



ARBORICULTURAL DEVELOPMENT IMPACT ASSESSMENT REPORT

**Sydney Metro City and SouthWest Line Wide -
Canterbury NSW**

REVISION E

1st of September 2021

**Prepared for
Systems Connect**

Prepared by

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Executive Summary

This Arboricultural Development Impact Assessment Report has been commissioned by Systems Connect to report on trees within the site of Sydney Metro City and SouthWest Line Wide site at Canterbury NSW. It has been commissioned to outline the health, condition and stability of these trees as well as their viability for retention within the context of the proposed development. The scope of this report includes all trees within areas that may be impacted by the proposed development.

The Tree Protection Zones (TPZ) of Trees 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 28 and 29 are encroached by the proposed construction and required earthworks and craneage by a total or major encroachment as defined by *AS4970-2009 Protection of Trees on Development Sites*. These trees will not be viable to be retained and will be required to be removed due to the proposed development.

The canopies of Trees 22, 23, 24, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, and 39 will be impacted by the required craneage and construction access to the site. The extent of impact is such that Trees 22, 23, 28, 29, 30, 31, 32, and 33 are not viable to be retained. Trees 24, 34, 35, 36, 37, 38, and 39 will require crown reduction pruning to provide crown clearance in accordance with 8.0 and *AS4373-2007 Pruning of Amenity Trees*.

Trees 13 and 14 are viable to be retained however the proposed new fence is located within the TPZ of these two trees. The base of the fence has a 200mm deep concrete plinth. The excavation for this plinth is to be excavated by hand with not roots greater than 20mm damaged. These two trees will remain valid to be retained on this basis.

Tree 27 is an environmental pest species and is recommended for removal.

All other trees are viable to be retained and are to be protected as defined below.

Recommendations for tree retention or removal are summarised as follows:

Tree no.	Species	Recommendations	Comments
1.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
2.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
3.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
4.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
5.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
6.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
7.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
8.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.

9.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
10.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
11.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
12.	<i>Cinnamomum camphora</i>	Remove	Not viable to be retained due to proposed development.
13.	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0.
14.	<i>Cotoneaster spp</i>	Retain	Viable to be retained and protected in accordance with 9.0.
15.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
16.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
17.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
18.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
19.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
20.	<i>Cinnamomum camphora</i>	Remove	Not viable to be retained due to proposed development.
21.	<i>Cinnamomum camphora</i>	Remove	Not viable to be retained due to proposed development.
22.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
23.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
24.	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0.
25.	<i>Pittosporum undulatum</i>	Retain	Viable to be retained and protected in accordance with 9.0.
26.	<i>Jacaranda mimosifolia</i>	Retain	Viable to be retained and protected in accordance with 9.0.
27.	<i>Ligustrum lucidum</i>	Remove	Environmental pest species
28.	<i>Jacaranda mimosifolia</i>	Remove	Not viable to be retained due to proposed development.
29.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
30.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
31.	<i>Jacaranda mimosifolia</i>	Remove	Not viable to be retained due to proposed development.
32.	<i>Nerium oleander</i>	Remove	Not viable to be retained due to proposed development.
33.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
34.	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in

			accordance with 8.0 Pruning Specifications.
35.	<i>Jacaranda mimosifolia</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in accordance with 8.0 Pruning Specifications.
36.	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in accordance with 8.0 Pruning Specifications.
37.	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in accordance with 8.0 Pruning Specifications.
38.	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in accordance with 8.0 Pruning Specifications.
39.	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in accordance with 8.0 Pruning Specifications.

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1.0 Scope of Works

1.1 Background

This Arboricultural Development Impact Assessment Report has been commissioned by Systems Connect to report on trees within the site of Sydney Metro City and SouthWest Line Wide site at Canterbury NSW. It has been commissioned to outline the health, condition and stability of these trees as well as their viability for retention. It has been commissioned to outline the health, condition and stability of these trees as well as their viability for retention in the context of the proposed development. The scope of this report includes all trees within areas that may be impacted by the proposed development.

This report has been prepared in response to CSSI 8256 Conditions of Approval E4 and E5 of the Conditions of Approval, which requires that:

“The Proponent must commission an independent experienced and suitably qualified arborist, to prepare a comprehensive Tree Report(s) before removing any trees as detailed in the documents listed in Condition A1. The Tree Report may be prepared for the entire CSSI, or separate reports may be prepared for individual areas where trees are required to be removed.

The report(s) must identify the impacts of the CSSI on trees and vegetation within and adjacent to the Construction footprint. The report(s) must include:

- (a) a description of the conditions of the tree(s) and its amenity and visual value;*
- (b) consideration of all options to avoid tree removal, including relocation of services, redesign or relocation of ancillary components (such as substations, fencing etc.) and reduction of standard offsets to underground services; and*
- (c) measures to avoid the removal of trees or minimise damage to existing trees and ensure the health and stability of those trees to be protected. This includes details of any proposed canopy or root pruning, root protection zone, excavation, site controls on waste disposal, vehicular access, storage of materials and protection of public utilities.”*

1.2 Methods

On the 12 May 2021, Glenn Bird of Birds Tree Consultancy attended site and inspected the subject trees from the ground. There was no aerial inspection carried out. A Visual Tree Assessment was undertaken in accordance with Visual Tree Assessment (VTA) guidelines (Mattheck and Breloer, 1994). Tree heights were measured using a Nikon Forestry 550 Heightmeter. Glenn was accompanied by Systems Connect personnel including Peter Hennessy, Chris Riley, Bogdan Garwacki and Errol Pather. Input was provided regarding minimising adverse impacts on trees and other flora.

1.3 Structure

The structure of this report is as follows:

- Sections 3, 4 and 5 respond to Condition E5 (a). Section 3 provides a brief description of each tree assessed. Section 4 provides an assessment of the Landscape Significance of each tree, based on the standardised rating system developed by the Institute of Australian Consulting Arborists, and is a factor of the health and condition of the tree, vitality, the form of the tree, environmental, cultural, amenity and heritage value. Section 5 provides the Tree Retention Value of each tree.
- Sections 6 and 7 respond to Condition E5 (b). Options to avoid tree removal were discussed on-site during the inspection on 12 May. Section 6.1 defines Tree Protection Zones (TPZs) for each tree and assesses the encroachment of the works on the TPZs. Section 6.2 considers the likely impact on each tree and makes recommendations on which trees can be retained and which trees will need to be removed. Section 7 summarises the outcome and makes recommendations regarding revised design and construction methods that may be able to be implemented to protect trees of high retention value.

