Vegetation Management Plan

Garden areas and embankments adjacent to the house at Ninney Rise

for

Friends of Ninney Rise

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Front cover: Mackinlaya *(Mackinlaya confusa),* a locally occurring rainforest species, located near the house and eastern lawn (north-east corner) at Ninney Rise, Bingil Bay.

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1. Introduction

1.1 Purpose

This Vegetation Management Plan (VMP) was commissioned by Friends of Ninney Rise (FoNR) and Queensland Parks & Wildlife Service (QPWS). The purpose of this report is to:

- provide a review of the existing condition of historic garden beds and vegetated embankments immediately adjacent to the main dwelling at Ninney Rise;
- identify the significance of the gardens directly, or indirectly affected, by proposed repairs and maintenance work and recommend methods to minimise potential impacts on heritage fabric;
- prioritise conservation actions and best-practice methods for managing the exotic landscaped gardens and natural heritage, cultural heritage and scenic values;
- protect listed threatened species, populations and ecological communities under the EPBC Act, and maintain habitat connectivity and fauna corridors;
- establish an integrated strategy for ongoing management of views from the house balancing the competing objectives of protecting natural recruitment/ regrowth whilst managing views through selective pruning.

1.2 Background

This Vegetation Management Plan (VMP) has been prepared following discussions with Friends of Ninney Rise (FoNR), Cassowary Coast Regional Council (CCRC) staff and contractors, observations on-site (between 1-6 August 2019) and review of relevant legislation, policies and the recommendations of reports including:

- *The Ninney Rise and John Büsst Memorial, Bingil Bay, North Qld Conservation Management Plan* (CMP, August 2016) prepared by Michael Gunn Architects and Catherine Brouwer Landscape Architects;
- *Detailed Fabric Survey Report,* prepared by Emma Scragg Architect (Feb. 2018);
- *Draft Structural Investigation Report*, prepared by ARUP (2018);
- Application for Exemption Certificate for Development on a Queensland Heritage Place made by, or on behalf of, the Department of Environment and Science[1].

[1] Application approved in October 2019.
Proposed development refers to the original section of the house only and includes building and maintenance work to roof, guttering, downpipes, drain lines, site drainage, including gardens and around the house, (House surrounds and Garden Area G).

The Conservation Management Plan (CMP) sets out the context for future management and conservation:
"The place may be modified to suit changed functional requirements but not at the expense of the irretrievable loss of significant aspects of the house; garden; peripheral grounds and setting.
Continuity of use as a tropical house and garden provides the best possible opportunity for ensuring the cultural heritage values of the place are retained.
The place can be readily adapted to a Tropical House Museum for public visitation, interpreting the life and work of John and Alison Büsst whilst supporting supplementary low impact environmental educational and scientific activities.
The study recommends a process of carefully managed conservation; restoration and controlled adaptation of discreet parts to safeguard these compatible uses." (Gunn & Brouwer, p.14, 2016).

In accordance with the CMP, historic garden fabric (i.e. lawns, gardens, specimen trees) should be conserved and maintained to promote interpretation of the site's history. It is important however to note that the garden beds and embankments within Ninney Rise contain various overlays and accretions, which have been introduced over time (i.e. deliberately by design, or voluntarily through natural processes, including colonisation by native and exotic species). Garden beds and embankments, are largely dominated by exotic species, requiring management strategies to address existing and potential weed species, whilst promoting opportunities for natural and/or assisted recruitment and enhanced biodiversity outcomes for native vegetation.

1.3 Study area

Ninney Rise, located at 405 Alexander Drive and Esplanade, Bingil Bay, Queensland (Lot 539 NR 6887; Lot 1 ROAD0; Lot A RP730263), is owned by the Queensland Parks and Wildlife Service (QPWS) and currently leased by Friends of Ninney Rise (FoNR). The Ninney Rise site (1.98 Ha) and John Büsst Memorial (nearby), are state heritage-listed (Queensland Heritage Register #602499). It is also listed in the Cassowary Coast Regional Council (CCRC) Local Heritage Places Report (2013).

1.4 Subject site – four management zones

The Conservation Management Plan (CMP) identified ten separate landscaped areas (Areas A-J) within the grounds of the state heritage-listed property of Ninney Rise, Bingil Bay. In addition, the John Büsst Memorial located at Ninney Point, is identified as Area K. This VMP refers specifically to only four of these areas, described as the Management Zones, including the garden beds and vegetated embankments (Fig. 1):

1. immediately adjacent to the main dwelling – eastern and southern verandas and western lawn (CMP – Area G);
2. lower portion of the northern embankment (CMP – small portion of Area D);

3. top of eastern embankment adjacent to house (CMP – Area E); and
4. garden borders/ embankment adjacent to the pool lawn area and south-western entry (CMP – upper eastern portion of Area H).

Fig. 1. Ninney Rise, Bingil Bay property boundary (yellow line) and house (centre). Garden Areas (A-J) identified in the Conservation Management Plan (yellow dotted lines). The subject site for this Vegetation Management Plan includes Area G – lawns/gardens surrounding the house and Area E – eastern embankment (blue lines), and partially includes borders to Areas D and H (source: Gunn & Brouwer, Fig 62, p.52, 2016).

1.5 Proposed remedial and maintenance works

The proposed remedial and maintenance works to the building form the initial phase of implementation of Key Recommendations in the *Detailed Fabric Survey Report,* prepared by Emma Scragg Architect (February 2018), including resolving moisture sources and vegetation management issues. Specifically, these works include:

- roof sheeting replacement, box gutter upgrade and downpipes installation;
- new 100mm PVC underground pipes to ensure drainage away from house;
- ground profiling to existing finished grades around the house to improve surface drainage to improve falls away from the house;
- structural repairs to external verandas to remedy concrete spalling will be subject to a separate Exemption Certificate.

These proposed works will potentially impact only Area G:

- removal of garden beds and stone edging (Tode era), immediately adjacent to the house (i.e. eastern and southern verandas and western entry).

1.6 Interim landscape maintenance plan

An Interim Landscape Maintenance Plan (Selected Areas), dated 6/08/2019, was prepared by LandArc as a guide for proposed work by a CCRC Re-Vegetation Works Program Team prior to finalisation of this VMP Report. The Plan was developed in conjunction with CCRC Team Leaders and addressed urgent maintenance (including mowing/ slashing of weeds) immediately adjacent to the house, lower northern embankment and top of the eastern embankment. The work was consistent with the recommendations of recent investigative reports and the objectives of this VMP.

1.7 Key terminology

The following terms and definitions are used in this VMP:

- Study area – State-heritage listed property of Ninney Rise, located at 405 Alexander Drive and Esplanade, Bingil Bay, Queensland (Lot 539 NR 6887; Lot 1 ROAD0; Lot A RP730263) owned by the Queensland Parks and Wildlife Service (QPWS) and currently leased by Friends of Ninney Rise (FoNR).
- Subject site – the four management zones including the garden beds immediately adjacent to the house and vegetated embankments as described in Section 1.3.
- Proposed works – building works that may have a potential negative impact on existing historic garden fabric, recent plantings and some small areas of natural regrowth on embankments, as described in Section 1.4.
- Local occurrence – the ecological community that occurs within the study area, including adjacent areas forming part of a larger contiguous area of that ecological

community, which may facilitate the movement of individuals, key dispersal mechanisms and exchange of genetic material (e.g. southern cassowary);

- High Threat Exotic (HTE) an exotic species which poses a significant threat to managing or maintaining existing gardens and vegetation community;
- Transformer weed species – are highly invasive taxa with the potential to seriously alter the structure and function of the ecological community (e.g. Littoral Rainforest Critically Endangered ecological community);
- Recruitment – production of a subsequent generation of organisms (e.g. new individuals or species of plants within an ecological community) measured by the number that establish to adulthood in the population;
- Succession (ecological) – patterns of change and replacement occurring within and between ecosystems over time in response to disturbance or its absence (e.g. successional trajectories of ecological communities will vary after cyclone disturbances of different intensity or frequency);
- Assisted regeneration – the practice of fostering natural regeneration and recruitment after actively removing ecological impediments (e.g. invasive weed species) and minimising further disturbance and fragmentation);
- Maintenance (of a heritage item or place) – the continuous protective care of the fabric and setting of a place, distinguished from repair, which involves restoration or reconstruction;
- Restoration – the intent to return something to a prior condition (e.g. restoration of heritage garden fabric; or in the case of ecological restoration, restoring a species, a population or ecosystem function);
- Level of Significance (i.e. relative importance of areas and elements) within Ninney Rise and recommended conservation measures (Gunn & Brouwer, p.73, 2016):
  - Level A (Considerable significance). This fabric is crucial to understanding the places and should be preserved and maintained. Restoration and reconstruction are appropriate;
  - Level B (Some significance). This fabric is not original, rare or remarkable within the State heritage context and relates to fewer criteria for cultural significance. Fabric should also be preserved and maintained but it can accept unobtrusive, minor development change if sensitively applied and to a limited extent;
  - Level C (Little or no significance), or due to substantial loss of integrity, this fabric does not contribute to the cultural significance of the place. It is neither significant nor intrusive. Fabric with no significance can be removed as required;
  - Level D (Intrusive elements). This fabric detracts from or obscures the cultural significance of the place and should be removed and where applicable to enable restoration and/or reconstruction of original or significant elements.

2. Site context and heritage significance

J.S. Kerr notes in his introduction to preparing a CMP "a conservation plan is a document which sets out what is significant in a place and, consequently, what policies are appropriate to enable that significance to be retained in its future use and development. For most places it deals with the management of change" (Kerr, ICOMOS Conservation Plan 7th Ed., 2013).

2.1 Ninney Rise – State significance

The residence at Ninney Rise was built by John Büsst, artist and environmentalist, and his wife, Alison, in 1959-1961 on the site of the former Cutten family estate. This is an outstanding elevated site with commanding views over the Bingil Bay coastline, Bicton Hill and Clump Mountain. It is set within a lush, tropical setting, where the rainforest meets the reef. Ninney Rise is significant as a key place of environmental activism during the 1960-70s period, where formative campaigns were developed by John and Alison Büsst to save both the reef and lowland tropical rainforests of north Queensland. This place is also significant for its associations with Büsst's life-long friend, Harold Holt and Büsst's work with leading scientists and rainforest conservationists, Dr Len Webb and Geoff Tracey (Queensland State Heritage Register, 2010). Ninney Rise is a rare example of a substantially intact mid-to late twentieth century coastal tropical country house and garden retaining evidence of the lives and activities of former owners (Gunn & Brouwer, p.9, 2016).

