

This approval pertains only to vegetation requiring removal as a direct result of the assessable Filling and Excavation works. **No vegetation outside of the Footprint of Filling and Excavation Works as identified in the approved Tree Removal Plans 1 - 9, is permitted to be removed.** Vegetation outside of the footprint of identified Filling and Excavation works is subject to separate assessment and approval under the Natural Assets Local Law 2003.



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*[This includes for any works for: built to boundary walls; any construction (retaining walls) within neighbouring buildings structural zones, boundary fences; temporary rock anchoring; or crane oversail.]*

Where this plan refers to 'Arborist' or 'Project Arborist' or 'Supervising Arborist', that person must be qualified with AQF level 5 Arboriculture, with a minimum of 10 years industry experience and be a current member of a recognised Arboriculture Association.

**Indooroopilly Golf Club Master Plan – Stage 1**

**Vegetation Management Plan**

Client: Indooroopilly Golf Club

Project No: BE190133

Document No: BE190133-RP-VMP-1

February 2022

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Prepared by:	Kaidon Anderson
Position:	Environmental Scientist
Date:	February 2022

Approved by:	Caroline Kelly
Position:	Principal Environmental Scientist
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**Coote Burchills Engineering Pty Ltd ACN: 166 942 365**

**Level 2, 26 Marine Parade SOUTHPORT QLD 4215**

**PO Box 3766, Australia Fair SOUTHPORT QLD 4215**

**Telephone: +61 7 5509 6400 Facsimile: +61 7 5509 6411 Email: [admin@burchills.com.au](mailto:admin@burchills.com.au)**

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# Executive Summary

This Vegetation Management Plan has been prepared for Stage 1 of the operational works of the Indooroopilly Golf Club Master Plan. The subject site is within the Brisbane City Council Local Government Area and encompasses Lot 401 on SP258101, Lot 2 on RP886522, Lot 2 on RP209359 and Lot 2 on RP149808, with a total area of 130ha. The proposed works include a redesign of the current golf course, along with associated earthworks and tree clearing.

This Vegetation Management Plan has been prepared to identify potential environmental impacts associated with the proposed development and make recommendations to avoid, mitigate and manage these impacts.

The Ecological Site Assessment and Aborigicultural Impact Assessment identified a number of trees recommended for retention. This report provides the results of the arboricultural assessment undertaken by an AQF Level 5 Arborist in accordance with *Australian Standard AS4970: Protection of trees on development sites*.

As assessment of the earthworks design for the Stage 1 operational works application has determined that 30,482m<sup>2</sup> of Vegetation Association A (landscaped mosaic) and 3,917m<sup>2</sup> Vegetation Association E (waterbodies and fringing sedgeland – area includes open water) including 252 trees, will be impacted by the proposed earthworks. Of the trees that are being removed, 104 are weed species, 11 are in poor health and require removal and 135 are required to be removed due to direct impacts required to facilitate Stage 1 of the works. All trees identified for retention, as shown in the Tree Protection Plan in Appendix D, will be retained and protected during the proposed works.

To ensure no net loss of native vegetation as a result of the proposed development, compensatory tree planting will be undertaken as part of the Stage 1 landscaping. This landscaping includes extensive planting of local-native species in closed forest (52,937m<sup>2</sup>) and open forest (19,052m<sup>2</sup>) landscaping zones. A total of 719 canopy trees are proposed to be planted within Stage 1, providing an offset ratio of 5:1 (i.e. five (5) trees being planted for every one (1) tree being removed).

All works adjacent to Tree Protection Zones of retained trees are to be supervised by the Project Arborist.

To ensure no impacts on native wildlife and fauna habitat, A DES licensed spotter-catcher is to undertake a pre-clearing survey two (2) weeks prior to the clearing to identify any nests, habitat features or significant fauna habitat on site to determine actions required prior / during / following clearing works.

All vegetation clearing works are to be undertaken in accordance with the provisions of this Vegetation Management Plan and conditions of approval.



# Table of Contents

1. Introduction.....	7
1.1 Scope and Objectives.....	7
1.2 Site Description.....	7
2. Development Summary .....	9
3. Site Constraints .....	11
4. Summary of Site Investigations.....	12
4.1 Vegetation Field Study Results .....	12
4.1.1 Conservation Significant Flora .....	12
5. Project Management.....	14
6. Vegetation Clearing and Protection.....	15
6.1 Management of Identified Impacts .....	15
6.1.1 Mitigation of Impacts from Bulk Earthworks and General Construction Activities .....	15
6.2 Vegetation Protection Measures .....	17
6.3 Preconstruction and Preliminary Tree Works .....	17
6.3.1 Site Inductions .....	17
6.3.2 Tree Protection Fencing.....	17
6.4 Methods of Vegetation Removal and Disposal.....	19
6.5 General Management of Trees to be Retained .....	19
6.6 Control of Invasive and Environmental Weeds.....	20
6.7 Erosion and Sediment Control .....	25
7. Fauna Management.....	26
8. Offset Revegetation .....	27
8.1 Revegetation Protocol.....	28
9. Conclusions .....	30
10. References .....	31

## Tables

Table 3.1 Management Constraints Present on Subject Site .....	11
Table 4.1 EVNT Flora Species Observed on the Site.....	12
Table 5.1 Roles and Responsibilities .....	14
Table 6.1 Specific Weed Control Methodology.....	21
Table 8.1 Landscaping Planting Estimate .....	28

## Figures

Figure 1.1 Site Location (Google, 2021).....	8
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Figure 1.2 Aerial Photography (MetroMap 2021).....	9
Figure 2.1 Indooroopilly Golf Club Master Plan .....	10
Figure 4.1 Vegetation Associations .....	13
Figure 6.1 Stage 1 Works Impact Assessment.....	16
Figure 6.2 Tree Protection Fencing Detail – Fauna Exclusion and Fauna Friendly.....	18

## **Appendices**

Appendix A – Indooroopilly Golf Course Master Plan

Appendix B – Civil / Earthworks Design Package (Burchills 2021)

Appendix C – Arboricultural Impact Assessment (Abor Australis Consulting 2021)

Appendix D – Tree Protection Plan (Abor Australis Consulting 2021)

Appendix E – Landscape Concept Plan (Perrett Webb 2021)



## Definitions and Acronyms

AS4970	Australian Standard AS4970: Protection of trees on development sites
BCC	Brisbane City Council
DBH	Diameter at Breast Height measured in accordance with AS4970
SRZ	Structural Root Zone as shown in the stamped approved plans
TPZ	Tree Protection Zone as shown in the stamped approved plans
Project Arborist	Minimum AQF Level 5 Arborist as identified in this s4 of this VMP
Site Supervisor	Person responsible for all site works
Spotter Catcher	DES licensed fauna spotter catcher



## 1. Introduction

This Vegetation Management Plan (VMP) has been prepared for Stage 1 of the operational works of the Indooroopilly Golf Club Master Plan. The subject site is within the Brisbane City Council Local Government Area and encompasses Lot 401 on SP258101, Lot 2 on RP886522, Lot 2 on RP209359 and Lot 2 on RP149808, with a total area of 130ha. The proposed works include a redesign of the current golf course, along with associated earthworks and tree clearing.

This VMP has been prepared in accordance with s2.4 of the Brisbane City Plan 2014 Planning Scheme Policy 6 Biodiversity Areas and *Australian Standard AS4970: Protection of trees on development sites (AS4970)*, and outlines all reasonable measures to be undertaken before, during and after the construction phase of the development to minimise and / or prevent harm to native fauna and flora on and adjacent to the subject site.

