

Birds Tree Consultancy

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ARBORICULTURAL DEVELOPMENT IMPACT ASSESSMENT REPORT

**146-154 O’Riordan Street, Mascot NSW
REVISION A**

8 August 2019

**Prepared for
Toplace**

Prepared by

Birds Tree Consultancy

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Executive Summary

This Arboricultural Development Impact Assessment Report has been commissioned by Toplace to report on trees within the site of 146-154 O’Riordan Street, Mascot NSW. It has been commissioned to outline the health, condition and stability of these trees as well as their viability for retention. The scope of this report includes all trees within areas that may be impacted by the proposed development.

Tree 45 is dead with no visible habitat and is recommended for removal. The southern co dominant trunk of Tree 56 is dead and is recommended for removal.

Tree 33 has decay and cavity within the trunk which places this tree at increased risk of failure. This tree is located on the neighbouring property and a risk assessment is recommended for this tree. Tree 50 also has decay evident within the trunk. If this tree is to be retained we recommend further investigation by means of Resistograph Testing and Risk Assessment.

Tree 3 has a bark inclusion present at the primary junction which places this tree at increased risk of failure. This tree is located on the neighbouring property and a risk assessment is recommended for this tree.

The Tree Protection Zones (TPZ) Trees 10, 36, 38, 39, , 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 58, 60, 61, 62, 64, 65, 66 and 67 are encroached by the proposed construction and required earthworks by a major encroachment as defined by *AS4970-2009 Protection of Trees on Development Sites*. These trees will not be viable to be retained and are recommended for removal.

The Tree Protection Zones (TPZ) Trees 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 2, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 31, 32, 33 and 34 are encroached by the footprint of the proposed works by a major encroachment however based on consideration of the barrier provided by the existing buildings under consideration of clause 3.3.4 of *AS 4970-2009* there will effectively be no encroachment of the TPZ of these trees. These trees will remain viable to be retained.

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>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
2.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
3.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0. Bark Inclusion. Recommend Risk Assessment.
4.	<i>Grevillea robusta</i>	Retain	Retain and protect in accordance with 8.0.
5.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.

6.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
7.	<i>Grevillea robusta</i>	Retain	Retain and protect in accordance with 8.0.
8.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
9.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
10.	<i>Eucalyptus pilularis</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
11.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
12.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
13.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
14.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
15.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
16.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
17.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
18.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
19.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
20.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
21.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
22.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
23.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
24.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
25.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
26.	<i>Callitris columellaris</i>	Retain	Retain and protect in accordance with 8.0.
27.	<i>Grevillea robusta</i>	Retain	Retain and protect in accordance with 8.0.
28.	<i>Grevillea robusta</i>	Retain	Retain and protect in accordance with 8.0.
29.	<i>Callitris columellaris</i>	Retain	Retain and protect in accordance with 8.0.
30.	<i>Corymbia maculata</i>	Retain	Retain and protect in accordance with 8.0.

31.	<i>Callistemon citrinus</i>	Retain	Retain and protect in accordance with 8.0.
32.	<i>Corymbia maculata</i>	Retain	Retain and protect in accordance with 8.0.
33.	<i>Callitris columellaris</i>	Retain	Retain and protect in accordance with 8.0.
34.	<i>Callistemon viminalis</i>	Retain	Retain and protect in accordance with 8.0.
35.	<i>Butia spp</i>	Retain	Retain and protect in accordance with 8.0.
36.	<i>Corymbia maculata</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
37.	<i>Corymbia maculata</i>	Retain	Retain and protect in accordance with 8.0.
38.	<i>Corymbia maculata</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
39.	<i>Corymbia maculata</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
40.	<i>Corymbia maculata</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
41.	<i>Banksia integrifolia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
42.	<i>Banksia integrifolia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
43.	<i>Banksia integrifolia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
44.	<i>Banksia integrifolia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
45.	<i>Dead tree</i>	Remove	
46.	<i>Eucalyptus pilularis</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
47.	<i>Eucalyptus scoparia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
48.	<i>Eucalyptus leucoxylon</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
49.	<i>Eucalyptus leucoxylon</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
50.	<i>Eucalyptus leucoxylon</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.