The CMP summarises the significance of Ninney Rise:

- "science and culture (science; ecology; art; music; aesthetics)
- a specific place (Great Barrier Reef and rainforest);
- specific activities (environmental history / activism; innovation; nature-based tourism);
- specific processes (best practice, collaboration); and
- above all, Ninney Rise is all about John Büsst, he is axiomatic to the place (Gunn & Brouwer, p.84, 2016).

2.2 Büsst period – open lawns and panoramic views (1959-1979)

Construction works for the house included extensive earthworks (cut and fill). These works significantly modified soil profiles and vegetation along the eastern embankment (Fig. 2). During the Büsst period, the house was maintained within an open context of sweeping lawns with largely uninterrupted views from the eastern and southern side of the house (Fig. 3). The Büssts established exotic tree plantings along the driveway and some planting near the house but kept expansive views "to the ocean and Bicton Hill/ Clump Mountain" (Gunn & Brouwer, p.28, 2016). Native regrowth remained highly controlled (slashed) and planting directly adjacent to external verandas was generally sparse, providing a very open curtilage to the house. Don Perks, the Büsst's gardener (largely mowing) was employed to maintain the grounds (Gunn & Brouwer, p.29, 2016; Dove, G, pers. comm., 2019).

Fig. 2. Aerial view c.1960-61. Extensive earthworks and the new building on the elevated site platform. The eastern embankment was highly modified with dumping of excavated material and profiling for the access track to the beach. Native regrowth is evident on the steep northern hillside (Gunn & Brouwer, Fig 25, p.27, 2016, Peter Kellett collection)

Fig. 3 View from pineapple plantation c.1960s. Following construction of the house, the Büssts maintained the open, panoramic vistas from the house and gardens. This expansive outlook has changed dramatically over the past 30 years. The visual character now has an enclosed, intimate feel due to the extent of native rainforest regrowth (Liz Gallie, FofNR collection).

Alison and John Büsst planted exotics such as African Tulip *(Spathodea campanulata),* Pink-flowering Hibiscus *(Hibiscus rosa-sinensis),* Singapore daisy *(Sphagneticola trilobata),* ferns and pineapples (Gunn & Brouwer, p.50, 2016; Dove, G., pers. comm., 2019). Two of these species, the African tulip and Singapore daisy are now significant environmental and transformer weeds, scheduled as High Threat Exotics (HTE) in this VMP. The cultivated African Tulips *(Spathodea campanulata)* and colonising seedlings and saplings of this species were removed by QPWS (Gunn & Brouwer, p.55, 2016).

Fig. 4a.

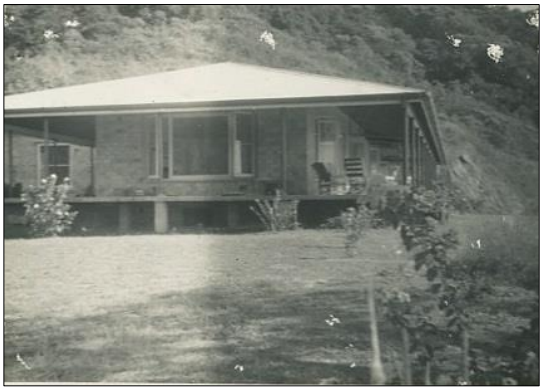

Fig. 4b.

Fig. 4c.

Fig. 4d.

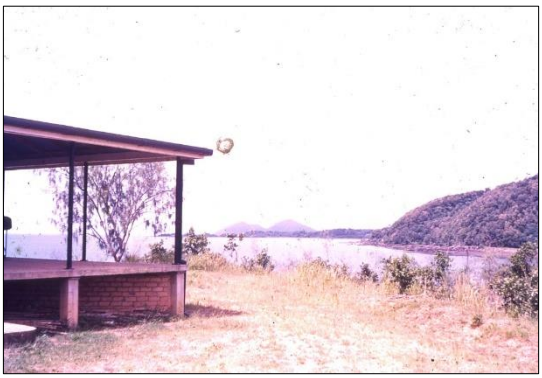

Fig. 4e.

Fig. 4f.

Figs. 4. (a-f). (a) View over eastern lawn from north-east corner (near track to beach); (b) southern lawn looking towards southern veranda; (c) John Büsst on southern lawn next to planted flowering Hibiscus and coastal she-oak (*Casuarina equisetifolia)* (b/g on left); (d) John Büsst on western lawn near entry steps; (e) panoramic views from house and southern veranda; (f) unformed driveway/ western entry to house, in foreground a planted traveller's palm *(Ravenala madagascariensis)* and unidentified climbers on western courtyard fence and facade. The Büssts maintained an open character around the house with occasional shrub planting in lawn areas, including a pink-flowering hibiscus, likely 'Seminole pink' *(Hibiscus rosa-sinensis),* and some low perennials along the eastern, southern and western external verandas. Images c. late 1960s. The colour images suggest drought conditions – possibly 1968/ Aug-Dec period recorded rainfall well below average (BOM rainfall data, viewed online October 2019). (Liz Gallie, FofNR collection)

Fig. 5a.

Fig. 5b.

Fig. 5c.

Fig. 5d.

Fig. 5e.

Fig. 5f.

Figs. 5. (a-f). Images c. early 1970s. (a) View of the western entry steps showing gingers (possibly *Alpinia zerumbet*) (on left) and bougainvillea *(Bougainvillea glabra)* (on right); (b) western veranda bougainvillea trained onto veranda posts and planted *Heliconia* sp.) (on left); (c) open panoramic views, bougainvillea and possibly white-flowering pentas (*Pentas lanceolata* cv.) (right b/g); (d) view from the southern veranda overlooking the lawn with planted hibiscus *(Hibiscus rosa-sinensis)*; (e) southern lawn showing open views with regenerating littoral rainforest. Note: dead coastal she-oak *(Casuarina equisetifolia)* (on left) – this tree was alive in earlier images (4c-f); (f) open views from eastern veranda and possibly white pentas with other exotic species in foreground. (Liz Gallie, FofNR collection).

2.3 Kate Tode – exotic garden overlays (1979-1990)

After John Büsst died in 1971, Alison held on to the property for a further eight years before the sale to the American conservationist and philanthropist, Mrs Kate Tode in 1979. The name 'Ninney Rise' was adopted by Kate Tode, in reference to Ninney Point (Gunn & Brouwer, p.15, 2016). In 1980 she bequeathed her estate to the Crown "on the condition that the land and improvements be retained and maintained in a natural state (as far as possible) by the Queensland National Parks & Wildlife Service and for the enjoyment and benefit of the public" (Gunn & Brouwer, p.36, 2016).

Fig. 6. View of eastern veranda, lawn and embankment from southern lawn c.1979. The gardens next to the house and embankment vegetation show significant growth and encroachment on the lawn area. (Gunn & Brouwer, Fig. 35, p.34, 2016).

Fig. 7. View of western mown lawn area c.1979. A single cultivated *Schefflera actinophylla* (Umbrella Tree) is located near the house (since removed), dating from the Büsst period. (Liz Gallie, FofNR collection).

The house was repaired, modified and extended but the layout of internal spaces remained largely intact and many original elements and details have been retained, albeit in varying condition (Gunn & Brouwer, p.5, 2016). During this phase, the grounds were extensively planted by Kate Tode's gardener, Geoff Dove. Except for some older specimen tree plantings, the gardens are now largely a reflection of this period of planting. In 1983, Kate Tode gifted title for the rainforest lot (Lot 1 RP28545) to the Crown for National Park purposes and the land was later gazetted as Bingil Bay National Park (estate ID 44865) (Gunn & Brouwer, p.36, 2016). Kate Tode died in 1990 and Ninney Rise came under the control and management of Queensland Parks & Wildlife Service (QPWS) in 1996.

2.4 A State heritage-listed landscape (1996-present)

Over the past two decades the gardens have continued to evolve through natural growth, selection and regeneration, exotic weed invasion, varying maintenance regimes/ control measures, new planting and natural disturbances (including tropical cyclones Larry in 2006 and Yasi in 2011). Notwithstanding these changes, the grounds of Ninney Rise are still significant for their level of intactness and form an outstanding cultural heritage landscape within the backdrop of a natural heritage setting, as recognised by the Conservation Management Plan (CMP).

Regrowth communities of lowland mesophyll rainforest/ littoral rainforest adjoin the northern boundary of the subject site (within QPWS land). Littoral rainforest regrowth also occurs along the upper eastern embankment (within the subject site) and lower slope. In addition, lowland mesophyll rainforest recruitment/regrowth also occurs within the broader study area. This natural vegetation is recolonising and reclaiming garden borders, embankments and generally less maintained parts of the site. Although highly disturbed and modified by exotic weed invasion, Ninney Rise still retains a high level of ecological resilience providing opportunities for natural and assisted regeneration, restoration and recovery. The context of this relationship between constructed exotic gardens and the natural setting establish the basis for vegetation management and conservation practices described in this Vegetation Management Plan.

3. Methods

3.1 Literature and data review

3.1.1 Consistency with legislation and policy

This report has been prepared in accordance with the guidelines of Australia ICOMOS The Burra Charter, 2013 (the 'Burra Charter'), Queensland Department of Environment & Heritage Protection guidelines, policies and guidelines in the Conservation Management Plan (CMP), the Heritage Code and heritage overlays (Cassowary Coast Regional Council Planning Scheme 2015), statutory and safety requirements, and the Australian Natural Heritage Charter (1996), the latter document acknowledging the significance of the place and natural rainforest setting, its biodiversity, geodiversity and dynamic ecological processes.

