

Clarence... a brighter place

Draft Reserve Activity Plan

Glebe Hill Bushland Reserve

2021-2030

Advice prepared by Enviro-dynamics
for Clarence City Council

Draft – 24 March 2021

Glebe Hill Bushland Reserve Activity Plan 2021–2030

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Executive summary

The Glebe Hill Bushland Reserve Activity Plan (RAP) outlines the management requirements for the natural, recreational, and cultural values of the Glebe Hill Bushland Reserve. The 2021-2030 RAP provides a review and update of the original RAP developed for the reserve in 2014. The revised RAP also includes an additional 0.6ha parcel of bushland at 15 Minno Street, Howrah which is located to the north west of the Glebe Hill Bushland Reserve.

Many of the recommended actions of the 2014 RAP have been completed in the reserve by the council and the Glebe Hill Bushland Reserve Landcare Group. The current RAP has been updated with further on-ground site surveys, community and stakeholder consultation, and reference to reports that relate to the area and surrounding environment. The RAP follows a similar format to the initial RAP. It updates the on-ground actions and identifies which actions have been completed, which are ongoing, and any new actions required to manage the natural and recreation values of the reserve in line with community expectations. Detailed information provided in the initial RAP has not been reproduced in the body of the RAP unless required. The initial RAP is included as an appendix.

Eight key recommendations are provided in the Glebe Hill Bushland Reserve Report Card, which was distributed to the local community to seek feedback on the draft Glebe Hill Bushland Reserve Activity Plan. The recommendations are not listed in order of significance.

1. Monitor and control texas needlegrass and crow garlic in reserve.
2. Undertake further nature-based education projects with Howrah Primary.
3. Develop an indigenous interpretation program.
4. Promote ‘dogs on lead’ area to protect native fauna.
5. Continue monitoring native fauna species in the reserve.
6. Maintain official mountain bike track network and close all informal tracks.
7. Assess and report on vegetation condition and bird population trends.
8. Install track maps at all reserve entry points.
9. Undertake primary weed control in Minno Street Reserve.

The further 17 management recommendations are provided in the RAP.

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1 Introduction

1.1 Background

The Glebe Hill Bushland Reserve is located on Glebe Hill in the suburb of Howrah. The main reserve is approximately 19 hectares in area with a separate 0.6 ha parcel located off Minno Street (Figure 1). The reserve occurs at the southern end of a range of hills running from Mornington to Rokeby and is part of the "scenic rim" of hills behind the suburbs of Bellerive and Howrah. The reserve borders new housing estates to the south and east, an existing developed area to the west and bushland on private property to the north.

The Glebe Hill Bushland Reserve is managed by Clarence City Council (CCC) in conjunction with the Glebe Hill Bushland Reserve Landcare Group (from here on referred to as the Landcare Group). The reserve contains a mixture of dry forest communities and open grassland and rockplate areas. There is a well-developed track network through the reserve with several entrances from the adjacent residential areas (Figure 5). The natural values of the reserve network and the recreational opportunities that it provides are highly valued by the local community.

An assessment of the natural, recreational, social, and cultural attributes of the reserve was undertaken as part of the original RAP developed in 2014. As part of the review of the RAP additional site surveys were undertaken to update weed distributions and determine vegetation condition and a new round of community consultation was undertaken.

The format of this RAP follows the format of the 2014-2018 RAP with similar headings and layout used. The revised RAP includes updated management activities to maintain and enhance the reserves values. The management objective and priorities are based strongly on the outcomes of community consultation.

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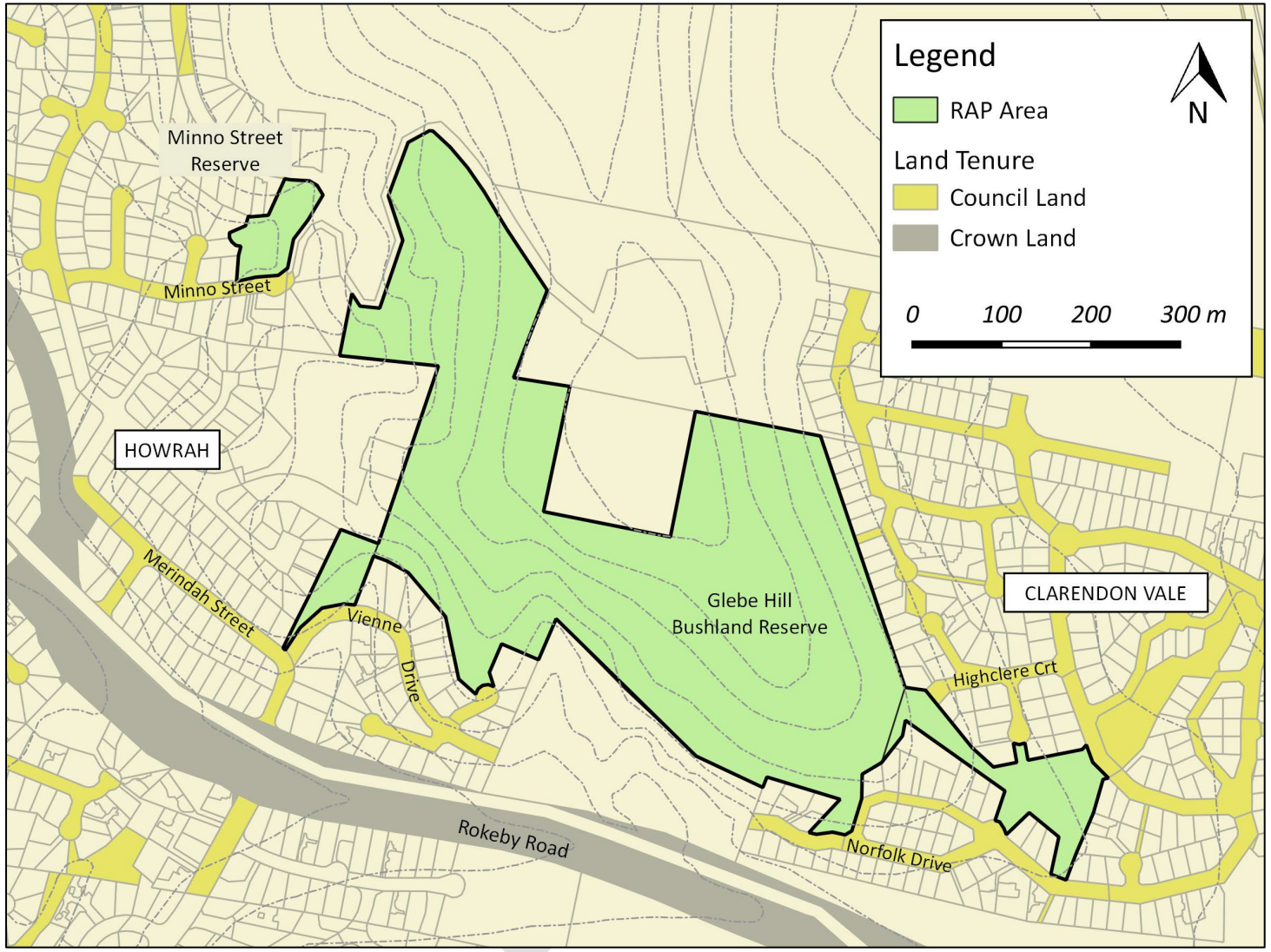


Figure 1. Location plan – Glebe Hill Bushland Reserve and Minno Street Reserve

2 Aims and process of the review of the Reserve Activity Plan

The aims of the Glebe Hill Bushland Reserve Activity Plan 2021–30 are to:

- ensure the reserve is sustainably managed to preserve and enhance its natural, cultural, and social values
- identify priority management activities to be undertaken within the reserve by the council and/or volunteers and contactors as resources become available during 2021–30
- encourage community engagement through raising awareness of the reserve's values and encouraging activities that minimise threats to these values.

The aims of the RAP will be achieved through:

- undertaking a follow-up assessment of the natural, recreational, and cultural values, and the existing or potential management issues
- undertaking a two-stage community consultation process to capture local knowledge and interests, and providing opportunities to raise and prioritise issues (this process builds knowledge of the reserve and management concerns while actively involving the community in management planning)
- Liaison with CCC staff and local Landcare Group to review the actions and recommendations contained within the Glebe Hill Bushland Reserve Action Plan 2013-2018
- reviewing existing documents and specialised reports regarding issues such as weed control, erosion, and vegetation condition that relate to the Glebe Hill area
- providing updated priority management actions for the 2021–30 RAP based on the community consultation, review of existing plans and the current understanding of the natural and social values and any threats to those values.

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3 Natural and cultural values

The natural values of the reserves that are included in the RAP have been assessed through several surveys undertaken as part of the development of the 2014 RAP and in 2011 as part of the registering of conservation covenants on the land and development of Nature Conservation Plans.

During the RAP review further surveys determined the current extent of weed infestations, provided a vegetation condition assessment (VCA) and determined values in the Minno Street Reserve which was not included in the 2014 RAP.

A summary of the natural values of the reserve is provided in the following sections. Threats to the natural values and management recommendations to conserve and maintain these values are provided in Section 4.1.

3.1 Vegetation communities

The vegetation communities occurring in Glebe Hill Bushland Reserve including the Minno Street Reserve are listed below and their distribution indicated in Figure 2. Classification of vegetation communities is in accordance with Kitchener and Harris (2013) and TASVEG 4.0.

- *Eucalyptus amygdalina* forest on mudstone (DAM)
- *Eucalyptus risdonii* forest and woodland (DRI)
- *Eucalyptus viminalis* grassy forest and woodland (DVG)
- Rockplate grassland (GRP)
- Urban Land (FUR) - parkland

Vegetation community descriptions from the 2014 RAP are provided in Appendix 1.

The condition and species diversity within the different native vegetation communities varies across the reserve based on aspect, slope, level of disturbance and neighbouring land use. Some of the communities, or areas of the reserves, are subject to degrading processes including weed invasion, erosion, construction of informal tracks and dieback.

Conservation significance of vegetation communities

There is one threatened vegetation community within the reserve network as listed under the *Nature Conservation Act 2002* – *Eucalyptus risdonii* forest and woodland (DRI). This vegetation type has a highly restricted range and is only found in the Meehan Range and Rokeby Hills.

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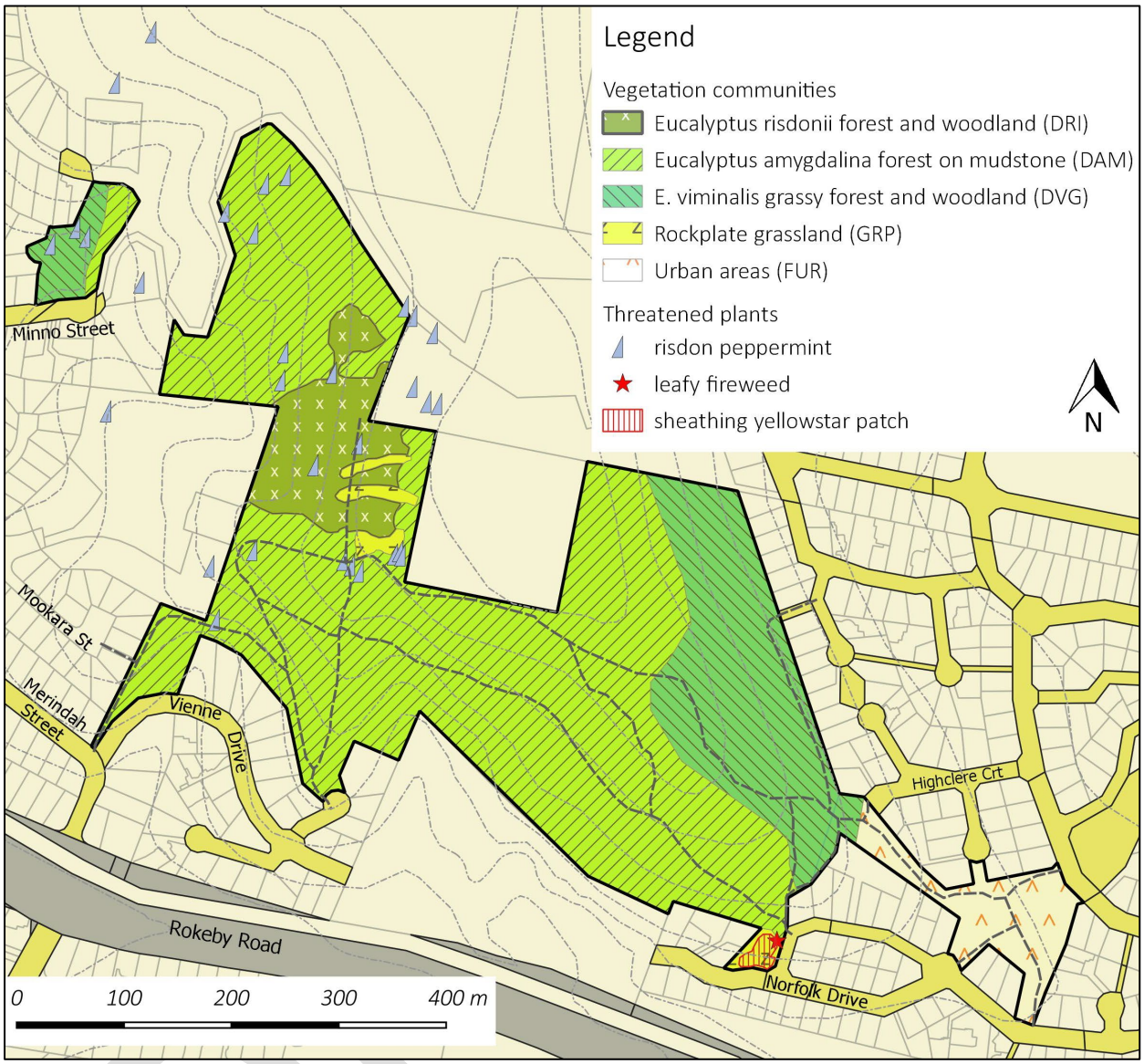


Figure 2. Vegetation communities and threatened flora at Glebe Hill Bushland Reserve and Minno Street Reserve

3.2 Flora values

A total of 128 species of vascular plants have been recorded within the Glebe Hill Bushland Reserve and Minno Street Reserve including 16 introduced species. A full species list is given in Appendix 1. Taxonomic nomenclature for flora follows the latest Census of Vascular Plants of Tasmania (Baker & de Salas 2020).

Threatened species

Four threatened species were recorded in the reserve in 2014; and one additional species was recorded in 2015 (Natural Values Atlas).

- tall wallabygrass (*Rytidosperma indutum*),

- chocolate lily (*Arthropodium strictum*),
- risdon peppermint (*Eucalyptus* risdonii),
- sheathing yellowstar (*Hypoxis vaginata*); and
- leafy fireweed (*Senecio squarrosa*).

Tall wallabygrass and chocolate lily have been delisted from the schedule of the *Threatened Species Protection Act 1995* since the 2014 RAP was written. These species remain abundant in the reserve and whilst they are no longer considered to be threatened, they remain an important component of the reserve values. The presence of large population of these species in secure and managed reserves such as the Glebe Hill Bushland Reserve has contributed to these species being delisted.

Risdon peppermint, yellow sheath star and leafy fireweed remain in the reserve. Risdon peppermint is restricted to the north west portion of the reserve (Figure 2) whilst the yellow sheathing star and leafy fireweed are restricted to the rockplate grassland in the south east corner of the reserve off Norfolk Drive (Figure 2).

Orchids

The reserve contains a diverse range of orchids (Figure 3). Surveys carried out in November 2020 and January 2021 identified nine species in addition to the five species identified in the 2014 surveys.