Section 8 responds to Condition E5 (c) and provides a range of tree protection measures to be implemented prior to and during construction.

4.0 Site Analysis

2.1 Site

The subject site is Sydney Metro City and SouthWest Line Wide - Canterbury NSW. The subject trees are located within or adjacent to the boundaries of this site. The site is currently an undeveloped site within the Railway Corridor in Hutton Street Hurlstone Park. Refer to Systems Connect Drawings SMCSWLWC-SYC-TCR-AT-DWG-642030 C0.04 for greater detail of the proposed development.

2.2 Topography

There is an existing embankment present at the southern boundary of the site. The site slopes from the highest point at the eastern boundary to the lowest point at the south western corner. Refer to survey for greater details of the levels.

2.3 Identification

Trees are as identified in the attached inspection forms in Appendix C and shown in Tree location Plan A01 in Appendix D. Note that the location of the subject trees has been determined from the survey provided where possible and where trees are present that have not been identified on the survey, the location of these trees has been shown based on approximation relative to survey details.

2.4 Soils

Soil material and horizons were not tested for this report.

5.0 Existing Trees

The following trees were inspected from the ground and the following items identified. Please refer also to the attached inspection data in Appendix C.

3.1. Tree 1. *Pittosporum undulatum*

This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple co-dominant trunks from the base with an aggregate diameter at breast height (DBH) of 300mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.2. Tree 2. *Pittosporum undulatum*

This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple co-dominant trunks from the base with an aggregate DBH of 310mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.3. Tree 3. *Pittosporum undulatum*

This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple co-dominant trunks from the base with an aggregate DBH of 250mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.4. Tree 4. *Pittosporum undulatum*

This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple co-dominant trunks from the base with an aggregate DBH of 280mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.5. Tree 5. *Pittosporum undulatum*

This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple co-dominant trunks from the base with an aggregate DBH of 260mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.6. Tree 6. *Pittosporum undulatum*

This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple co-dominant trunks from the base with an aggregate DBH of 260mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.7. Tree 7. *Pittosporum undulatum*

This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple co-dominant trunks from the base with an aggregate DBH of 250mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.8. Tree 8. *Pittosporum undulatum*

This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple co-dominant trunks from the base with an aggregate DBH of

220mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.9. Tree 9. *Pittosporum undulatum*

This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple co-dominant trunks from the base with an aggregate DBH of 260mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.10. Tree 10. *Pittosporum undulatum*

This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple co-dominant trunks from the base with an aggregate DBH of 280mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.11. Tree 11. *Pittosporum undulatum*

This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple co-dominant trunks from the base with an aggregate DBH of 300mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.12. Tree 12. *Cinnamomum camphora*

This mature tree is approximately 9m tall with a canopy spread of 8m. It has multiple (3) co-dominant trunks from the base with an aggregate DBH of 470mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.13. Tree 13. *Callistemon viminalis*

This mature tree is approximately 7m tall with a canopy spread of 4m. It has twin co-dominant trunks from the base with an aggregate DBH of 160mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.14. Tree 14. *Cotoneaster spp*

This mature tree is approximately 5m tall with a canopy spread of 3m. It has multiple co-dominant trunks from the base with an aggregate DBH of 150mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.15. Tree 15. *Callistemon viminalis*

This mature tree is approximately 7m tall with a canopy spread of 3m. It has twin co-dominant trunks from the base with an aggregate DBH of 140mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.16. Tree 16. *Callistemon viminalis*

This mature tree is approximately 7m tall with a canopy spread of 3m. It has multiple co-dominant trunks from the base with an aggregate DBH of 200mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.17. Tree 17. *Callistemon viminalis*

This mature tree is approximately 7m tall with a canopy spread of 3m. It has multiple (3) co-dominant trunks from the base with an aggregate DBH of 150mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.18. Tree 18. *Callistemon viminalis*

This mature tree is approximately 7m tall with a canopy spread of 3m. It has twin co-dominant trunks from the base with an aggregate DBH of 140mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.19. Tree 19. *Callistemon viminalis*

This mature tree is approximately 7m tall with a canopy spread of 4m. It has twin co-dominant trunks from the base with an aggregate DBH of 230mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.20. Tree 20. *Cinnamomum camphora*

This mature tree is approximately 9m tall with a canopy spread of 11m. It has multiple co-dominant trunks from the base with an aggregate DBH of 500mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.21. Tree 21. *Cinnamomum camphora*

This mature tree is approximately 12m tall with a canopy spread of 11m. It has twin co-dominant trunks from the base with an aggregate DBH of 500mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.22. Tree 22. *Callistemon viminalis*

This mature tree is approximately 8m tall with a canopy spread of 7m. It has multiple (3) co-dominant trunks from the base with an aggregate DBH of 380mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.23. Tree 23. *Callistemon viminalis*

This mature tree is approximately 8m tall with a canopy spread of 7m. It has multiple co-dominant trunks from the base with an aggregate DBH of 350mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.24. Tree 24. *Callistemon viminalis*

This mature tree is approximately 7m tall with a canopy spread of 6m. It has multiple co-dominant trunks from the base with an aggregate DBH of 300mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.25. Tree 25. *Pittosporum undulatum*

This mature tree is approximately 3m tall with a canopy spread of 3m. It has a single trunk with a DBH of 140mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.26. Tree 26. *Jacaranda mimosifolia*

This mature tree is approximately 5m tall with a canopy spread of 3m. It has a single trunk with a DBH of 200mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.27. Tree 27. *Ligustrum lucidum*

This mature tree is approximately 5m tall with a canopy spread of 5m. It has a single trunk with a DBH of 180mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.28. Tree 28. *Jacaranda mimosifolia*

This mature tree is approximately 10m tall with a canopy spread of 7m. It has a single trunk with a DBH of 340mm. This tree is in good health and condition with minimal deadwood and epicormic growth. This tree is located in the public domain on the opposite side of Hutton Street.

3.29. Tree 29. *Callistemon viminalis*

This mature tree is approximately 7m tall with a canopy spread of 5m. It has a single trunk with a DBH of 280mm. This tree is in good health and condition with minimal deadwood and epicormic growth. This tree is located in the public domain on the opposite side of Hutton Street.