Database records and relevant literature describing the ecology of the study area and surrounding locality were reviewed including, but not limited to:

- Pre-clearing Regional Ecosystems – Biodiversity Status (Lot: 539 Plan: NR6887);
- Remnant 2017 Regional Ecosystems – Biodiversity Status (Lot: 539 Plan: NR6887);
- Wet Tropics Potential Littoral Rainforest (sourced 26/10/2019: Terrain NRM);
- Mission Beach Littoral Rainforest Mapping (sourced 26/10/2019: Terrain NRM);
- Threatened species legislation (incl. Southern Cassowary Essential Habitat).

This VMP provides recommendations on landscape maintenance work within the relevant management zones and in relation to proposed maintenance and repair works, prioritising critical works within these areas of the site (e.g. grading around perimeter of house and removal of gardens/ vegetation which may compromise architectural and structural integrity; and implementing an effective strategy for managing views along the eastern slope adjacent to the house).

This report also provides a record of the works carried out to date, any fabric changes, conditions noted and the maintenance methods to carrying out the work.

3.2 Field survey

The field survey was conducted over the period 1-6 August 2019 to validate existing vegetation within the subject site, including identification of exotic plants (introduced to the site) and natural vegetation, presence within specific Areas, their condition, local occurrence/provenance and management issues (see APPENDIX A: Existing Plant Species List). Meetings were held with Friends of Ninney Rise (FoNR), Cassowary Coast Regional Council (CCRC) staff and contractors. The study area was also inspected on previous occasions including 2013 and 2017.

3.2.1 Field survey limitations

This survey is not intended to provide an inventory of all species present within the subject site. The survey and schedules (APPENDIX A) however provide an indication of the species observed at the time of inspection and assessment. It is important to note that some species may not have been detected (e.g. cryptic or seasonal spp. detectable only during flowering). In addition, my survey identification/results were compared with an earlier survey by Steve Price (QPWS), dated June 2018, which included all CMP Areas within Ninney Rise[2].

The assessment of natural heritage significance as a component of the multi-layered heritage context (i.e. elevated site, panoramic views, historic garden setting within littoral rainforest regrowth and biodiversity/ geodiversity values) has not been clearly articulated in the CMP. However, the significance of these elements should be carefully considered to ensure adequate protection of natural heritage values, particularly with respect to proposed actions, and issues such as retention or otherwise of high threat exotics, implementation of an integrated weed management strategy and arboricultural works. This VMP does not include an assessment of significance of natural heritage for the broader study area.

3.3 Existing native vegetation and context

John and Alison Büsst maintained an open visual character around the tropical house and gardens with extensive lawns. The images from this time show open vistas with little native vegetation within the immediate curtilage of the house. By comparison, the gardens and embankments surrounding the house now contain a high level of native regeneration, sapling recruitment and mature trees and palms. Notably, the property has been impacted by three tropical cyclones since construction – Cyclone Winifred (1986) (Category 3), and Severe Tropical Cyclones Larry (2006) (Category 4) and Yasi (2011) Category 4-5).

Regional Ecosystem mapping defines the remnant native vegetation community in the immediate area as “RE 7.12.1a: Mesophyll to notophyll vine forest. Lowlands and foothills of the very wet and wet rainfall zones. Granite and rhyolite. (BVG1M: 2a)” (Queensland Government, Department of Environment and Science, accessed: 14/10/2019). The lowland rainforest community occurring in the Mission Beach area, shows a high level of natural disturbance following successive severe cyclones within a five-year recurrence period.

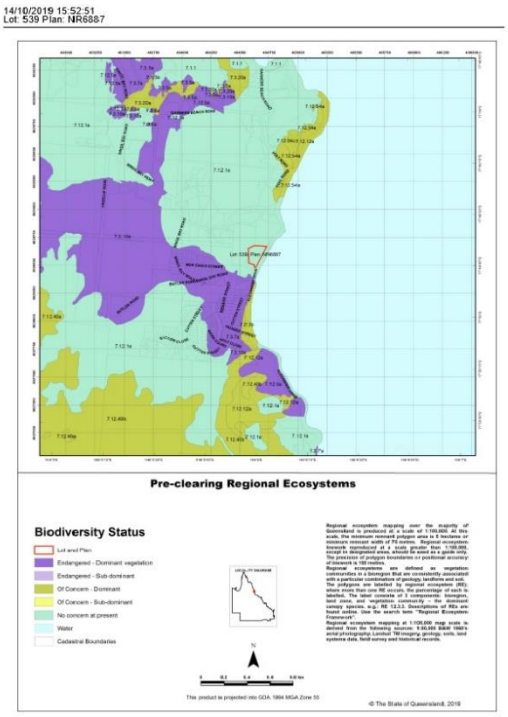

Fig. 8.

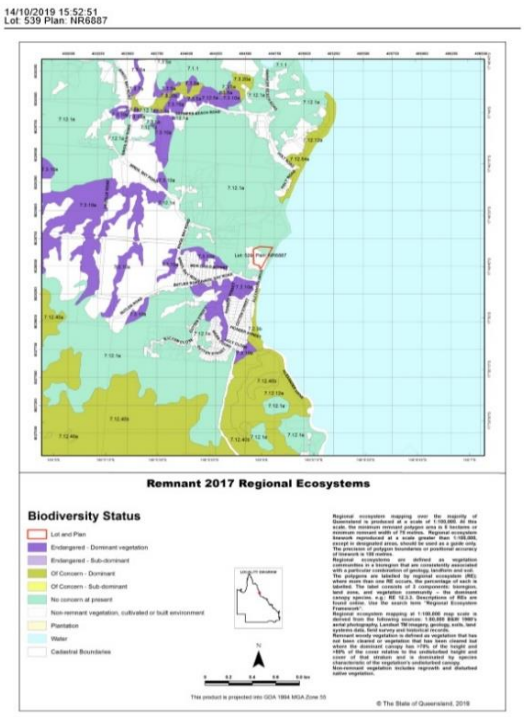

Fig. 9.

Fig. 10.

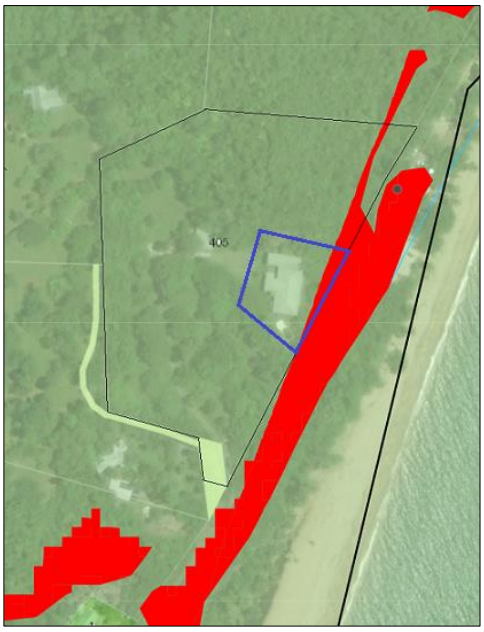

Fig. 11.

Fig. 8. Pre-clearing Regional Ecosystems Ninney Rise study area (red line). **Fig. 9.** Remnant 2017 Regional Ecosystems. **Fig. 10.** Ninney Rise study area (black line), house (pale green roofline) and subject site (blue line) includes gardens adjacent to the house and eastern embankment. Wet Tropics Potential Littoral Rainforest Map (lime green overlay) identifies potential occurrence of littoral rainforest. **Fig. 11.** Mission Beach Littoral Rainforest Map (red overlay) shows most of the eastern embankment and eastern portion of the subject site as littoral rainforest.

Mapped vegetation includes rainforest regrowth communities within the study area's northern and eastern boundaries (upper north-eastern embankment near the house). The littoral rainforest regrowth community along the eastern embankment however has been mapped as "Non-remnant vegetation, cultivated or built environment" due to the high level of past disturbance. Ground truthing however, identified a transitional regrowth community containing a large proportion of native species (local occurrence), which have recolonised the embankment in recent decades.

Terrain NRM's DIY Biodiversity Mapping Tool provides two maps showing potential and existing littoral rainforest in this location. The Wet Tropics Potential Littoral Rainforest Mapping covers the region broadly and identifies the potential occurrence of littoral rainforest within the area immediately north of the subject site (i.e. north of Area G) and along the lower embankment to the east of the boundary (Fig. 10.). The Mission Beach Littoral Rainforest Mapping provides a more precise method, specifically targeting the Mission Beach area. This map shows littoral rainforest is likely to occur within the north-eastern portion of Area G (i.e. top of embankment) extending to the south-eastern boundary of Area G (i.e. adjacent to the existing pool) and includes most of the embankment bordering the eastern boundary to the study area (Fig. 11).

The *Description and Condition Thresholds* in the Listing Advice, as defined under the Environment Protection & Biodiversity Act (EPBC Act 1999) are the definitive source for identifying this ecological community, rather than the remnant vegetation mapping and other vegetation mapping (O'Malley, T, pers. comm., 25/10/2019).

The survey confirmed that this vegetation currently contains a mix of cultivated exotic species (including environmental weed species), native pioneer species, and increasingly, recruitment of early-mid successional rainforest species (local occurrence). The findings suggest that the embankment (including part of Area G) has the potential to transition to a Littoral Rainforest community. This community would meet the *Description and Condition Thresholds* in the Listing Advice, as defined under the EPBC Act 1999, as Littoral Rainforest & Coastal Vine Thickets of Eastern Australia, a nationally threatened (Critically Endangered) ecological community.

4. Impact assessment and proposed methods for mitigating negative impacts

4.1 Summary of key issues and potential impacts

The gardens located immediately adjacent to the external verandas of the house, directly impact moisture levels in the building structure, facilitating rising damp, restricting ventilation, blocking gutters and downpipes, and exacerbating existing drainage issues. Rainwater currently flowing under the verandas is being blocked by raised stone edging to surrounding gardens beds. This stone work (Tode era) and the plants located in these garden beds provide a continuously moist environment which affects the structural integrity of the building.

The Detailed Fabric Survey identifies ten (10) separate high priority works "to mitigate further deterioration of significant elements and the structure as a whole" (Emma Scragg Architect, p.5, 2018). Vegetation management around the house is a key component in the broader strategy to improve maintenance and conservation of the building structure. The Detailed Fabric Survey specifically identified the following action: "grading ground around perimeter of house to drain away from the building and removal of vegetation which may compromise the building (with roots, dead limbs or overhanging branches)" (Emma Scragg Architect, p.5, 2018).