### 1.1 Scope and Objectives

The Ecological Site Assessment (Burchills 2021a) and Aboricultural Impact Assessment (Abor Australis Consulting 2021) identified a number of trees recommended for retention. This VMP provides the results of the arboricultural assessment undertaken by an AQF Level 5 Arborist in accordance AS4970, and recommended mitigation strategies for ensuring protection of the existing environment before, during and after the proposed works. The scope and objectives of this VMP are to:

- Provide a summary of the flora and fauna values on-site including trees and vegetation to be protected;
- Undertake an arboricultural assessment of trees to be retained;
- Provide a scaled plan showing:
  - Location of all proposed site works including earthworks and infrastructure (e.g. Sewer), road reserves and external works;
  - Location and description of all vegetation to be removed/retained including the Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) of each tree to be retained;
  - Location of tree protection fencing as required by *AS 4970-2009*;
  - The location and extent of storage and stockpile areas for cleared vegetation/mulch;
- Provide appropriate management strategies required in accordance with *AS 4970-2009* to ensure the survival, ongoing health and vigour of retained vegetation;
- Describe methods to salvage and/or re-use cleared vegetation;
- Description of measures to protect and recover fauna during clearing operations, including; presence of a qualified fauna spotter catcher during clearing operations, pre-clearing inspections, staging and sequence of clearing and recovery procedures; and
- Ongoing monitoring and certification requirements (e.g. Project Arborist and/or Fauna Spotter Catcher).

### 1.2 Site Description

The subject site is located at 145-293 Meiers Road and 151 Harts Road, Indooroopilly, within the Brisbane City Council Local Government Area. The site encompasses four (4) lots: 401 on





SP258101, 2 on RP886522, Lot 2 on RP209359 and Lot 2 on RP149808, comprising a total of 130ha.

The northeast, east and southeast boundary of the site is formed by the Brisbane River. Indooroopilly Island is present on the site's southwestern boundary. Land uses north of the site are generally residential, interspersed with schools, areas of open space and commercial uses.

The site is currently developed as a golf course, with associated shops, dining, carparking and ancillary structures (e.g. sheds). Vegetation on the site generally comprises maintained turf (for the golf course) along with landscaped vegetation and retained native canopy trees. Vegetation along the site's boundary with the Brisbane River is generally natural and unmaintained. A number of constructed lakes are present within the site, and any watercourses that were naturally occurring within the site have been heavily modified.

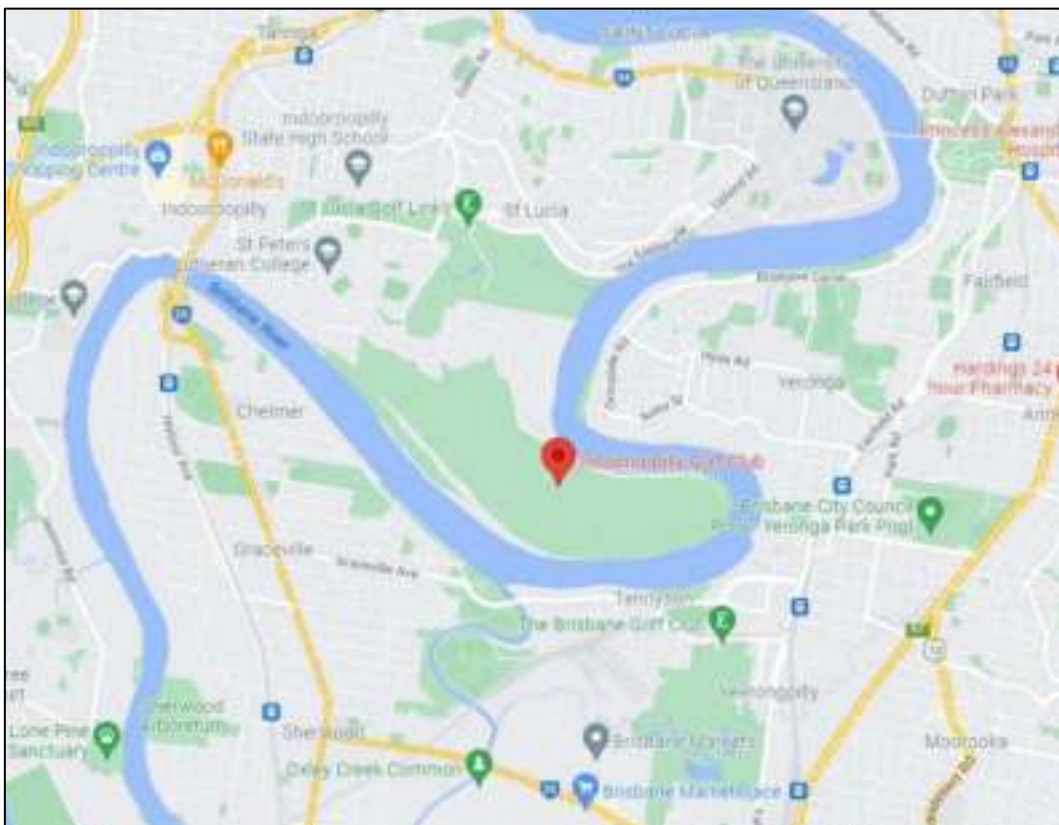


Figure 1.1 Site Location (Google, 2021)





Figure 1.2 Aerial Photography (MetroMap 2021)

## 2. Development Summary

This approval pertains only to the assessable Filling and Excavation works.

Indooroopilly Golf Club (IGC) engaged golf course architects Perrett Webb to prepare a masterplan for the redevelopment of the golf course. The proposed works include redesign of the 36-hole course and practice facilities, additional carparking facilities, expansion of the carts store building and relocation of the maintenance building-which requires earthworks, vegetation clearing and alterations to existing waterbodies. The works will be staged with Stage 1 works comprising the 'green' course (holes 1-9), expansion of the irrigation storage dam in the north and minor augmentations to (2) waterbodies adjacent Stage 1 boundary to the south. The masterplan and Stage 1 boundary is shown in Figure 2.1 and Appendix A.



Figure 2.1 Indooroopilly Golf Club Master Plan (Perrett Webb, August 2021)

### 3. Site Constraints

A summary of potential management constraints based on the findings of the ESA (Burchills 2021a) and desktop studies is presented in Table 3.1.

**Table 3.1 Management Constraints Present on Subject Site**

Constraint	Present	Absent	Comments
Easements and / or Restrictions on Title	x		Easements are present on the site. <sup>1</sup>
Biodiversity, Waterways and Wetlands	x		Areas of High Ecological Significance and High Ecological Significance Strategic are mapped on the site. The site is within 100m buffer to the Brisbane and contains a Local Waterway Corridor, along with small areas of mapped wetlands. <sup>2</sup>
Bushfire Risk		x	No mapped constraints <sup>2</sup>
Aboriginal Cultural Heritage		x	No known Aboriginal cultural heritage sites are present on the site. <sup>2</sup>
European Cultural Heritage		x	No known European cultural heritage sites are present on the site. The Thomas Park Bougainvillea Gardens are present on the site's western boundary. <sup>2</sup>
Acid Sulfate Soils		x	Lower areas of the site comprise land at or below 5m AHD, with the balance of the site comprising land at or below 20m AHD. <sup>2</sup>
Flood Prone	x		The majority of the site is mapped within the Brisbane River Flood Planning Area, and internal drainage lines are within the Overland Flow Flood Planning Area mapping. <sup>2</sup>
Landslide Hazard and Steep Land		x	No mapped constraints. <sup>2</sup>
Tree Preservation / Protection Order		x	No tree preservation orders are present on the site. <sup>2</sup>
Mapped Regulated Vegetation (VMA)	x		The site contains mapped Least Concern (RE 12.1.3) and Endangered (RE 12.3.16) Remnant Vegetation. This vegetation is not proposed to be impacted by the works. <sup>1</sup>
Mapped Essential Habitat	x		The site's Regulated Vegetation is mapped as Essential Habitat for <i>Ornithoptera richmondia</i> (Richmond birdwing). The Ecological Site Assessment found it unlikely that this species is utilising the site. <sup>1,3</sup>
Observed Threatened Species – Fauna		x	No threatened fauna species have been observed on-site. <sup>3</sup>
Observed Threatened Species - Flora		x	Six (6) flora species of conservation significance have been planted on-site, however are not considered to be 'in the wild' for the purposes of the Protected Plants Regulatory Provisions of the NCA. <sup>3</sup>
Southeast Queensland Koala Conservation Strategy		x	The site is not within a Koala Priority Area and is not constrained by mapped Koala Habitat Areas. <sup>1</sup>

Vegetation at this site is protected under the **Natural Assets Local Law 2003**. Any interference with vegetation (including clearing, or root/canopy pruning) may require a permit from Council. Works must not commence until all relevant permits have been granted.