51.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
52.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
53.	<i>Eucalyptus robusta</i>	Retain	Retain and protect in accordance with 8.0.
54.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
55.	<i>Eucalyptus robusta</i>	Retain	Retain and protect in accordance with 8.0.
56.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
57.	<i>Eucalyptus robusta</i>	Retain	Retain and protect in accordance with 8.0.
58.	<i>Eucalyptus scoparia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
59.	<i>Morus spp.</i>	Retain	Retain and protect in accordance with 8.0.
60.	<i>Casuarina spp</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
61.	<i>Casuarina spp</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
62.	<i>Casuarina spp</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
63.	<i>Casuarina grove</i>	Retain	Retain and protect in accordance with 8.0.
64.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
65.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
66.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
67.	<i>Corymbia maculata</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.

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1.0 Scope of Works

This Arboricultural Development Impact Assessment Report has been commissioned by Toplace to report on trees within and adjacent to the site of 146-154 O’Riordan Street, Mascot 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.

On the 15th of July 2019, 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.

2.0 Site Analysis

2.1 Site

The subject site is 146-154 O’Riordan Street, Mascot NSW. The subject trees are located within or adjacent to the boundaries of this site. This site is currently an existing industrial warehouse complex.

2.2 Topography

The site is relatively flat. Refer to survey for greater details of levels. Trees 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 2, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 31, 32, 33 and 34 are immediately adjacent to the external wall of the existing buildings.

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.

2.4 Soils

Soil material and horizons were not tested for this report.

3.0 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 A.

- 3.1. Tree 1. *Casuarina spp***
This mature tree is approximately 14m tall with a canopy spread of 8m. It has a single trunk with a diameter at breast height (DBH) of 470mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.2. Tree 2. *Casuarina spp***
This mature tree is approximately 12m tall with a canopy spread of 6m. It has a single trunk with a DBH of 210mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.3. Tree 3. *Casuarina spp***
This mature tree is approximately 12m tall with a canopy spread of 4m. It has a single trunk with a DBH of 260mm. This tree is in good health and condition with minimal deadwood and epicormic growth. This tree has a bark inclusion at the primary junction which places this tree at an increased risk of failure. We recommend that a risk assessment be carried out on this tree.
- 3.4. Tree 4. *Grevillea robusta***
This mature tree is approximately 17m tall with a canopy spread of 8m. It has a single trunk with a DBH of 340mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.5. Tree 5. *Casuarina spp***
This mature tree is approximately 17m tall with a canopy spread of 6m. It has a single trunk with a DBH of 330mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.6. Tree 6. *Casuarina spp***
This mature tree is approximately 17m tall with a canopy spread of 8m. It has a single trunk with a DBH of 400mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.7. Tree 7. *Grevillea robusta***
This mature tree is approximately 17m tall with a canopy spread of 6m. It has a single trunk with a DBH of 210mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.8. Tree 8. *Casuarina spp***
This mature tree is approximately 16m tall with a canopy spread of 8m. It has a single trunk with a DBH of 370mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

- 3.9. Tree 9. *Casuarina spp***
This mature tree is approximately 16m tall with a canopy spread of 8m. It has a single trunk with a DBH of 360mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.10. Tree 10. *Eucalyptus pilularis***
This mature tree is approximately 18m tall with a canopy spread of 12m. It has a single trunk with a DBH of 500mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.11. Tree 11. *Casuarina spp***
This mature tree is approximately 14m tall with a canopy spread of 6m. It has a single trunk with a DBH of 270mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.12. Tree 12. *Casuarina spp***
This mature tree is approximately 14m tall with a canopy spread of 8m. It has a single trunk with a DBH of 330mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.13. Tree 13. *Casuarina spp***
This mature tree is approximately 17m tall with a canopy spread of 9m. It has a single trunk with a DBH of 445mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.14. Tree 14. *Casuarina spp***
This mature tree is approximately 14m tall with a canopy spread of 8m. It has a single trunk with a DBH of 330mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.15. Tree 15. *Casuarina spp***
This mature tree is approximately 17m tall with a canopy spread of 9m. It has a single trunk with a DBH of 380mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.16. Tree 16. *Casuarina spp***
This mature tree is approximately 19m tall with a canopy spread of 7m. It has a single trunk with a DBH of 320mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.17. Tree 17. *Casuarina spp***
This mature tree is approximately 19m tall with a canopy spread of 6m. It has a single trunk with a DBH of 350mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.18. Tree 18. *Casuarina spp***