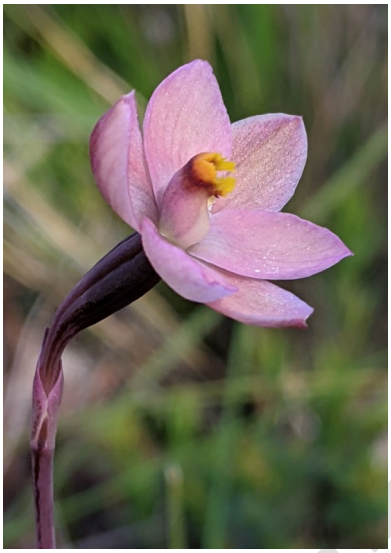
The wet spring of 2020 provided favourable conditions for many species of orchid and hence the increase number of species and abundance recorded in the recent surveys.

Species recorded included leopard and tiger orchids, sun orchids, greenhoods, onion orchids, spider orchid, helmet orchid and hyacinth orchids (list of species provided in Appendix 1).

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Thelymitra pauciflora



Thelymitra rubra



Diuris sulphurea



Myositis unifolia



Caladenia clavigera



Dipodium roseum

Figure 3. Range of orchid species recorded in Glebe Hill Bushland Reserve

3.2.1 Introduced species

The reserve contains varying and diverse infestations of introduced species that range from highly invasive environmental weeds to more benign introduced pasture grasses, herbs, and some garden escapees.

The 2014 RAP identified six declared weeds species and up to 14 environmental weeds within the reserve and provided several actions for the control of the weeds. As part of the review of the RAP the Clarence City Council and Landcare Group were consulted about weed actions that have occurred within the reserve since the implementation of the 2014 RAP and outstanding or ongoing weed control issues were identified. Additional site assessments were also carried out in 2020/21 to update weed data within the reserves.

Six declared weed species were recorded in the reserve in 2021 and five environmental weeds.

- blackberry (*Rubus fruticosus*)
    - Scattered infestations occur in the Minno Street Reserve. Most infestations recorded in the Glebe Hill Bushland Reserve have been controlled.
- boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*)
    - Scattered plants were recorded in a small gully at the southern end of Glebe Hill Bushland Reserve in 2014 and treated. Additional small seedlings recorded by Landcare Group in same gully, closer to Highclere Track and in the central part of western boundary.
- crow garlic (*Allium vineale*)
    - Crow garlic has established in the reserve since the 2014 RAP was developed. There is an infestation along the edge of the main fire track in grassland among the texas needlegrass (Figure 4).
- fennel (*Foeniculum vulgare*)
    - Isolated plants recorded near Merindah Street entrance. Controlled and not recorded in 2020 surveys.
- montpellier broom (*Genista monspessulana*)
    - Largely controlled within the Glebe Hill Bushland Reserve. Seedlings recorded near southern boundary off Vienne Drive and plants recorded in Minno Street Reserve during 2021 survey.
- slender thistle (*Carduus pycnocephalus and Carduus tenuiflorus*)
    - Slender thistle remains in the reserve predominantly towards the Betsy Mack entrance and in the Minno Street Reserve.
- texas needlegrass (*Nassella leucotricha*)
    - Texas needlegrass has been recorded in the eastern portion of the reserve predominantly around the Highclere Court entrance and parkland, the Betsy Mack entrance, and the fire break behind the houses between these two

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entrances. This highly invasive species continues to be monitored and treated by the council in the greater Glebe Hill area as it represents the only known infestation in the municipality and Tasmania. Considerable effort has been undertaken to control this species.

The location of the declared and environmental weeds recorded in 2021 are indicated in Figure 4. Table 1 lists all declared and environmental weeds recorded in the reserve in 2014 and 2021 and provides comments on weeds that have been controlled and which require ongoing monitoring and maintenance.

Control actions by the council and the Landcare Group since 2014 have significantly reduced the occurrence of the most prominent woody weeds.

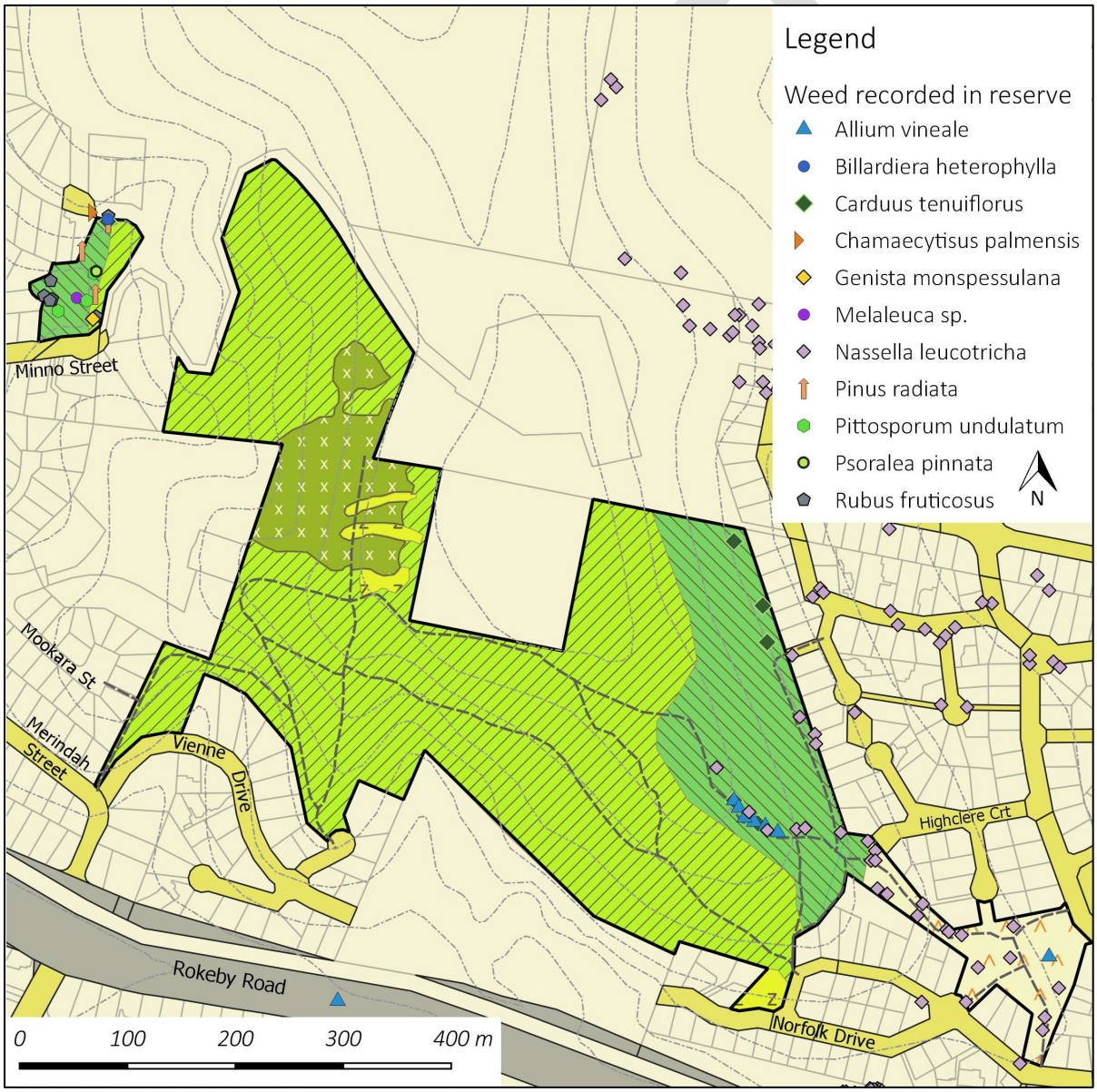


Figure 4. Weed locations in Glebe Hill and Minno Street Reserves

Table 1. Environmental and declared weed species recorded within the reserve (2014 and 2021)

Common Name	Scientific Name	Status	CWS status*	2021 update
blackberry	*Rubus fruticosus*	D, WONS	4	Controlled in GHBR Recorded MR
boneseed	*Chrysanthemoides monilifera* subsp. *monilifera*	D, WONS	4	Controlled, monitor
crow garlic	*Allium vineale*	D	1	New record in GHBR
fennel	*Foeniculum vulgare*	D	4	Controlled, monitor
montpellier broom	*Genista monspessulana*	D, WONS	4	Controlled in GHBR Recorded MR
slender thistle	*Carduus pycnocephalus* and *Carduus tenuiflorus*	D	3	In GHBR and MR
texas needlegrass	*Nassella leucotricha*	D	1	Remains in GHBR
aeonium	*Aeonium sp.*	E	n/a	Not recorded
bluebell creeper	*Billardiera heterophylla*	E	CCL	Controlled GHBR Recorded MR
blue butterfly bush	*Psoralea pinnata*	E	CCL	Recorded edge MR
cotoneaster	*Cotoneaster* sp.	E	CCL	Controlled, monitor
fuchsia	*Fuchsia magellanica*	E	CCL	Controlled, monitor
garden geranium	*Geranium* sp.	E		Controlled, monitor
grevillea	*Grevillea rosmarinifolia*	E		Controlled, monitor
himalayan firethorn	*Pyracantha* sp.	E		Controlled, monitor
holly	*Ilex aquifolium*	E	CCL	Controlled, monitor
mirror bush	*Coprosma repens*	E		Controlled, monitor
radiata pine	*Pinus radiata*	E	CCL	Controlled GHBR Recorded MR
red valerian	*Centranthus ruber*	E	CCL	Controlled, monitor
sweet briar	*Rosa rubiginosa*	E	CCL	Largely controlled
sweet pittosporum	*Pittosporum undulatum*	E	CCL	Controlled GHBR Recorded MR
tree lucerne	*Chamaecytisus palmensis*	E	CCL	Controlled GHBR Recorded MR

GHBR = Glebe Hill Bushland Reserve; MR = Minno Street Reserve; D = Declared weed under Weed Management Act 1999; WoNS = Weed of National Significance; E = Environmental weed.

** Priority rating taken from Clarence Weed Strategy 2016-30.*

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3.3 Fauna values

The native vegetation communities within the reserve provide a range of habitat for native mammals, woodland birds, reptiles and invertebrates. The connection with large area of intact vegetation on private land to the north extend the available habitat for fauna species.

Mammals

The habitat values of the bushland reserve are outlined in the 2014 RAP. 'The bushland in the reserve forms part of an extensive area of dry forest that would provide a range of habitat opportunities for smaller mammals, birds, reptiles and invertebrates. There is plenty of dead wood and fallen timber and some trees contain small hollows providing suitable habitat for hollow nesting birds and mammals. Patches of dense cover occur throughout the site, particularly in the gullies and areas of thicker grass which would provide shelter to mammals. There is little access to water in the form of creeks or standing water and no dens or rocky outcrops have been observed during surveys. The relatively open nature of much of the forest and woodland on site, particularly the grassy woodland areas provide opportunities for grazing, hunting and foraging for many fauna species.'

The reserve retains the habitat values outlined in the original RAP with weed control works undertaken through the period the RAP improving habitat in some areas. The Landcare Group has undertaken camera surveys and bat surveys in the reserve to increase knowledge of species occurring in the reserve. The camera recorded bettongs, brown bandicoots, brush tailed possums, bennetts wallabies and introduced hare and domestic cats.

Acoustic bat surveys recorded the little forest bat in the black peppermint forest on the southern slope of the reserve. The little forest bat (*Vespadelus vulturnus*) is the smallest Tasmanian bat. It produces a single young and roosts in tree hollows. The little forest bat has mid to dark grey fur on its back and dark grey fur with lighter tips on its belly. The reserve provides foraging habitat for bats and shelter habitat such as under the bark of large trees. The retention of the larger trees in the reserve is important to the continued use of the reserve by bat species.

Additional camera survey and acoustic surveys are planned to be carried out to improve knowledge of where the species occur within the reserve and allow for improved management of their habitat and threats (such as cats and dogs).

Birds

Bird surveys done in 2013 identified 17 species of bird within the reserve. A further four species were recorded during recent surveys of the reserve although no targeted survey has been carried out. The maintenance of a diverse understorey and dense shrub layer across portions of the reserve is important to provide habitat for small bird species that can be driven off by more aggressive species such as wattlebirds, honeyeaters and noisy miners.

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The retention of large trees and any trees with hollows is also critical to maintain a diverse bird fauna occurring in the reserve.

3.4 Aboriginal heritage

The Glebe Hill Bushland Reserve is located on land originally occupied by the Mumirimina band of the Oyster Bay Nation.

A search of the Tasmanian Aboriginal Site Index was undertaken by Aboriginal Heritage Tasmania (AHT) in 2014 with results summarised as per the following.

Aboriginal Heritage Tasmania (AHT) has completed a search of the Tasmanian Aboriginal Site Index for the reserve and has advised that there are no Aboriginal heritage sites recorded within the reserve boundary. Previous reports indicate that the area has a low probability of Aboriginal heritage being present (AHT, 2013).

No additional Aboriginal heritage searches have been carried out as part of the review.

All Aboriginal heritage is protected under the *Aboriginal Relics Act 1975*. If at any time during works in the reserve it is suspected Aboriginal heritage, such as stone artefacts, cave/shelter sites, burial sites, middens or other cultural material, cease works immediately and contact AHT for advice. Appendix 3 details an Unanticipated Discovery Plan, which explains what steps should be followed if any of the above items are discovered while working on a site. This plan should be on hand during ground disturbing works, to aid in meeting requirements under the Act should Aboriginal heritage be uncovered.

3.5 European heritage

The Glebe Hill area has had an interesting and varied history since European settlement. The name ‘Glebe Hill’ came from a 400 acre allocation of land to supplement the income of the clergy of St David’s parish through rent and income from crops, known as a ‘glebe’. St David’s glebe was purchased by the Goodwin family in 1923 and they farmed it for nearly a century. For those interested in the European history of the area a book by Wendy Andrew “Footprints - The People and Places of Early Clarence Plains and Rokeby” is an excellent resource.

No European heritage items were identified in the 2014 RAP and no items from the reserve are listed on the Tasmanian Heritage Register.

No additional heritage searches have been carried out as part of the review.

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3.6 Recreational values

The reserve contains several fire tracks and trails that are used by the local community for walking, running, dog walking, and mountain bike riding. There are six entries into the reserve which are all linked with formal walking tracks. Several walking tracks have been upgraded by the council since the 2014 RAP was developed including the Merindah Track, Watton Track, Glebe Hill Track and Betsy Mack Track (Figure 5).

Dog access in the reserve is currently based on 'under effective control'. A review of this status is due to be carried out soon by the council. The recording of bettongs and bandicoots in the reserve through camera traps highlights the importance of the reserve for small mammals and the importance of control of dogs, and cat access to the reserve. Refer to Section 6.2 for recommendations regarding management of domestic animals.