3.30. Tree 30. *Pittosporum undulatum*

This mature tree is approximately 5m tall with a canopy spread of 7m. It has a single trunk with a DBH of 120mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.31. Tree 31. *Jacaranda mimosifolia*

This mature tree is approximately 8m tall with a canopy spread of 13m. It has two co dominant trunks from the base with an aggregate DBH of 480mm. This tree is in good health and condition with minimal deadwood. There is one long end-weighted horizontal branch extending over the construction area. Tree 31 currently has an unbalanced crown due to line clearance pruning. There is substantial epicormic growth within the crown as a result of previous line clearance pruning. The first order branch that extends north over the site is the only remaining natural growth in the crown and is to be retained.

3.32. Tree 32. *Nerium oleander*

This mature tree is approximately 6m tall with a canopy spread of 8m. It has multiple codominant trunks from the base with a DBH of 400mm. This tree is in good health and condition with minimal deadwood and epicormic growth. This tree is located in the public domain on the opposite side of Hutton Street.

3.33. Tree 33. *Callistemon viminalis*

This mature tree is approximately 7m tall with a canopy spread of 5m. It has a single trunk with a DBH of 280mm. This tree is in good health and condition with minimal deadwood and epicormic growth. This tree is located in the public domain on the opposite side of Hutton Street.

3.34. Tree 34. *Callistemon viminalis*

This mature tree is approximately 8m tall with a canopy spread of 7m. It has multiple co dominant trunks with a DBH of 300mm. This tree is in good health and condition with minimal deadwood and epicormic growth. This tree is located in the public domain on the opposite side of Hutton Street.

3.35. Tree 35. *Jacaranda mimosifolia*

This mature tree is approximately 10m tall with a canopy spread of 11m. It has multiple co dominant trunks with a DBH of 400mm. This tree is in good health and condition with minimal deadwood and significant epicormic growth.

3.36. Tree 36. *Callistemon viminalis*

This mature tree is approximately 8m tall with a canopy spread of 7m. It has multiple co dominant trunks with a DBH of 300mm. This tree is in good health and condition with minimal deadwood and epicormic growth. This tree is located in the public domain on the opposite side of Hutton Street.

3.37. Tree 37. *Callistemon viminalis*

T This mature tree is approximately 8m tall with a canopy spread of 7m. It has multiple co dominant trunks with a DBH of 300mm. This tree is in good health and condition with minimal deadwood and epicormic growth. This tree is located in the public domain on the opposite side of Hutton Street.

3.38. Tree 38. *Callistemon viminalis*

This mature tree is approximately 8m tall with a canopy spread of 7m. It has multiple co dominant trunks with a DBH of 300mm. This tree is in good health and condition with minimal deadwood and epicormic growth. This tree is located in the public domain on the opposite side of Hutton Street.

3.39. Tree 39. *Callistemon viminalis*

This mature tree is approximately 8m tall with a canopy spread of 7m. It has multiple co dominant trunks with a DBH of 300mm. This tree is in good health and condition with minimal deadwood and epicormic growth. This tree is located in the public domain on the opposite side of Hutton Street.

4.0 Landscape Significance of Trees

4.1 Landscape Significance

The significance of a tree within the landscape is a factor of the health and condition of the tree, vitality, the form of the tree, environmental, cultural, amenity and heritage value.

4.2 Methodology of Determining Landscape Significance

For the purpose of this report, the Significance of a Tree, Assessment Rating System (STARS) as developed by the Institute of Australian Consulting Arborists (IACA) has been implemented. Please refer to Appendix A for greater detail of this assessment system. This system defines Landscape Significance for individual trees as High, Medium or Low Significance.

4.3 Landscape Significance of Subject Trees

Based on our assessment of the subject trees and implementation of the IACA Significance of a Tree, Assessment Rating System, the Landscape Significance of the Subject Trees was determined as shown in Table 1.

Tree no.	Species	Landscape Significance
1.	<i>Pittosporum undulatum</i>	Medium
2.	<i>Pittosporum undulatum</i>	Medium
3.	<i>Pittosporum undulatum</i>	Medium
4.	<i>Pittosporum undulatum</i>	Medium
5.	<i>Pittosporum undulatum</i>	Medium
6.	<i>Pittosporum undulatum</i>	Medium
7.	<i>Pittosporum undulatum</i>	Medium
8.	<i>Pittosporum undulatum</i>	Medium
9.	<i>Pittosporum undulatum</i>	Medium
10.	<i>Pittosporum undulatum</i>	Medium
11.	<i>Pittosporum undulatum</i>	Medium
12.	<i>Cinnamomum camphora</i>	Low
13.	<i>Callistemon viminalis</i>	Medium
14.	<i>Cotoneaster spp</i>	Low
15.	<i>Callistemon viminalis</i>	Medium
16.	<i>Callistemon viminalis</i>	Medium
17.	<i>Callistemon viminalis</i>	Medium
18.	<i>Callistemon viminalis</i>	Medium
19.	<i>Callistemon viminalis</i>	Medium
20.	<i>Cinnamomum camphora</i>	Low
21.	<i>Cinnamomum camphora</i>	Low
22.	<i>Callistemon viminalis</i>	Medium
23.	<i>Callistemon viminalis</i>	Medium
24.	<i>Callistemon viminalis</i>	Medium

25.	<i>Pittosporum undulatum</i>	Medium
26.	<i>Jacaranda mimosifolia</i>	Medium
27.	<i>Ligustrum lucidum</i>	Low
28.	<i>Jacaranda mimosifolia</i>	Medium
29.	<i>Callistemon viminalis</i>	Medium
30.	<i>Pittosporum undulatum</i>	Medium
31.	<i>Jacaranda mimosifolia</i>	Medium
32.	<i>Nerium oleander</i>	Medium
33.	<i>Callistemon viminalis</i>	Medium
34.	<i>Callistemon viminalis</i>	Medium
35.	<i>Jacaranda mimosifolia</i>	Medium
36.	<i>Callistemon viminalis</i>	Medium
37.	<i>Callistemon viminalis</i>	Medium
38.	<i>Callistemon viminalis</i>	Medium
39.	<i>Callistemon viminalis</i>	Medium

Table 1 - Landscape Significance

5.0 Subject Tree Retention Value

5.1 Tree Retention Value Methodology

For the purpose of this report, the Tree Retention Values have been assessed by incorporating Landscape Significance Values as determined in 4.0 with the Useful Life Expectancy of the subject trees and assessing the retention values based on the Tree Retention Value Priority Matrix as developed by the Institute of Australian Consulting Arborists (IACA). Please refer to Appendix B for greater detail of this Tree Retention Value Priority Matrix. This matrix defines Landscape Significance for individual trees as High, Medium or Low Retention Value as well as Priority for Removal.