<sup>1</sup> as identified on Queensland Globe

<sup>2</sup> as identified by the Brisbane City Plan 2014 Interactive Mapping

<sup>3</sup> as identified by the Ecological Site Assessment (Burchills 2021 a)



## 4. Summary of Site Investigations

### 4.1 Vegetation Field Study Results

Field surveys were undertaken across the IGC golf course during August and September 2021. A total of 321 species of flora were recorded during the flora surveys, including 225 species native to Queensland (listed under the NCA) and 79 weed species, 11 of which are Restricted Invasive Plants under the Qld *Biosecurity Act 2014*.

The vegetation survey classified five (5) broad vegetations across the site (Figure 4.1), including:

- Vegetation Unit A – Open Forest and Woodland Landscape Mosaic;
- Vegetation Unit B – Qld Blue Gum Riparian Open Forest (RE 12.3.16);
- Vegetation Unit C – Mangrove Fringing Open Forest to Woodland (RE 12.1.3);
- Vegetation Unit D – Regrowth Mangrove Shrubland; and
- Vegetation Unit E – Waterbodies and Fringing Sedgeland.

Vegetation Unit C represents the structure and floristics of remnant vegetation based on the Qld Herbarium benchmark criteria for the preclearing regional ecosystem (12.1.3). The balance of vegetated areas of the subject site not included in the vegetation classification include cultivated gardens around the club-house and adjoining buildings and the ‘on-play’ parts of the course including the greens and driving range.

Further details regarding the flora survey results are provided within the Ecological Site Assessment (Burchills 2021a).

#### 4.1.1 Conservation Significant Flora

No flora species of conservation significance at a national or state level were detected ‘in the wild’ however six (6) species listed as Endangered Vulnerable or Near Threatened (EVNT) under the NCA have been planted in the landscaped gardens around the course (Table 4.1).

**Table 4.1 EVNT Flora Species Observed on the Site**

Species	Common name	NCA Status
<i>Cassia marksiana</i>	Brush cassia	Vulnerable
<i>Diploglottis campbellii</i>	Small-leaved tamarind	Endangered
<i>Graptophyllum excelsum</i>	Scarlet fuchsia	Near Threatened
<i>Graptophyllum ilicifolium</i>	Holly fuchsia	Vulnerable
<i>Lepiderema pulchella</i>	Fine-leaved tuckeroo	Vulnerable
<i>Syzygium moorei</i>	Durobby	Vulnerable

These plants are not considered to be ‘in the wild’<sup>1</sup> for the purposes of the Protected Plants regulatory provisions of the NCA.

<sup>1</sup> The NCA defines ‘in the wild’ as: “in relation to wildlife, means in an independent state of natural liberty.” [https://www.qld.gov.au/data/assets/pdf\\_file/0029/99902/op-protected-plant-wild.pdf](https://www.qld.gov.au/data/assets/pdf_file/0029/99902/op-protected-plant-wild.pdf)





**Indooroopilly Golf Club  
Master Plan**

Figure 4.1  
Vegetation Associations



Location of the site within the Brisbane City LGA

**Legend**

- Site Location
- Wetland Trees
- Vegetation Association 1 - Open Wood and modified Landscape Areas
- Vegetation Association 2 - Wet Ever Rain Forest
- Vegetation Association 3 - Riparian Fringing Zone
- Vegetation Association 4 - Riparian Vegetation
- Wetland
- Vegetation Association 5 - Suburban and Fringing Woodland
- New Suburban Area

Project: BE000011

Date: 26.12.2021

Scale: 1:1000 at A3

Project: 624 SATURA Drive, 56

Date Issued: Queensland Department of Resources (1922), Brisbane City Council (2011), Heritage (2021)



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## 5. Project Management

The site supervisor is responsible for all site works including overseeing vegetation clearing, health and safety of fauna and adhering to the development Conditions, Council guidelines and Australian Standards including AS4970.

The Project Arborist is responsible for ensuring appropriate arboricultural measures are undertaken to ensure the survival and long term health of the existing trees to be retained. This include the supervision of all works within and adjacent to TPZs as well as other measure required such as soil decompaction / aeration, mulching, crown reduction etc. as determined by the Project Arborist.

Roles and Responsibilities are detailed in s6 of this VMP and summarised in Table 5.1.

**Table 5.1 Roles and Responsibilities**

Requirement	Responsibility	Contact
Engage Project Arborist	Site Supervisor	TBC
Engage a registered fauna spotter-catcher	Site Supervisor	TBC
Undertake arboricultural impact assessment of trees to be retained – complete	Project Arborist	TBC
Undertake Preclearing Fauna Assessment	Spotter Catcher	TBC
Awareness of roles and responsibilities	Site Supervisor	TBC
Supervise works within/near TPZs of retained trees	Project Arborist	TBC
Mark all habitat features such as hollows, wood stockpiles and nest sites	Spotter-catcher	TBC
Mark 'no-go' zones around vegetation to be retained	Site Supervisor Project Arborist	TBC
Relocate habitat features	Spotter-catcher	TBC
Fauna flushed or hand caught prior to clearing	Spotter-catcher	TBC





This approval pertains only to vegetation requiring removal as a direct result of the assessable Filling and Excavation works. **No vegetation outside of the Footprint of Filling and Excavation Works as identified in the approved Tree Removal Plans 1 - 9, is permitted to be removed.** Vegetation outside of the footprint of identified Filling and Excavation works is subject to separate assessment and approval under the Natural Assets Local Law 2003.

## 6. Vegetation Clearing and Protection

As assessment of the earthworks design for the Stage 1 operational works application has determined that 30,482m<sup>2</sup> of Vegetation Association A (landscaped mosaic) and 3,917m<sup>2</sup> Vegetation Association E (waterbodies and fringing sedgeland – area includes open water) will be impacted by the proposed earthworks (Figure 6.1).

A total of 252 trees within these impact areas and are proposed to be removed for Stage 1 of the master plan, as detailed within the Aboricultural Impact Assessment (Abor Australis Consulting 2021) supplied in Appendix C and the Tree Protection Plan (Abor Australis Consulting 2021) in Appendix D. Of the trees that are being removed, 104 are weed species, 11 are in poor health and require removal and 135 are required to be removed due to direct impacts required to facilitate Stage 1 of the works.

The Tree **Removal** Plan identifies the proposed development footprint and the location of trees that are to be retained or removed. The plan also indicates the location of tree protection fencing and direction of clearing. Tree specifics including species, DBH, TPZ, SRZ (for trees with encroachment) and height are indicated in the **Tree Data Table** on the Tree **Removal** Plan in ~~Appendix D~~.

~~The proposed bulk earthworks design package is provided in Appendix B.~~

### 6.1 Management of Identified Impacts

The following sections detail management measures which will reduce damage to vegetation.

#### 6.1.1 Mitigation of Impacts from Bulk Earthworks and General Construction Activities

To ensure the ongoing viability of protected vegetation within the subject site and on adjoining properties during site works, impacts are to be avoided and minimised by implementing the following procedures:

- As part of site induction (refer s7.3.1), all contractors are to be made aware of provisions of this VMP ~~and~~ conditions of approval: **Arborist Report, Tree Removal Plan and Fauna Management Plan**
- Tree protection fencing (refer 7.3.2) is to be inspected daily and maintained throughout the course of the works and following each incidence of heavy rainfall. If the fence shows signs of failure, the fence is to be fixed or replaced; and
- No storage of materials, fill, construction machinery or vehicles is to be undertaken in the tree protection zones of protection vegetation.