This mature tree is approximately 17m tall with a canopy spread of 8m. It has a single trunk with a DBH of 400mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.19. Tree 19. *Casuarina spp*

This mature tree is approximately 17m tall with a canopy spread of 11m. It has a single trunk with a DBH of 530mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.20. Tree 20. *Casuarina spp*

This mature tree is approximately 16m tall with a canopy spread of 12m. It has a single trunk with a DBH of 320mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.21. Tree 21. *Casuarina spp*

This mature tree is approximately 17m tall with a canopy spread of 9m. It has a single trunk with a DBH of 270mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.22. Tree 22. *Casuarina spp*

This mature tree is approximately 17m tall with a canopy spread of 9m. It has a single trunk with a DBH of 320mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.23. Tree 23. *Casuarina spp*

This mature tree is approximately 17m tall with a canopy spread of 10m. It has a single trunk with a DBH of 490mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.24. Tree 24. *Casuarina spp*

This mature tree is approximately 16m tall with a canopy spread of 12m. It has a single trunk with a DBH of 380mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.25. Tree 25. *Casuarina spp*

This mature tree is approximately 14m tall with a canopy spread of 6m. It has multiple (5) co-dominant trunks from the base with an aggregate DBH of 335mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.26. Tree 26. *Callitris columellaris*

This mature tree is approximately 16m tall with a canopy spread of 3m. It has multiple (3) co-dominant trunks from the base with an aggregate DBH of 360mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.27. Tree 27. *Grevillea robusta*

This mature tree is approximately 20m tall with a canopy spread of 10m. It has a single trunk with a DBH of 460mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

- 3.28. Tree 28. *Grevillea robusta***
 This mature tree is approximately 19m tall with a canopy spread of 9m. It has a single trunk with a DBH of 480mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.29. Tree 29. *Callitris columellaris***
 This mature tree is approximately 15m tall with a canopy spread of 4m. It has a single trunk with a DBH of 360mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.30. Tree 30. *Eucalyptus ficifolia***
 This mature tree is approximately 6m tall with a canopy spread of 3m. It has a single trunk with a prominent lean to the north and a DBH of 120mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.31. Tree 31. *Callistemon citrinus***
 This mature tree is approximately 9m tall with a canopy spread of 6m. It has a single trunk with a DBH of 200mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.32. Tree 32. *Corymbia maculata***
 This mature tree is approximately 13m tall with a canopy spread of 7m. It has a single trunk with a DBH of 270mm. This tree is in good health and condition with minimal deadwood, minimal epicormic growth and significant apical dieback.
- 3.33. Tree 33. *Callitris columellaris***
 This mature tree is approximately 15m tall with a canopy spread of 4m. It has a single trunk with a DBH of 310mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.34. Tree 34. *Callistemon viminalis***
 This mature tree is approximately 4.5m tall with a canopy spread of 5m. It has multiple (3) co-dominant trunks from the base with an aggregate DBH of 210mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.35. Tree 35. *Butia spp***
 This mature tree is approximately 6m tall with a canopy spread of 4m. It has a single trunk. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.36. Tree 36. *Corymbia maculata***
 This mature tree is approximately 17m tall with a canopy spread of 8m. It has a single trunk with a DBH of 480mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.37. Tree 37. *Corymbia maculata***

This semi-mature tree is approximately 6m tall with a canopy spread of 4m. It has a single trunk with a DBH of 170mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