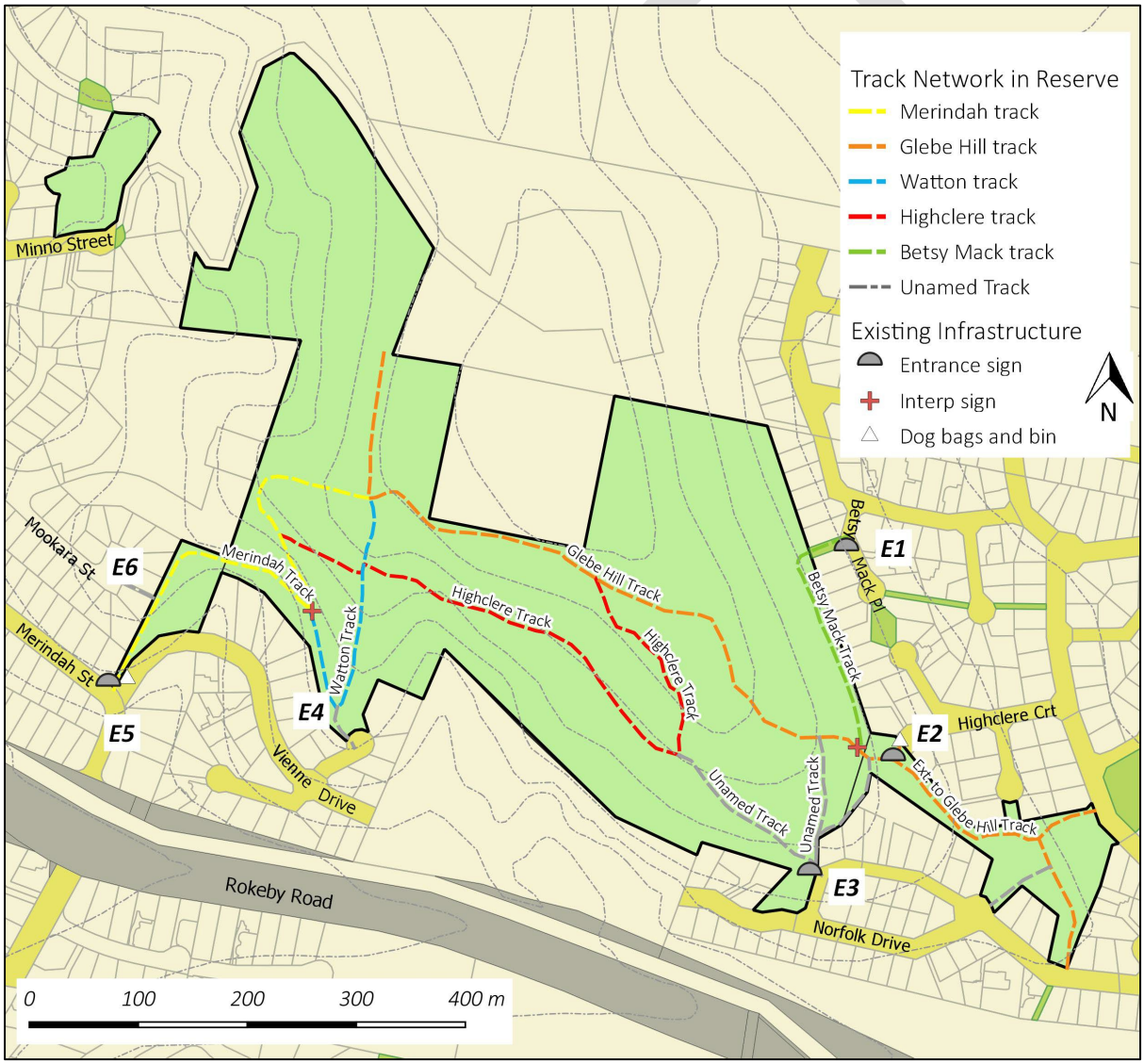


Figure 5. Track network, entrances, and infrastructure in Glebe Hill Bushland Reserve

3.7 Educational values

At the time of the initial 2014 RAP there was known use of the reserve for education proposes. A Landcare group was formed in 2014 the 'Glebe Hill Bushland Landcare Group' and following the formation of this group the reserve has been used by Howrah Primary School for educational purposes, Landcare activities and recreation.

Howrah Primary School continues to have an association with the reserve and is keen for this to continue. The school is interested in further planting engagement in the reserve and as an extension of corridors and keen to develop indigenous knowledge relationships. The school is also keen to utilise citizen science apps such as iNaturalist to record species occurring in the reserve and elsewhere in the municipality.

3.8 Landscape setting and connectivity

The landscape setting and connectivity of the reserve was described in the original RAP as follows: 'The reserve is a central component and link in an almost constant chain of native vegetation forming the Rokeby Hills. The upper slopes and ridgeline of the Rokeby Hills remain as intact bushland while the lower slopes and valleys have since European settlement succumbed to agriculture or residential development. The Rokeby Hills historically would have been connected to the larger Meehan Range to the north, however this link has been broken by vegetation clearance largely for agriculture and more recently housing development and roads.

In terms of the immediate surrounding environment, the reserve is adjacent to residential suburbs to the west, south and east. To the north of the reserve large areas of intact native bushland (the continuation of the Rokeby Hills) are contiguous with the reserve, these bushland areas being interspersed with some isolated houses. Tenuous links occur to the south of the reserve with the southern extension of the Rokeby Hills, although Rokeby Road and further suburban development have weakened these links.

As a condition of the Glebe Hill suburban development to the east of the reserve, a native revegetation buffer has been created between the new suburb and intensive viticulture to the north. This buffer is approximately 30m wide and forms a potential corridor between the reserve and native vegetation remnants along the Clarence Plains Rivulet. This corridor is more likely to be of benefit to birds and invertebrates that can fly over Pass Road and associated vehicles. Mammals and reptiles are much more susceptible to vehicle roadkill; hence the corridor is likely to be more problematic. The benefits of having this corridor are likely to outweigh the potential impacts from roadkill'.

The broad track linkages to the reserves provided in the 2014 RAP remain important. The rate of urban growth in the Pass Road, Rokeby and Clarendon Vale areas makes the

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formation/retention of biodiversity and recreational linkages across the landscape and between urban areas even more important in the future.

The revised map indicating potential future landscape linkages is provide in Figure 6.

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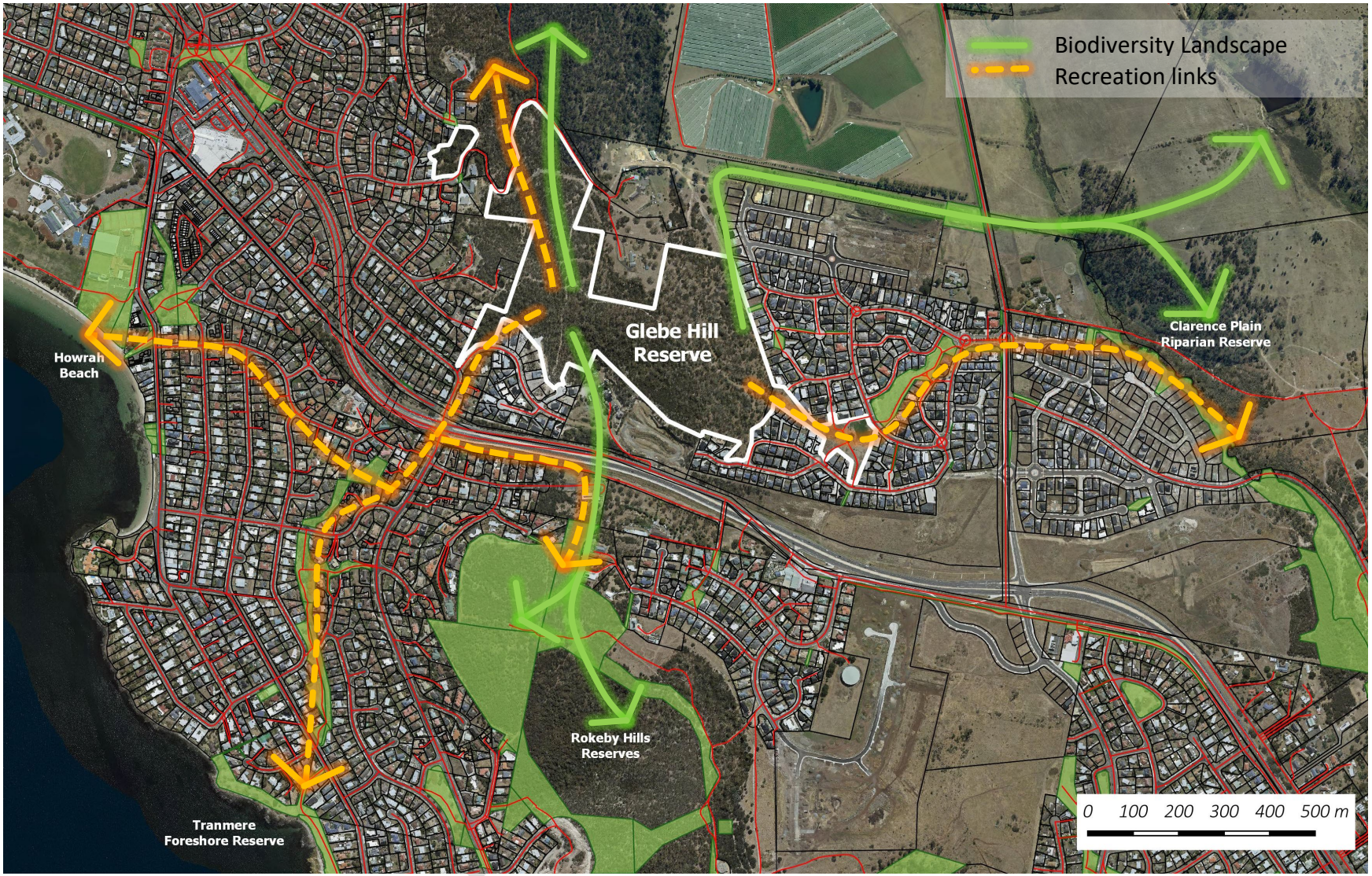


Figure 6. Landscape and pedestrian connectivity of reserve

4 Community and stakeholder consultation

Community consultation plays an integral role in the development of RAPs. It provides an opportunity to seek input into the values and management issues that are important to the community. This input enables management priorities to be established that the community has ownership of and leads to achievable actions and outcomes.

The following community consultation has been undertaken as part of the review of the 2014 RAP:

- A community 'walk and talk' was held in the reserve on 17 August 2020, with seven people attending. This event was advertised in local newspapers, online, and letters were posted to residents. Comments and observations were recorded at this event and included in the public consultation for the review.
- Feedback forms were posted and an online survey (via the 'Have Your Say' website) was made available to residents. The 'your say' project page received 84 visits with 18 responses.
- Further responses were provided via email to CCC and the consultant (seven responses).
- Key stakeholders and user groups were consulted regarding the ongoing management of the reserve's recreational and natural values. The following stakeholder/user groups provided feedback:
    - Glebe Hill Bushland Reserve Landcare Group
    - Howrah Primary School
    - Clarence City Council natural resource management staff
    - Large landholders around reserve (four)

Following the initial community consultation process, further consultation will be sought following the release of the Draft Glebe Hill Bushland Reserve Activity Plan. The Glebe Hill Bushland Reserve Report Card (Appendix 4) will be distributed to the community to facilitate further input on key draft recommendations. The results of this consultation will be incorporated into the Final Reserve Activity Plan for approval by council.

4.1 Community-identified opportunities and issues

The following is a summary of the main issues raised during the community consultation process and the number of representations received for each category. Many of the respondents provided feedback on multiple issues and hence the total number of responses received on all issues exceeds the number of respondents. A more detailed summary of feedback gathered during the community consultation phase is provided in Appendix 7.

Management issues identified include the following (# responses for each action/issue):

- Support for developing new tracks and maintenance of existing tracks within the reserves to improve access, provide connectivity, and increase recreational opportunities and improve safety (# responses = 16)
- Management of the natural values of the reserve (#7)
- Concerns with motorbike access, impacts of mountain bikes (#5)
- Develop infrastructure - playground/parkland/shelter/signage etc. (#5)
- Bushfire management (#2)
- Impacts of mountain bikes on reserve values (#3)
- Domestic animal management/wildlife impacts (#5)
- Access/safety issue with fencing off Monique Street (#4)

While all relevant community feedback has been considered in the review and update of the Glebe Hill Bushland Reserve Activity Plan 2021-2030, some issues identified during the consultation process are beyond the scope of this plan or pertain to management issues outside the areas covered by the plan. These issues have been noted and referred to council and will be addressed through other processes where feasible.

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5 Previous plans

5.1 Glebe Hill Bushland Reserve Activity Plan 2014-2018

The previous Reserve Activity Plan for Glebe Hill Bushland Reserve was developed by North Barker in 2014. The content and structure of the 2014 RAP has been replicated for the current plan. Assessment of values and management actions for the Minno Street Reserve is an addition to the 2021–2030 plan.

5.2 Nature Conservation Plans (reproduced from 2014 RAP)

Glebe Hill Bushland Reserve is made up of two land parcels, both of which are currently protected by conservation covenants under the *Tasmanian Nature Conservation Act 2002*. Each conservation covenant area has a corresponding Nature Conservation Plan that details management prescriptions and describes activities and restrictions that will ensure that the reserve's natural values are maintained and enhanced. Under the covenant system, the specific management objectives are:

- To maintain the structure of vegetation community and allow for regeneration of native species under the proposed management regime.
- To implement appropriate fire regimes.
- To protect the habitat of threatened and/or priority species.
- To eradicate or control weeds and feral animals and prevent any further introductions of exotic species.

There is an obligation under this system that the landowner will protect and enhance the natural values of the reserve and implement management actions that aim to achieve this. The success, or otherwise, of the management regimes will be monitored by the Department of Primary Industries, Water and the Environment (DPIPWE) Stewardship Officers, who can also offer advice on appropriate management and monitoring techniques.

Management prescriptions and recommendations from the two Nature Conservation Plans are relatively generic in nature and are in broad agreement and of a similar intent and nature to the management recommendations that follow within this plan.

5.3 Bushfire Management Plan (2017-2021)

The original Glebe Hill Bushfire Management Plan (2012-2016) was revised in January 2017 and is due to be reviewed again in 2021. The aims of the revised plan are consistent with the aim of the initial plan which was 'to lessen the risks posed by wildfires by minimising the

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risk of fires starting in the reserve and minimising the risk of injury or damage to assets in and surrounding the reserve.

The BMP also provides for the use of fire as a management tool to:

- Target area for maximum risk reduction.
- Reduce bushfire hazard to protect assets from wildfires.
- Maintain the long-term viability of the native vegetation in the reserve.
- Assist in the removal of weeds and the regeneration of degraded bushland.

As part of the implementation of the 2012-16 plan all scheduled plan burns were carried out. This included the planned burning of vegetation management units VMU3 and VMU11 in 2013, and VMU5 was burnt in 2014. Extensive heap burning was carried out in VMU10 in 2015.

One planned burn was scheduled in for 2017 in VMU11 however no other burns were planned for the term of the current bushfire management plan. Heaped burns are planned for VMU9 and 10. A fire break (GH5) was established in the northern end of the reserve as per a recommendation in the 2017 BMP.

The maintenance of the vehicle and foot tracks are part of management prescriptions for the reserve.

The council continues to manage the reserve for fire on an annual basis as per the plan including the maintenance of the vehicle and foot tracks and slashing of the edge of the main fire tracks. Due to the presence of texas needlegrass and crow garlic along the fires trail in the north eastern part of the reserve, there is some conflict between the control of these high priority weeds versus the slashing of the grass vegetation adjacent to the track.

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6 Management issues and recommendations

The 2014 RAP outlined eight key management issues – Weeds; Natural Regeneration and Revegetation; Fauna and Habitat Protection; Vegetation and Fauna Management; Reserve Entrances; Tracks; Infrastructure; Bushfire Management; and Community Participation.

These issues remain current, and they have been reviewed and updated in this plan. A summary of all actions is provided in Table 2.