The Application for an Exemption Certificate (approved in October 2019) noted that these earthworks "will require removal of non-Büsst era gardens, around the veranda only, for the ground to be shaped to fall away from the house" (DES, p.4, 2019). It was also stated that: "limited plantings [are] to be re-established to the sparse Büsst era of the late 1960s, early 1970s, for which the place was heritage listed, in accordance with recommendations of Vegetation Management Plan" (DES, p.4., 2019). Furthermore, no vegetation other than lawn, will be disturbed as a result of earthworks for a new spoon drain along the base of the existing embankment on the northern side of the building.

4.2 Gardens immediately adjacent to the house (CMP – Area G) heritage fabric, condition and significance

4.2.1 CMP Area G – Summary of heritage fabric

The CMP states that the garden immediately adjacent to the external verandas was "formed first by the Büssts, then modified and added to by Kate Tode, then modified slightly under the QPWS management period." These narrow garden beds are edged with raised granite stones and attributed to the Tode period, constructed by Geoff Dove (Gunn

& Brouwer, p.56, 2016; Dove, G., pers. comm., 2019). The CMP also refers to two vine trellises located on the western side of the house, a shed or fernery, timber sleeper retaining wall and shrubbery along the tow of the hillside slope (northern side of house) but these items are no longer present (Gunn & Brouwer, p.58, 2016). Furthermore, a series of comparative images taken at the end of the Büsst era (c.1979) and 2015 show the dramatic changes to the layout of these garden beds and different species planted (Gunn & Brouwer, p.57, 2016). These differences are even more pronounced in the images taken in the late 1960s and early 1970s (Fig. 4. (a-f) and Fig. 5. (a-f).

4.2.2 CMP Area G – Condition assessment of heritage fabric

The CMP notes significant changes to all garden areas due to changing maintenance/ management regimes and cyclone damage (1986, 2006 and 2011). The changes have included new planting, colonisation by self-sown native plants and spread of invasive exotic weeds (Gunn & Brouwer, p.78, 2016). The garden beds in Area G were described: "in a deteriorated condition with some gaps where plants have died, other remnant plants overgrown in extent, and others in fair to poor condition." The garden edges were described as "in good condition" (Gunn & Brouwer, p.78, 2016).

4.2.3 CMP Area G – Grading significance of individual items (relative to VMP)

CMP Appendix B: Summary Schedules of Description, Condition and Significance (Area G) include the following items:

- Schedule A – Grounds Items (hardscape elements): and
- Schedule B – The Grounds Vegetation – House surrounds and pool.

No Level A items are listed for this area (Büsst era).

Level A (Considerable significance). This fabric is crucial to understanding the places and should be preserved and maintained. Restoration and reconstruction are appropriate.

Level B (Some significance – Tode era)

This fabric is not original, rare or remarkable within the State heritage context and relates to fewer criteria for cultural significance. The CMP however recommends that this fabric should also be preserved and maintained noting that it can accept unobtrusive, minor development change and only to a limited extent.

Schedule A: Grounds Items

- western courtyard stone edge – part overgrown with grass;
- stone edges - set in concrete flush with grass. Edges are around gardens along the east, south and west of the house.

Schedule B: The Grounds Vegetation

- ginger *(Alpinia* sp.) on top of embankment;
- garden tree and shrub edge to southern pool lawn (non-specific).

Level C (Little or no significance – Tode/ QPWS era)
This fabric does not contribute to the cultural significance of the place (in some instances, due to substantial loss of integrity). It is neither significant nor intrusive. Fabric with no significance can be removed as required.

Schedule B: The Grounds Vegetation (all in good health and condition)

- Alexandra palms (*Archontophoenix* sp.) on upper eastern embankment and southern side of pool lawn (Note: same item listed twice);
- scented phaleria (*Phaleria* sp.) top of eastern embankment/ pool area (QPWS);
- bottlebrush (*Callistemon* sp.) on western lawn adjacent to house (QPWS)

Level D (Intrusive elements – QPWS era)
This fabric detracts from or obscures the cultural significance of the place and should be removed and where applicable to enable restoration and/or reconstruction of original or significant elements.

Schedule A: Grounds Items

- Fence – star-picket posts/ metal mesh top of embankment (in very poor condition).

Schedule B: The Grounds Vegetation (all in good health and condition)

- Cedar Bay cherry or beach cherry (*Eugenia* sp.) top of eastern embankment.

4.2.4 Discussion – Significance and condition of stone-edged garden beds

CMP Appendix B: Summary Schedules of Description, Condition and Significance (Area G) identifies no fabric of Level A significance (i.e. relating to the Büsst era). Nevertheless, the CMP grades a broad range of elements (in varying condition), including the stone edging to garden beds, as having "some significance". Notably, the CMP provides no supporting documentation for these findings and attributed level of significance other than they date from the 1980s (Tode era). The levels of significance in Appendix B do not appear to be consistent with the broader findings of the CMP, which specifically states that: "*above all*, Ninney Rise is all about John Büsst – he is axiomatic to the place" (Gunn & Brouwer, p.84, 2016).

As previously stated, the stone edging and the plants located in these garden beds provide a continuously moist environment, affecting the structural integrity of the building. Informal raised rockery edges and flagging were typical of 1960s-1970s home landscaping and the style persisted into the 1980s-early 1990s. This type of edging was popular for pool-side and garden 'resort style' development during this period. Although planting immediately adjacent to the verandas and steps is evident in early 1970s images (Büsst period), the informal garden beds with raised stone edging in lawns is an additional overlay and accretion during the Kate Tode era.

Photographic evidence, including catalogued colour photo images from the late 1960s (Gallie, L., pers. comm., 5/08/2019), do not show a raised edge for any of the beds (see Figs. 4. and 5.). Geoff Dove, gardener for Kate Tode and QPWS, has also confirmed that

these garden beds were installed after pool construction. The granite stones were sourced from Harvey Creek overflow by Don Perks (employed as a gardener by the Büssts and transition to Kate Tode) (Dove, G., pers. comm., 23/09/2019). Collection of stones from local steams and creek beds for garden construction was typical of natural resource extraction and harvesting during the 1960s-1980s (e.g. rocks, gravel/ sand, flowering plants/ orchids, ferns, etc.). These historic practices of natural resource extraction invariably had a negative impact on stream ecology, biodiversity and functioning of these natural ecosystems.

The stone-edged garden beds surrounding the verandas include predominantly soft-stem perennials. The exotic plants located within these beds have received intermittent and variable maintenance input (including glyphosate herbicidal applications, 'weed-eater' slashing/edging, hand-weeding and mowing) since the Kate Tode era (1979-1990) and following the transfer to QPWS.

The catalogued images confirm a very high level of turn-over in these garden beds. It has been suggested that some existing perennial plants (e.g. white-flowering pentas (*Pentas lanceolata* cv.), bridal veil *(Clerodendrum wallichii)* and gloriosa lily (*Gloriosa superba*)) date from the Büsst era (O'Malley, pers. comm., 2019). Figs. 5.(c) and (f) would appear to confirm that this particular cultivar of *Pentas lanceolata* was planted by the Büssts. Notably, it is still present in the southern garden bed (adjacent to southern veranda – SW corner). This species was not listed in the plant schedules for Area G, prepared by Steve Price, QPWS (October 2018). The other two species identified as Büsst/Tode era in the 2018 schedule still exist in these garden beds. It is not clear however whether both species date from the Büsst era. One of these species, gloriosa lily *(Gloriosa superba),* a cryptic exotic and environmental weed species, has spread to the eastern embankment.

The fast-growing, mat-forming groundcover and environmental weed species, Singapore daisy *(Sphagneticola trilobata)* was not recorded in Area G but is found in adjacent beds/embankment areas and is likely to be reintroduced to these garden beds at some stage. This species has spread throughout the grounds of Ninney Rise, and with respect to the subject site, has smothered both native and exotic plants along the top of the eastern embankment (Area E), lower northern embankment (Area D) and borders adjacent to the pool area and western lawn (Area H). Although this exotic and naturalised species (now scheduled as a Class 3 – environmental weed), is believed to be an original Büsst era planting, it is not clear as to its earliest occurrence in the Bingil Bay/ Mission Beach area. Nevertheless, some doubt exists over the timing of its introduction into the Wet Tropics Bioregion. This species was first recorded in 1987 (Goosem, S., Naturalised Plant List - Wet Tropics Bioregion, 2007).

Other species previously scheduled for Area G, attributed to Büsst/ Tode and considered to have 'high value to Ninney Rise', include red palm lily (*Cordyline fruticosa*), crepe ginger

(*Costus speciosus*), scaly tree fern (*Cyathea cooperi*), cycad palm (*Cycas media*), dragon tree (*Dracaena marginata*), golden cane palm (*Dypsis lutescens*), heliconia (*Heliconia* sp.), beach spider lily (*Hymenocallis littoralis*), philodendron (*Philodendron* sp.) and fish-bone fern (*Nephrolepis cordifolia)* (Price, S., June 2018). The native Sword fern *(Nephrolepis hirsutula)*, is likely to have a cultivated origin. This species is common throughout Ninney Rise, particularly along edges to garden beds and embankments (including Areas G, D, E and H). Notably, this fern appears in native species lists within the region (Jago, R., SGAP, Ella Bay Plant Species List, 2009).

Images of the gardens in Area G, taken during the Büsst era, confirm that the above species can be attributed to the Tode era or later (Dove/ QPWS). Other introductions/ overlays by Geoff Dove (after 1979) include palm-lily *(Cordyline cannifolia),* weevil lily *(Molineria capitulata* syn. *Curculigo capitulata),* cedar bay cherry *(Eugenia reinwardtiana)* and spiny-headed mat-rush (shown as *Lomandra longifolia* but more likely *L. hystrix*). The native toothache tree (small specimen) *(Melicope vitiflora)* appears to be recent natural recruitment. The introduced silver fern *(Pityrogramma calomelanos* var. *calomelanos),* located in the eastern garden beds (Area G), is a high threat exotic (HTE), known to freely colonise littoral rainforest in the Mission Beach area.