- 3.38. Tree 38. *Corymbia maculata***
This mature tree is approximately 15m tall with a canopy spread of 8m. It has a single trunk with a DBH of 380mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.39. Tree 39. *Corymbia maculata***
This mature tree is approximately 15m tall with a canopy spread of 11m. It has a single trunk with a DBH of 350mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.40. Tree 40. *Corymbia maculata***
This mature tree is approximately 14m tall with a canopy spread of 11m. It has a single trunk with a DBH of 420mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.41. Tree 41. *Banksia integrifolia***
This mature tree is approximately 7m tall with a canopy spread of 7m. It has a single trunk with a DBH of 230mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.42. Tree 42. *Banksia integrifolia***
This mature tree is approximately 6m tall with a canopy spread of 4m. It has a single trunk with a DBH of 250mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.43. Tree 43. *Banksia integrifolia***
This mature tree is approximately 9m tall with a canopy spread of 4m. It has a single trunk with a DBH of 300mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.44. Tree 44. *Banksia integrifolia***
This mature tree is approximately 6m tall with a canopy spread of 4m. It has multiple (3) 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.
- 3.45. Tree 45. *Dead tree***
This is a dead tree with no visible or apparent habitat, and it is recommended for removal.
- 3.46. Tree 46. *Eucalyptus pilularis***
This mature tree is approximately 10m tall with a canopy spread of 8m. It has a single trunk with a DBH of 320mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.47. Tree 47. *Eucalyptus scoparia***

This mature tree is approximately 10m tall with a canopy spread of 9m. It has a single trunk with a slight lean to the west and a DBH of 450mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

- 3.48. Tree 48. *Eucalyptus leucoxylon***
This mature tree is approximately 10m tall with a canopy spread of 7m. It has a single trunk with a DBH of 240mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.49. Tree 49. *Eucalyptus leucoxylon***
This mature tree is approximately 11m tall with a canopy spread of 6m. It has a single trunk with a DBH of 260mm. This tree is in fair health and condition with a thinning canopy, moderate deadwood, minimal epicormic growth and moderate apical dieback.
- 3.50. Tree 50. *Eucalyptus leucoxylon***
This mature tree is approximately 13m tall with a canopy spread of 9m. It has a single trunk with a DBH of 400mm. This tree is in good health and condition with minimal deadwood and epicormic growth. There is evidence of extensive decay at base of trunk. We recommend further investigation by the means of Resistograph testing to determine viability for retention.
- 3.51. Tree 51. *Casuarina spp***
This mature tree is approximately 18m tall with a canopy spread of 12m. It has a single trunk with a DBH of 540mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.52. Tree 52. *Casuarina spp***
This mature tree is approximately 18m tall with a canopy spread of 12m. It has a single trunk with a DBH of 780mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.53. Tree 53. *Eucalyptus robusta***
This mature tree is approximately 15m tall with a canopy spread of 14m. It has a single trunk with a DBH of 480mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.54. Tree 54. *Casuarina spp***
This mature tree is approximately 14m tall with a canopy spread of 8m. It has a single trunk with a DBH of 380mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.55. Tree 55. *Eucalyptus robusta***
This mature tree is approximately 15m tall with a canopy spread of 11m. It has a single trunk with a DBH of 520mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.56. Tree 56. *Casuarina spp***

This mature tree is approximately 13m tall with a canopy spread of 9m. It has a single trunk with a DBH of 290mm. This tree is in good health and condition with minimal deadwood and epicormic growth. Remove dead southern co dominant trunk.

3.57. Tree 57. *Eucalyptus robusta*

This mature tree is approximately 11m tall with a canopy spread of 12m. It has twin co-dominant trunks from 1m above the base with an aggregate DBH of 390mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.58. Tree 58. *Eucalyptus scoparia*

This mature tree is approximately 13m tall with a canopy spread of 9m. It has a single trunk with a DBH of 480mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.59. Tree 59. *Morus spp.*

This mature tree is located on the neighbouring property and it is approximately 10m tall with a canopy spread of 12m. It has a single trunk with a DBH of 310mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.60. Tree 60. *Casuarina spp*

This mature tree is approximately 15m tall with a canopy spread of 8m. It has a single trunk with a DBH of 290mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.61. Tree 61. *Casuarina spp*

This mature tree is approximately 17m tall with a canopy spread of 7m. It has a single trunk with a DBH of 380mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.62. Tree 62. *Casuarina spp*

This mature tree is approximately 16m tall with a canopy spread of 9m. It has twin 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.