5.2 Retention Value of Subject Trees

Based on our assessment of the subject trees and implementation of the IACA Tree Retention Value Priority Matrix, the Retention Values of the Subject Trees were determined as shown in Table 2.

Tree no.	Species	Retention Value
1.	<i>Pittosporum undulatum</i>	Medium
2.	<i>Pittosporum undulatum</i>	Medium
3.	<i>Pittosporum undulatum</i>	Medium
4.	<i>Pittosporum undulatum</i>	Medium
5.	<i>Pittosporum undulatum</i>	Medium
6.	<i>Pittosporum undulatum</i>	Medium
7.	<i>Pittosporum undulatum</i>	Medium
8.	<i>Pittosporum undulatum</i>	Medium

9.	<i>Pittosporum undulatum</i>	Medium
10.	<i>Pittosporum undulatum</i>	Medium
11.	<i>Pittosporum undulatum</i>	Medium
12.	<i>Cinnamomum camphora</i>	Low
13.	<i>Callistemon viminalis</i>	Medium
14.	<i>Cotoneaster spp</i>	Low
15.	<i>Callistemon viminalis</i>	Medium
16.	<i>Callistemon viminalis</i>	Medium
17.	<i>Callistemon viminalis</i>	Medium
18.	<i>Callistemon viminalis</i>	Medium
19.	<i>Callistemon viminalis</i>	Medium
20.	<i>Cinnamomum camphora</i>	Low
21.	<i>Cinnamomum camphora</i>	Low
22.	<i>Callistemon viminalis</i>	Medium
23.	<i>Callistemon viminalis</i>	Medium
24.	<i>Callistemon viminalis</i>	Medium
25.	<i>Pittosporum undulatum</i>	Medium
26.	<i>Jacaranda mimosifolia</i>	Medium
27.	<i>Ligustrum lucidum</i>	Low
28.	<i>Jacaranda mimosifolia</i>	Medium
29.	<i>Callistemon viminalis</i>	Medium
30.	<i>Pittosporum undulatum</i>	Medium
31.	<i>Jacaranda mimosifolia</i>	Low
32.	<i>Nerium oleander</i>	Low
33.	<i>Callistemon viminalis</i>	Medium
34.	<i>Callistemon viminalis</i>	Medium
35.	<i>Jacaranda mimosifolia</i>	Medium
36.	<i>Callistemon viminalis</i>	Medium
37.	<i>Callistemon viminalis</i>	Medium
38.	<i>Callistemon viminalis</i>	Medium
39.	<i>Callistemon viminalis</i>	Medium

Table 2 – Tree Retention Value

6.0 Impact of Development

6.1 Tree Protection Zone

Tree Protection Zones (TPZs) have been defined for the subject trees in order to define the encroachment of the proposed development in accordance with AS4970-2009. The TPZs required have been taken as a circular area with a radius 12 x the diameter at breast height of the tree. This requirement is in line with Australian Standard AS 4970-2009 Protection of Trees on Development Sites. This standard defines a maximum of 10% encroachment to be minimal encroachment. Any encroachment over 10% requires the site arborist to give consideration as to the viability of the tree due to the proposed development.

6.2 Structural Root Zone

Structural Root Zone (SRZs) are defined by AS4970-2009 as the area of root development required for the structural stability of the tree. The SRZ is required to be assessed when an encroachment greater than 10% is considered.

Tree no.	Species	TPZ Radius (m)	Encroachment (%)	SRZ Radius (m)
1.	<i>Pittosporum undulatum</i>	3.6	100	2.05
2.	<i>Pittosporum undulatum</i>	3.72	100	2.13
3.	<i>Pittosporum undulatum</i>	3	100	1.97
4.	<i>Pittosporum undulatum</i>	3.36	100	2.00
5.	<i>Pittosporum undulatum</i>	3.12	100	1.97
6.	<i>Pittosporum undulatum</i>	3.12	100	1.94
7.	<i>Pittosporum undulatum</i>	3	100	1.91
8.	<i>Pittosporum undulatum</i>	2.64	100	1.88
9.	<i>Pittosporum undulatum</i>	3.12	100	2.00
10.	<i>Pittosporum undulatum</i>	3.36	100	2.02
11.	<i>Pittosporum undulatum</i>	3.6	100	2.05
12.	<i>Cinnamomum camphora</i>	5.64	100	2.67

13.	<i>Callistemon viminalis</i>	2	0	1.68
14.	<i>Cotoneaster spp</i>	2	0	1.68
15.	<i>Callistemon viminalis</i>	2	100	1.68
16.	<i>Callistemon viminalis</i>	2.4	100	1.88
17.	<i>Callistemon viminalis</i>	2	100	1.68
18.	<i>Callistemon viminalis</i>	2	100	1.68
19.	<i>Callistemon viminalis</i>	2.76	100	1.85
20.	<i>Cinnamomum camphora</i>	6	35	2.85
21.	<i>Cinnamomum camphora</i>	6	40	2.76
22.	<i>Callistemon viminalis</i>	4.56	100	2.37
23.	<i>Callistemon viminalis</i>	4.2	100	2.37
24.	<i>Callistemon viminalis</i>	3.6	30	2.25
25.	<i>Pittosporum undulatum</i>	2	0	1.68
26.	<i>Jacaranda mimosifolia</i>	2.4	0	1.85
27.	<i>Ligustrum lucidum</i>	2.16	0	1.85
28.	<i>Jacaranda mimosifolia</i>	4.08	100	2.25
29.	<i>Callistemon viminalis</i>	3.36	100	1.85
30.	<i>Pittosporum undulatum</i>	2	100	1.79
31.	<i>Jacaranda mimosifolia</i>	5.76	100	2.67
32.	<i>Nerium oleander</i>	4.8	100	2.67
33.	<i>Callistemon viminalis</i>	4.2	100	
34.	<i>Callistemon viminalis</i>	3.6	30	
35.	<i>Jacaranda mimosifolia</i>	4.8	20	
36.	<i>Callistemon viminalis</i>	3.6	30	
37.	<i>Callistemon viminalis</i>	3.6	20	
38.	<i>Callistemon viminalis</i>	3.6	20	
39.	<i>Callistemon viminalis</i>	3.6	20	