The garden beds in Area G appear to retain at least one soft-stem planted perennial, the white-flowering pentas (*Pentas lanceolata* cv.) dating from the Büsst era. It is possible that two other similar soft-stemmed exotics, bridal veil *(Clerodendrum wallichii)* and gloriosa lily (*Gloriosa superba*) were also planted during this era. However, the changing maintenance regimes and introduction of many different generic native and exotic species in recent decades have left these beds in very poor condition. A total of 47 species of plants were recorded in Area G garden beds (5/08/2109), of which 15 species, almost 1/3 are exotic environmental weeds, and 4 species are considered high threat exotics (HTE).

The CMP assessment of “some heritage significance” for the stone-edged garden beds, relates only to the Tode era and not the Büsst era. These garden beds are considered either a neutral or intrusive element. Therefore, this VMP recommends removal to facilitate necessary maintenance works on the heritage fabric of the building.

Fig. 12a.

Fig. 12b.

Fig. 12c.

Fig. 12d.

Fig. 12e.

Fig. 12f.

Figs. 12. (a-f). Images taken 1-6 August 2019. (a) View of the eastern lawn area with stone-edged gardens (Area G) (on left) and embankment (Area E) (on right); (b) view looking south over eastern lawn and embankment; (c) pool lawn and embankment vegetation/ littoral rainforest regrowth (on right) looking north; (d) view looking south-east from southern veranda over southern lawn area/pool and dense littoral rainforest regrowth; (e) view from south-western corner towards western lawn area (Area H on left) with white-flowering pentas *(Pentas lanceolata)* (right foreground); (f) western lawn area with planted bottlebrush (*Callistemon* sp.) (centre). (All images LandArc).

5. Action plan

5.1 Preliminaries

5.1.1 Work health and safety (WHS) Act and regulations

All work in relation to vegetation/ tree management and garden maintenance activities must ensure the following:

- safe work method statements (SWMS) and safety risk assessments are in place;
- team members have been consulted and briefed on SWMS;
- any activity not in line with an applicable SWMS is stopped (as soon as possible);
- garden maintenance workers have completed induction training;
- expected site conditions considered as part of pre-activity planning;
- confirm the area and boundaries (i.e. subject site) for designated activities;
- consider any site-specific hazards that may exist, and any actions required;
- on-site supervision is appropriate for activities (e.g. arboricultural work, bush regeneration/ restoration works, and horticultural skills);
- arboricultural work is supervised by a qualified and experienced arborist (minimum AQF Level 3) and the team has the necessary skills and experience required for the tasks (e.g. plant and equipment, work at height, work near services);
- supervise and provide coaching, instruction and/ or correction as needed;
- ensure that the safety reporting process is followed.

5.1.2 Recording substantial garden works affecting heritage fabric

Vegetation management and garden works, of a substantial nature, that affect or alter heritage fabric, other than regular landscape maintenance (such as weeding, fertilising, minor pruning, mowing and edge maintenance, cleaning, and rubbish removal) should be recorded, including photos (before and after works were completed). These maintenance records (including images) should be provided to Friends of Ninney Rise on completion of the substantial works.

This procedure is in accordance with CMP "Policy 30: All substantial maintenance work on the heritage fabric, including on the vegetation, should be recorded regularly. Regular maintenance tasks need only be noted briefly with general notes" (Gunn & Brouwer, p.101, 2016).

5.2 Vegetation management – general principles

- Area G (garden beds adjacent to house);
- Area E (eastern embankment);
- Area D (lower northern embankment); and
- Area H (upper southern embankment).

5.2.1 Implementation of best-practice standards and guidelines

Implement strategies to assist, restore and enhance Littoral Rainforest recovery so that these areas meet the threshold condition criteria for this Critically Endangered ecological community. Weed management, natural and assisted regeneration and restoration works in these areas are to be in accordance with best practice standards and guidelines, including the National Standards for the Practice of Ecological Restoration in Australia (SERA, 2017).

5.2.2 Prioritising high threat exotic weeds and transformer weed species

Ensure that high threat (HTE) exotics and/or transformer weeds are addressed as a priority in this Vegetation Management Plan and that the extent and severity of these weeds is significantly reduced and, where possible eliminated, from these areas.

5.2.3 Improving landscape connectivity, habitat quality and condition

Prioritise objectives for enhancing ecological integrity and function of Littoral Rainforest vegetation through natural and assisted regeneration and restoration processes to improve landscape connectivity, habitat diversity and condition.

5.2.4 Use locally occurring species in sourced plant stock

Use existing local resources (such as the C4 nursery at Mission Beach) in the supply and procurement of locally occurring (local provenance) native species, particularly focussing on groundcovers and forbs for use along edges and borders to these areas.

5.2.5 Supervision and community group involvement

Support and encourage supervised community group involvement in weed management, assisted regeneration and restoration techniques. Promote opportunities for professional bush regenerators (CCRC, QPWS or private contractors) to supervise and work alongside volunteers to enable transfer of skills, knowledge and identification of local native species and exotic weeds.

5.2.6 Composting, recycling and mulching

Establish an on-site area for vegetation composting and recycling. Composted leaf litter and soft-stem vegetation should be used for mulching garden beds and embankment areas, particularly along disturbed edges and borders next to flush timber mowing strips. Do not retain, compost or re-use any exotic weed species (including all vegetative parts) removed from the garden beds or embankments. These species are to be bagged and removed from the site.

5.2.7 Exotic planting and heritage garden fabric

The exotic gardens and broader vegetation context surrounding the house have changed dramatically over recent decades. This Vegetation Management Plan focusses on weed management, natural and assisted regeneration and restoration works to facilitate

recovery of the listed Critically Endangered Littoral Rainforest community. This plan does not propose reconstruction of the gardens associated with the Büsst or Tode periods within the subject site (i.e. Areas G, E and portions of Areas D and H).

Planting of exotic garden species/cultivars should be discouraged as most of these species pose a significant threat to managing the existing vegetation. Two species/ cultivars however should be considered for propagation and planting – pink-flowering hibiscus, 'Seminole pink' *(Hibiscus rosa-sinensis)* and white-flowering pentas (*Pentas lanceolata* cv.). Both plants are known to have been planted by the Büssts in the 1960s and still present on site (NE corner of eastern embankment and southern lawn area respectively). Cuttings of the hibiscus should be collected for propagation and grown on in a nursery for planting at Ninney Rise, possibly within the western lawn area adjacent to the house.

5.3 Area G – Gardens adjacent to house

5.3.1 Removal of stone-edging and garden beds adjacent to verandas

Remove all raised stone edging (Tode era) to garden beds around perimeter of house to improve opportunities for drainage and improved ventilation. Take a photographic record of granite stone edging before and after these works are completed. Do not store or reinstate the stone edging. Return stones to their place of extraction at Harvey Creek overflow. These are items of natural heritage (i.e. geodiversity and biodiversity values).

Carefully remove and pot-up 1 X soft-stemmed perennial, white-flowering pentas (*Pentas lanceolata* cv.) located in southern bed, dating from the Büsst era, and 1 X soft-stemmed perennial, bridal veil *(Clerodendrum wallichii)*, located in eastern bed, and likely planted in Tode era. Protect and maintain these plants in good condition in a nursery (holding) facility for re-introduction to a selected location near the house following maintenance works. Do not protect or propagate the other Büsst/ Tode era plant (Area G) and environmental weed, gloriosa lily (*Gloriosa superba*).

5.3.2 Replace garden beds with lawn

Re-profile final grades for adequate falls. Construct treated pine or hardwood timber edging as mowing strip directly below edge of external verandas and set flush with adjacent lawns. Flush edge will facilitate mowing and reduce edging maintenance. Do not use concrete edge strips as suggested in the CMP as these elements would be considered intrusive. Establish a clean edge to the lawn/ veranda interface with no further planting in these locations (i.e. to under-croft area).

5.3.3 Maintain unobstructed ventilation and improved drainage

It is important to maintain unobstructed free air-flow and ventilation under the verandas and eliminate low-points or localised high points which may impede surface groundwater.

5.3.4 Management of trees and shrubs in western lawn (adjacent to house)

Remove 1 X semi-mature bottlebrush (*Callistemon* sp.) on western lawn. This small tree is a generic native planting (QPWS) with no provenance to this location (i.e. not local occurrence). It is considered an intrusive element impacting on the view lines and heritage fabric of the house. Retain the clustered groupings of the exotic red palm lily (*Cordyline fruticosa* 'Rubra') in the lawn area, adjacent to the western courtyard. Mulch around their bases. These mature exotics are likely Tode era additions but are consistent with gardens adjoining western lawn. Long-term retention however may be affected by repairs and/ or maintenance issues relating to the house.

5.4 Area E – Eastern embankment (upper level)

5.4.1 Remove star-steel posts/ rusted wire (QPWS) and replace safety fencing

Refer to 5.1 Preliminaries and ensure that safe work method statements (SWMS) and safety risk assessments are in place for work along the top of the steep embankment. Works in this area should be a priority and they should set the overall approach to maintaining vegetation and gardens within the subject site.

Remove rusted and damaged star-steel posts, wire and any cement footings. Following initial weed removal, replace existing fence with new hardwood timber post/ rail and 4-strand galvanised wire (tensioned) safety fence or equivalent to relevant safety standards along top of embankment between NE corner (near old track) and SE corner (near the pool). Construct returns on slope to secure and make safe for the public.

5.4.2 Remove exotic shrub border (QPWS) and exotic weeds (initial work)

Remove (dig-out) the row of cedar bay cherry (*Eugenia reinwardtiana*) along existing fence-line to re-establish sight-line along top of embankment. Take care to protect and manage all locally occurring native recruitment and sapling regeneration, unless otherwise indicated in this section (see APPENDIX A: Plant Schedule and section 5.4.7). Selectively remove all weeds by hand along fence-line taking care to retain and prune yellow allamanda (*Allamanda cathartica*) using secateurs to form a low hedge. This environmental weed will need to be managed and controlled on a regular basis. Long-term retention would be subject to further review.

5.4.3 Establish flush mowing edges to lawn area and mulching

Construct treated pine or hardwood timber edging mowing strip directly below fence-line and set flush with adjacent lawns. Reinstate lawns as necessary. Flush edge will facilitate mowing and reduce edging maintenance (same edging as in section 5.3.2). Following initial removal and follow-up weeding of Singapore daisy (see section 5.4.4), regularly top-up/replace mulch (~40mm depth) along borders (edges) to lawns (see section 5.2.6).