## 6.2 Vegetation Protection Measures

Prior to the commencement of clearing operations, the limits of all vegetation to be retained must be clearly delineated and the Site Supervisor has the following responsibilities:

- Overseeing implementation of Vegetation Management and Tree Clearing Plans;
- Provision of advice in regard to tender and contract specifications and documentation;
- Tree works supervisions;
- Provision of advice to site contractors; and
- Tree protection inductions for site workers.

The Site Supervisor is responsible for ensuring that the area of proposed tree clearing is clearly identified to the clearing contractor and that all contractors and sub-contractors present on-site are aware of their responsibilities regarding vegetation management.

It is expected that the Site Supervisor will report to the developer and Council as required.

## 6.3 Preconstruction and Preliminary Tree Works

Prior to the commencement of works the Site Supervisor is responsible for ensuring that the following occurs:

Vegetation at this site is protected under the Natural Assets Local Law 2003. Any interference with vegetation (including clearing, or root/canopy pruning) may require a permit from Council. Works must not commence until all relevant permits have been granted.

- Tree protection fencing has been installed as per the Tree **Removal** Plan (~~Appendix D~~); and
- Any required remedial and / or protective tree works (e.g. root pruning, canopy pruning, etc).

### 6.3.1 Site Inductions

A responsibility of the Site Supervisor will include provision of site inductions for all staff who will be working on site. The purpose of the site induction is to instruct all contractors and sub-contractors on their responsibilities regarding the protection of vegetation. All site workers must attend an induction; a record will be kept of all persons attending inductions and cards will be issued to site workers upon completion. This procedure will enable Council Officers to ensure that all site workers have been made fully aware of their responsibilities associated with vegetation management.

### 6.3.2 Tree Protection Fencing

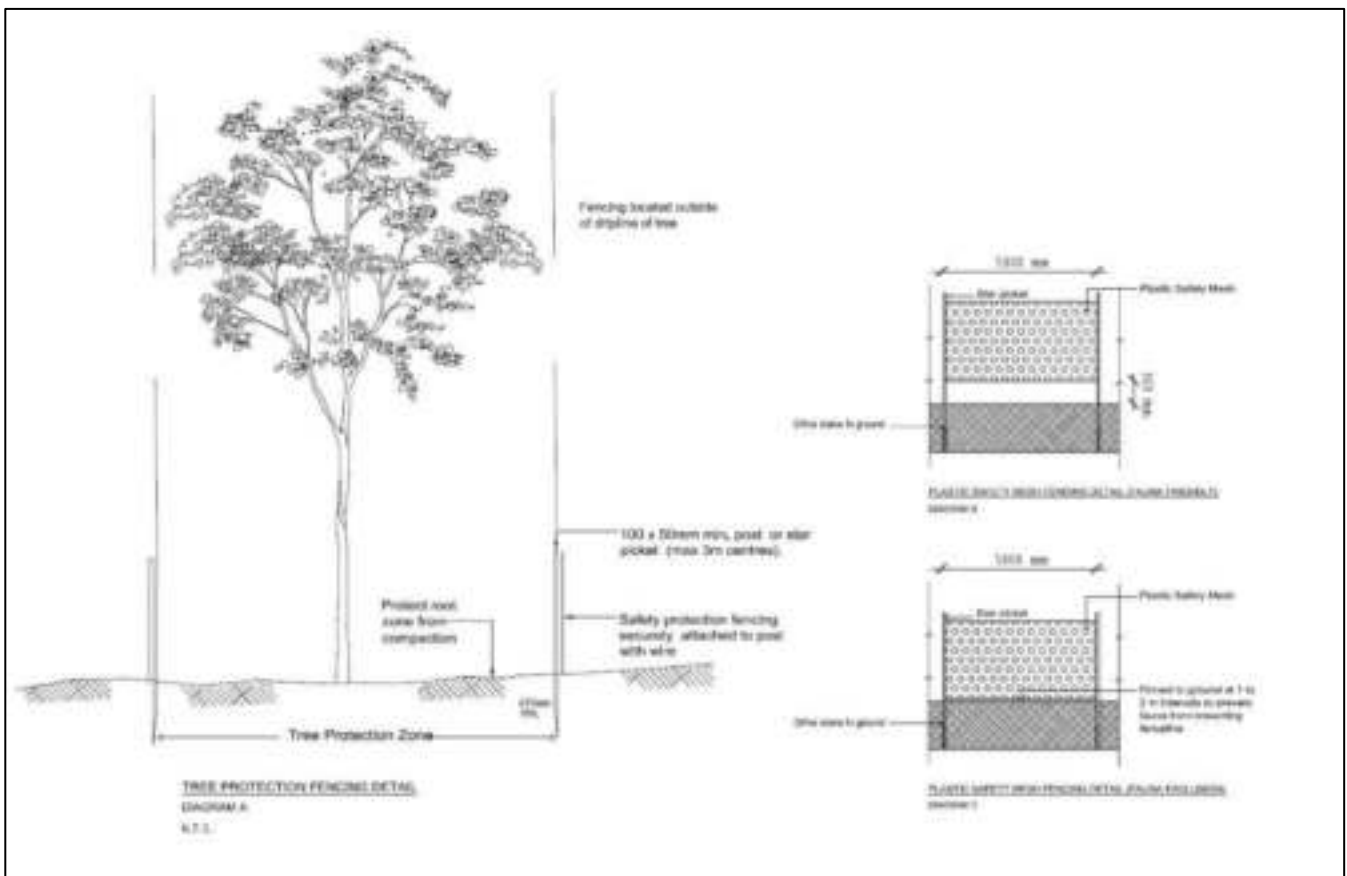
To ensure the ongoing viability of trees to be retained, tree protection fencing is to be installed in accordance with *AS4970-2009: Protection of trees on development sites* (Figure 6.2). The fencing is to be installed as shown in the Tree **Removal** Plan (Appendix D). The fencing will ensure that no earthworks or prohibited activities occur within areas that could adversely impact upon trees to be retained. The fencing will also protect and redirect fauna away from the works area depending on the fencing type required – fauna friendly or fauna exclusion. Tree Protection Fencing is to be fauna exclusion around any potential threats to displaced fauna (e.g. roads, golf course maintenance activities, areas of active clearing works). Areas that will provide refuge for displaced fauna (e.g. areas of retained vegetation) are to be fenced with fauna friendly Tree Protection Fencing. Further details are provided within the Fauna Management Plan (Burchills 2021b).

Tree protection fencing must comply with the following:



The Project Arborist must certify that fencing has been installed as per this approved plan, the Tree Protection Plan and Arborist Report

- In accordance with *AS4970-2009 Protection of trees on development sites*, fencing is to be installed before any machinery or materials are brought onto the site;
- Fencing is to be installed prior to any pre-start meetings with Council Officers;
- Fencing is to remain in place for the duration of operational works (as determined by the Site Supervisor);
- Signage is to be displayed on the exterior of the tree protection fence that displays contact details for the civil contractor;
- Signs must be made in accordance with *Australian Standard AS 1319-1994; Safety signs for the occupational environment*; and
- Signage is to remain in place for the duration of the operational works.



**Figure 6.2 Tree Protection Fencing Detail – Fauna Exclusion and Fauna Friendly**

Non-essential works are to be excluded from the Tree Protection Zones and all construction related activities are to be in accordance with approved plans. If temporary or permanent vehicle access is required through Tree Protection Zones, compaction bridging is to be installed and maintained in accord with *AS4970-2009: Protection of trees on development sites*.

Within the Tree Protection Zone, the following activities are not permitted:

- Storage and mixing of materials;



- Construction of unapproved pathways / trails;
- Vehicle parking;
- Earthworks;
- Construction of site office or shed;
- Storage of machinery and / or vehicles;
- Dumping of site waste;
- Liquid disposal;
- Stockpiling of mulch / chipped material / soil, rubble or debris;
- Refuelling of machinery;
- Wash down and clearing of equipment;
- Lighting of fires;
- Unauthorised application of pesticide, herbicides or chemicals;
- Erosion resulting from site works;
- Unauthorised vegetation removal; and
- Introduction of non-native species.