6.3 Development Impact

6.3.1. Tree 1. *Pittosporum undulatum*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

6.3.2. Tree 2. *Pittosporum undulatum*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

6.3.3. Tree 3. *Pittosporum undulatum*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

6.3.4. Tree 4. *Pittosporum undulatum*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

6.3.5. Tree 5. *Pittosporum undulatum*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

6.3.6. Tree 6. *Pittosporum undulatum*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

6.3.7. Tree 7. *Pittosporum undulatum*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

6.3.8. Tree 8. *Pittosporum undulatum*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

- 6.3.9. Tree 9. *Pittosporum undulatum***
The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.
- 6.3.10. Tree 10. *Pittosporum undulatum***
The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.
- 6.3.11. Tree 11. *Pittosporum undulatum***
The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.
- 6.3.12. Tree 12. *Cinnamomum camphora***
The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.
- 6.3.13. Tree 13. *Callistemon viminalis***
The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.
- 6.3.14. Tree 14. *Cotoneaster spp***
The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.
- 6.3.15. Tree 15. *Callistemon viminalis***
The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.
- 6.3.16. Tree 16. *Callistemon viminalis***
The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

6.3.17. Tree 17. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

6.3.18. Tree 18. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

6.3.19. Tree 19. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

6.3.20. Tree 20. *Cinnamomum camphora*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be encroached by the proposed development by 35% which is significantly greater than the minor encroachment as defined by AS 4970-2009. The Structural Root Zone will be impacted by required earthworks required to achieve the design levels. This tree will not be viable to be retained under the proposed development.

6.3.21. Tree 21. *Cinnamomum camphora*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be encroached by the proposed development by 40% which is significantly greater than the minor encroachment as defined by AS 4970-2009. The Structural Root Zone will be impacted by required earthworks required to achieve the design levels. This tree will not be viable to be retained under the proposed development.

6.3.22. Tree 22. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will not be further encroached by the proposed development. This tree is wholly impacted by the proposed crane and construction transport requirements. Crown reduction pruning is not viable, and this tree is not viable to be retained.

6.3.23. Tree 23. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will not be further encroached by the proposed development. This tree is wholly impacted by the proposed crane and construction transport requirements. Crown reduction pruning is not viable, and this tree is not viable to be retained.

6.3.24. Tree 24. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be further encroached by the proposed development. The crown of this tree is impacted by the required craneage and is required to be pruned to provide crane clearance in accordance with Pruning Specification 8.0.

6.3.25. Tree 25. *Pittosporum undulatum*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.26. Tree 26. *Jacaranda mimosifolia*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.27. Tree 27. *Ligustrum lucidum*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development. The northern side of the crown of this tree may be impacted by the proposed craneage for the new building. The extent of encroachment will be less than 10% of the crown and will not impact the balance of the crown or stability of this tree. If this crown is impacted this tree will require crown reduction pruning in accordance with 8.0.

6.3.28. Tree 28. *Jacaranda mimosifolia*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will be totally encroached by the proposed craneage works. The craneage plan shows that this tree will be totally within the turning radius of the crane and will be required to be removed due to the proposed craneage works.

6.3.29. Tree 29. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will be totally encroached by the proposed craneage works. The craneage plan shows that this tree will be totally within the turning radius of the crane and will be required to be removed due to the proposed craneage works.

6.3.30. Tree 30. *Pittosporum undulatum*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree is wholly impacted by the proposed craneage and construction transport requirements. Crown reduction pruning is not viable, and this tree is not viable to be retained.

6.3.31. Tree 31. *Jacaranda mimosifolia*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree is wholly impacted by the proposed craneage and construction transport requirements. Crown reduction pruning is not viable, and this tree is not viable to be retained.

6.3.32. Tree 32. *Nerium oleander*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree is wholly impacted by the proposed craneage and construction transport requirements. Crown reduction pruning is not viable, and this tree is not viable to be retained.

6.3.33. Tree 33. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will be totally encroached by the proposed craneage works. The craneage plan shows that this tree will be totally within the turning radius of the crane and will be required to be removed due to the proposed craneage works.

6.3.34. Tree 34. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will be totally encroached by the proposed craneage works. The craneage plan shows that this tree will be totally within the turning radius of the crane and will be required to be removed due to the proposed craneage works.

6.3.35. Tree 35. *Jacaranda mimosifolia*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be further encroached by the proposed development. The crown of this tree is impacted by the required craneage and is required to be pruned to provide crane clearance in accordance with Pruning Specification 8.0.

6.3.36. Tree 36. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be

further encroached by the proposed development. The crown of this tree is impacted by the required craneage and is required to be pruned to provide crane clearance in accordance with Pruning Specification 8.0.

6.3.37. Tree 37. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be further encroached by the proposed development. The crown of this tree is impacted by the required craneage and is required to be pruned to provide crane clearance in accordance with Pruning Specification 8.0.

6.3.38. Tree 38. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be further encroached by the proposed development. The crown of this tree is impacted by the required craneage and is required to be pruned to provide crane clearance in accordance with Pruning Specification 8.0.

6.3.39. Tree 39. *Callistemon viminalis*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 *Protection of Trees on Development Sites* will not be further encroached by the proposed development. The crown of this tree is impacted by the required craneage and is required to be pruned to provide crane clearance in accordance with Pruning Specification 8.0.

7.0 Recommendations

The Tree Protection Zones (TPZ) of Trees 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 28 and 29 are encroached by the proposed construction and required earthworks and craneage by a total or major encroachment as defined by *AS4970-2009 Protection of Trees on Development Sites*. These trees will not be viable to be retained and will be required to be removed due to the proposed development..

Trees 13 and 14 are viable to be retained however the proposed new fence is located within the TPZ of these two trees. The base of the fence has a 200mm deep concrete plinth. The excavation for this plinth is to be excavated by hand with not roots greater than 20mm damaged. These two trees will remain valid to be retained on this basis.

The canopies of Trees 22, 23, 24, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, and 39 will be impacted by the required craneage and construction access to the site. The extent of impact is such that Trees 22, 23, 28, 29, 30, 31, 32, and 33 are not viable to be retained. Trees 24, 34, 35, 36, 37, 38, and 39 will require crown reduction pruning to provide crown clearance in accordance with Pruning Specification 8.0 and *AS4373-2007 Pruning of Amenity Trees*.