6.1 Weeds

Management of weeds remains one of the major issues in maintaining the integrity of the natural values present within the Glebe Hill Bushland Reserve. Weeds invade native vegetation and out-compete or smother native species, resulting in the death or decline of native plants and the fauna that depend on them. If weeds are not actively managed there will be a gradual decline in the condition and diversity of species and a potential decline in threatened flora populations and fauna habitat value (2014 RAP).

Weeds in Tasmania can be listed nationally as Weeds of National Significance (WONS) or in Tasmania as declared weeds under the *Tasmanian Weed Management Act 1999* (WMA). There is no legislative requirement for weeds listed as WONS to be controlled; however weeds listed under the Tasmanian WMA as declared are legally required to be controlled by landowners. It is therefore the responsibility of the council to undertake the control of declared weeds within the reserve (2014 RAP).

Weeds species present

The 2014 RAP identified a range of environmental species within the reserve which were predominantly limited to the margins of the reserve and on wetter south facing slopes (2014 RAP). Surveys of the reserve undertaken in 2020/21 recorded fewer weeds than recorded in 2014. The reserve is in good condition with relatively few environmental and exotic species present due to significant control works undertaken across the period the RAP by the council (and contractors) and the Landcare Group. As a result of their efforts infestations of boneseed, cotoneaster, blackberry, mirror bush and briar rose have largely been controlled.

Seven declared weeds have been recorded in the reserve and an additional 15 environmental weeds were recorded in the reserve. Details on weed species recorded, photos of each species, and recommended control methods are reproduced from the initial RAP in Appendix 9 and 10.

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Declared weed infestations included minor infestations of blackberry, montpellier broom and slender thistle and localised populations of crow garlic and texas needlegrass. Boneseed and fennel were recorded previously but have been controlled.

Slender thistle remains in several locations and since the 2014 RAP texas needlegrass has been recorded within the reserve. Control works have been undertaken across the past two seasons by weed control contractors which has been largely effective. Some extension of the range of texas needlegrass has however occurred in the past season (pers. comm. A Hazeldine, CCC).

An infestation of crow garlic has established in the reserve along the edge of the main track close to the Wendy Andrews entrance (Figure 4 and 7). This species is likely to have been introduced to the reserve when the track was upgraded. The control of crow garlic will need to consider the impacts of the chocolate lily as they occur together. Given the abundance of this species in the reserve and its delisting since the 2014 RAP the control of crow garlic is a higher priority than avoiding any impacts to chocolate lily plants.

The Minno Street Reserve contains a range of environmental weeds including slender thistle, radiata pine, blackberry, montpellier broom and bluebell creeper. Limited control actions have been undertaken in this reserve and as such weed management is an important action of the revised RAP.



Figure 7. Crow garlic seed head and plants amongst the grassy vegetation

Weed control

The recommendations of the 2014 RAP remain relevant for the revised RAP.

Priority actions involve the monitoring and control of declared and environmental weeds and the follow up control of previous works. Through ongoing control works and monitoring it is considered possible to eradicate all declared and environmental weeds from the reserve.

Reinfestation from outside sources and the soil seed bank will always be an issue, but future resources required to control weeds will be low and drop to a minimal annual amount. Eventually an annual walk through of the reserve and around its boundaries to monitor for new weeds while doing some minor control work at previously controlled areas is all that will be required.

Management of minor herbaceous and grassy weed species should only be considered once all other declared and environmental weeds have been controlled and upon review of this plan after five years (2014 RAP).

Weed control and fire management (from 2014 RAP)

It is recommended that weed control activities be integrated with the management burning program recommended within the Glebe Hill Bushland Reserve BMP. Carried out incorrectly or without proper planning, planned burning can exacerbate weed problems. As a part of Clarence City Council's Bushfire Management Strategy, a set of guidelines has been developed to integrate management burning with weed management to ensure that this does not happen. These guidelines - Best Practice Management Guidelines - recommend the following in relation to weed control:

- Before planned burning:
  - Woody and herbaceous weeds in the areas to be burnt should be treated to ensure infestations are root dead at the time of burning.
  - Herbicide treatment should be carried out at least 3 months prior to the burn to ensure that the chemical has penetrated into the root system, achieved a total kill of all tissue, and the plant has had time to desiccate prior to burning.
- After planned burning (which is likely to stimulate weed germination):
  - As soon as possible control weed seedlings before native seedlings germinate.
  - Control regrowth from the stumps of regenerating woody weeds.

Weed education

Since the 2014 RAP was written a significant number of new houses have been developed in the local area including directly adjacent to the reserve. The education of residents

(particularly those that adjoin the reserve) is important to prevent garden waste being dumped around the reserve edge and to encourage a sense of stewardship of the reserve.

Recommendations:

1. Monitor and control texas needlegrass and crow garlic in reserve.
2. Control all declared and environmental weeds in Minno Street Reserve in an initial control effort.
3. Undertake follow up control of weeds in areas previously treated.
4. Continue to integrate weed control activities with the management burning program.
5. In conjunction with weed control efforts monitor the reserve for new weed infestations.
6. Review weed management after five years of weed management activities.
7. Undertake an awareness raising campaign with residents about bushland weeds.

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6.2 Natural regeneration and revegetation

The Glebe Hill Bushland Reserve remains in a largely intact and natural condition and the requirement for revegetation activities is limited. Areas where weeds are removed appear to be regenerating naturally and as such the ongoing monitoring and control of weeds in these areas is recommended as the primary management tool.

The Minno Street Reserve contains some degraded and weed infested areas that may benefit from revegetation activities. It is recommended that declared and environmental weed are removed initially, and then active revegetation undertaken if no natural regeneration is apparent after 12-18 months.

Bushfires can eliminate new recruits of trees and shrubs. It is preferable therefore to have an uneven age range reflecting a mosaic of habitats. Patch burning can ensure fuel loads are varied and losses of recruits are localised (2014 RAP). Continued implementation of the current Glebe Hill Bushland Reserve Bushfire Management Plan will help to ensure this is maintained.

Recommendations:

8. Encourage natural regeneration of native species in Minno Street Reserve following initial weed control and ensure follow up control protects this regeneration.
9. Ensure the management burning program allows for ongoing recruitment of woody vegetation.

6.3 Fauna and habitat protection

The fauna and fauna habitat of the reserve are outlined in Section 3.2. “The reserve provides a range of habitat opportunities for smaller mammals, birds, reptiles and invertebrates. A diversity of vegetation types, plant structures (e.g. logs, hollows) and terrain (e.g. creeks, rocky outcrops) is considered ideal in providing a variety of habitat opportunities for native fauna. Maintaining this diversity will provide the best opportunity for fauna to persist and thrive” (2014 RAP).

The 2014 RAP identified uncontrolled wildfire burning large parts of the reserve in a single event as the greatest threat to fauna species and their habitat. “Implementation of the Glebe Hill Bushland Reserve BMP will help to ensure this does not happen by managing fuel loads and burning different management units in different years. The plan takes into account the need to have a variety of different age structures of vegetation within the reserve, and if implemented correctly will ensure a mosaic of habitat types and regrowth levels over the reserve” (2014 RAP).

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Weed infestation can also threaten the fauna habitat in the reserve by changing the composition of the vegetation and attracting aggressive introduced birds. Weed control actions will prevent weeds from becoming established and altering the vegetation and should continue.

The other significant threat to fauna species is from domestic animals. Dogs can impact native species through predation and harassment, disturbance of foraging and by leaving scent and droppings that discourage native animals from some areas. Uncontrolled dogs running through the vegetation was identified during public consultation as an issue due to chasing animals and dogs and owner trampling the unique flora of the reserve. Camera trapping in the reserve by the local Landcare Group has also identified a population of bandicoots and bettongs which are particularly susceptible to disturbance by dogs.

The Glebe Hill Bushland Reserve is currently designated as a 'under effective control' reserve. Due to the presence of susceptible wildlife in the reserve and community concern a change of the status of the dog use in the reserve should be considered. Dog use in the reserve is currently being assessed for 'dogs on lead' area as part of the Clarence Dog Management Policy Review.

Cats have also been captured on camera within the reserve. Feral and domestic cats are known to have significant impacts on native fauna through the predation of small mammals (including eastern barred bandicoots), birds and lizards, and the spread of disease such as toxoplasmosis. The CCC supports the *Cat Management Act 2012*, which requires de-sexing, microchipping and keeping cats under control and inside at night, while the Landcare Group would like to investigate the idea of cat free area for the reserve.

Recommendations:

10. Ensure the management burning program takes into account fauna habitat requirements.
11. Maintain fauna habitat values by implementing weed control actions.
12. Council to promote the reserve as a "dogs on lead" area to protect native fauna.
13. Council to promote requirements of the *Cat Management Act 2012* including de-sexing and microchipping; promote cats being kept inside at night in local community.

6.4 Vegetation and fauna monitoring

The monitoring of vegetation and fauna composition in the reserve was identified in the 2014 RAP as an important action to assess the health of the ecosystem and monitor the results of management actions being undertaken.

The 2014 RAP recommend that the following monitoring actions be undertaken:

- Vegetation monitoring plots and photo points (associated with burn units).
- Resurvey weeds.
- Resurvey birds.

Vegetation monitoring plots and photo points were set up as part of the bushfire management plan implementation. The revised bushfire plan recommended the continued monitoring of the plots.

A part of the review of the RAP, a vegetation condition assessment (VCA) was undertaken in the *Eucalyptus amygdalina* forest and woodland on mudstone (DAM) in the centre of the site. "The vegetation condition analysis methodology has been created by the Vegetation Section of DPIPWE to assess vegetation condition. This methodology uses a scoring system to objectively assess vegetation condition for different vegetation types across Tasmania. Vegetation is scored according to attributes including the density of trees, species diversity, species recruitment, landscape context and weeds. Once a site has been assessed and assigned a vegetation condition score, this score should be used as a baseline for the site. Future measurements of the vegetation condition score can then be compared to this baseline to monitor changes in the score and hence changes in condition of the vegetation at the site" (2014 RAP). The VCA score for the DAM vegetation was 78/100 (Appendix 2) with the remnant scoring well for lack of weeds, understorey, recruitment, and logs but lacking tree canopy and large trees.

Weed and bird surveys were redone as part of the RAP review. Specific surveys for high priority declared weeds such as texas needlegrass have been undertaken on a regular basis to determine control actions. The Glebe Hill Bushland Reserve Landcare Group successfully obtained a Weed Action Fund grant to survey the whole reserve for texas needlegrass and map infestations in late 2019.

In addition to these monitoring actions, the Glebe Hill Landcare Group has undertaken fauna monitoring using remote cameras and acoustic monitoring. The monitoring has identified bandicoots, wallabies and bettongs in the reserve and a possible potoroo sighting and confirmed the presence of little forest bats. The camera also identified introduced species in the reserve including cats and hares. Monitoring cameras can also inform which areas of the reserve are more important for foraging, breeding and sheltering which can in turn guide management decisions such as where to locate future tracks, and guide dog access protocols etc.

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Recommendations:

14. Continue to monitor vegetation monitoring plots and photo points after burning.
15. Assess and report on vegetation condition and bird and mammal population trends.

6.5 Reserve entrances

The Glebe Hill Bushland Reserve has six existing entries around the eastern, southern and western sides of the reserve (Figure 5). Betsy Mack Entrance; Wendy Andrew Entrance, Norfolk Drive Entrance, Vienna Drive Entrance, Merindah Street Entrance and Mookara Street Entrance.

The 2014 RAP recommended the landscaping of key entrances and installation of signage and dog bag dispenser. The Betsy Mack, Wendy Andrew and Merindah Street entrances were upgraded, dog dispenser bags and bins were installed at the Norfolk Drive and Merindah Street entrances (Figure 5) and interpretative signage and track signage was installed throughout the reserve (refer to implementation plan).

Entrance concept plans have been designed by Inspiring Place for the four Glebe Hill entrances and the Minno Street entrance (excluding the Mookara Street entrance - E6 and Vienne Drive Entrance - E5) as part of the review of the RAP. An entry concept plan has also been designed for the junction of the Merindah Track and the informal track through private land off Monique Street. This landscaping treatment is designed to direct users away from the private land and into the formal track network. The concept plans incorporate landscaping, signage, seating and sculptural elements (Appendix 6).

The parkland between the Betsy Mack Entrance and Glebe Hill Road is currently maintained as grassland. A landscape plan to upgrade this area to include plantings, seating and signage is due to be developed and implemented.

The entrance upgrades are to be undertaken as finances become available and based on user feedback over the course of the RAP. The Merindah Track junction with the informal track off Monique Street is an important upgrade to direct users away for the private land.

Recommendations

16. Implement Glebe Hill Bushland Reserve entrance upgrades as per Entry Concept Plans.
17. Develop and implement landscape plan for parkland off Glebe Hill Road parkland.
18. Implement Minno Street Reserve Entry Concept Plan.

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6.6 Tracks

Several tracks have been developed or formalised within the Glebe Hill Bushland Reserve as part of the implementation of the 2014 – 2018 RAP. The Betsy Mack Track and the Merindah Track have been constructed and the Watton Track and Glebe Hill Track have been upgraded (Figure 5). The informal Highclere Track now extends to the Norfolk Drive entrance. This track was identified to be upgraded, however due to the presence of a range of orchids and important habitat for bettongs in this area of the reserve the members of the Landcare Group are keen that this track remain informal.

The development of informal mountain bike tracks was raised as a concern during the community consultation. Mountain bike riding is permitted on all formal tracks in the reserve (Figure 5), however no additional tracks are planned to be constructed and all informal tracks are to be closed.

There is some concern with motorbikes entering the reserve and tyre tracks were noted during the site assessment. Motorbike access is prohibited however access to the reserve is possible as all entrances allow for mountain bike access. Resolving this issue will require a combination of changes to entrance treatments, education and additional regulation.

Several representations from the community called for more running tracks and better connections. The opportunity to develop a northern loop track was identified in the 2014 RAP subject to negotiations with neighbouring landowners. While this has not occurred, a future northern track which may provide a link to the Minno Street Reserve and down to Pass Road and the Clarence Plains Rivulet remains a desired link (Figure 6). A broader recreation link from the reserve north to Knopwood Hill is also identified as a future link which may be established through landholder negotiations and as part of future subdivision development.

Recommendations

19. Maintain official mountain bike track network and close all informal tracks.
20. Negotiate with landholders regarding the feasibility of a linkage track to Minno Street Reserve and northern loop track.
21. Council to identify opportunities for track connection to Knopwood Hill through future subdivision development and negotiation with landholders.

6.7 Infrastructure

Infrastructure within the reserve is limited to directional and interpretative signage within the reserve, and entrance signage and dog bags and bins at some entrances. Track signage has also been installed with colour coded track markers (Figure 8). The installation of track

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maps at entrances was raised during the community consultation and is supported by the Landcare Group.

No traditional seating has been installed in the reserve, however informal seats (large rocks) were installed at the Wendy Andrew Entrance and 'resting rocks' were positioned adjacent to most interpretation signs within the reserve. Seating is proposed in the entry concept plans (Appendix 6) to allow reserve users to sit and enjoy the reserve or take a break.

The 2014 RAP outlined a balance between providing infrastructure for visitor amenity and maintaining the natural amenity of the reserve. Community consultation provided a mixture of opinions with some calling for increased infrastructure such as BBQ areas and shelters with others preferring no further infrastructure. The Nature Conservation Plans that apply to the reserve prevent the development of significant infrastructure and as such infrastructure development is more appropriate in the parkland areas outside the reserve or to the east of the Wendy Andrew Entrance (refer to Section 6.5).