3.63. Tree 63. *Casuarina grove*

This is a grove of mature *Casuarina spp.* They are approximately 15m tall with a canopy spread of 6m. They have a single trunk with a DBH of 300mm. These trees are in good health and condition with minimal deadwood and epicormic growth.

3.64. Tree 64. *Callistemon viminalis*

This mature tree is approximately 7m tall with a canopy spread of 5m. It has multiple (3) 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.

- 3.65. Tree 65. *Callistemon viminalis***
This mature tree is approximately 5m tall with a canopy spread of 4m. It has a single trunk with a DBH of 150mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.66. Tree 66. *Callistemon viminalis***
This mature tree is approximately 4m tall with a canopy spread of 4m. It has a single trunk with a DBH of 140mm. This tree is in good health and condition with minimal deadwood and epicormic growth.
- 3.67. Tree 67. *Corymbia maculata***
This mature tree is approximately 15m tall with a canopy spread of 11m. It has a single trunk with a DBH of 440mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

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>Casuarina spp</i>	Moderate
2.	<i>Casuarina spp</i>	Moderate
3.	<i>Casuarina spp</i>	Moderate
4.	<i>Grevillea robusta</i>	Moderate
5.	<i>Casuarina spp</i>	Moderate
6.	<i>Casuarina spp</i>	Moderate
7.	<i>Grevillea robusta</i>	Moderate
8.	<i>Casuarina spp</i>	Moderate
9.	<i>Casuarina spp</i>	Moderate
10.	<i>Eucalyptus pilularis</i>	Moderate
11.	<i>Casuarina spp</i>	Moderate

12.	<i>Casuarina spp</i>	Moderate
13.	<i>Casuarina spp</i>	Moderate
14.	<i>Casuarina spp</i>	Moderate
15.	<i>Casuarina spp</i>	Moderate
16.	<i>Casuarina spp</i>	Moderate
17.	<i>Casuarina spp</i>	Moderate
18.	<i>Casuarina spp</i>	Moderate
19.	<i>Casuarina spp</i>	Moderate
20.	<i>Casuarina spp</i>	Moderate
21.	<i>Casuarina spp</i>	Moderate
22.	<i>Casuarina spp</i>	Moderate
23.	<i>Casuarina spp</i>	Moderate
24.	<i>Casuarina spp</i>	Moderate
25.	<i>Casuarina spp</i>	Moderate
26.	<i>Callitris columellaris</i>	Moderate
27.	<i>Grevillea robusta</i>	Moderate
28.	<i>Grevillea robusta</i>	Moderate
29.	<i>Callitris columellaris</i>	Moderate
30.	<i>Corymbia maculata</i>	Moderate
31.	<i>Callistemon citrinus</i>	Moderate
32.	<i>Corymbia maculata</i>	Moderate
33.	<i>Callitris columellaris</i>	Moderate
34.	<i>Callistemon viminalis</i>	Moderate
35.	<i>Butia spp</i>	Moderate
36.	<i>Corymbia maculata</i>	Moderate
37.	<i>Corymbia maculata</i>	Moderate
38.	<i>Corymbia maculata</i>	Moderate
39.	<i>Corymbia maculata</i>	Moderate
40.	<i>Corymbia maculata</i>	Moderate
41.	<i>Banksia integrifolia</i>	Moderate
42.	<i>Banksia integrifolia</i>	Moderate
43.	<i>Banksia integrifolia</i>	Moderate
44.	<i>Banksia integrifolia</i>	Moderate
45.	<i>Dead tree</i>	Low
46.	<i>Eucalyptus pilularis</i>	Moderate
47.	<i>Eucalyptus scoparia</i>	Moderate
48.	<i>Eucalyptus leucoxylon</i>	Moderate
49.	<i>Eucalyptus leucoxylon</i>	Moderate
50.	<i>Eucalyptus leucoxylon</i>	Moderate
51.	<i>Casuarina spp</i>	Moderate
52.	<i>Casuarina spp</i>	Moderate
53.	<i>Eucalyptus robusta</i>	Moderate
54.	<i>Casuarina spp</i>	Moderate
55.	<i>Eucalyptus robusta</i>	Moderate