Tree 27 is an environmental pest species and is recommended for removal.

All other trees are viable to be retained and are to be protected as defined below.

Recommendations for tree retention or removal are summarised as follows:

Tree no.	Species	Recommendations	Comments
1.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
2.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
3.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
4.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
5.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
6.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
7.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
8.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.

9.	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
10	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
11	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
12	<i>Cinnamomum camphora</i>	Remove	Not viable to be retained due to proposed development.
13	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0.
14	<i>Cotoneaster spp</i>	Retain	Viable to be retained and protected in accordance with 9.0.
15	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
16	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
17	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
18	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
19	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
20	<i>Cinnamomum camphora</i>	Remove	Not viable to be retained due to proposed development.
21	<i>Cinnamomum camphora</i>	Remove	Not viable to be retained due to proposed development.
22	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
23	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
24	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0.
25	<i>Pittosporum undulatum</i>	Retain	Viable to be retained and protected in accordance with 9.0.

26	<i>Jacaranda mimosifolia</i>	Retain	Viable to be retained and protected in accordance with 9.0.
27	<i>Ligustrum lucidum</i>	Remove	Environmental pest species
28	<i>Jacaranda mimosifolia</i>	Remove	Not viable to be retained due to proposed development.
29	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
30	<i>Pittosporum undulatum</i>	Remove	Not viable to be retained due to proposed development.
31	<i>Jacaranda mimosifolia</i>	Remove	Not viable to be retained due to proposed development.
32	<i>Nerium oleander</i>	Remove	Not viable to be retained due to proposed development.
33	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to proposed development.
34	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in accordance with 8.0 Pruning Specifications.
35	<i>Jacaranda mimosifolia</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in accordance with 8.0 Pruning Specifications.
36	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in accordance with 8.0 Pruning Specifications.
37	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in accordance with 8.0 Pruning Specifications.
38	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in accordance with 8.0 Pruning Specifications.

39	<i>Callistemon viminalis</i>	Retain	Viable to be retained and protected in accordance with 9.0. Pruning required for crane clearance in accordance with 8.0 Pruning Specifications.
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8.0 Pruning Specification

8.1 General

All pruning is to be carried out under the supervision of the Site Arborist (AQF Level 5) by an arborist with qualifications of AQF Level 3 or higher. All pruning is to be in accordance with *AS4373-2007 Pruning of Amenity Trees*. All pruning is to be carried out under the supervision of the Site Arborist.

Pruning locations are to be selected in order to minimise the amount of canopy removed to provide clearance and leave the remaining canopy balanced with even weight distribution and to maintain the natural habit for this species. Tree 31 currently has an unbalanced crown due to line clearance pruning. The first order branch that extends north over the site is the only remaining natural growth in the crown and is to be retained.

Pruning is to be restricted to the extent that is required to allow construction and vehicular access to the site. This pruning is not to exceed 10% of the crown of each tree and branches pruned are not to exceed 40mm diameter.

All pruning is to be carried out under the supervision of the Site Arborist (AQF Level 5) by an arborist with qualifications of AQF Level 3 or higher. All pruning is to be in accordance with *AS4373-2007 Pruning of Amenity Trees*. All pruning is to be carried out under the supervision of the Site Arborist.

8.2 Tree 24

Tree 24 is required to be pruned to provide crane clearance. Reduction prune branches less than 75mm in diameter to the approximate line of the existing kerb.



Figure 1 - Pruning required to Tree 24

8.3 Tree 34

Tree 34 is required to be pruned to provide crane clearance. Reduction prune branches less than 75mm in diameter to the approximate line of the existing kerb.

8.4 Tree 35

Tree 35 is required to be pruned to provide crane clearance. Selectively thin epicormic growth less than 50mm in diameter to provide crown clearance.



Figure 2 - Tree 35 Remove epicormic growth to provide crown clearance

8.5

Tree 36

Tree 36 is required to be pruned to provide crane clearance. Reduction prune branches less than 75mm in diameter to the approximate line of the existing kerb.



Figure 3 - Crown reduction required Tree 36

8.6 Tree 37

Tree 37 is required to be pruned to provide crane clearance. Reduction prune branches less than 75mm in diameter to the approximate line of the existing kerb.



Figure 4 - Trees 37, 38, 39.

8.7 Tree 38

Tree 38 is required to be pruned to provide crane clearance. Reduction prune branches less than 75mm in diameter to the approximate line of the existing kerb.

8.8 Tree 39

Tree 39 is required to be pruned to provide crane clearance. Reduction prune branches less than 75mm in diameter to the approximate line of the existing kerb.

9.0 Pre-Construction Tree Protection Measures

9.1 General

All tree protection works shall be carried out before excavation, grading and site works commence. Tree protection works shall be inspected and approved by a Consulting Arborist meeting AQF Level 5 prior to construction works commencing.

Storage of materials, mixing of materials, vehicle parking, disposal of liquids, machinery repairs and refueling, site office and sheds, and the lighting of fires, stockpiling of soil, rubble or any debris shall not be carried out within the TPZ of existing trees. No backfilling shall occur within the TPZ of existing trees. Trees shall not be removed or lopped unless specific instruction is given in writing by the Superintendent.

9.2 Identification

All trees to be protected shall be clearly identified and all TPZs surveyed.

9.3 Site Arborist

Prior to all site works commencing, a Site Arborist is to be appointed with the responsibility of implementing all Tree Protection Measures in this report as well as compliance with AS4970-2009 Protection of Trees on Development Sites. The Site Arborist is to hold qualifications equivalent of AQF Level 5.

9.4 Protective Fence

Fencing is to be erected around existing trees to be retained. In addition to this protective fencing within the site, Protective Fencing is to be installed to the full extent of the TPZs within the site. This fencing is to be erected prior to any materials being brought on site or before any site, civil works or construction works commence. The fence shall enclose a sufficient area so as to prevent damage to the TPZ as defined on Appendix D Tree Protection Plan and as defined in 5.1 above. Fence to comprise 1800mm high chain wire mesh fixed to 50mm diameter Galvanised steel posts. Panels should be securely fixed top and bottom to avoid separation. No storage of building materials, tools, paint, fuel or contaminants and the like shall occur within the fenced area.