Figure 8. Track colour marker (Merindah Track – yellow) and small interpretive sign

Recommendations

22. Implement infrastructure upgrade recommendations as per Entry Concept Plans.
23. Install track maps at entry points.

6.8 Bushfire management

Bushfire management is a critical issue in the reserve, particularly due to the potential for loss of assets and life, but it also has implications for flora and fauna management. The implications and management of bushfire are thoroughly addressed in the Glebe Hill Bushland Reserve Bushfire Management Plan (2017 – 2021) (BMP). Consequently, the issue will not be addressed in detail here.

Recommendation

24. Implement the management actions recommended in the BMP in consultation with this plan.

6.9 Community participation

The 2014 RAP recommended that council support and facilitate the formation of a 'care' group to help with the management of the reserve. The Glebe Hill Bushland Reserve Landcare Group was formed in 2015. The small and generally young group has undertaken weed management actions, contributed to the installation of signage for the reserve undertaken fauna monitoring and facilitated a relationship with the Howrah Primary School. The school is interested in participating in plantings in the reserve and corridors around the reserve, and other nature-based education projects. They also have a strong interest in the development of further indigenous knowledge relationships, in conjunction with the school's indigenous and non-indigenous students.

The group holds walk and talk events on an annual basis and is active in citizen science programs. As such the group utilises apps such as iNaturalist which help build the knowledge of flora and fauna that occur within the reserve.

Recommendations

25. Council to continue to support the Landcare Group with maintenance projects.
26. Undertake further nature-based education projects with Howrah Primary.
27. Develop an indigenous interpretation program with Howrah Primary.

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7 Review and reporting

The Glebe Hill Bushland Reserve Activity Plan will be reviewed at the end of the 10-year period (2030). To maintain currency of the recommendations and implementation plan, a review and update involving the key stakeholders will be carried out after five years (2025).

Review the management of remnant vegetation on an ongoing basis in terms of promoting regeneration and recruitment in the reserve as per results of VCA monitoring.

Ongoing monitoring and maintenance of works e.g. weed control and track maintenance should be undertaken by the responsible council officers. Weed management priorities may need to be updated to incorporate new information, such as new weed incursions.

Recommendations

28. Review the recommendations and implementation plan after five years (2025) and undertake complete review of the RAP in 2030.

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8 Implementation plan

The following implementation plan includes all the recommendations made in the revised Reserve Activity Plan. All recommendations made in the 2014 RAP are also provided as an action that has been completed or that is still current and has been adapted or copied to the current RAP. Each recommendation has an associated performance measure and responsible group for implementation. Recommendations are also assigned a priority ranking based on the system used in the initial RAP with timelines extended to reflect the 10-year plan period:

- Priority 1 – short term activities (1-2 years)
- Priority 2 – medium term activities (3-5 years)
- Priority 3 – long term activities (6-10 years)

The implementation plan should be used as a guide only as to what order tasks should be carried out in based on the priority order. Recommendations are aspirational and a best-case scenario given unlimited funding. Given that this is not the case; decisions will need to be made as to what is achievable with the current resources. Alternative funding may need to be sought in the form of government grants to achieve some of the recommendations.

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Table 2. Updated and reviewed Implementation Plan

Recom #.	Action	Performance Measure	Responsibility	Priority
		Weeds		
1	Monitor and control texan needlegrass and crow garlic in reserve	Substantial reduction in number of plants. Eradication over period of plan	Council, contractor or Landcare Group (monitoring)	1
2	Control all declared and environmental weeds in Minno Street Reserve in an initial control effort	Initial control of weeds completed	Council, contractor or Landcare Group	1
3	Undertake follow up control of weeds in areas previously treated	Areas previously treated remain weed free	Council, contractor or Landcare Group	1
4	Continue to integrate weed control activities with the management burning program	Planned burn areas have weed control before and after burn event	Council, contractor, TFS	1, 3
5	In conjunction with weed control efforts, monitor the reserve for new weed infestations	Reserve remains free of declared and environmental weeds	Council, contractor or Landcare Group	1-3
6	Review weed management after five years of weed management activities	Native species are regenerating in areas treated for weeds	Council, contractor or Landcare Group	2

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Recom #.	Action	Performance Measure	Responsibility	Priority
7	Undertake an awareness raising campaign with residents about bushland weeds	Reduction in dumping of garden waste into reserve.	Council, Landcare Group	2
Natural Regeneration and Revegetation				
8	Encourage natural regeneration of native species in Minno Street Reserve following initial weed control and ensure follow up control protects this regeneration.	Natural regeneration of tree and shrub species evident.	Council, Landcare Group	2
9	Ensure the management burning program allows for ongoing recruitment of woody vegetation	Native woody species are regenerating and persisting	Council, contractor or Landcare Group	2, 3
Fauna Habitat and Protection				
10	Ensure the management burning program takes into account fauna habitat requirements	A mosaic of habitat types and regrowth levels has resulted in the reserve as a result of the planned burn program	Council or contractor	2, 3
11	Maintain fauna habitat values by implementing weed control actions	Weed control program implemented	Council, contractor or Landcare group	1-3
12	Council to promote the reserve as a “dogs on lead” area to protect native fauna	The reserve is designated as a “dogs on lead” site under the council’s Dog Management Policy and listed on the council website.	Council	1

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Recom #.	Action	Performance Measure	Responsibility	Priority
13	Council to promote requirements of the *Cat Management Act 2012* including de-sexing and microchipping; promote cats being kept inside at night in local community	Awareness raising campaign implemented to local residents	Council	1
Vegetation and Fauna Monitoring				
14	Continue to monitor vegetation monitoring plots and photo points after burning.	Existing vegetation monitoring plots and photo points monitored. Results of monitoring used to inform bushfire management.	Contractor	2
15	Assess and report on vegetation condition and bird and mammal population trends	VCA and bird/mammal surveys repeated and results used to inform management decision in reserve.	Council, contractor, Landcare Group	2
Reserve Entrances				
16	Implement Glebe Hill Bushland Reserve entrance upgrades as per Entry Concept Plans.	Entrances upgraded and maintained	Council	1
17	Develop and implement landscape plan for parkland off Glebe Hill Road parkland	Landscape plan designed and implemented	Council, consultant	1, 2
18	Implement Minno Street Reserve Entry Concept Plan	Minno Street entrance upgraded and maintained	Council	1

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Recom #.	Action	Performance Measure	Responsibility	Priority
Tracks				
19	Maintain official mountain bike track network and close all informal tracks	Maintenance carried out and landscaping in good condition	Council	1, 2
20	Negotiate with landholders re. the feasibility of a linkage track to Minno Street Reserve and northern loop track northern loop track	Negotiations undertaken with landholders	Council	3
21	Council to identify opportunities for track connection to Knopwood Hill through future subdivision development and negotiation with landholders	Any future subdivision to north include POS to facilitate linkages between reserves	Council	3
Infrastructure				
22	Implement infrastructure upgrade recommendation as per Entry Concept Plans	Infrastructure such as seats and sculptures proposed in entry plans is installed.	Council or contractor	1, 2
23	Install track maps at entrances	Six track map signs installed	Council or contractor	1 ,2
Bushfire Management				
24	Implement the management actions recommended in the BMP in consultation with this plan	Management actions recommended in the BMP implemented in consultation with this plan	Council	1-3
Community Participation				

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Recom #.	Action	Performance Measure	Responsibility	Priority
25	Council to continue to support the Landcare Group with maintenance projects	Landcare Group supported by council to complete recommendations.	Council, Landcare Group	1-3
26	Undertake further nature-based education projects with Howrah Primary	Additional nature-based education programs undertake in reserve.	Council, Howrah Primary, Landcare Group	1-3
27	Develop an indigenous interpretation program with Howrah Primary	Program developed and implemented	Council, Howrah Primary, Landcare Group	2, 3
Review and Reporting				
28	Review the recommendations and implementation plan after five years (2025) and undertake complete review of the RAP in 2030	RAP reviewed in 2025 and recommendation altered as required	Council, consultant	2, 3

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Appendix 1 - Description of vegetation communities occurring in the Glebe Hill and Minno Street Reserves

The following description are reproduced from the 2014 RAP (North Barker, 2014).

***Eucalyptus amygdalina* forest on mudstone (DAM)**

Eucalyptus amygdalina forest on mudstone (DAM) is the dominant vegetation community within the reserve covering approximately 15.5 hectares. It is found throughout the reserve on mudstone soils. DAM is not threatened under the Tasmanian *Nature Conservation Act 2002.*

This community is comprised of two eucalypt species – the dominant eucalypt being white gum (*E. viminalis*) with black peppermint (*E. amygdalina*) co/sub-dominant. The shrub layer is dominated by bull oak (*Allocasuarina littoralis*), with silver wattle (*Acacia dealbata*), prickly box (*Bursaria spinosa*) and native hop bush (*Dodonaea viscosa*) all frequent. The lower shrub layer is diverse and includes several low growing and prostrate species including peachberry (*Lissanthe strigosa*), broad leaf bitter pea (*Daviesia latifolia*), yellow everlasting bush (*Ozothamnus obcordatus*) and native cranberry (*Astroloma humifusum*). Prominent graminoids include sagg (*Lomandra longifolia*) and black anther flax lily (*Dianella revoluta*). Native grasses include speargrass (*Austrostipa* spp.) and wallabygrass (*Rytidosperma* spp.). There is moderate diversity of native herbs.

The condition is predominantly good with some degradation through tracks, and some weed infestations on the interface with suburban areas and previously the agricultural land.

***Eucalyptus risdonii* forest and woodland (DRI)**

Eucalyptus risdonii forest and woodland (DRI) is less abundant within the reserve covering approximately 1.9 hectares. It is found only on the upper west facing slopes of Glebe Hill, on rockier, shallower mudstone soils. DRI is listed as threatened under the Tasmanian *Nature Conservation Act 2002* (NCA).

Risdon peppermint (*Eucalyptus risdonii*) is the dominant canopy species. There is a prominent tall shrub layer that includes bull oak (*Allocasuarina littoralis*), native hop bush (*Dodonaea viscosa*) and hairy dogwood (*Pomaderris pilifera*) over a diverse assemblage of low shrub that include spreading wattle (*Acacia genistifolia*), yellow everlasting bush (*Ozothamnus obcordatus*), matted bushpea (*Pultenaea pedunculata*), glandular pinkbells (*Tetratheca labillardierei*), hop bitterpea (*Daviesia latifolia*), and common heath (*Epacris impressa*). Relative abundances of these species vary across the slope, as does the understorey dominance which is a mixture of native herbs, grasses and orchids.

The condition is predominantly good with little to no weed infestations.

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Eucalyptus viminalis grassy forest and woodland (DVG)

Eucalyptus viminalis grassy forest and woodland (DVG) is less abundant within the reserve covering approximately 2.6 hectares. It is found only on the mid to lower east facing slopes of Glebe Hill, where dolerite soils are dominant. *Eucalyptus viminalis* grassy forest and woodland is not threatened under the *Nature Conservation Act 2002*. It is however considered to be locally significant within the Clarence municipality, with Table 1 highlighting the low reservation status within the south-east bioregion and Tasmania. As this community is not listed under any state legislation, there may be a clearing bias towards it when developments are planned. This may lead to excessive clearance of this community which may be detrimental in the long term and highlights the importance of conserving areas of DVG within council and other reserves.

This community consists of short mature regrowth trees of E. viminalis. There is a relatively sparse tall shrub layer dominated by prickly box (*Bursaria spinosa*) and with occasional silver wattle (*Acacia dealbata*), black wattle (*A. mearnsii*), drooping sheoak (*Allocasuarina verticillata*) and native hop bush (*Dodonaea viscosa*). Low shrubs are scarce, with occasional occurrences of native cranberry (*Astroloma humifusum*), creeping bossiaea (*Bossiaea prostrata*), peachberry heath (*Lissanthe strigosa*) and dwarf riceflower (*Pimelea humilis*). Grasses dominate the ground cover with *Austrostipa* sp. being most prominent with kangaroo grass (*Themeda triandra*) and velvet tussockgrass (*Poa rodwayi*) also frequent. Graminoids and herbs are insignificant, with fan sedge (*Lepidosperma inops*) and grassland woodsorrel (*Oxalis perennans*) possibly being the most frequent species of the first and latter categories.

The condition is predominantly good with some typical agricultural weeds invading adjacent to the interface with the previous agricultural land (now housing).

Rockplate grassland (GRP)

Immediately to the west of Glebe Hill small patches of rockplate grassland (GRP) occur, covering approximately 0.3 hectares. Another small patch occurs on the south-eastern edge of the reserve. This grassland is likely to be disturbance induced as a result of vegetation clearance for rough grazing or may be a consequence of shallow soils inhibiting tree establishment. Rockplate grassland is not threatened under the *Nature Conservation Act 2002*.

This community is dominated by native species in particular Austrostipa spp. with kangaroo grass (*Themeda triandra*) subdominant and supports good populations of the chocolate lily (*Arthropodium strictum*). Other frequent herbs are native flax (*Linum marginale*), scaly buttons (*Leptorhynchos squamatus*) and tracking native-primrose (*Goodenia lanata*).

The condition is predominantly good with little to no weed infestations.

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Appendix 2 - Plant list for Glebe Hill Bushland Reserve

This plant list was derived from surveys by North Barker 2014 and Enviro-dynamics 2020 and 2021.

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

Name	Common name	Status
DICOTYLEDONAE		
APIACEAE		
Hydrocotyle foveolata	yellow pennywort	
ASTERACEAE		
Bedfordia salicina	tasmanian blanketleaf	en
Brachyscome aculeata	hill daisy	
Carduus pycnocephalus *and* Carduus tenuiflorus	Slender thistle	d
Chrysanthemoides monilifera subsp. monilifera	boneseed	d
Chrysocephalum apiculatum	common everlasting	
Chrysocephalum semipapposum	clustered everlasting	
Cirsium vulgare	Scotch thistle	i
Coronidium scorpioides	curling everlasting	
Craspedia glauca	common billybuttons	en
Euchiton collinus	common cottonleaf	
Hypochoeris radicata	rough catsear	i
Leptorhynchos nitidulus	shiny buttons	
Leptorhynchos squamatus	scaly buttons	
Ozothamnus obcordatus	yellow everlastingbush	
Ozothamnus purpurascens	columnar everlastingbush	en
Ozothamnus scutellifolius	buttonleaf everlastingbush	en
Senecio glomeratus	shortfruit purple fireweed	
Senecio hispidulus	rough fireweed	
Senecio quadridentatus	cotton fireweed	
Sonchus oleraceus	common sowthistle	i
CAMPANULACEAE		
Wahlenbergia sp.	bluebell	

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CASUARINACEAE		
Allocasuarina littoralis	black sheoak	
CRASSULACEAE		
Crassula sieberiana	stone-crop	
Crassula tetragona	miniature pine tree	i
DILLENIACEAE		
Hibbertia hirsuta	hairy guineaflower	en
DROSERACEAE		
Drosera auriculata	tall sundew	
EPACRIDACEAE		
Acrotriche serrulata	ants delight	
Astroloma humifusum	native cranberry	
Epacris impressa	common heath	
Lissanthe strigosa	peach berry	
EUPHORBIACEAE		
Poranthera microphylla	small poranthera	
FABACEAE		
Bossiaea prostrata	creeping bossiaea	
Daviesia latifolia	hop bitterpea	
Daviesia ulicifolia subsp. Ulicifolia	yellow spiky bitterpea	
Daviesia sejugata	leafy spiky bitterpea	
Dillwynia cinerascens	grey parrotpea	
Pultenaea pedunculata	matted bushpea	
Pultenaea daphnoides	large leaf bushpea	
GENTIANACEAE		
Centaurium erythraea	common centaury	i
GERANIACEAE		
Geranium sp.	native geranium	
GOODENIACEAE		
Goodenia lanata	trailing native-primrose	
Goodenia ovata	hop native-primrose	
HALORAGACEAE		
Gonocarpus tetragynus	common raspwort	
LAMIACEAE		
Prostanthera lasianthos var. lasianthos	christmas mintbush	
LAURACEAE		
Cassytha pubescens	downy dodderlaurel	
LINACEAE		
Linum marginale	native flax	
Linum trigynum	french flax	i
MIMOSACEAE		