56.	<i>Casuarina spp</i>	Moderate
57.	<i>Eucalyptus robusta</i>	Moderate
58.	<i>Eucalyptus scoparia</i>	Moderate
59.	<i>Morus spp.</i>	Moderate
60.	<i>Casuarina spp</i>	Moderate
61.	<i>Casuarina spp</i>	Moderate
62.	<i>Casuarina spp</i>	Moderate
63.	<i>Casuarina grove</i>	Moderate
64.	<i>Callistemon viminalis</i>	Moderate
65.	<i>Callistemon viminalis</i>	Moderate
66.	<i>Callistemon viminalis</i>	Moderate
67.	<i>Corymbia maculata</i>	Moderate

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>Casuarina spp</i>	Moderate
2.	<i>Casuarina spp</i>	Moderate
3.	<i>Casuarina spp</i>	Low
4.	<i>Grevillea robusta</i>	Moderate
5.	<i>Casuarina spp</i>	Moderate
6.	<i>Casuarina spp</i>	Moderate
7.	<i>Grevillea robusta</i>	Moderate
8.	<i>Casuarina spp</i>	Moderate
9.	<i>Casuarina spp</i>	Moderate
10.	<i>Eucalyptus pilularis</i>	Moderate
11.	<i>Casuarina spp</i>	Moderate

12.	<i>Casuarina spp</i>	Moderate
13.	<i>Casuarina spp</i>	Moderate
14.	<i>Casuarina spp</i>	Moderate
15.	<i>Casuarina spp</i>	Moderate
16.	<i>Casuarina spp</i>	Moderate
17.	<i>Casuarina spp</i>	Moderate
18.	<i>Casuarina spp</i>	Moderate
19.	<i>Casuarina spp</i>	Moderate
20.	<i>Casuarina spp</i>	Moderate
21.	<i>Casuarina spp</i>	Moderate
22.	<i>Casuarina spp</i>	Moderate
23.	<i>Casuarina spp</i>	Moderate
24.	<i>Casuarina spp</i>	Moderate
25.	<i>Casuarina spp</i>	Moderate
26.	<i>Callitris columellaris</i>	Moderate
27.	<i>Grevillea robusta</i>	Moderate
28.	<i>Grevillea robusta</i>	Moderate
29.	<i>Callitris columellaris</i>	Moderate
30.	<i>Corymbia maculata</i>	Moderate
31.	<i>Callistemon citrinus</i>	Moderate
32.	<i>Corymbia maculata</i>	Moderate
33.	<i>Callitris columellaris</i>	Moderate
34.	<i>Callistemon viminalis</i>	Moderate
35.	<i>Butia spp</i>	Moderate
36.	<i>Corymbia maculata</i>	Moderate
37.	<i>Corymbia maculata</i>	Moderate
38.	<i>Corymbia maculata</i>	Moderate
39.	<i>Corymbia maculata</i>	Moderate
40.	<i>Corymbia maculata</i>	Moderate
41.	<i>Banksia integrifolia</i>	Moderate
42.	<i>Banksia integrifolia</i>	Moderate
43.	<i>Banksia integrifolia</i>	Moderate
44.	<i>Banksia integrifolia</i>	Moderate
45.	<i>Dead tree</i>	Low
46.	<i>Eucalyptus pilularis</i>	Moderate
47.	<i>Eucalyptus scoparia</i>	Moderate
48.	<i>Eucalyptus leucoxylon</i>	Moderate
49.	<i>Eucalyptus leucoxylon</i>	Moderate
50.	<i>Eucalyptus leucoxylon</i>	Moderate
51.	<i>Casuarina spp</i>	Moderate
52.	<i>Casuarina spp</i>	Moderate
53.	<i>Eucalyptus robusta</i>	Moderate
54.	<i>Casuarina spp</i>	Moderate
55.	<i>Eucalyptus robusta</i>	Moderate