9.5 Mulching

Install mulch to the extent of all tree protection fencing. Use a leaf mulch conforming to AS 4454 which is free of deleterious and extraneous matter such as soil, weeds, sticks and stones and consisting of a minimum of 90% recycled content compliant with AS 4454 (1999) and AS 4419 (1998). All trees marked as to be removed on the proposed development are to be chipped and reused for this purpose. Place mulch evenly and to a depth of 100mm.

9.6 Signage

Prior to works commencing, tree protection signage is to be attached to each tree protection zone, displayed in a prominent position and the sign repeated at 10 metres intervals or closer where the fence changes direction. Each sign shall contain in a clearly legible form, the following information:

Tree protection zone.

- This fence has been installed to prevent damage to the trees and their growing environment both above and below ground and access is restricted.

- No Access within Tree Protection Zone
- The name, address, and telephone number of the developer.

The name and telephone number of the Site Arborist.

9.7 Trunk and Branch Protection

Where a tree is to be retained and a Tree Protection Zone cannot be adequately established due to restricted access, the trunk and branches in the lower crown will be protected by wrapping 2 layers of hessian or carpet underfelt around the trunk and branches for a minimum of 2 m or as lower branches permit, then metal strapping secures 38x50 x2000 mm timber battens together around the trunk (do not nail or screw to the trunk or branches). The number of battens to be used is as required to encircle the trunk and the battens are to extend to the base of the tree (AS4970 2009 Protection of trees on development sites, Figure 3 Examples of Trunk, Branch and ground protection).

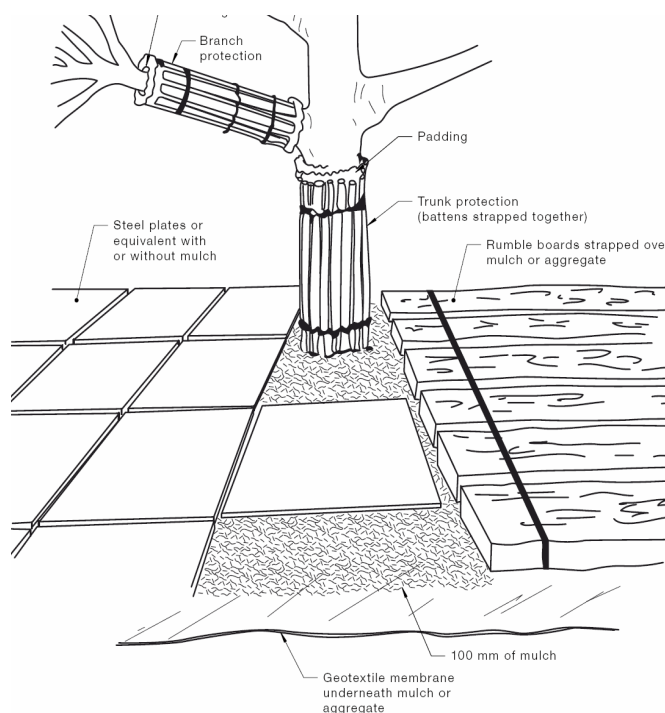


Figure 5 - Trunk Protection

10.0 Site Management Issues

10.1 Soil Compaction

Plant and pedestrian traffic during the construction period will cause significant soil compaction. This will be exacerbated by increased water expected on these soils as result of adjacent construction and weather. Compaction of the soil within the TPZ will reduce the voids between soil peds or particles therefore will reduce the percolation of water and gaseous exchange capacity of the root system. No pedestrian or plant access is permissible to the TPZ.

10.2 Site Access

Sufficient access is required to enable efficient construction. It is essential to delineate access zones or corridors which will provide suitable access without damaging the existing trees to be retained or causing compaction to the root zone.

10.3 Excavation within Tree Protection Area

No excavation is to be carried out within the TPZs of retained trees without the permission and supervision of the site arborist (AQF5)

10.4 Possible Contamination / Storage of Materials

The construction site will require the use of many chemicals and materials that are possible contaminants which if not managed will pose a risk to the existing trees. These possible contaminants include fuels, herbicides, solvents and the like. A site specific Environmental Management Plan shall be provided, and this specific risk identified and addressed.

11.0 Tree Protection Measures During Construction

11.1 Maintenance of Pre-Construction Tree Protection Measures

The Pre-Construction Tree Protection Measures identified in 5.0 above are to be maintained in good and serviceable condition throughout the construction period.

11.2 Possible Contaminants

Do not store or otherwise place bulk materials and harmful materials under or near trees. Do not place spoil from excavations within the TPZs. Prevent wind-blown materials such as cement from harming trees. All possible contaminants are to be stored in a designated and appropriate area with secure chemical spill measures such as a bund in place.

11.3 Physical Damage

Prevent damage to tree. Do not attach stays, guys and the like to trees. No personnel, plant, machinery or materials are to be allowed within the tree protection fencing.

11.4 Compaction

No filling or compaction shall occur over tree roots zones within tree protection fenced areas. Where construction occurs close to or the TPZ of trees to be retained it shall be necessary to install protection to avoid compaction of the ground surface. This protection is to be planks supported clear of the ground fixed to scaffolding.

11.5 Trenching

No Trenching should be necessary within the TPZs or within tree protection fencing. No further trenching is to be carried out without the approval of the Site Arborist. Should any further trenching be required within the TPZs identified, this work is to be carried out by hand and under the supervision of a qualified Arborist.

11.6 Irrigation/Watering

Contractor is to ensure that soil moisture levels are adequately maintained. Apply water at an appropriate rate suitable for the species during periods of little or no rainfall.

11.7 Site Sheds / Amenities/ Storage

Site sheds, site amenities, ablutions and site storage shall be in the area clear of all TPZ. Chemicals and potential contaminants are to be stored appropriately and this storage area is to be enclosed by a chemical spill bund to prevent the potential run off of contaminants in the event of a spillage or accident.

12.0 Environmental / Heritage/ Legislative Considerations

None of the subject trees are identified as threatened species or elements of endangered ecological communities within the Biodiversity Conservation Act 2016.

13.0 References

Mattheck, C. Breloer, K. 1993, The Body Language of Trees: A Handbook for Failure Analysis, 12th Impression 2010 The Stationery Office.
AS4970-2009 Protection of Trees on Development Sites: Standards Australia

14.0 Disclaimer

This Appraisal has been prepared for the exclusive use of the Client and Birds Tree Consultancy.