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Acacia baileyana	cootamundra	i
Acacia dealbata subsp. dealbata	wattle silver	
Acacia genistifolia	wattle spreading	
Acacia mearnsii	wattle black	
Acacia melanoxylon	wattle blackwood	
MYRTACEAE		
Eucalyptus amygdalina	black peppermint	en
Eucalyptus globulus	Tasmanian blue gum	en
Eucalyptus risdonii	risdon peppermint	en r
Eucalyptus viminalis subsp. viminalis	white gum	
OXALIDACEAE		
Oxalis perennans	grassland woodsorrel	
PITTOSPORACEAE		
Bursaria spinosa subsp. spinosa	prickly box	
Pittosporum undulatum	sweet pittosporum	i
Rhytidosporum procumbens	starry appleberry	
PLANTAGINACEAE		
Plantago varia	variable plantain	
POLYGALACEAE		
Comesperma volubile	blue lovecreeper	
PROTEACEAE		
Grevillea rosmarinifolia	grevillea	i
RHAMNACEAE		
Pomaderris apetala	common dogwood	
Pomaderris elliptica	yellow dogwood	
Pomaderris pilifera	hairy dogwood	
ROSACEAE		
Acaena echinate	sheep's burr	l
Rosa rubiginosa	sweet briar	d
Rubus fruticosus	blackberry	
RUBIACEAE		
Galium aparine	cleavers	i
Galium gaudichaudii	rough bedstraw	
Opercularia varia	variable stinkweed	
SANTALACEAE		
Exocarpos cupressiformis	common native-cherry	
SAPINDACEAE		
Dodonaea viscosa subsp. spatulata	broadleaf hopbush	
STYLIDIACEAE		
Stylidium graminifolium	narrowleaf triggerplant	
THYMELAEACEAE		

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Pimelea humilis	dwarf riceflower	
TREMANDRACEAE		
Tetratheca labillardierei	glandular pinkbells	
VIOLACEAE		
Viola hederacea	ivyleaf violet	

MONOCOTYLEDONAE

AMARYLLIDACEAE		
Allium vineale	crow garlic	d
CYPERACEAE		
Carex breviculmis	shortstem sedge	
Lepidosperma gunnii	narrow swordsedge	
Lepidosperma laterale Schoenus apogon	variable swordsedge common bogsedge	
JUNCACEAE		
Juncus pallidus	pale rush	
IRIDACEAE		
Diplarrena moraea	white flag-iris	
LILIACEAE		
Arthropodium milleflorum	pale vanilla-lily	
Arthropodium strictum	chocolate lily	
Dianella revoluta	spreading flaxlily	
Thysanotus patersonii	twining fringelily	
Wurmbea dioica subsp. dioica	early nancy	
ORCHIDACEAE		
Caledenia carnea	pink fingers	
Caledenia clavigera	plain-lip spider orchid	
Chiloglottis sp.	bird orchid	
Corybus sp.	helmet orchid	
Dipodium roseum	hyacinth orchid	
Diuris pardina	leopard orchid	
Diuris sulphurea	tiger orchid	
Glossodia major	wax-lip orchid	
Microtis unifolia	common onion orchid	
Pterostylis nutans	nodding greenhood	
Pterostylis sp	greenhood	
Thelymitra pauciflora	slender sun orchid	
Thelymitra rubra	pink sun-orchid	
Thelymitra sp.	sun-orchid	

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POACEAE		
Agrostis sp.	blown grass	
Aira elegantissima	delicate hairgrass	
Rytidosperma	common wallabygrass	
caespitosa	bristly wallabygrass	
Rytidosperma setacea		
Rytidosperma sp.	wallabygrass	
Austrostipa mollis	soft speargrass	
Austrostipa pubinodis	tall speargrass	
Austrostipa rudis subsp. australis	southern speargrass	
Austrostipa sp.	speargrass corkscrew	
Austrostipa stuposa	speargrass	
Austrostipa semibarbata	bearded speargrass	
Briza maxima	greater quaking-grass	i
Briza minor	lesser quaking-grass	i
Cynosurus echinatus	rough dogstail	i
Dactylis glomerata	cocksfoot	i
Deyeuxia monticola	mountain bentgrass	
Deyeuxia quadriseta	reed bentgrass	
Dichelachne rara	common plumegrass	
Ehrharta stipoides	weeping grass	
Elymus scaber	rough wheatgrass	i
Holcus lanatus	yorkshire fog	
Poa rodwayi	velvet tussockgrass	
Rytidosperma indutum	tall wallabygrass	
Themeda triandra	kangaroo grass	
XANTHORRHOEACEAE		
Lomandra longifolia	sagg	

PTERIDOPHYTA

ASPIDIACEAE		
Polystichum proliferum	mother shieldfern	
DENNSTAEDTIACEAE		
Pteridium esculentum	bracken	

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Appendix 3 - Vegetation Condition Assessments

Site 1: *Eucalyptus amygdalina* forest on mudstone (DAM)							
Location	Glebe Hill. Upper south-facing slope.						
Grid Reference	534251 E	5251948 N	Date	02-Nov-2020			
Area			Recorder	Nick Fitzgerald			
SITE CONDITION ATTRIBUTES							
Large Trees		Understorey Life Forms					
Number of Large Trees #/ha	0	Life Forms		No. species	Cover %	Present	Modified
Proportion Healthy Canopy	N/A	Immature canopy tree		2	30	Y	N
Tree Canopy Cover		Tree (sub canopy) or large shrub		3	60	Y	N
Tree Canopy Cover (%)	0	Medium shrub/small shrub		4	2	Y	N
Proportion Healthy Canopy	N/A	Prostrate and mat shrubs		2	2	Y	N
Lack of Weeds		Herbs		13	2	Y	N
Weed Cover (%)	<1	Grasses		4	20	Y	N
High Threat Weeds (%)	0	Large sedge/rush/sagg		2	10	Y	N
Recruitment		Medium sedge/rush/sagg		2	2	Y	N
Adequate Canopy Recruitment	Yes	Tiny sedge/rush/sagg		-	-	-	
Proportion of native woody plants with adequate recruitment (%)	91	Ground ferns		0	0	N	
Woody Species Diversity	High	Tree Ferns		-	-	-	
Organic litter (%)		Scrambler/Climber and Epiphytes		1	<1	-	
Litter Cover (%)	80	Mosses and Lichen		-	25	Y	N
Litter – native or non-native	Native						
Logs		% Benchmark life forms present		91%			

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Length of Logs (m/ ha)	58				
Large logs present	No				
LANDSCAPE CONTEXT ATTRIBUTES					
Patch Size		Neighbourhood		Distance to Core Area	
Area of native vegetation continuous with assessment zone	>50 ha	% Native Vegetation within 100 m	100	Distance to Core Area >50 ha	Contiguous
Significantly disturbed	Yes	% Native Vegetation within 1 km	24	Core area significantly disturbed	Yes
		% Native Vegetation within 5 km	40		
FINAL VEGETATION CONDITION SCORE					
Site Condition Score		Landscape Context Score		TOTAL	
Large Trees	**0**10	Patch Size	**10**/10	**78**/100	
Tree Canopy Cover	**0**/5	Neighbourhood	**5**/10		
Lack of Weeds	**15**/15	Distance to Core Area	**4**/5		
Understorey	**25**/25	Landscape Context Score	**17**/25		
Summary Recruitment	**10**/10				
Organic Litter	**5**/5				
Logs	**4**/5				
Site Condition Total	**48**/75				

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Appendix 4 - Glebe Hill Bushland Reserve Report Card

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THE DRAFT GLEBE HILL BUSHLAND RESERVE ACTIVITY PLAN RECOMMENDS:

- >> Monitor and control texas needlegrass and crow garlic in reserve.
- >> Undertake further nature-based education projects with Howrah Primary.
- >> Develop an indigenous interpretation program.
- >> Promote 'dogs on lead' area to protect native fauna.
- >> Continue monitoring native fauna species in the reserve.
- >> Maintain official mountain bike trail network and close all informal trails.
- >> Assess and report on vegetation condition and bird population trends.
- >> Install track maps at all reserve entry points.
- >> Undertake primary weed control in Minno Street Reserve.


Image: Alan Fletcher

Green rosella

"My family are big fans of this bushland haven and we love living close to the nature it provides."

Local resident



Scaly buttons



Bettong

STAY WITH US...

Council invites you to comment on the draft plan. The plan will guide the community and council as we work together to improve the management of the reserves.

You can review the draft plan and have your say at **www.yoursay.ccc.tas.gov.au**

USE THE ONLINE FORM OR CONTACT US BY **MONDAY 3 MAY 2021**

Andy Welling 0400 151 205
andy.welling@enviro-dynamics.com.au
Phil Watson 03 6217 9713
pwatson@ccc.tas.gov.au

Clarence... a brighter place

GLEBE HILL BUSHLAND RESERVE

REPORT CARD



Chocolate Lily

Clarence... a brighter place

Your community and council working together to care for our reserves

In the spring of 2020, Clarence City Council asked the community about the Glebe Hill Bushland Reserve … these are the results.

Clarence City Council
30 MAR 2021
TASMANIA

	EVALUATION				DESCRIPTION	COMMUNITY COMMENTS
	OUTSTANDING	VERY GOOD	PASS	CAN DO BETTER	**GLEBE HILL BUSHLAND RESERVE**	
LOCATION AND LANDSCAPE					Hill Top Reserve protects the rare remnant bushland habitat on the fringe of suburbia.	*"Love the spectacular wildflower displays in spring."*
CULTURAL HERITAGE					Home of Mumirimina band of the Oyster Bay Nation for millenniums. Intriguing colonial history.	*"Keen to see aboriginal heritage interpretation signage."*
VEGETATION					Rare risdon gum woodland and large populations of striking orchids and chocolate lilies.	*"We enjoy spotting the orchids and other flowers in the reserve."*
ANIMALS AND BIRDS					Home for wallabies, bettongs, bandicoots, lizards, and a diversity of birds and insects.	*"Have spotted bandicoots and bettongs in the reserve."*
ACCESS AND CONNECTIVITY					Many easily accessible entrances and track network.	*"Easy links to other reserves required."*
RECREATION AND USAGE					Walking, dog walking and mountain biking available. Ideal for children's nature play and education.	
THREATS					Weeds, informal mountain bike tracks, motor bikes, wildfire, roaming dogs and cats.	*"Wandering dog and free-roaming cats are causing a sad loss of our furry and feathered friends."*

Stay with us on the journey of caring for the Glebe Hill Bushland Reserve. Your comments are highly valued!
Go to http://www.yoursay.ccc.tas.gov.au to comment.



Wendy Andrew Entrance

Appendix 5 - Glebe Hill Bushland Reserve Visitor Amenity Plan

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Minno Bushland Reserve

Minno Street

Monique St.

Mookara St.

Vienne Drive

Merindah Street

Watton Place

Betsy Mack Place

Norfolk Drive

Glebe Hill Rd.

South Arm Highway

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Key:

Reserve Entries

1. Develop trailhead at Minno Bushland Reserve with stone wall and embedded seat. Minor entry with small directional signage from Skyline Drive, both with small trail map and use guide symbols. Boulders to limit vehicle access to reserve.
2. Improve existing trailhead at Merindah Street entry with embedded large trail map and seat mounted on raised stone wall. Refer to Trailhead Concept Plan.
3. Establish walling, seating and directional boulders to clarify path entry into reserve (to east) away from road heading north as it heads into private property.
4. Establish minor trailhead for Watton Place residents, stone wall, seat, small embedded trail map and use guide symbols.
5. Improve existing minor trailhead for Betsy Mack Place entry, stone wall, seat, trail map and use guide symbol. Opportunity for WSUD designs for existing open drains.
6. Improve existing trailhead for Wendy Andrew entry, adding stone wall, embedded seat, large trail map and use guide symbols. Opportunity to provide WSUD designs for existing open drains.
7. Improve minor trailhead for Norfolk Drive entry, stone wall, seat, small embedded trail map and use guide symbols.
8. Proposed sculptural interpretation element embedded within stone walling. Five locations suggested to communicate targeted stories relating to specific locations and their outlooks.
9. Existing flora and fauna interpretation totem signs with boulder seating.
10. Existing interpretation map signs. Broader themes targeted at locations.
11. Revegetation corridor strengthened within 60 Glebe Hill Road parkland. Swathes of understorey endemic planting, with clusters of mid-storey and overstorey native vegetation.

Glebe Hill Bushland Reserve Visitor Amenity Plan

Glebe Hill, Howrah | Draft For Review

PREPARED FOR ENVIRO-DYNAMICS / CLARENCE CITY COUNCIL

inspiring place

NORTH

Date 2 / 11 / 2020

Scale 1:3000 @ A3

Appendix 6 - Glebe Hill Bushland Reserve Entry Concept Plans

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Trailhead Position Scale 1:12000

Key:

1. Proposed upper trailhead compacted gravel surface hardstand. Broad width for gathering and passing before narrowing into trail to east.
2. Drystone (Mudstone) raked wall approx. 500mm high. Discretely mortared locally beneath timber and steel seat and interpretative element.
3. Proposed sculptural interpretative element location. Opportunity to integrate it with signage stone wall.
4. Mild steel / corten folded plate with hardwood battens fixed for rest-stop seat.
5. Endemic understorey planting mix with feature advanced native (*Eucalyptus risdonii*).
6. Existing clay-mix gravel pad trail.
7. Proposed mudstone boulders to mitigate vehicle entry from north and direct reserve user's to reserve proper (east).

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Glebe Hill Upper Merindah St. Entry Concept Plan

Glebe Hill, Howrah | Draft For Review

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NORTH **Date** 2 / 10 / 2020
Scale 1:50 @ A3



Trailhead Position

Scale 1:12000

Key:

1. Existing stair entry, retaining wall and reserve name sign.
2. Raise section of existing drystone (Mudstone) raked wall to approx. 500mm high and return into planted embankment.
3. Proposed mild steel / corten folded plate large trail map sign; self supporting vertical base with upper half tilted back for ease of reading.
4. Endemic understorey planting with feature small tree (*Eucalyptus risdonii*).
5. Existing clay mix gravel trail.
6. Existing mudstone edging /terracing.
7. Densify existing native understorey planting to lower risk of weed establishment and interplant with feature mid-storey plants.
8. Existing eucalypt.

Merindah Street

Vienne Drive

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Glebe Hill Lower Merindah St. Entry Concept Plan

Glebe Hill, Howrah | Draft For Review

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NORTH

Date 2 / 10 / 2020
Scale 1:50 @ A3



Trailhead Position

Scale 1:12000

DRAFT

Key:

1. Existing stair entry, retaining wall and reserve name sign.
2. Create series of drystone (Mudstone) raked wall terracing - tying into stair risers where adjacent.
3. Proposed mild steel / corten folded plate large trail map sign; self supporting vertical base with upper half tilted back for ease of reading. Compacted gravel hardstand at base. Opportunity to integrate with interpretation element.
4. Endemic understorey planting with feature trees (*Dodonaea viscosa / Eucalyptus amygdalina*).
5. Mild steel / corten folded plate with hardwood battens fixed for rest-stop seat.
6. Existing gravel pad. Opportunity to install further sleeper / mudstone risers to mitigate existing short steep gradient.
7. WSUD reed planting within existing open drain.