#### 6.4 Methods of Vegetation Removal and Disposal

In order to minimise waste from the site, all felled timber will be recycled. Tree species suitable for milling will be removed from the site and transported to a timber milling establishment. Remaining timber is to be chipped and mulched on-site. Where possible, chipped and mulched material is to be used on site and incorporated into restoration areas, landscape features, batter stabilisation techniques or other approved site works. This material will be stockpiled for a minimum of six (6) weeks prior to use on-site to prevent nitrogen drawdown.

Non-recyclable debris is to be transported from the site and disposed of at an approved Council waste facility. Pit burning or any other method of combustion of vegetation is prohibited, both on or off-site. Any declared and / or environmental weeds removed from the site are to be disposed of at an approved Council green waste facility.

#### 6.5 General Management of Trees to be Retained

Vegetation on adjoining properties will be protected during the clearing and operational stages of the development. The following general protective measures apply to this vegetation:

- Tree Protection Zones are to be fenced in accordance with the [approved Tree Removal Plan](#) and construction activities are to be confined to the approved development footprint;
- Stem wraps or other protective devices are to be implemented where deemed necessary by the [Project Arborist](#) to protect trunks and branches from damage during specific demolition and construction activities;
- Where a protected tree's root zone and / or trunk could be damaged by the proposed earthworks, the Project Arborist will:
  - Provide advice regarding the protection of the subject tree(s);
  - Treat any roots that may be exposed during the construction; and
  - Treat any damage that may occur during construction.



- No materials, substances (e.g. herbicides, fuel, concrete, etc.) or machinery are to be stored within Tree Protection Zones. Any potentially hazardous substances are to be safely stored within a secure area away from vegetation to be retained;
- Sufficient training is to be provided to all site staff in relation to vegetation protection measures;
- Pruning of protected trees is to occur as only where determined necessary by the Project Arborist (e.g. crown thinning, removal of dead wood or damaged or overhanging limbs to promote sound tree form and health) – any such work on the trunk, foliage, or root system of the tree must adhere to the *Australian Standard AS 4373-2007: Pruning of amenity trees*;
- No protected tree is to be ‘topped’ and ‘spur’ or ‘spike’ climbing of any protected tree is to be avoided;
- If root pruning of a protected tree is required, it is to be undertaken using a high pressure, needle point water jet; and
- Regular assessment of trees is to occur to ensure ongoing health during operational works.

Any damage to protected trees, or surrounding soil, is to be remedied as soon as is practicable.

## 6.6 Control of Invasive and Environmental Weeds

For the purposes of this report, a weed has been defined as a species that is not native to the Brisbane Region and is recognised as an invasive species under the Qld *Biosecurity Act 2014* and / or identified as environmental weeds by Council in *the Brisbane Invasive Species Management Plan*. The ESA (Burchills 2021a) observed a total of 79 weeds within the site including 11 species identified as Restricted Invasive Plants under the *Biosecurity Act 2014*.

Table 6.1 provides specific weed control and removal methods for these weed species. Non-native plant species are not to be introduced to the site during construction activities; this includes introduction in topsoil and / or mulch. Invasive and environmental weeds are to be controlled using appropriate methods. Herbicide application is to be undertaken in accordance with the *South East Queensland Restoration Framework* (Chenoweth EPLA and Bushland Restoration Services, 2012). Treatment is to target introduced species only and be carried out in a manner that minimises disturbance to native plants.



Herbicides must be applied by appropriately qualified/supervised persons in accordance with the Agricultural Chemicals and Distribution Control Act 1966 at rates identified on registered product labels, or on an Australian Pesticides and Veterinary Medicines Authority (APVMA) issued off-label permit where applicable. Refer to South East Queensland Ecological Restoration Framework for additional guidance.

**Table 6.1 Specific Weed Control Methodology**

Scientific Name	Common Name	Family	Qld Status*	Control Method
<i>Ageratum houstonianum</i>	Blue billy goat weed	Asteraceae		Hand pull; spray G1:100.
<i>Amaranthus viridis</i>	Green amaranth	Amaranthaceae		Hand pull; spray G1:200 or G1:200 + MM or MM.
<i>Anredera cordifolia</i>	Madeira vine	Basellaceae	RIP	Small tubers and small vines: Hand weed, bag, dispose off-site. Tubers: Gouge, scrape and paint G100%. Ground infestations: Spray G1:200 or G1:200 + MM. Climbing stems: Scrape and paint as much stem as possible in 1 metre lengths G100%, do NOT cut stem. Bag aerial tubers and dispose off-site where practical.
<i>Arundo donax</i>	Giant reed	Poaceae		Dig up; spray G1:100.
<i>Asparagus plumosus</i>	Asparagus vine	Asparagaceae	RIP	Rhizomes: Crown and hang up to dry; gouge and paint G1:1.5. Stems: Pull down, wind up and spray G1:200 or G1:200 + MM, or cut high and low and spray regrowth G1:200 or G1:200 + MM.
<i>Baccharis halimifolia</i>	Groundsel bush	Asteraceae		Regrowth and seedlings: Hand pull; spray G1:200; CSP G1:1.5. Shrubs: CSP or SI G100%.
<i>Bauhinia variegata</i>	Orchid tree	Leguminosae		Seedlings and regrowth: Hand pull or spray G1:200 or G1:200 + MM or MM. Shrubs: CSP G1:1.5 or SI G1:1.5. Where possible, bag seed pods and dispose off-site.
<i>Bidens pilosa</i>	Cobbler's pegs	Asteraceae		Hand pull; spray G1:100 or G1:100 + MM or MM.
<i>Bougainvillea glabra</i>	Bougainvillea	Myctaginaceae		Seedlings and small plants: Hand pull; spray G1:100 or G1:100 + MM. Shrubs: CSP G1:1.5; SI G1:1.5.
<i>Bromus catharticus</i>	Prairie grass	Poaceae		Hand pull or dig up; spray G1:100.
<i>Calliandra haematocephala</i>	Red callindra	Leguminosae		Seedlings: Hand pull; spray G1:200 or 1:200 + MM. Saplings: CSP 1:1.5. Trees: SI G1:1.5.
<i>Cardiospermum grandiflorum</i>	Balloon vine	Sapindaceae	RIP	Seedlings, vines and runners: Hand pull, roll up and hang to dry; spray G1:100 or G1:100 + MM. Vines: Cut high and low then CSP G1:1.5.
<i>Cascabela thevetia</i>	Yellow oleander	Aponcynaceae		Seedlings: Hand pull; spray G1:100. Saplings: CSP G1:1.5.
<i>Celtis sinensis</i>	Chinese elm	Ulmaceae		Stem inject: 1:1.5 Gly:water, CSP: 1:1.5 Gly:water, Basal Bark (saplings): 210 mL:10 L diesel, Spot-spray: 200 mL:10 L water + A + D or 200 mL Gly + 1.5 g MM in 10 L water + S + A.
<i>Cestrum parqui</i>	Green cestrum	Solanaceae	OIP	Seedlings: Hand pull; spray G1:100. Stems: CSP G1:1.5; spray G1:100.
<i>Chamaesyce hirta</i>	Asthma plant	Euphorbiaceae		Hand pull or dig up; spray G1:100.
<i>Chamaesyce hyssopifolia</i>	Hyssop spurge	Euphorbiaceae		Hand pull or dig up; spray G1:100.
<i>Chloris gayana</i>	Rhodes grass	Poaceae		Hand pull or dig up; spray G1:100.
<i>Cinnamomum camphora</i>	Camphor laurel	Lauraceae	RIP	Stem inject: 1:1.5 Gly:water, CSP: 1:1.5 Gly:water, Basal Bark (saplings): 210 mL:10 L diesel, Spot-spray: 200 mL + 1.5g MM in 10 L water +S + D or 200 mL: 10 L water + A + D
<i>Cirsium vulgare</i>	Spear thistle	Asteraceae		Spray G1:100 or G1:100 + MM or MM.
<i>Commelina benghalensis</i>	Tropical spiderwort	Commelinaceae		Hand pull, bag and dispose offsite; spray G1:200 or G1:200 + MM.