5.4.4 Removal of Singapore daisy – long-term (embankment) strategy

Singapore daisy *(Sphagneticola trilobata)* is a high threat exotic and transformer weed species (Schedule 1: Restricted Matter Category 3 in CCRC Draft Local Area Biosecurity Plan 2019-2023), and high priority species for vegetation/garden management. The weed management approach for this species must be based on a long-term strategy and commitment to changing the dynamics and structure of this vegetation community (i.e. early-to-mid successional littoral rainforest currently impacted by these weeds). The objective is total eradication of this weed species in this area rather than ongoing management and control which delivers no long-term benefit, and simply maintains a disturbance regime with ongoing high maintenance costs.

Initially, remove the Singapore daisy by hand, pulling back the bulk of plant material to expose the extent of established vegetative growth (i.e. nodes embedded in the soil) taking care to protect any native recruitment (including seedlings, saplings, vines and ferns). Investigate and assess the extent of rooting nodes, past soil disturbance (e.g. folded soil profiles), moisture levels and capacity of the disturbed soil to retain buried pieces of this weed. Management options should be assessed by a supervisor with qualifications and skills in bush regeneration and weed management.

Follow one of two management options based on the assessment:

Option 1: If the Singapore daisy's vegetative parts (including rooted and unrooted nodes) appear to be only lightly embedded within the top layer of topsoil (rather than deeply embedded in the soil profile), commence tracing out these nodes and removing all parts by hand and/or trowel. Some vegetative parts are likely to remain after this first exercise. It is important to take a slow and methodical approach. Avoid leaving any plant parts remaining within or on the soil surface. Bag all vegetative parts for removal off-site. This approach may require significant resources (team hours) initially, but over time, will deliver substantial reductions in maintenance costs. Follow up regularly (particularly after rain) and repeat the process as required (i.e. tracing vegetative parts, removal by hand, bagging and removal from the site). Over 12 months significant and sustainable changes should be evident. Follow up monitoring and maintenance will still be required but significantly reduced over time. This option uses no glyphosate herbicidal applications.

Option 2: If the vegetative parts and rooted nodes of this species appear to be embedded deeply within the soil profile, it may be preferable to wait (after initial disturbance/ removal) and allow some growth again before applying a glyphosate herbicide. This application may need to be repeated until this species is eradicated on the embankment. This approach using chemicals is not the preferred option as it is more likely to simply maintain a disturbance regime rather than facilitating change and reducing maintenance costs. Care needs to be taken in a targeted application of herbicide (i.e. no spraying) to ensure that native regrowth, including ferns, forbs, seedlings, etc. are not damaged with each application.

5.4.5 Removal of other high threat exotics – long-term (embankment) strategy

Other high threat exotic (HTE) vines/ climbers such as stinking passionfruit *(Passiflora foetida),* and centro *(Centrosema molle)* should be sourced (i.e. trace the location(s) of stems and all roots in the soil) and removed by hand/trowel and/or digging out the roots with a shovel.

Some climbing species, such as variegated golden giant pothos *(Epipremnum pinnatum* var. *aureum)* are hemi-epiphytes (in this instance, a secondary epiphyte or root-climber) which start life as a rooted vine on the forest floor. This fast-growing, large-leaved exotic species/cultivar initially grows up a tree trunk, later breaking its connection (i.e. roots) to the ground. Over time, this species may also send roots back down the host tree's trunk, re-establish roots on the ground and spread vegetatively or by seed. Management of this exotic species requires removal of all roots and vegetative parts from the host tree or palm. This variegated exotic cultivar should not be confused with the local native rainforest species, native monstera (*Epipremnum pinnatum)* and *Rhaphidophora* spp. (including *R. australasica* and *R. hayi*) which are present in the lowland and littoral rainforests of Mission Beach (and likely within Ninney Rise).

A single, small sapling coral berry *(Ardisia crenata)* (NE portion of embankment) should be an urgent priority for removal (i.e. dig-out all roots and remove from the site). This ornamental species flowers and fruits after 2-3 years and is dispersed by birds, including the southern cassowary. It is a high threat exotic (HTE) and transformer weed species. Unfortunately, it has been confused with *Ardisia brevipedata*, a locally occurring native rainforest species, and was recently under propagation as native tube-stock at C4.

The clumping exotic species, shell ginger *(Alpinia zerumbet)* (a likely Büsst era planting near the western entry steps), is growing on the embankment in discrete bularge groupings. This species is invasive and will continue to expand vegetatively and set seed if it is not managed. It is recommended that each of the groups/clusters are substantially reduced in size and area (i.e. approx. 50-70% of existing cluster size). The growth and expansion of this species should be monitored over 12-24 months to determine if it should be retained and managed as an exotic garden component or phased out altogether.

5.4.6 Management of other exotic seedlings and perennial weeds

Remove all seedling yellow poinciana *(Peltophorum pterocarpum).* A large specimen, and the parent tree, possibly planted during the Büsst era (but more likely Tode era), is located within Area H (near the western lawn/ entry steps). This species is rapidly colonising the eastern embankment and all garden areas within the subject site and should be targeted for control on a regular basis. The CMP assessed this mature tree as Level A (Considerable significance) based on the assumption it may be a Büsst era planting.

All perennial exotic weeds should be removed by hand (stems and all roots) from the upper embankment on a regular basis to minimise opportunities for further seeding and recruitment of this cohort. Weeds should be removed and bagged before they set seed. Do not control these weeds by spraying with glyphosate herbicide.

5.4.7 Management of native recruitment (seedlings, saplings and palms)

Protect embankment from further disturbance and removal of native vegetation (littoral rainforest regrowth). Retain and protect (particularly during initial weeding/removal of Singapore daisy) all native palm regrowth (seedlings, immature and adult palms), including solitaire palms (*Ptychosperma elegans*) and Alexandra palms (*Archontophoenix alexandrae*). Retain small sapling ochrosia *(Ochrosia elliptica,)* or possibly *Cerbera* sp., (not verified in current survey) at northern end of embankment. Do not prune at this stage. This species/ family (Apocynaceae) has significance in the context of discussions at Ninney Rise in the 1960s between Dr. Len Webb and John Büsst, and scientific investigation into its chemical properties and uses (O'Malley, T., pers. comm., 2019; Cribb 1981).

Cut sapling regrowth (up to 3-4m height) at bases, including blush macaranga or kamala (*Macaranga tanarius*), brown macaranga *(Macaranga involucrata* var. *mallotoides),* and umbrella cheese tree *(Glochidion sumatranum)* located along top of embankment (i.e. north-eastern corner to mid-eastern area) and along fence-line. Manage regrowth with regular pruning/ removing stems to near base. Do not apply glyphosate herbicide to cut stems or dig out basal stems. Avoid further soil disturbance and destabilisation on steep upper embankment. Similarly, retain immature *Ficus opposita* (sandpaper fig) and manage growth with regular pruning. Do not apply herbicide to cut stems.

Retain the clustered understorey group of northern yellow boxwood *(Planchonella obovata),* Harvey's buttonwood *(Glochidion harveyanum var. harveyanum)* and ivory basswood *(Polyscias australiana)*. Minimise pruning and further disturbance to this group of early to mid-successional littoral rainforest species.

Remove single seedling/sapling Mission Beach satinash *(Syzygium alliiligneum),* likely planted, and milky pine *(Alstonia scholaris),* located in NE corner of embankment, near the coral berry *(Ardisia crenata)*. Both trees are potentially tall canopy/ emergent species and not suited to this location close to the house (I.e. on exposed eastern embankment).

Continue to monitor the eastern embankment for weed growth, particularly Singapore daisy. Once this weed species has been totally eradicated from this area, consider restoration planting along edges to lawn area focussing on a continuous swathe of native Sword fern *(Nephrolepis hirsutula)*. Do not plant too early as this may compromise the long-term strategy for weed management. Note that this robust native fern species is common throughout Ninney Rise and would reinforce the heritage fabric of the gardens and provide consistency with restoration of the littoral rainforest community. Refer to section 6.1.1 for Schedule of Proposed Restoration Planting.

5.4.8 Management of exotic planting (Tode era) and taller shrub regrowth

Selectively prune to reduce overhang to the lawn area, all smaller stemmed exotic regrowth at top of embankment, including the taller shrub group (up to 4-6m height) at southern end of eastern veranda. This group includes planted native beach premna *(Premna serratifolia)* and scented phaleria *(Phaleria clerodendron)* mixed with natural recruitment of *Macaranga* spp., yellow evodia *(Melicope xanthoxyloides)* and umbrella cheese tree *(Glochidion sumatranum).*

5.4.9 Arboricultural work (selective pruning) in south-east corner of embankment

The vegetation community (including natural recruitment of seedlings/saplings and vines), located on the eastern embankment, are consistent with the definitions, species mixes and condition thresholds for listing under the EPBC Act as Littoral Rainforest and Coastal Vine Thickets of Eastern Australia, a Critically Endangered ecological community.

Significant historic views over Bingil Bay and to Clump Mountain however have been lost over time with natural recruitment and regrowth occurring on the steep eastern and southern embankments in recent decades. Cyclone damage and vine growth has promoted dense cover within the understorey and mid- to lower crowns of larger trees, further restricting views.

This Vegetation Management Plan recommends selective pruning to create discrete views, particularly within the south-eastern corner of Area E (eastern embankment) and the southern embankment (i.e. portion of Area H near the pool lawn). All proposed pruning work should ensure that disturbance and habitat fragmentation are minimised to avoid any loss of biodiversity or opportunities for further weed invasion.

All arboricultural works are to be supervised by a qualified and experienced Arborist (minimum AQF Level 3) and in accordance with the Australian Standard AS 4373-2007 *Pruning of Amenity Trees.* Selective under-pruning should be in the form of crown lifting/ reduction of overhang with the objective to create and maintain discrete framed views through the tree canopy (i.e. not open panoramic views) ensuring that large gaps in canopy cover are not created. Pruning work should not include lopping/ topping of any trees on the embankment or removal of large lianas (e.g. *Entada phaseoloides).* Cutting of lianas must be restricted to stems <50mm diameter. Maturing canopy trees on the mid- and upper embankment should be allowed to grow to expected mature heights. The focus should be on selective under-pruning only.