Glebe Hill Betsy Mack Entry Concept Plan

Glebe Hill, Howrah | Draft For Review

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NORTH

Date 2 / 10 / 2020

Scale 1:100 @ A3



Trailhead Position Scale 1:12000

Key:

1. Existing reserve name entry sign and mulched 'outdoor classroom' boulder space.
2. Create series of drystone (Mudstone) raked wall terracing.
3. Proposed mild steel / corten folded plate large trail map sign; self supporting vertical base with upper half tilted back for ease of reading. Mudstone raked wall behind returning into embankment, compacted gravel hardstand at base. Opportunity to integrate sculptural interpretation element.
4. Endemic understorey planting with feature trees (*Dodonaea viscosa / Eucalyptus amygdalina*).
5. Mild steel / corten folded plate with hardwood battens fixed for rest-stop seat
6. Compacted gravel hardstand.
7. WSUD reed planting within existing open drains.

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Glebe Hill Wendy Andrew Entry Concept Plan

Glebe Hill, Howrah | Draft For Review

PREPARED FOR ENVIRO-DYNAMICS / CLARENCE CITY COUNCIL

inspiring place

NORTH

Date 2 / 10 / 2020
Scale 1:50 @ A3



Trailhead Position

Scale 1:12000

Key:

1. Existing reserve name sign.
2. Improve existing worn timber risers and redirect path surface flow into landscape..
3. Proposed mild steel / corten folded plate large trail map sign; self supporting vertical base with upper half tilted back for ease of reading. Mudstone dry raked wall beneath. Opportunity to integrate with sculptural interpretation element.
4. Endemic understorey planting .
5. Existing clay mix gravel trail.
6. Existing mudstone edging /terracing.
7. Proposed drystone mudstone raked wall setback from raised kerb retaining new endemic planting.

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Norfolk Drive

Glebe Hill Norfolk Drive Entry Concept Plan

Glebe Hill, Howrah | Draft For Review

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NORTH

Date 2 / 10 / 2020

Scale 1:50 @ A3



Trailhead Position Scale 1:12000

Key:

1. Proposed entry compacted gravel surface hardstand. Future gravel path to extend into reserve.
2. Drystone (Mudstone) raked wall approx. 500mm high. Discretely mortared locally beneath timber and steel seat and interpretative element.
3. Proposed sculptural interpretative element location. Opportunity to integrate it with folded mild-steel signage on stone wall.
4. Mild steel / corten folded plate with hardwood battens fixed for rest-stop seat.
5. Endemic understorey planting mix with feature advanced native (*Eucalyptus risdonii*).
6. Removable bollard for service vehicle access.
7. Proposed mudstone boulders to mitigate vehicle entry into the reserve off Minno Street.
8. Proposed location of new reserve name sign. Positioned to be seen from street approach.

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Minno Street

Glebe Hill Minno St. Entry Concept Plan

Glebe Hill, Howrah | Draft For Review

PREPARED FOR ENVIRO-DYNAMICS / CLARENCE CITY COUNCIL

inspiring place

NORTH

Date 2 / 10 / 2020
Scale 1:50 @ A3

Appendix 7 - Results of community consultation

The following is a summary of the community consultation carried out prior to the Draft Reserve Activity Plan (RAP) compilation. It includes a summary of the management issues and number of submissions (Table 3) and a detailed outline of all comments and response in RAP (Table 4).

Initial community consultation

More detail from the written submissions received is provided in Table 4.

Table 3. Community Feedback Response Table

No.	Summary of management issues/comments from walk & talk, phone and written responses	Issue	No. of comment received*
1	Supportive of track development in reserve (existing and additional)	Tracks	16
2	Concerns with informal mountain bike impacts	Tracks	3
3	Conserve/restore natural values/monitoring	Natural values	7
4	No development the reserve	Comment	1
5	Develop playground/parkland/shelters	Infrastructure	3
6	Dog management – control of dogs on lead vs under effective control, concern with impacts on wildlife	Domestic animal management	5
7	Concerns with bushfire management	Bushfire	2
8	Installation of directional and interpretive signage	Entrances and signage	2
10	Motor bikes	Motor bikes	2
11	Rubbish in reserve	Rubbish	1
13	Access from Monique Street/fence	Access/safety	4

** Number of submissions for each issue does not align with number of people who provided feedback as some provided multiple responses.*

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Table 4. Detailed community input during the initial community consultation prior to the release of the Draft Reserve Activity Plan.

No.	Management Issues/Comments from phone and written responses	Issue 1	Section in RAP
1	Future plans or ideas for developing connecting trails. A connecting trail into Knopwood Hill Reserve would be good.	Tracks/ connectivity	6.6
	A connecting path or gravel trail alongside Pass Road to allow riders, runners and walkers to safely connect to Mt Rumney and the Meehan Range or Old Coach Road.	Tracks	No Action – outside RAP area
	Improvement on the bottom loop trail above the quarry. Comes out on Norfolk Lane.	Tracks	6.6
2	Continue the conservation of flora and fauna.	Natural values	6.4
3	Running trail.	Tracks	6.6
4	Minno Street area to become a children's play area with steps and a properly formed path from Skyline Drive down to the park. I would like to see a natural play area with huts and balance beams made from tree stumps, bring our kids back to nature, not a shiny metal playground.	Infrastructure	6.7
5	Accessible, discreet walking trails, that are built with minimal impact on the environment. Consolidation of the trails that are pre-existing.	Tracks	6.6
6	Mountain bike and walking trail.	Tracks	6.6
7	Fuel reduction strategy to reduce threat of bushfires in the area.	Bushfire	6.8
	A walking track would be a fabulous addition to the area, as many families are moving to the area. As it isn't safe to walk along Pass Road, this would be a benefit to everyone! (A walking path along Pass Road would be a GREAT idea too!!)	Tracks	No Action – outside RAP area
8	Nature walks and reserves only. No development.	Natural values	6.3
9	Maybe a cleared-up track with parks throughout the track. So many people use the tracks and I think it's not a good idea. Aboriginals also lived in the land, and it's their land. I'd be disappointed if it all disappeared.	Tracks	6.6
10	An educational program/signs highlighting the special plants of the reserve, in particular the chocolate lily and *Eucalyptus risdonii.*	Signage Bushfire	6.7
	Also specific management of these plants, such as a low intensity burn.	Natural values/ bushfire	6.8, 6.9
11	Keep the walking tracks as is, allow dogs under control but off lead.	Tracks	6.6
12	Running/walking trails.	Tracks	6.6
13	Ways in which to link it to the other local reserves in walking, cycling and running routes, such as Mornington Hill and the Rokeby Hills areas. A bit like the Charles Darwin loop but linking the three areas and incorporating the foreshore track.	Tracks	6.6

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No.	Management Issues/Comments from phone and written responses	Issue 1	Section in RAP
14	I'm a local trail-runner; it is perpetually disappointing that despite all the bushland around the periphery the vast majority is inaccessible (no access, and/or private land). I live in Oakdowns, and the alternatives are the Rokeby hills that border Tranmere, complete with a parking-lot's worth of burned-out car bodies, and Glebe Hill.	Tracks	6.6
	I grew up being able to play in local bushland, and it's heart-breaking that this is not an option for kids now. I would love to see Glebe Hill remain that option.	Natural values	6.2, 6.3
	It's not a large area; I'd probably prefer that it be mainly aimed at foot traffic.	Tracks	6.6
15	Include on lead dog walks for the health and wellbeing of all users and include dog poo bags & bins.	Dog management	6.3
	Also a map of trees, bushes, grasses & native animals. Signage of length of tracks & facts of history of the area & surrounds	Signage	6.7
	Place seating in shady areas. Include toilets.	Infrastructure	6.7
16	Check Monique Street access to the mobile phone tower and beyond to the five strand wire fence which is down allowing ingress into Glebe Hill Reserve for trail bikes -tracks visible -on and up the hill. I stood the fence up in a rough manner but maybe a rock barrier may be more appropriate.	Access/safety	6.5
17	An area for the community to have picnics and barbeques with all the appropriate services e.g. shelters, toilet facilities, pizza ovens, gas barbeques, children's' play equipment etc preferably on the western side of the hill facing the river. Parking for the purposes of people who want to picnic and/or those who want to walk the various tracks.	Infrastructure	6.7
	A great example of this concept is Legacy Park on the Queen's Domain.	Comment	
	Entrance could be from the Vienne Drive entrance in Howrah.	Entrances	6.5
18	We have witnessed impacts on wildlife of dogs not under effective control. The telltale of this is repeated excited yapping. We have had an injured wallaby somehow get over our fence after having sustained serious injury while being pursued by two dogs. The human who had taken those two dogs into the bush remained hidden in the dusk light quite a distance away. To prevent this happening too often, I would recommend that it be made a dog on leash area.	Dog management	6.3
	We have also been woken in the middle of the night too often by trail bikes on the existing track system. A drastic rethink is needed for the updated plan to limit this kind of illegal and threatening behavior. Consideration needs to be given to gates and track surfacing to deter this nocturnal disturbance.	Motorbikes	6.6
19	The plan has six entrance gates on the Glebe Hill side of the reserve and none on Howrah side. Is there a possibility of incorporating a few entrance gates on the Howrah side. I.e.. Vienne Drive, Merindah Street?	Access	6.5

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No.	Management Issues/Comments from phone and written responses	Issue 1	Section in RAP
20	Can we be assured that "raising awareness of the reserve's values" and minimising "threats to these values" isn't pre-empting further residential development in the area that would see the reserve reduced in size in future?	Future development	Not permitted in reserves
	My experience with councils both here and in WA is that while one body at one time sets limits and regulations, those coming after them consider it a whole new ball game. In short, is the reserve as it stands today, guaranteed to be unchanged in size in future? Rather than see the word "minimise" I'd much prefer "guarantee the future of".	Future development	Not permitted in reserves
21	Concerned about wire fence that runs along the boundary of the reserve. It's located just up from the mobile phone tower off Mookara St. For the years previous, large logs had been holding the fence wire flat over the track. Recently, someone has removed the logs and the fence is back upright. Discovered when run into on bike, as the wires are nearly invisible. Placed yellow tape on the wires, however this is not a solution.	Access/ safety	
22	Concerns about fence to private land from reserve – off Moorah Street. Fenced has been tagged in the past and put logs across fire trail but they get removed and logs laid on fence. Have noticed motorbike tracks. Attempt made to arrange an easement through the communication tower site, but they weren't willing to sell off a component of it to allow an unimpeded track.	Access/ safety Motor bikes	6.5, 6.6
23	Regularly collects rubbish from Bandicoot Reserve.	Rubbish	
	Informal track network for connection to Skyline Drive – he currently follows pad along western boundary fenceline. Interested to be kept informed on plans within this area.	Comment	
	Concerned about four strand wire boundary fence on west side of Glebe Hill fire trail (boundary of communications tower) has been deliberately flattened by limb to allow apparent trail bike passage. Has been repaired on one walk and found it down again next. Suggestion for some sort of permanent solution to this by using rock boulders or something along track. As long as fire maintenance didn't need emergency access through this.	Access/ safety	6.5
	Interested in the broad range of early wildflowers and identifying them.	Natural values	6.4
24	In discussing informal mountain bike trail off Merindah track it was noted by respondent that they weren't concerned by it as long as it was kept as it is without growing so was open to formalisation of a single pad.	Informal MTB trails	6.5
	Interested on the BAL requirements at the back of the houses and asked if limbs under a certain height were dealt with along with the brush cutting measures.	Bushfire maintenance	6.4, 6.8
25	Agreed with concern of informal mountain bike trail and potential future spread.	Informal MTB trails	6.5
	Happy with the reserve and access connections to Howrah proper. Appreciated the interpretation elements already in the reserve.	Comment	

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No.	Management Issues/Comments from phone and written responses	Issue 1	Section in RAP
	Enjoyed the ability to spot the orchids and be guided on their species type.		
26	Happy with the level of engagement her primary school has had so far in the reserve and interested for further collaborations. Arranging an excursion in late October for her students to see the wildflowers and to witness the work of previous years.	Comment	
	Interested in the citizen science app – iNaturalist that Adam was using to record species on the day.	Natural values/ monitoring	6.4
	Interested in further planting engagement at Howrah Primary as an extension of corridors and development of further Indigenous knowledge relationships; particularly with her Indigenous students.	Planting for school	6.9
27	Noted the informal mountain bike pad off Merindah Trail and concern about further informal trail cuttings in the future. Open to formalising the current one to ensure erosion control and to avoid further informal disturbance.	Informal MTB trails	6.6
	Recorded species spotted along walk with iNaturalist and noted value for the group to keep recording as plants were spotted across the years.	Natural values	6.3, 6.4
	Noted desire to keep southern trail as informal pad to ensure minimal disturbance to orchids and to discourage too much activity (i.e. dog walking) adjacent to the bettong habitat on the southern slopes amongst the *Lomandra*.	Tracks	6.6
	Noted that the monitoring camera has been set up at intervals at the edge of bettong habitat and has captured bettongs with domestic cats in the same spot on the same evening. Suggestion to consider making the reserve a cat-management area, (preceded by public communication strategy, further precedents and approach material for this can be provided Tasmanian Cat Management Project Officer for Southern Tasmania nbrookman@kingborough.tas.gov.au)	Cat Management	6.3
	Noted support for on-leash dog walking in reserve (rather than the vague effective control current signage) – due to off-leash dog being captured on bettong monitoring camera during daylight hours – risk frightening sensitive species or worst case accidental or intentional maiming or killing.	Dog Management	6.3
28	Dogs off lead chasing wildlife.	Dog Management	6.3
	Motorbike use in early morning. New tracks along boundary - likely to attract motorbikes.	Motorbikes	6.6
29	Access at the end of Glenfern Street could be a public access. Would like to see better connectivity for new dwellings on north side for accessing the reserve. Lots of road works happening for commercial development so could be good opportunity to connect roads and create better access for users of public transport. Looking at creating POS when subdividing property.	Connectivity/ access	6.5, 6.6
30	I would like to see the conservation covenant maintained to a higher standard than previously and reviewed to establish best practice management. Includes maintaining firebreaks, instead of a 5m clearance zone i would like to see a 10m zone. Worried about the coming fire season due to the dry weather, so i would like to see a higher standard of fire management.	Bushfire	6.8

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No.	Management Issues/Comments from phone and written responses	Issue 1	Section in RAP
	Tracks are maintained well.	Tracks	6.6

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Appendix 8 - Bird list for Glebe Hill Bushland Reserve

The following bird list for the Glebe Hill Bushland Reserve includes species recorded from surveys conducted by Birds Tasmania in 2013, North Barker Ecosystem Services survey observations 2014 and Enviro-dynamics observations 2021. The surveys have been undertaken across the woodland and grassland habitat during a series of 20-minute surveys over several years on a voluntary basis.

All data collected has been added to BirdLife Australia's Birdata web portal by Mike Newman.