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Scientific Name	Common Name	Family	Qld Status*	Control Method
<i>Conyza bonariensis</i>	Flaxleaf fleabane	Asteraceae		Hand pull; spray G1:100 or G1:100 + MM or MM.
<i>Corymbia torrelliana</i>	Cadaghi	Myrtaceae		Stem inject: 1:1.5 Gly:water, CSP: 1:1.5 Gly:water, Basal bark (saplings): 210 mL:10 L diesel, Spot-spray: 100 mL Gly:10 L Water + A + D
<i>Crassocephalum crepioides</i>	Thickhead	Asteraceae		Hand pull; spray G1:100 or G1:100 + MM or MM; CSP G1:1.5.
<i>Crotalaria lanceolata</i>	Rattlepod	Fabaceae		Seedlings: Hand pull; spray G1:100. Shrubs: CSP 1:1.5. Where practical, collect and bag seeds, dispose off-site.
<i>Cyperus rotundus</i>	Nutgrass	Poaceae		Spray G1:100.
<i>Delonix regia</i>	Poinciana	Leguminosae		Spray G1:100.
<i>Dolichandra unguis-cati</i>	Cat's claw creeper	Bignoniaceae	RIP	Seedlings, vines and runners: Hand pull, roll up and hang to dry; spray G1:100 or G1:100 + MM. Larger stems, roots, nodes, vines: CSP G1:1.5; Spray G1:100 + MM. Underground tubers: Dig up or crown; gouge and paint G1:1.5.
<i>Eleusine indica</i>	Crow's foot grass	Poaceae		Spray G1:100.
<i>Emilia sonchifolia</i>	Tasselflower	Asteraceae		Hand pull; spray G1:100 or G1:100 + MM or MM.
<i>Eragrostis tenuifolia</i>	Elastic grass	Poaceae		Hand pull or dig up; spray G1:100.
<i>Erythrina crista-galli</i>	Cockspur coral tree	Leguminosae		Seedlings and regrowth: Spray G1:200 + MM or MM. Saplings: Cut and paint stumps G1:1.5, stack branches above the ground to dry and prevent reshooting. Trees: SI G1:1.5. Follow-up: SI G1:1.5 for sprouted branches.
<i>Eugenia uniflora</i>	Brazilian cherry	Myrtaceae		Seedlings: Spray G1:200 or G200 + MM or MM. Shrubs: CSP G1:1.5; SI 1:1.5.
<i>Euphorbia cyathophora</i>	Painted spurge	Euphorbiaceae		Hand pull; spray G1:100.
<i>Ficus elastica</i>	Rubber plant	Moraceae		Seedlings and regrowth: Spray G1:200. Saplings: Cut and paint stumps G1:1.5, stack branches above the ground to dry and prevent reshooting. Trees: SI G1:1.5. Follow-up: SI G1:1.5 for sprouted branches.
<i>Fraxinus griffithii</i>	Himalayan ash	Oleaceae		Seedlings: Hand pull; spray G1:200 or G1:200 + MM. Saplings: CSP G1:1.5 or cut and paint stump G1:1.5. Trees: SI G1:1.5.
<i>Ipomoea alba</i>	Moon flower	Convolvulaceae		Seedlings, vines and runners: Hand pull, roll up and hang to dry; Spray G1:100 + MM. Larger stems, roots, nodes, vines: CSP G1:1.5; Spray G1:100 + MM.
<i>Ipomoea cairica</i>	Coastal morning glory	Convolvulaceae	OIP	Seedlings, vines and runners: Hand pull, roll up and hang to dry; Spray G1:100 + MM. Larger stems, roots, nodes, vines: CSP G1:1.5; Spray G1:100 + MM.
<i>Jacaranda mimosifolia</i>	Jacaranda	Bignoniaceae		Seedlings: Hand pull; spray G1:200. Saplings: Cut and paint stumps G1:1.5. Trees: SI G1:1.5.
<i>Koelreuteria elegans subsp. formosana</i>	Golden rain tree	Sapindaceae		Seedlings: Hand pull, spray G1:200. Saplings: CSP G1:1.5, stack branches above the ground to dry and prevent reshooting. Trees: SI G1:1.5.
<i>Lantana camara</i>	Lantana	Verbenaceae	RIP	Seedlings and regrowth: Spray G1:100. Shrubs: Lop into 50 cm pieces and CSP base G1:1.5. Dense and large infestations: Overspray using G1:100. Best results will be obtained when plant is undergoing active growth.
<i>Lepidium didymum</i>	Bittercress	Brassicaceae		Hand pull; spray G1:100 or G1:100 + MM.
<i>Leucaena leucocephala</i>	Leucaena	Mimosaceae	OIP	Seedlings: Hand pull; spray G1:200 or 1:200 + MM. Saplings: CSP 1:1.5. Trees: SI G1:1.5.



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Scientific Name	Common Name	Family	Qld Status*	Control Method
<i>Macroptilium lathyroides</i>	Phasey bean	Fabaceae		Seedlings: Spray G1:100 + MM or MM. Vines CSP 1:1.5.
<i>Megathyrsus maximus</i>	Guinea grass	Poaceae		Hand pull or dig up; spray G1:100.
<i>Melinis minutiflora</i>	Molasses grass	Poaceae		Hand pull or dig up; spray G1:100.
<i>Murraya paniculata</i>	Mock orange	Rutaceae	OIP	Seedlings: Hand pull, spray G1:200. Shrubs: CSP G1:1.5; SI G1:1.5.
<i>Neotonia wightii</i>	Glycine	Fabaceae		Seedlings: Hand pull; spray G1:100 + MM or MM. Vines CSP G1:1.5.
<i>Nerium oleander</i>	Oleander	Apocynaceae		Seedlings: Hand pull; spray G1:100. Saplings: CSP G1:1.5.
<i>Nymphaea caerulea</i>	Blue water lily	Nymphaeaceae		Hand pull.
<i>Ochna serrulata</i>	Mickey Mouse bush	Ochnaceae	OIP	Seedlings and regrowth: Spray G200 + MM or MM. Stems: CSP G1:1.5; scrape and paint G1:1.5; SI G1:1.5. Has very long tap root do not try to hand pull.
<i>Passiflora foetida</i>	Stinking passion vine	Passifloraceae		Hand pull; CSP G1:1.5; spray G200 or G200 + MM.
<i>Passiflora suberosa</i>	Corky passion flower	Passifloraceae	OIP	Seedlings: Spray G200 or G200 + MM. Vines: Hand pull; CSP G1:1.5.
<i>Paulownia tomentosa</i>	Paulownia	Scrophularaceae		Seedlings: Hand pull; spray G1:200 or G200 + MM. Saplings: CSP G1:1.5. Trees: SI G1:1.5.
<i>Peltophorum pterocarpum</i>	Yellow poinciana	Leguminosae		Seedlings and regrowth: Hand pull or spray G1:200 or G1:200 + MM or MM. Shrubs: CSP G1:1.5 or SI G1:1.5. Trees: SI G1:1.5. Where possible, bag seed pods and dispose off-site.
<i>Phyllanthus amarus</i>	Sleeping plant	Euphorbiaceae		Hand pull; spray G1:100.
<i>Phytolacca octandra</i>	Inkweed	Phytolaccaceae		Hand pull or crown; CSP G1:1.5. or cut and paint G1:1.5; spray G1:100.
<i>Pinus elliotii</i>	Slash pine	Pinaceae		Seedlings: Hand pull. Saplings and trees: Cut close to ground or ring bark; SI G1:1.5 (ensure that thick bark is penetrated).
<i>Psidium guajava</i>	Guava	Myrtaceae		Seedlings: Spray G1.5:200 or G1.5:200 + MM. Shrubs: Spray G1:200 or G1:200; CSP G1:1.5; SI G1:1.5.
<i>Ricinus communis</i>	Castor oil bush	Euphorbiaceae		Seedlings: Hand pull; spray G1:200. Shrubs and small trees: CSP G1:1.5; SI G1:1.5.
<i>Rivina humilis</i>	Coral berry	Phytolaccaceae		Hand pull and hang up to dry; spray G1:100 + MM.
<i>Schefflera actinophylla</i>	Umbrella tree	Araliaceae		Seedlings: Hand pull or spray G1:200 or G1:200 + MM. Saplings: CSP G1:1.5, stack branches above the ground to dry and prevent reshooting. Trees: SI G1:1.5. (Do NOT stem inject when tree is in flower, this can have toxic effects on nectar feeding birds).
<i>Schinus terebinthifolius</i>	Broadleaved pepper bush	Anacardiaceae	RIP	Seedlings: Hand pull; spray G1:200. Saplings: CSP G1:1.5. Trees: SI G1:1.5.
<i>Senecio madagascariensis</i>	Fireweed	Asteraceae	RIP	This species is resistant to Glyphosate and Metasulfuron Methyl. Can be weeded manually by hand or by chipping out. Can be shaded out by regenerating vegetation over the longer term.
<i>Senna pendula</i>	Easter cassia	Caesalpinaceae	OIP	Seedlings and regrowth: Hand pull or spray G1:200 or G1:200 + MM or MM. Shrubs: CSP G1:1.5 or SI 1:1.5. Where possible, bag seed pods and dispose off-site.