NOTE: Selective pruning of vegetation may trigger the requirement for an Assessment of Significance Impact Criteria for threatened species and ecological communities.

5.4.10 Plant hygiene and minimising impact of exotic pathogens

Avoid introduction of exotic soil-borne fungal pathogens (e.g. myrtle rust *(Puccinia psidii))* and root-rot pathogens (e.g. *Phellinus* sp., *Fusarium* sp., *Phytophthora* sp.) which may impact upon the integrity and survival of the littoral rainforest regrowth community. Implement best practice procedures and protocols for plant hygiene (e.g. working in natural areas, equipment and tools) to minimise potential impacts in accordance with the National Standards for the Practice of Ecological Restoration in Australia (SERA, 2017).

5.5 Area D – Lower northern embankment (adjacent to house and eastern lawn)

5.5.1 Vegetation management objectives for this area

This portion of Area D – lower northern embankment (approx. 4-5m in width) is set-back from a narrow passageway along the northern side of the house. This area has a long history of disturbance. Existing vegetation includes a mix of native recruitment (seedling trees, vines and ferns), generic native planting by QPWS (i.e. native species with no local provenance or not locally occurring) and exotic weed species, including transformer weed species. The objectives are to maintain clearances to the house, restrict tall canopy cover impacting the roofline and eaves, manage weed growth, enhance local native vegetation and reduce long-term maintenance costs.

5.5.2 Removal of Singapore daisy – long-term (embankment) strategy

The lower northern embankment has been the subject of ongoing restoration work by QPWS, however much of this work has been smothered by the transformer weed species, Singapore daisy *(Sphagneticola trilobata)*. Management of this species must be based on a long-term strategy and commitment. The objective is long-term eradication of this weed species rather than ongoing management and control (see discussion for Area E). The Singapore daisy in this area appears to be only lightly embedded within the top layer of topsoil (rather than deeply embedded in the soil profile). Use Option 1, as described in section 5.4.4. Do not use any glyphosate herbicides in this Area.

Heavily prune planted creek mat-rush (*Lomandra hystrix)* with secateurs to allow sourcing and removal by hand of all vegetative parts of Singapore daisy embedded within the bases of the mat-rush. Take care to find all rooting nodes of Singapore daisy and bag/remove all stems and roots. Do not leave any pieces lying around. Regularly check the area for regrowth of Singapore daisy (particularly after rain) and repeat the process as required (i.e. tracing parts, removal by hand, bagging and removal from the site).

Over 12 months significant and sustainable changes should be evident. After Singapore daisy has been eradicated from this area, commence regular top-up/spreading mulch

(~40mm depth) along edges to walkway and eastern lawn (see section 5.2.6). Continue to monitor and maintain area to ensure total eradication of Singapore daisy regrowth.

5.5.3 Protecting native recruitment of small native shrubs, forbs, vines and ferns

Protect native small shrubs, forbs, vines and ferns, including forked fern *(Dicranopteris linearis* var. *linearis)* and scrambling clubmoss (*Lycopodiella cernua)* when pulling back Singapore daisy. Retain and protect native (shrub) Mackinlaya *(Mackinlaya confusa)* located near eastern lawn area.

5.5.4 Management of native saplings/ small trees and other weed species

Cut all native seedling/sapling regrowth to base of stems (immediately above ground level), including swamp mahogany (*Lophostemon suaveolens*) and black wattle *(Acacia mangium),* umbrella cheese tree *(Glochidion sumatranum)* and green kamala *(Mallotus mollissimus).* Do not apply any herbicide to cut bases (i.e. allow re-growth to occur). This treatment is an interim measure only and will be subject to further decisions regarding long-term maintenance and conservation of built heritage fabric. Remove by hand the exotic silver fern *(Pityrogramma calomelanos* var. *calomelanos).* This species/cultivar has the potential to spread throughout the study area.

5.5.4 Management of other exotic weeds and generic native planting (QPWS)

Remove variegated golden giant pothos *(Epipremnum pinnatum* var. *aureum,)* in this area (near eastern lawn) including all roots and vegetative parts from host trees. Take care not to confuse this variegated exotic cultivar with other local native rainforest species of similar appearance (see section 5.4.5). Retain cultivated 2 X semi-mature bottlebrush (*Callistemon* sp.) and creek mat-rush (*Lomandra hystrix)* on the embankment. Retention of these species over the longer term however may be subject to further review.

5.6 Area H – Upper southern embankment (adjacent to pool and southern lawn)

5.6.1 Vegetation management objectives for this area

Maintain clearances to the house and entry steps to western veranda. Restrict tall canopy cover impacting the roofline and eaves, manage weed growth, enhance local native vegetation and reduce long-term maintenance costs.

5.6.2 Management of Littoral Rainforest regrowth adjacent to southern lawn

Selectively prune trees/ shrubs to reduce overhang to the lawn area (see section 5.4.8). This group located along the upper southern embankment is dominated by Littoral Rainforest regrowth, including mature sumac *(Rhus taitensis),* northern brown macaranga *(Macaranga involucrata* var. *mallotoides)* (near the entry steps/ western veranda), olive *(Chionanthus ramiflorus),* umbrella cheese tree *(Glochidion sumatranum)* and brittlewood *(Claoxylon hillii).*

Selectively under-prune the mature yellow poinciana *(Peltophorum pterocarpum),* assessed in the CMP as Level A (Considerable significance). Remove all dead wood. Prune/reduce number of stems of the mature exotic climber, Fraser Island vine *(Tecomanthe hillii)* associated with this tree and growing throughout the crown. This vine is also assessed as Level A (Considerable significance) but attributed to Tode era. All arboricultural works are to be supervised by a qualified and experienced Arborist (minimum AQF Level 3) and in accordance with the Australian Standard AS 4373-2007 *Pruning of Amenity Trees.*

5.6.3 Establish flush mowing edges to lawn area

Construct treated pine or hardwood timber edging mowing strip, providing a broad curvilinear edge to the top of the embankment (edge to Area H), set flush with adjacent lawns. Reinstate lawns as necessary. Flush edge will clearly define extent of garden bed, facilitate mowing and reduce edging maintenance (edging as in section 5.3.2).

5.6.4 Removal of Singapore daisy and broader weed management strategy

Initially brush cut the native Sword fern *(Nephrolepis hirsutula)* and high threat exotic and transformer weed species, Singapore daisy *(Sphagneticola trilobata).* Implement the same weed management strategy for Singapore daisy as described in section 5.4.4. Based on the assessment, follow one of two management options (see Options 1 and 2). Continue to monitor the embankment for weed growth, particularly Singapore daisy. Encourage restoration of the native Sword fern *(Nephrolepis hirsutula)*. Regularly top-up/replace mulch (~40mm depth), particularly along borders (edges) to lawns (see section 5.2.6).

Generally, all perennial exotic weeds should be removed by hand (stems and all roots) from the upper embankment on a regular basis to minimise opportunities for further seeding and recruitment. Weeds should be removed and bagged before they set seed. Do not control these weeds by spraying with glyphosate herbicide and do not dump any vegetative waste on this embankment.

Continue to remove all seedlings of yellow poinciana *(Peltophorum pterocarpum)* in this embankment area and other areas. Although assessed in the CMP as Level A (Considerable significance), this cultivated native species (outside its natural range) poses a significant threat to restoration works. Seedlings of this species will continue to colonise all garden beds/ embankment areas and littoral rainforest and will require a commitment to ongoing regular monitoring and removal. Long-term retention of this mature tree should be subject to further review.

5.6.5 Management of native recruitment (seedlings, saplings and palms)

Protect embankment from further disturbance and removal of native vegetation (littoral rainforest regrowth). Retain and protect all solitaire palms (*Ptychosperma elegans*) – mature, immature and seedlings. Retain and protect mature and semi-mature Alexandra

palms (*Archontophoenix alexandrae*) but control and manage further seedling recruitment. Take care to retain native seedling/sapling and shrub recruitment, including pink-flowering evodia *(Melicope elleryana)* and mackinlaya *(Mackinlaya confusa).*

5.6.6 Arboricultural work (selective pruning) in south-east corner of embankment

This Vegetation Management Plan recommends selective pruning within the south-east corner of the embankment (i.e. adjoining Area E, near the pool lawn) to create discrete managed views. All proposed pruning work should ensure that disturbance and habitat fragmentation are minimised to avoid any loss of biodiversity or opportunities for further weed invasion. Refer to sections 5.4.9 and 5.4.10 for further details.

6. Schedule of proposed restoration planting

6.1.1 Restoration planting work along embankment edges adjacent to lawn areas

Restoration planting works should only be considered following eradication of high threat exotics (HTE), particularly the transformer weed species, Singapore daisy *(Sphagneticola trilobata).* The following list of species is not extensive. Restoration planting should only supplement natural regeneration and assisted regeneration processes. This work should focus on edges and borders adjacent to lawn areas. Ensure supply and procurement of locally occurring (local provenance) native species, particularly focussing on groundcovers, ferns and forbs. Continue to replace mulch (~40mm depth) on a regular basis.

Small shrubs, forbs and terrestrial ferns:
Alpinia modesta (Narrow-leaf ginger)
Cordyline cannifolia (Native cordyline or palm-lily)
Mackinlaya confusa (Mackinlaya)

Terrestrial ferns:
Blechnum cartilagineum (Gristle fern)
Nephrolepis hirsutul) (Sword fern)

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Appendices

APPENDIX A: Existing Plant Species List

APPENDIX B:

CMP Policy statements relevant to this VMP – Areas G, E and parts of D and H.

Appendix A: Existing Plant Species List - Planting beds and embankments adjacent to the house

KEY TO SYMBOLS:

◊	Local occurrence, including lowland rainforest species (likely natural recruitment/ regeneration)
ǂ	Native cultivated species (non-invasive species)
#	Native cultivated species (invasive or potentially invasive species)
*	Exotic cultivated species (non-invasive)
**	E/N Exotic weed species, including scheduled regional weeds of concern (Draft Cassowary Coast Local Area Biosecurity Plan 2019-2023 - Invasive Plants and Animals: Appendix 1 - Known Environmental Weeds: Non-declared)
***	C3 Exotic weed species (Draft Cassowary Coast Local Area Biosecurity Plan 2019-2023 - Invasive Plants and Animals: Appendix 1 - Restricted Matter Category 3)
HTE	High threat exotic; species which may not be scheduled as a weed of regional concern however poses a high threat as an invasive transformer species.

