
	ASPARAGACEAE		
38 39	<i>Lomandra longifolia</i>	sagg	
	CYPERACEAE		
39	<i>Ficinia nodosa</i>	knobby clubsedge	
	HEMEROCALLIDACEAE		
38	<i>Dianella tasmanica</i>	forest flaxlily	
	POACEAE		
39	<i>Anthoxanthum odoratum</i>	sweet vernalgrass	i
40	<i>Austrostipa stipoides</i>	coast speargrass	
39	<i>Avena sp.</i>	oat	i
38 39	<i>Bromus catharticus</i>	prairie grass	i
39	<i>Bromus hordeaceus</i>	soft brome	i
39	<i>Cynosurus echinatus</i>	rough dogstail	i
38 39 40	<i>Dactylis glomerata</i>	cocksfoot	i
38 39 40	<i>Digitaria sanguinalis</i>	summergrass	i
39	<i>Ehrharta erecta</i>	panic veldtgrass	i
39	<i>Festuca arundinacea</i>	tall fescue	i
39	<i>Holcus lanatus</i>	yorkshire fog	i
39	<i>Lolium perenne</i>	perennial ryegrass	i
38 40	<i>Paspalum dilatatum</i>	paspalum	i
39	<i>Phalaris aquatica</i>	toowoomba canarygrass	i
38 39	<i>Poa labillardierei</i>	silver tussockgrass	
40	<i>Poa rodwayi</i>	velvet tussockgrass	
39	<i>Polypogon monspeliensis</i>	annual beardgrass	i
40	<i>Rytidosperma caespitosum</i>	common wallabygrass	
38	<i>Vulpia sp.</i>	fescue	i

APPENDIX B - CONSERVATION SIGNIFICANT FLORA WITHIN 500 M²³

Species	National Status EPBCA	State Status TSPA	Records within 500 m / 5 km	Habitat	Likelihood of Impact	Commentary
<i>Bolboschoenus caldwellii</i> sea clubsedge	-	rare	5 / 10	Widespread in shallow, standing, sometimes brackish water, rooted in heavy black mud.	NONE	Suitable habitat for this species would have existed in the artificial wetlands prior to decommissioning in 2012. The wetlands have completely dried, and it is now used for different purposes. No wetland habitat elements, such as pools, remain. However, at the time of field investigations, no habitat suitable for this species was observed within the project area, as such there is no chance that the species will be impacted by the proposed development

²³ Department of Natural Resources and Environment (2023), Habitat descriptions are informed by threatened species note sheets available for the species at the Threatened Species Link (<https://www.threatenedspecieslink.tas.gov.au/Pages/default.aspx>)

APPENDIX C - CONSERVATION SIGNIFICANT FAUNA WITHIN 500 M²⁴

Species	Status TSPA / EPBCA	Records within 500 m and 5 km	Potential to Occur	Preferred Habitat and Commentary
BIRDS				
<i>Aquila audax</i> subsp. <i>fleayi</i> wedge-tailed eagle	endangered / ENDANGERED	1 / 36	Nesting: NONE Foraging: VERY LOW	This species nests in a range of old growth native forests and is dependent on forest for nesting. Territories can contain up to five alternate nests usually close to each other but may be up to 1 km apart where habitat is locally restricted. This eagle preys and scavenges on a wide variety of fauna including fish, reptiles, birds, and mammals. There are no trees suitable for nesting within the proposed development footprint, though it is possible that this species may forage in the area on occasion. The foraging habitat is highly modified, in an industrial setting and would constitute marginal habitat at best. Though unlikely to be used by the species, the area could be utilised by transient visitor. As such, there is no chance that this species will be impacted by the proposed expansion and upgrades.
<i>Haliaeetus leucogaster</i> white-bellied sea-eagle	vulnerable / -	3 / 37	Nesting: NONE Foraging: VERY LOW	In Tasmania, this species is restricted to nesting within 5 km of coastlines, major estuaries, and inland lakes. They typically build nests in large eucalypt trees, much like the Tasmanian wedge-tailed eagle (<i>Aquila audax fleayi</i>), although their specific nesting requirements aren't as strict, such that they often nest in relatively small and exposed coastal trees (including [in a minority of cases] non-native species [e.g. <i>Pinus radiata</i>]) and are also known to nest occasionally on sea cliffs or even piles of rocks at ground level on islands lacking ground predators (e.g. Ninth Island). There are no trees suitable for nesting within the proposed development footprint, though it is possible that this species may forage in the area on occasion. The foraging habitat is highly modified, in an industrial setting and would constitute marginal habitat at best. Though unlikely to be used by the species, the area could be utilised by transient visitor. As such, there is no chance that this species will be impacted by the proposed expansion and upgrades.
<i>Lathamus discolor</i> swift parrot	endangered / CRITICALLY ENDANGERED	6 / 101	Nesting: NONE Foraging: MODERATE	This species spends its winter in south-eastern mainland Australia before migrating to Tasmania in late winter/early spring to breed. During the breeding season, nectar from Tasmanian blue gum (<i>Eucalyptus globulus</i>) and black gum (<i>Eucalyptus ovata</i>) flowers is the primary food source for the species. These eucalypts are patchily distributed, and their flowering patterns are erratic and unpredictable, often leading to only a small proportion of

²⁴ Department of Natural Resources and Environment (2023) – note that aquatic fauna have not been included in this discussion as there is no chance of occurrence. Habitat descriptions are informed by threatened species note sheets available for the species at the Threatened Species Link (<https://www.threatenedspecieslink.tas.gov.au/Pages/default.aspx>)

Species	Status TSPA / EPBCA	Records within 500 m and 5 km	Potential to Occur	Preferred Habitat and Commentary
				<p>swift parrot habitat being available for breeding in any one year. Swift parrots breed in tree hollows in mature eucalypts within foraging range of a flower source.</p> <p>Our field surveys identified 55 <i>Eucalyptus globulus</i> within and/or just beyond the boundary of the project area. Of these trees, 25 are within and/or that have tree protection zone (TPZ) overlap with the project area. All of these trees provide suitable foraging habitat for swift parrots. No suitable nesting habitat for the species, such as hollows, were observed in any of these trees.</p> <p>A significant impact assessment (SIA) for the impact of the proposed expansion of the Selfs Point STP have been completed by NBES and it has determined that proposal is not considered to pose any risk in resulting in a significant impact to the species²⁵.</p>

²⁵ North Barker Ecosystem Services (2023)

Appendix D – Bird Collision Monitoring Datasheet

Systematic Patrol & Bird Collision Incident

Please fill out the following details if they witness a bird hit a window or building, or find a dead bird below a window (which can be assumed to be a collision mortality). Please also record photos of the bird and location.

Date	Start time <small>(Or time an incidental collision is witnessed)</small>	End time	Starting location <small>(Where the survey started from)</small>	Starting direction <small>(Clockwise or counter-clockwise route taken)</small>	Weather <small>(Sunny, overcast, raining, etc.)</small>

Location <small>(Building name, window direction, vegetation description, etc.)</small>	Species or description <small>(Size, colour, shape, etc.)</small>	Evidence found <small>(Dead or injured birds, blood smears, body smudges, feathers, etc.) see next page for examples</small>	Photo filename <small>(Take clear photos of any evidence and)</small>	Additional information <small>(Did the bird die, fly away or receive care? If so where? Any other comments that may be relevant)</small>