Table 5. Bird list for Glebe Hill Bushland Reserve

Common Names	Species Name	Count
Australian magpie	*Gymnorhina tibicen*	2
Blackbird	*Turdus merula*	1
Brown thornbill	*Acanthiza pusilla*	1
Common bronzewing	*Phaps chalcoptera*	3
Eastern rosella	*Platycercus eximius*	
Forest raven	*Corvus tasmanicus*	4
Green rosella	*Platycercus caledonicus*	2
Grey currawong	*Strepera versicolor*	4
Grey fantail	*Rhipidura fuliginosa*	1
Golden Whistler	*Pachycephala pectoralis*	
Laughing kookaburra	*Dacelo novaeguineae*	1
Musk lorikeet	*Glossopsitta concinna*	3
New Holland honeyeater	*Phylidonyris novaehollandiae*	1
Noisy Miner	*Manorina melanocephala*	
Pallid cuckoo	*Cuculus pallidus*	2
Shining bronze cuckoo	*Chalcites lucidus*	1
Silvereye	*Zosterops lateralis*	2
Spotted pardalote	*Pardalotus punctatus*	3
Spotted turtle-dove	*Streptopelia chinensis*	3
Striated pardalote	*Pardalotus striatus*	1
Superb fairy-wren	*Malurus cyaneus*	1

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Appendix 9 - Weed Control

Common Name	Species Name	Weed Status	Life Form	How Spread	Control Methods	Control Timing
aeonium	*Aeonium sp.*	Environmental	succulent	seed, stem rooting, vegetative reproduction	spray, dig out	all year
blackberry	*Rubus fruticosus*	WONS, Declared	shrub/ scrambler	seed, stem rooting, suckering	spray, cut & swab, stem scrape	all year
bluebell creeper	*Sollya heterophylla*	Environmental	climber	seed, stem and root fragments	hand pull seedlings, cut & swab larger plants	spring/ summer/ autumn
boneseed	*Chrysanthemoides monilifera*	WONS, Declared	shrub	seed	hand pull seedlings, cut & swab larger plants	all year
crow garlic	*Allium vineale*	WONS, Declared	Herb, bulb	bulbs	spray, dig out	spring/summer
cape Leeuwin wattle	*Paraserianthes lophantha*	Environmental	shrub	seed	hand pull seedlings, cut & swab larger plants	spring/ summer/ autumn
cotoneaster	*Cotoneaster sp.*	Environmental	shrub	seed	spray, cut & swab	all year
fennel	*Foeniculum vulgare*	Declared	herb	seed	spray, cut & swab	winter/ spring/ summer
fuschia	*Fuchsia magellanica*	Environmental	shrub	seed	spray, cut & swab	all year
garden geranium	*Geranium sp.*	Environmental	shrub	seed, stem and root fragments	hand pull seedlings, cut & swab larger plants	spring/ summer/ autumn
grevillea	*Grevillea rosmarinifolia*	Environmental	shrub	seed	cut & swab	spring/ summer/ autumn
Himalayan firethorn	*Pyracantha sp.*	Environmental	shrub	seed, berries spread by birds and water	cut & swab	spring/ summer/ autumn

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Common Name	Species Name	Weed Status	Life Form	How Spread	Control Methods	Control Timing
holly	*Ilex aquifolium*	Environmental	tree	seed	cut & swab	spring/ summer/ autumn
mirrorbush	*Coprosma repens*	Environmental	shrub	seed, berries spread by birds and water	cut & swab	spring/ summer/ autumn
contpellier broom	*Genista monspessulana*	WONS, Declared	shrub	seed	hand pull seedlings, cut & swab larger plants	all year
radiata pine	*Pinus radiata*	Environmental	tree	seed	hand pull seedlings, cut down, ring bark	all year
red valerian	*Centranthus ruber*	Environmental	herb	seed	hand pull, cut and swab or spray	spring/ summer/ autumn
slender thistle	*Carduus pycnocephalus and Carduus tenuiflorus*	Declared	herb	seed	hand pull, spray	winter/ spring/ summer
sweet briar	*Rosa rubiginosa*	Environmental	shrub	seed	spray, cut & swab, stem scrape	all year
sweet pittosporum	*Pittosporum undulatum*	Environmental	tree	seed	cut & swab, drill & fill	all year
tagasaste	*Chamaecytisus palmensis*	Environmental	tree	seed	cut & swab, drill & fill	spring/ summer/ autumn
texas needlegrass	*Nassella leucotricha*	Declared	grass	seed	spray	Spring/summer

Table adapted from 2014 RAP

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Appendix 10 – Weed Photos



blackberry (*Rubus fruticosus*) D, WONS



boneseed (*Chrysanthemoides monilifera* subsp. *monilifera*) D, WONS



canary broom (*Genista monspessulana*) D, WONS



crow garlic (*Allium vineale*) D



slender thistle (*Carduus pycnocephalus* and *Carduus tenuiflorus*) D



aeonium (*Aeonium* sp.) E



bluebell creeper (*Billardiera heterophylla*) E



cotoneaster (*Cotoneaster* sp.) E



fuchsia *(Fuchsia magellanica) E*



garden geranium (*Geranium* sp.) E



grevillea (*Grevillea rosmarinifolia*) E



himalayan firethorn (*Pyracantha* sp.) E



holly (*Ilex aquifolium*) E



mirror bush (*Coprosma repens*) E



radiata pine (*Pinus radiata*) E



red valerian (*Centranthus ruber*) E



sweet briar (*Rosa rubiginosa*) E



sweet pittosporum (*Pittosporum undulatum*) E



tagasaste (*Chamaecytisus palmensis*) E



texas needlegrass (*Nassella leucotricha*) D

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Appendix 11 - Unanticipated Discovery Plan

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Unanticipated Discovery Plan

For proponents and consultants dealing with Aboriginal Heritage in Tasmania

This paper provides a Plan that should be followed when dealing with unanticipated discoveries of Aboriginal Cultural Heritage such as sites and objects. The plan provides guidance to project personnel so that they may meet their obligations with respect to Aboriginal heritage in accordance with the *Aboriginal Relics Act 1975* and the *Coroners Act 1995*.

The Unanticipated Discovery Plan is in two sections. The first section primarily explains mitigation strategies that should be employed when any Aboriginal Cultural Heritage sites or items are discovered excluding skeletal remains (burials), while the second process deals specifically with skeletal remains (burials).

Discovery of Cultural Heritage Items

Step 1: Any person who believes they have uncovered Aboriginal Cultural Heritage material should notify all employees or contractors that are working in the immediate area that all earth disturbance works must cease immediately.

Step 2: A temporary 'no-go' or buffer zone of at least 10m x 10m should be implemented to protect the suspected Aboriginal Cultural Heritage site or relics. No unauthorised entry or works will be allowed within this 'no-go' zone until the suspected Aboriginal Cultural Heritage relics have been assessed by a recognised Aboriginal Heritage Officer or Archaeologist.

Step 3: Aboriginal Heritage Tasmania (AHT) in Hobart (ph 6233 6613) needs to be notified and consulted as soon as possible and informed of the discovery. AHT will then provide further advice in accordance with the *Aboriginal Relics Act 1975*.

Discovery of Skeletal Material

Step 1: Call the Police immediately. Under no circumstances should the suspected skeletal remains be touched or disturbed. The area must now be considered a crime scene. It is a criminal offence to interfere with a crime scene.

Step 2: Any person who believes they have uncovered skeletal material should notify all employees or contractors that are working in the immediate area that all earth disturbance works must cease immediately.

Step 3: A temporary 'no-go' or buffer zone of at least 50m x 50m should be implemented to protect the suspected skeletal remains. No unauthorised entry or works will be allowed within this no-go' zone until the suspected skeletal remains have been assessed by the Police and or Coroner.

Step 4: Should the skeletal remains be determined to be of Aboriginal origin, the Coroner will contact the Tasmanian Aboriginal Land and Sea Council (TALSC) to arrange for repatriation of the remains, as per the *Coroners Act 1995.*

Guide to the most common sites of Aboriginal Significance

Stone Artefact Scatters

Stone artefacts are the tangible evidence found in regard to past Aboriginal lifeways. Stone artefacts indicate areas that were used by Aboriginal People, either for camping, hunting or other activities such as the manufacture of stone tools. Archaeologists can also determine the duration a site may have been occupied, the amount of times that the site may have been occupied, and the number of people that the area may have supported at any given time.

Some stone artefacts are the result of Aboriginal People fracturing or 'flaking' fine-grained rocks to produce sharp cutting or scraping implements. These were then used, for example, for cutting up animals and then scraping the hides. Volcanic rocks such as basalt were flaked and then ground down to form axes for a number of chopping and cutting tasks. The results of such activities can be seen in the archaeological record (i.e. scatters) in the form of modified stones such as cores, retouched flakes, hammerstones and flaked pieces. From these scatters, by understanding site density and frequency patterns, inferences can be made in relation to past Aboriginal lifeways.

Shell Middens

Shell middens by definition are prehistoric refuse pits. They are the leftover waste of resources exploited which formed the basis of Aboriginal diet. Midden sites can range in size from large mounds to small scatters of shell. Middens usually also contain as well as shell, the remains of animals exploited for food as well as artefacts of stone, bone and shell. These sites are usually found near waterways and coastal areas.

Rockshelters

Rockshelters can either be shelters which contain archaeological deposits from living floors or art rock shelters, and may occur in any area of rocky terrain. Sediments on the floor of the rockshelter can contain preserved stratified deposits of archaeological material. Art types found in rockshelters can vary greatly. It can be in the form of painting, stencils of body parts, tools and equipment, or engravings. Style variations in painting can cover animal or human figurines, supernatural beings, and geometric patterns. Engravings can have similar variations as they can depict tools, humans, human parts, animals and birds and their tracks, geometric patterns and supernatural beings. Pecking is also a form of engraving.

Quarries or Stone Procurement Sites

Quarry sites occur where outliers of suitable tool-making stone appear. A quarry can be generally recognised by evidence of human manipulation and extraction of suitable material and the debris left by the processing of the suitable material. Some quarries can cover vast areas with extremely high amounts of lithic discard. Ochre or pigment was also quarried.

Burials

Burials can occur anywhere, though they are generally found close to areas where there was a high population concentration. Burials can occur where there are soft sediments such as sand hills, they can be found in caves and rockshelters and sometimes they can be associated with hollow trees.

Appendix 12 - Glebe Hill Bushfire Management Plan

Management Action Summary

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5.1 Management Action Summary

RECOMMENDED ACTION	OBJECTIVE (section 1.3)	PRIORITY	RESPONSIBILITY	PERFORMANCE INDICATORS
1) Develop/implement a community education program, including an information sheet, as outlined in section 5.7 of the Bushfire Management Strategy, to inform the community of bushfire management issues in the reserve and to ask them to report any smoke, or suspicious activity, on days of total fire bans to the police.	1, 2	REC - 1	Clarence City Council Fire and Bushland Management Tasmania Fire Service	Educational material distributed to adjoining residents, reserve users and other interest groups. Reduction in the incidence of illegal fires on and around the reserve.
2) Implement the bushfire protection measures in section 2.4 for protection of assets in and around the reserve.	1, 4	E	Clarence City Council Private landowners	Bushfire protection measures for adjoining dwellings implemented and maintained. No assets lost to fires originating in, or moving through, the reserve.
3) Erect appropriate signs on tracks and roads to warn reserve users of planned burns.	1	E	Clarence City Council Fire and Bushland Management	No users of the reserve injured by planned burns.
4) Implement the recovery procedures in MP 12 following planned burns and bushfires.	1, 5, 6	E	Clarence City Council Fire and Bushland Management Tasmania Fire Service	Post-fire recovery carried out after planned burns and bushfires. No users of the reserve injured by fires or the effects of fires.
5) Carry out fire trail repairs and maintenance listed in table 9.	2, 6	E – 2	Clarence City Council Fire and Bushland Management	Fire trail repair and upgrade works listed in table 9 completed.
6) Construct new fire trails as detailed in section table 8, section 3.1.3 and shown on figure 7.	2, 6	E - 3	Clarence City Council Fire and Bushland Management	New fire trails constructed to required standards.

RECOMMENDED ACTION	OBJECTIVE (section 1.3)	PRIORITY	RESPONSIBILITY	PERFORMANCE INDICATORS
7) Ensure all fire trails shown on figure 7 are inspected and maintained in a trafficable condition at all times according to table 8 and MP 2.	2, 4	ROU - A	Clarence City Council Fire and Bushland Management	Vehicle access routes inspected as required in MP 2, and maintained in a trafficable condition for fire service vehicles.
8) Inspect gates regularly to ensure that locks are in place and functioning. Ensure that the local Tasmania Fire Service Brigade and other emergency services have keys to the gates on trails giving access to the reserve.	2	ROU - A	Clarence City Council Fire and Bushland Management	No unauthorised use of fire trails in the reserve. Security lock system implemented, keys distributed to Tasmania Fire Service brigades and other emergency services.
9) Conduct a familiarisation tour of the reserve for local TFS brigades upon request.	1, 2, 4	ROU - A	Clarence City Council Fire and Bushland Management Tasmania Fire Service	Local TFS brigades familiar with bushfire management assets in the reserve.
10) Carry out planned burning according to the schedule in table 9 using the procedure in MP 7.	2, 3, 4, 5	E - A/S	Clarence City Council Fire and Bushland Management	Mosaic of burnt VMUs maintained. No decline in the structure and floristics of the native vegetation in the reserve.
11) Consult with the DPIPWE Threatened Species Section when carrying out bushfire management activities that may affect populations of threatened flora or fauna.	3	E	Clarence City Council Fire and Bushland Management DPIPWE Threatened Species Section	All planned burns carried out according to the requirements of threatened flora and fauna. No decline in the populations of threatened or rare flora and fauna due to fire.
12) Avoid burning the whole of any population of a threatened or rare plant species in a single fire.	3	E	Clarence City Council Fire and Bushland Management Tasmania Fire Service	All planned burns carried out according to the requirements of threatened flora and fauna. No decline in the populations of threatened or rare flora and fauna due to bushfire.

RECOMMENDED ACTION	OBJECTIVE (section 1.3)	PRIORITY	RESPONSIBILITY	PERFORMANCE INDICATORS
13) Carry out vegetation monitoring as detailed in section 5.10 of the Bushfire Management Strategy including the recovery of any populations of threatened or rare flora and fauna burnt by bushfires or planned burns.	3, 5	E	Clarence City Council Fire and Bushland Management DPIPWE Threatened Species Section	Vegetation monitoring plots set up and surveyed and data on the population size and extent of threatened species recorded before planned burns. Regular follow-up surveys undertaken.
14) Treat any weeds in areas to be burnt under this BMP according to MP 8. Ensure follow-up weeding is carried out after planned burns and bushfires.	3, 5	REC – A/S	Clarence City Council Landcare Groups	Pre- and post-fire weed control carried out in any weed infested VMUs burnt under this plan. Minimal coppicing or regrowth of weeds from treated rootstock. All declared noxious weeds removed, reduction in extent of other weeds.
15) Regularly revise burning schedules and prescriptions to ensure they incorporate the most recent information on the fire ecology of flora, fauna and plant communities of conservation value in the reserve.	3, 5	REC - A/S	Clarence City Council Fire and Bushland Management	BMP revised every 5 years.
16) Coordinate bushfire management, weed management and other management activities, such as bush regeneration, using the procedure in MP 9.	3, 5	REC - A	Clarence City Council Landcare Groups	Meetings held as recommended in MP9 and the outcomes recorded.
17) Ensure all personnel engaged in planned burning activities in the reserve have the appropriate level of training and equipment as outlined in MP 7.	1, 2	E	Clarence City Council Fire and Bushland Management	All personnel are able to demonstrate the required level of training.

RECOMMENDED ACTION	OBJECTIVE (section 1.3)	PRIORITY	RESPONSIBILITY	PERFORMANCE INDICATORS
18) Record bushfire management activities and bushfires using the procedures in MPs 10 and 11.	3, 4, 5	REC - A/S	Clarence City Council Fire and Bushland Management	Records maintained of all bushfire management activities.