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Scientific Name	Common Name	Family	Qld Status*	Control Method
<i>Sida rhombifolia</i>	Common sida	Malvaceae		Seedlings and small plants: Hand pull; spray G1:100 or G1:100 + MM. Shrubs: CSP G1:1.5.
<i>Solanum mauritianum</i>	Wild tobacco	Solanaceae	OIP	Seedlings: Hand pull or spray G1:200. Shrubs: CSP G1:1.5; SI G1:1.5.
<i>Solanum nigrum</i>	Blackberry nightshade	Solanaceae		Hand pull; spray G1:100.
<i>Solanum seaforthianum</i>	Brazilian nightshade	Solanaceae		Seedlings and regrowth: Spray 30ml/10L of FLUX or G1 G1:100 + MM. Vines: CSP G1:1.5.
<i>Solanum torvum</i>	Devil's fig	Solanaceae		Seedlings: Hand pull or spray G1:200. Shrubs: CSP G1:1.5; SI G1:1.5.
<i>Spathodea campanulata</i>	African tulip tree	Bignoniaceae	RIP	Seedlings: Spray G1:200. Saplings: CSP G1:1.5. Trees: SI G1:1.5.
<i>Syagrus romanzoffiana</i>	Cocos palm	Arecaceae		Seedlings: Hand pull; crown out; spray G1:200 + MM. Trees: Cut below growing point or SI G1:1.5
<i>Tipuana tipu</i>	Racehorse tree	Fabaceae		Seedlings: Hand pull; spray G1:200. Saplings: CSP G1:1.5. Trees: SI G1:1.5.
<i>Tridax procumbens</i>	Tridax daisy	Asteraceae		Hand pull; spray G1:100 or G1:100 + MM.
<i>Trifolium repens</i>	White clover	Fabaceae		Spray G1:100.

\*Qld Status per the *Biosecurity Act 2014*, where:

RIP = Restricted invasive plants must not be given away, sold or released into the environment without a permit. The Biosecurity Act requires everyone to take all reasonable and practical steps to minimise the risks associated with invasive plants under their control. At a local level, each local government must have a biosecurity plan that covers invasive plants and animals in its area. This plan may include actions to be taken on certain species. Some of these actions may be required under local laws.

OIP = Other invasive plants are not prohibited or restricted, however, by law, everyone has a general biosecurity obligation to take reasonable and practical steps to minimise the risks associated with invasive plants under their control. Local governments must have a biosecurity plan that covers invasive plants and animals in their area. This plan may include actions to be taken on certain species. Some of these actions may be required under local laws.

†Rank and score are per Batianoff and Butler (2002; 1-5, 5 being the highest level).



## 6.7 Erosion and Sediment Control

A Sediment and Erosion Control Plan will be prepared for the works by a Certified Professional in Erosion and Sediment Control (CPESC) and approved prior to clearing works commencing. The ESCP is to be prepared in accordance with the *Soil Erosion and Sediment Control Engineering Guidelines for Queensland Construction Sites* (The Institution of Engineers, Australia Queensland Division, June 1996) and industry best practices.

The Sediment and Erosion Control Plan must locate all Sediment and Erosion Control measures wholly outside of the TPZ's of retained vegetation, or otherwise must be approved by the Project Arborist.  
Where Sediment and Erosion Control works in the TPZ's of retained trees are approved by the Project Arborist, the Project Arborist must supervise the installation of the works within the TPZ's.



## 7. Fauna Management

The actions outlined in the following sections are to be adhered to during the operational works on the subject site. They have been adapted or directly taken from the *Queensland Code of Practice for the Welfare of Wild Animals Affected by Land-Clearing and other Habitat Impacts and Wildlife Spotter/Catchers* (Hanger and Nottidge, 2009).

The principal management strategies are to:

- Identify wildlife and habitat features;
- Avoid impacting wildlife and habitat features where possible; and
- Mitigate and minimise these impacts

Wildlife is often unpredictable and highly mobile. Mitigating impacts is necessary in the overall management of fauna. Where wildlife is present, vegetation clearing should not commence until fauna have relocated or appropriate mitigation and management measure have been implemented.

Additional information regarding management of fauna during clearing and construction is provided within the Fauna Management Plan (Burchills 2021b).



## 8. Offset Revegetation

To ensure no net loss of native vegetation as a result of the proposed Stage 1 works, compensatory tree planting will be undertaken as part of the Stage 1 landscaping. This landscaping includes extensive planting of local-native species in closed forest (~~52,937m<sup>2</sup>~~) and open forest (~~19,052m<sup>2</sup>~~) landscaping zones. Species selected for the Open Forest and Closed Forest palettes are typically found in the preclearing regional ecosystems for the subject site and have been located within the landscape design to ensure species are suited to the local land zone (ie land zones 3 or 11).

The preclearing regional ecosystem (RE) for the majority of Stage 1 is RE 12.3.11 described as “*Eucalyptus tereticornis* +/- *Eucalyptus siderophloia*, *Corymbia intermedia* open forest on alluvial plains” by the Qld herbarium. Dominant canopy species of RE 12.3.11 are incorporated into the open forest palette including: *Eucalyptus tereticornis* (Qld blue gum), *E. siderophloia* (Grey ironbark), *Corymbia intermedia* (Pink bloodwood), *Corymbia tessellaris* (Moreton Bay ash). Other sub dominant canopy spp include *Angophora leiocarpa* (Rusty gum), *E. grandis* (Flooded gum), *E. tindaliae* (Queensland white stringybark) and *C. citriodora* subsp. *variegata* (Spotted gum). Sub canopy spp include *Melaleuca quinquenervia* (Broad-leaved paperbark) *Flindersia* spp., *Lophostemon suaveolens* (Swamp box), *L. confertus* (Brush box), *Cupaniopsis parvifolia* (Small-leaved tuckeroo), *Acronychia* spp., *Alphitonia excelsa* (Soap ash) and *Acacia disparrima* subsp. *disparrima* (Southern salwood).

The balance of Stage 1 (southern part) and all of the southern side of the greater golf course site is mapped as preclearing regional ecosystem 12.3.16 (formerly included in RE 12.3.1). This Endangered RE is a dry closed forest type described as follows:

*Complex notophyll to microphyll vine forest. Typical canopy species include Aphananthe philippinensis, Argyrodendron sp. (Kin Kin W.D.Francis AQ81198), Argyrodendron trifoliolatum, Diospyros fasciculosa, Drypetes deplanchei, Dysoxylum mollissimum subsp. molle, Jagera pseudorhus, Mallotus discolor, Melia azedarach, Mischocarpus pyriformis subsp. pyriformis, Planchonella pohlmaniana, Toona ciliata and Vitex lignum-vitae. Casuarina cunninghamiana may occur in scattered patches or low densities along channel banks. Grevillea robusta commonly occurs south of Maryborough. Emergents of Araucaria cunninghamii, Eucalyptus tereticornis and Lophostemon confertus may occur. Typical sub-canopy species include Streblus brunonianus, Cryptocarya triplinervis, Gossia bidwillii, Diospyros australis, Arytera divaricata, Capparis arborea, Cleistanthus cunninghamii and Polyalthia nitidissima. Occurs on Quaternary alluvial plains and channels.*

The Closed Forest palette incorporates species from RE12.3.16 as described above.