Birds Tree Consultancy accepts no responsibility for its use by other persons. The Client acknowledges that this Appraisal, and any opinions, advice or recommendations expressed or given in it, are based on the information supplied by the Client and on the data inspections, measurements and analysis carried out or obtained Birds Tree Consultancy and referred to in the Appraisal. The Client should rely on the Appraisal, and on its contents, only to that extent.

Every effort has been made in this report to include, assess and address all defects, structural weaknesses, instabilities and the like of the subject trees. All inspections were made from ground level using only visual means and no intrusive or destructive means of inspection were used. For many structural defects such as decay and inclusions, internal inspection is required by means of Resistograph or similar. No such investigation has been made in this case. Trees are living organisms and are subject to failure through a variety of causes not able to be identified by means of this inspection and report.

IACA Significance of a Tree, Assessment Rating System (STARS) © (IACA 2010) ©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined.

Tree Significance - Assessment Criteria



1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

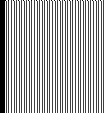
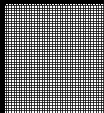
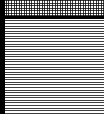
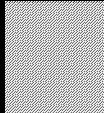
Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
 - The tree is a declared noxious weed by legislation.
- Hazardous/Irreversible Decline**
- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
 - The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Appendix B Tree Retention Values

		Significance				
		1. High	2. Medium	3. Low		
		Significance in Landscape	Significance in Landscape	Significance in Landscape	Environmental Pest / Noxious Weed Species	Hazardous / Irreversible Decline
Estimated Life Expectancy	1. Long >40 years					
	2. Medium 15-40 Years					
	3. Short <1-15 Years					
	Dead					
<u>Legend for Matrix Assessment</u>  Priority for Retention (High) - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 <i>Protection of trees on development sites</i>. Tree sensitive construction measures must be implemented e.g. pier and beam etc. if works are to proceed within the Tree Protection Zone.  Consider for Retention (Medium) - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.  Consider for Removal (Low) - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.  Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.						



REFERENCES

Australia ICOMOS Inc. 1999, *The Burra Charter – The Australian ICOMOS Charter for Places of Cultural Significance*, International Council of Monuments and Sites, www.icomos.org/australia

Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

Footprint Green Pty Ltd 2001, *Footprint Green Tree Significance & Retention Value Matrix*, Avalon, NSW Australia, www.footprintgreen.com.au

Appendix C - Tree Inspection Data

Birds Tree Consultancy

Consulting Arborist • Project Management • Horticultural Consultancy • Landscape Management

Inspection Data
Canterbury

28-Aug-21

Tree no.	Species	Height (m)	Spread (m)	DBH (mm)	TPZ Radius (m)	DAB Radius (mm)	SRZ Radius (m)	Maturity	Trunk (single, twin, multiple @)	Trunk lean	Form/Crown shape	Branching Habit	Crown Distribution	Stability	Branching Structure	Pruning History	Defects	Damage	Overall Health & Vigour	Canopy Density	Foliage	Deadwood	Epicormic Growth	Pest Infestation	Disease	Life expectancy	Env. & Landscape significance	Retention Value	Notes/Comments
1	Pittosporum undulatum	6	4	300	3.6	320	2.05	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
2	Pittosporum undulatum	6	4	310	3.72	350	2.13	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
3	Pittosporum undulatum	6	4	250	3	290	1.97	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
4	Pittosporum undulatum	6	4	280	3.36	300	2.00	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
5	Pittosporum undulatum	6	4	260	3.12	290	1.97	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
6	Pittosporum undulatum	6	4	260	3.12	280	1.94	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
7	Pittosporum undulatum	6	4	250	3	270	1.91	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
8	Pittosporum undulatum	6	4	220	2.64	260	1.88	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
9	Pittosporum undulatum	6	4	260	3.12	300	2.00	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
10	Pittosporum undulatum	6	4	280	3.36	310	2.02	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
11	Pittosporum undulatum	6	4	300	3.6	320	2.05	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
12	Cinnamomum camphora	9	8	470	5.64	600	2.67	Mature	Multiple (3) @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Low	Low	
13	Callistemon viminalis	7	4	160	2	200	1.68	Mature	Twin @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
14	Cotoneaster spp	5	3	150	2	200	1.68	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Low	Low	
15	Callistemon viminalis	7	3	140	2	200	1.68	Mature	Twin @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
16	Callistemon viminalis	7	3	200	2.4	260	1.88	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
17	Callistemon viminalis	7	3	150	2	200	1.68	Mature	Multiple (3) @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
18	Callistemon viminalis	7	3	140	2	200	1.68	Mature	Twin @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
19	Callistemon viminalis	7	4	230	2.76	250	1.85	Mature	Twin @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
20	Cinnamomum camphora	9	11	500	6	700	2.85	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Low	Low	
21	Cinnamomum camphora	12	11	500	6	650	2.76	Mature	Twin @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Low	Low	
22	Callistemon viminalis	8	7	380	4.56	450	2.37	Mature	Multiple (3) @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
23	Callistemon viminalis	8	7	350	4.2	450	2.37	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
24	Callistemon viminalis	7	6	300	3.6	400	2.25	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
25	Pittosporum undulatum	3	3	140	2	200	1.68	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
26	Jacaranda Mimosifolia	5	3	200	2.4	250	1.85	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
27	Ligustrum lucidum	5	5	180	2.16	250	1.85	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
28	Jacaranda Mimosifolia	10	7	340	4.08	400	2.25	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
29	Callistemon viminalis	7	5	280	3.36	250	1.85	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
30	Pittosporum undulatum	5	7	120	2	230	1.79	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
31	Jacaranda Mimosifolia	8	13	480	5.76	600	2.67	Mature	Multiple (3) @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
32	Nerium oleander	6	8	400	4.8	600	2.67	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
33	Callistemon viminalis	8	7	350	4.2	450	2.37	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
34	Callistemon viminalis	8	7	300	3.6	450	2.37	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
35	Jacaranda Mimosifolia	10	11	400	4.8	600	2.67	Mature	Multiple (3) @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
36	Callistemon viminalis	8	7	300	3.6	450	2.37	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
37	Callistemon viminalis	8	7	300	3.6	450	2.37	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
38	Callistemon viminalis	8	7	300	3.6	450	2.37	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	
39	Callistemon viminalis	8	7	300	3.6	450	2.37	Mature	Multiple @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Medium	Medium	