56.	<i>Casuarina spp</i>	Moderate
57.	<i>Eucalyptus robusta</i>	Moderate
58.	<i>Eucalyptus scoparia</i>	Moderate
59.	<i>Morus spp.</i>	Moderate
60.	<i>Casuarina spp</i>	Moderate
61.	<i>Casuarina spp</i>	Moderate
62.	<i>Casuarina spp</i>	Moderate
63.	<i>Casuarina grove</i>	Moderate
64.	<i>Callistemon viminalis</i>	Moderate
65.	<i>Callistemon viminalis</i>	Moderate
66.	<i>Callistemon viminalis</i>	Moderate
67.	<i>Corymbia maculata</i>	Moderate

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. Assessment of encroachment for this project is based on an offset for excavation and shoring of 2m from the outside of the external walls of the basement car park.

Tree no.	Species	TPZ Radius (m)	Encroachment (%)
1.	<i>Casuarina spp</i>	5.64	0
2.	<i>Casuarina spp</i>	2.52	0
3.	<i>Casuarina spp</i>	N/A	N/A
4.	<i>Grevillea robusta</i>	4.08	0
5.	<i>Casuarina spp</i>	3.96	0
6.	<i>Casuarina spp</i>	4.8	0
7.	<i>Grevillea robusta</i>	2.52	0
8.	<i>Casuarina spp</i>	4.44	0
9.	<i>Casuarina spp</i>	4.32	0
10.	<i>Eucalyptus pilularis</i>	6	35
11.	<i>Casuarina spp</i>	3.24	0
12.	<i>Casuarina spp</i>	3.96	0
13.	<i>Casuarina spp</i>	5.34	0

14.	<i>Casuarina spp</i>	3.96	0
15.	<i>Casuarina spp</i>	4.56	0
16.	<i>Casuarina spp</i>	3.84	0
17.	<i>Casuarina spp</i>	4.2	0
18.	<i>Casuarina spp</i>	4.8	0
19.	<i>Casuarina spp</i>	6.36	0
20.	<i>Casuarina spp</i>	3.84	0
21.	<i>Casuarina spp</i>	3.24	0
22.	<i>Casuarina spp</i>	3.84	0
23.	<i>Casuarina spp</i>	5.88	0
24.	<i>Casuarina spp</i>	4.56	0
25.	<i>Casuarina spp</i>	4.02	0
26.	<i>Callitris columellaris</i>	4.32	0
27.	<i>Grevillea robusta</i>	5.52	0
28.	<i>Grevillea robusta</i>	5.76	0
29.	<i>Callitris columellaris</i>	4.32	0
30.	<i>Corymbia maculata</i>	2.0	0
31.	<i>Callistemon citrinus</i>	2.4	0
32.	<i>Corymbia maculata</i>	3.24	0
33.	<i>Callitris columellaris</i>	3.72	0
34.	<i>Callistemon viminalis</i>	2.52	0
35.	<i>Butia spp</i>	2.5	0
36.	<i>Corymbia maculata</i>	5.76	40
37.	<i>Corymbia maculata</i>	2.04	0
38.	<i>Corymbia maculata</i>	4.56	100
39.	<i>Corymbia maculata</i>	4.2	100
40.	<i>Corymbia maculata</i>	5.04	100
41.	<i>Banksia integrifolia</i>	2.76	100
42.	<i>Banksia integrifolia</i>	3	100
43.	<i>Banksia integrifolia</i>	3.6	100
44.	<i>Banksia integrifolia</i>	3.36	100
45.	<i>Dead tree</i>	N/A	100
46.	<i>Eucalyptus pilularis</i>	3.84	100
47.	<i>Eucalyptus scoparia</i>	5.4	100
48.	<i>Eucalyptus leucoxylon</i>	2.88	100
49.	<i>Eucalyptus leucoxylon</i>	3.12	100
50.	<i>Eucalyptus leucoxylon</i>	4.8	100
51.	<i>Casuarina spp</i>	6.48	0
52.	<i>Casuarina spp</i>	9.36	0
53.	<i>Eucalyptus robusta</i>	5.76	0
54.	<i>Casuarina spp</i>	4.56	0
55.	<i>Eucalyptus robusta</i>	6.24	0
56.	<i>Casuarina spp</i>	3.48	0
57.	<i>Eucalyptus robusta</i>	4.68	0