The preclearing mapping for the subject site (refer Appendix A) also indicates small areas of RE 12.3.7 which typically occurs as a fringing community along a watercourse (riparian) and is described by the herbarium as follows:

*Narrow fringing woodland of Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana +/- Melaleuca viminalis. Other species associated with this RE include Melaleuca bracteata, M. trichostachya, M. linariifolia. Lomandra hystrix is often present in stream beds. Occurs on fringing levees and banks of rivers and drainage lines of alluvial plains throughout the region.*





RE12.3.8 is the preclearing wetland type for the subject site (typically too narrow/small to map) and includes *Cyperus* spp., *Schoenoplectus* spp., *Philydrum lanuginosum*, *Eleocharis* spp., *Leersia hexandra*, *Cycnogeton procerus*, *Nymphaea* spp., *Nymphoides indica*, *Persicaria* spp., *Phragmites australis*, *Typha* spp. and a wide range of sedges grasses or forbs. Emergent *Melaleuca* spp. may sometimes occur.

Species from RE12.3.8 and RE12.3.7 are included in the wetland and waterbody planting palettes. Further details regarding the proposed landscape design can be found in the Landscape Concept Plan prepared by Perrett Webb in consultation with Landscape Architect, Arno King (appended to the Stage 1 Vegetation Management Plan, Burchills 2021).

~~A total of 719 canopy trees are proposed to be planted within Stage 1, Provide an offset ratio of 5:1 (i.e. five (5) trees being planted for every one (1) tree being removed) (Table 8.1). Additional details of the landscaping, including extent of the landscaping zones, is provided within the Landscape Concept Plan (Perrett Webb 2021; Appendix E).~~

**Table 8.1 Landscaping Planting Estimate**

Community	Area (m <sup>2</sup> )	No. Canopy Trees Planted	No. Understorey/Shrub Trees Planted
Closed Forest	52,937	529	1,588
Open Forest	19,052	190	N/A

## 8.1 Revegetation Protocol

Where landscaping is intended to represent native vegetation communities (e.g. within the closed forest and open forest landscaping zones), the following section outlines the preferred installation methodology for planting works. The methodology has been designed to maximise plant establishment success rates and minimise plant mortality. Works shall be either undertaken or directly supervised by an experienced and qualified bush regenerator. All works shall be in accordance with the provisions of this VMP and applicable provisions of the City Plan.

- Local-native species should be utilised within the closed forest and open forest landscaping zones. Local provenance tube stock must be utilised to ensure that the natural genetic composition of the restored vegetation community is maintained. Where sourcing local provenance stock is not possible, approval of the alternative stock will be sought from Council.
- Plants are to be vigorous, well established, hardened off, consistent with species or variety, free from disease and insect pests, with large root systems and no evidence of having been restricted or damaged;
- Plants are to be planted immediately after delivery to the planting site. If not possible, they are to be stored in shade and watered sufficiently during the day;
- Excavate planting medium to a depth suitable for the installation of tube or pot specimens. In areas where the planting substrate is deemed to be very poor (compacted, nutrient depauperate, hydrophobic, etc.) and above areas of potential frequent inundation and water



- flow, soil shall be suitably prepared (e.g. through use of fertiliser, and mechanical ripping where required) and sufficient topsoil to sustain long term plant growth shall be used;
- Pre-water plant hole, if soil is dry, to decrease root stress upon planting and assess the infiltration of water through the soil;
  - Incorporate into the planting substrate the appropriate quantity of prepared water crystals or other suitable hydrating product such as Hortex 'Rainsaver' or 'Moistureaid';
  - Place plant into hole and backfill ensuring that the plant is upright and the stem is not covered in any less than 10mm or any more than 20mm of planting medium;
  - Plants are to be watered thoroughly immediately after planting (ensure deep irrigation) and thereafter as required during the construction phase of the development depending on climatic conditions. Creation of a concave hollow around the base of each plant will aid water infiltration to the plant roots;
  - A complete, slow release fertiliser is recommended, and is to be administered appropriately during planting. Top dressing with slow release fertiliser is preferred to avoid toxic levels of fertiliser accumulating in the plant hole around the plant roots;
  - To ensure successful establishment, all surfaces must be stabilised using either:
    - a 10cm layer of high quality, debris and weed-free forest mulch / composted chip mulch (Note: to avoid possible stem rot in some 'drier' species ensure mulch is 'dished' and not covering plant stem by more than 2cm); or
    - suitable individual anchored natural fibre weed mat (e.g. jute mat) in areas subject to high velocity flows or slopes greater than 1:3.
  - Where available mulch material will be sourced from cleared vegetation material if adequately seasoned. Mulch seasoning is required to prevent nitrogen drawdown;
  - Seedling and saplings are to be encouraged and maintained throughout a Six (6) Month Establishment period;
  - Monitoring and evaluation for site maintenance (watering, weed control, stock replacement, fertilising, managing inappropriate site access, etc.) is to occur monthly for the period from October to May and bi-monthly for June to September;
  - Where specimens show signs of very poor health, do not replace unless the plant is determined to be dead below ground. Many species are capable of strongly recovering from transplant stress or adjustment to site conditions. If a particular species is consistently doing poorly in certain site conditions, it is recommended that it is replaced with an alternate species; and
  - A minimum 90% survival rate must be achieved by the end of the Establishment Period.



## 9. Conclusions

This Vegetation Management Plan has been prepared to identify potential environmental impacts associated with Stage 1 of Indooroopilly Golf Club Masterplan and make recommendations to avoid, mitigate and manage these impacts.

As assessment of the earthworks design for the Stage 1 operational works application has determined that 30,482m<sup>2</sup> of Vegetation Association A (landscaped mosaic) and 3,917m<sup>2</sup> Vegetation Association E (waterbodies and fringing sedgeland – area includes open water) including 252 trees, will be impacted by the proposed earthworks. Of the trees that are being removed, 104 are weed species, 11 are in poor health and require removal and 135 are required to be removed due to direct impacts required to facilitate Stage 1 of the works. ~~All trees identified for retention, as shown in the Tree Protection Plan in Appendix D, will be retained and protected during the proposed works.~~

To ensure no net loss of native vegetation as a result of the proposed development, compensatory tree planting will be undertaken as part of the Stage 1 landscaping. This landscaping includes extensive planting of local-native species in closed forest (52,937m<sup>2</sup>) and open forest (19,052m<sup>2</sup>) landscaping zones. ~~A total of 719 canopy trees are proposed to be planted within Stage 1,~~ **Provide** an offset ratio of 5:1 (i.e. five (5) trees being planted for every one (1) tree being removed).

All works adjacent to Tree Protection Zones of retained trees are to be supervised by the Project Arborist.

To ensure no impacts on native wildlife and fauna habitat, A DES licensed spotter-catcher is to undertake a pre-clearing survey two (2) weeks prior to the clearing to identify any nests, habitat features or significant fauna habitat on site to determine actions required prior / during / following clearing works.

All vegetation clearing works are to be undertaken in accordance with the provisions of this Vegetation Management Plan and conditions of approval.

This approval pertains only to vegetation requiring removal as a direct result of the assessable Filling and Excavation works. **No vegetation outside of the Footprint of Filling and Excavation Works as identified in the approved Tree Removal Plans 1 - 9, is permitted to be removed.** Vegetation outside of the footprint of identified Filling and Excavation works is subject to separate assessment and approval under the Natural Assets Local Law 2003.



## 10. References

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