BOTANIC NAME		COMMON NAME	AREA G gardens adjacent to house			AREA D (part) lower northern embankment	AREA H (part) upper southern embankment	AREA E eastern embankment		
			west bed	south bed	east bed			south-east	east-mid	north-east
TREES/ PALMS (> 4.0 metres HT)										
◊	*Acacia mangium*	black wattle				X				
◊	*Archontophoenix alexandrae*	Alexandra palm				X		X		X
◊	*Aleurites rockinghamensis*	candelnut							X	X
◊	*Alstonia scholaris*	milky pine						X		
◊	*Calophyllum inophyllum*	beach calophyllum						X		
ǂ	*Callistemon* sp.	bottlebrush				X				
◊	*Chionanthus ramiflorus*	northern olive					X			
ǂ	*Cyathea cooperi*	scaly tree fern	X							
**	*Dypsis lutescens*	golden cane palm (HTE)	X							
◊	*Ficus opposita*	sandpaper fig							X	
◊	*Glochidion harveyanum* var. *harveyanum*	Harvey's buttonwood						X		
◊	*Glochidion sumatranum*	umbrella cheese tree				X			X	X
◊	*Hibiscus tiliaceus*	coast cottonwood							X	
◊	*Lophostemon suaveolens*	swamp mahogany				X				
◊	*Melicope elleryana*	pink-flowered evodia					X			
◊	*Melicope vitiflora*	toothache tree			X					
◊	*Melicope xanthoxyloides*	yellow evodia							X	
◊	*Macaranga involucrata* var. *mallotoides*	brown macaranga				X	X	X		X
◊	*Macaranga tanarius*	blush macaranga or kamala	X					X	X	X
◊	*Mallotus mollissimus*	green kamala				X				
◊	*Ochrosia elliptica* (species unconfirmed)	ochrosia								X
#	*Peltophorum pterocarpum*	yellow poinciana	X	X	X		X	X	X	X

continued

	BOTANIC NAME	COMMON NAME	AREA G gardens adjacent to house			AREA D (part) lower northern embankment	AREA H (part) upper southern embankment	AREA E eastern embankment		
			west bed	south bed	east bed			south-east	east-mid	north-east
TREES/ PALMS (> 4.0 metres HT) (continued)										
◊	*Phaleria clerodendron*	scented phaleria						X		
◊	*Planchonella obovata*	northern yellow boxwood						X	X	X
◊	*Polyscias australiana*	ivory basswood				X	X	X		X
◊	*Premna serratifolia*	beach premna						X		
◊	*Ptychosperma elegans*	solitaire palm					X	X	X	X
◊	*Rhus taitensis*	sumac	X				X	X		X
◊	*Schefflera actinophylla*	umbrella tree				X		X	X	X
ǂ	*Syzygium alliiligneum*	Mission Beach satinash								X
SHRUBS/ ACCENTS (0.6-4.0 metres HT)										
**	*Alpinia zerumbet*	shell ginger						X	X	X
**	*Ardisia crenata*	coral berry (HTE)								X
◊	*Breynia cernua*	coffee bush		X	X					
◊	*Claoxylon hillii*	brittlewood					X			X
*	*Clerodendrum wallichii*	bridal veil		X	X					
ǂ	*Cordyline cannifolia*	palm-lily	X							
*	*Cordyline fruticosa* 'Rubra'	red palm lily	X							
**	*Costus speciosus*	crepe ginger (HTE)			X					
ǂ	*Cycas media*	cycad palm			X					
*	*Dracaena fragrans* 'Massangeana'	dracaena			X					
ǂ	*Eugenia reinwardtiana*	cedar bay cherry			X			X	X	X
**	*Heliconia psittacorum* cv.	heliconia cv.								
*	*Hibiscus rosa-sinensis* 'Seminole Pink'	pink-flowering hibiscus								X
◊	*Homalanthus populifolius*	native bleeding heart	X						X	
◊	*Mackinlaya confusa*	mackinlaya				X	X			
◊	*Melastoma malabathricum* ssp. *malabathricum*	native lasiandra		X	X				X	
ǂ	*Ochrosia elliptica*	ochrosia								X
*	*Pentas lanceolata* cv.	white-flowering pentas		X						
*	*Philodendron selloum*	philodendron	X							

	BOTANIC NAME	COMMON NAME	AREA G gardens adjacent to house			AREA D (part) lower northern embankment	AREA H (part) upper southern embankment	AREA E eastern embankment		
			west bed	south bed	east bed			south-east	east-mid	north-east
GROUNDCOVERS/ PERENNIALS, FERNS (<0.6 metres HT) & CLIMBERS										
**	*Allamanda cathartica*	yellow allamanda (HTE)					X	X	X	X
**	*Bougainvillea glabra*	Bougainvillea								X
◊	*Centella asiatica*	pennywort	X	X	X		X			
**	*Centrosema molle* (syn. *C. pubescens)*	centro (HTE)	X	X	X			X	X	X
◊	*Commelina diffusa*	scurvy weed			X	X		X	X	X
◊	*Dichondra repens*	kidney weed	X	X	X					
◊	*Dicranopteris linearis* var. *linearis*	forked fern				X				
◊	*Entada phaseoloides*	matchbox bean					X	X		
**	*Epipremnum pinnatum* var. *aureum*	golden giant pothos (HTE)				X			X	X
◊	*Geitonoplesium cymosum*	scrambling lily				X				
**	*Gloriosa superba*	gloriosa lily			X				X	
*	*Hymenocallis littoralis*	beach spider lily			X					
**	*Hyptis capitata*	knobweed		X	X			X	X	X
**	*Lobularia maritima*	sweet alyssum		X	X					
ǂ	*Lomandra hystrix*	creek mat-rush	X	X	X	X			X	
◊	*Lycopodiella cernua*	scrambling clubmoss				X				
**	*Mitracarpus hirtus*	small square weed		X	X					
ǂ	*Molineria capitulata*	weevil lily	X	X	X					
◊	*Mucuna gigantea* subsp. *gigantea*	burny bean				X		X		X
**	*Nephrolepis cordifolia* cv.	fish-bone fern	X							
ǂ	*Nephrolepis hirsutula*	sword fern	X	X	X	X	X	X	X	X
◊	*Oplismenus aemulus*	oplismenus		X	X					
**	*Oxalis debilis* var. *corymbosa*	wood sorrel	X	X	X					
**	*Passiflora foetida*	stinking passionflower (HTE)	X							
**	*Pityrogramma calomelanos* var. *calomelanos*	silver fern (HTE)			X	X				
◊	*Platycerium hillii*	northern elkhorn			X	X				
**	*Praxelis clematidea*	praxelis	X	X	X	X	X	X	X	X
ǂ	*Pteris tremula*	tender brake			X					
**	*Richardia brasiliensis*	Mexican clover	X	X	X					
***	*Sphagneticola trilobata*	Singapore daisy (HTE)				X	X	X	X	X
◊	*Stephania japonica* var. *discolor*	tape vine				X	X			X
ǂ	*Tecomanthe hillii*	Fraser Island creeper					X			
◊	*Tinospora smilacina*	snake vine			X					
**	*Trifolium repens* var. *repens*	white clover			X					

Appendix B

CMP Policy statements relevant to this VMP
Areas G and E and parts of Areas D and H

- "Policy 30: **Recording garden works** – All substantial maintenance work on the heritage fabric, including on the vegetation, should be recorded regularly. Regular maintenance tasks need only be noted briefly with general notes;
- Policy 32: The historically significant vegetation locations and characteristics should be conserved, and the missing vegetation restored where appropriate, to strengthen the place's historical identity;
- Policy 41: **Lawns and gardens** – The lawn areas should be maintained, and restored or reconstructed when possible;
- Policy 42: The lawns should have no building or other roofed structures, pavements, or planting over their current extent, except where reconstruction is proposed;
- Policy 43: The garden planted zones (not lawns) of the Büsst and Tode periods of Considerable (A) and Some (B) significance should be retained;
- Policy 44: Roofed or pergola over tables and seats, shelters, bins, paved areas should not be planned or installed on the lawns or in the planted areas over Area C, G, I, J;
- Policy 46: The scale and form of new planting works should not detract from the cultural heritage significance of the place. New planting should be a reconstruction or similar character to earlier planting as seen on photos or plans, subject to new tree canopies not dominating the adjacent landscape spaces;
- Policy 47: **Lawn edges** - A raised concrete, metal or plastic edge should not be installed at the lawn edges. Concealed mowing or grass edge-defining edges may be installed if desired for easier maintenance. These should be maximum 100mm wide concrete with top flush with grass level, or an angled concrete profile with the top no higher than the grass edge, or a timber edge set into the ground extending no more than 25mm above the mown grass height;"

- Policy 48 (in part): **Maintenance and repair** – It is important for heritage elements to receive timely repair in order to protect their integrity. Items that should be addressed include the following:
    - maintenance of walls, paths, and path and garden edges, generally in the historical manner."
    - maintenance of historical plantings of trees and shrubs;
- Policy 49: Planted trees, shrubs and other garden plants should be retained in place and conserved through regular maintenance practices, except declared and noxious weeds. Potentially invasive planted garden plants should be contained through regular maintenance practices (Gunn & Brouwer, pp. 101, 103-104, 2016).
- Policy F5: The vine trellis structure west of the courtyard wall may be reconstructed or interpreted by a similar sized structure and plants (i.e. similar in size to the original vine trellis). [Note: Species has not been identified in CMP];
- Policy G1 – Area G - House Surrounds & Pool: The fence at top of escarpment can be replaced with a new fence located preferably lower than the lawn edge to reduce visibility. No gate should be installed along the top of the escarpment directly in front of the house. The fence-line should be subject to a surveyor's identification survey. Note: This VMP does not include conservation policy relating to the pool.

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