58.	<i>Eucalyptus scoparia</i>	5.76	40
59.	<i>Morus spp.</i>	3.72	10
60.	<i>Casuarina spp</i>	3.48	40
61.	<i>Casuarina spp</i>	4.56	40
62.	<i>Casuarina spp</i>	3.6	40
63.	<i>Casuarina grove</i>	3	0
64.	<i>Callistemon viminalis</i>	2.76	100
65.	<i>Callistemon viminalis</i>	2.0	100
66.	<i>Callistemon viminalis</i>	2.0	100
67.	<i>Corymbia maculata</i>	5.28	100

6.2 Development Impact

6.2.1. Tree 1. ***Casuarina 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.

6.2.2. Tree 2. ***Casuarina 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.

6.2.3. Tree 3. ***Casuarina spp***

This tree is recommended for removal.

6.2.4. Tree 4. ***Grevillea robusta***

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.

6.2.5. Tree 5. ***Casuarina 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.

6.2.6. Tree 6. ***Casuarina 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.

6.2.7. Tree 7. ***Grevillea robusta***

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.

6.2.8. Tree 8. *Casuarina 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.

6.2.9. Tree 9. *Casuarina 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.

6.2.10. Tree 10. *Eucalyptus pilularis*

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. This tree will not be viable to be retained under the proposed development.

6.2.11. Tree 11. *Casuarina 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.

6.2.12. Tree 12. *Casuarina 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.

6.2.13. Tree 13. *Casuarina 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.

6.2.14. Tree 14. *Casuarina 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.

6.2.15. Tree 15. *Casuarina 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.

6.2.16. Tree 16. *Casuarina 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.

6.2.17. Tree 17. *Casuarina 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.

6.2.18. Tree 18. *Casuarina 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.

6.2.19. Tree 19. *Casuarina 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.

6.2.20. Tree 20. *Casuarina 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.

6.2.21. Tree 21. *Casuarina 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.

6.2.22. Tree 22. *Casuarina 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.

6.2.23. Tree 23. *Casuarina 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.

- 6.2.24. Tree 24. *Casuarina 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.
- 6.2.25. Tree 25. *Casuarina 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.
- 6.2.26. Tree 26. *Callitris columellaris***
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.
- 6.2.27. Tree 27. *Grevillea robusta***
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.
- 6.2.28. Tree 28. *Grevillea robusta***
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.
- 6.2.29. Tree 29. *Callitris columellaris***
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.
- 6.2.30. Tree 30. *Corymbia maculata***
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.
- 6.2.31. Tree 31. *Callistemon citrinus***
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.

- 6.2.32. Tree 32. *Corymbia maculata***
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.
- 6.2.33. Tree 33. *Callitris columellaris***
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.
- 6.2.34. 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 not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.
- 6.2.35. Tree 35. *Butia 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.
- 6.2.36. Tree 36. *Corymbia maculata***
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. This tree will not be viable to be retained under the proposed development.
- 6.2.37. Tree 37. *Corymbia maculata***
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.
- 6.2.38. Tree 38. *Corymbia maculata***
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.
- 6.2.39. Tree 39. *Corymbia maculata***
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.

- 6.2.40. Tree 40. *Corymbia maculata***
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.
- 6.2.41. Tree 41. *Banksia integrifolia***
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.
- 6.2.42. Tree 42. *Banksia integrifolia***
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.
- 6.2.43. Tree 43. *Banksia integrifolia***
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.
- 6.2.44. Tree 44. *Banksia integrifolia***
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.
- 6.2.45. Tree 45. *Dead tree***
This tree is recommended for removal.
- 6.2.46. Tree 46. *Eucalyptus pilularis***
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.
- 6.2.47. Tree 47. *Eucalyptus scoparia***
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.
- 6.2.48. Tree 48. *Eucalyptus leucoxydon***
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.

- 6.2.49. Tree 49. *Eucalyptus leucoxylon***
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.
- 6.2.50. Tree 50. *Eucalyptus leucoxylon***
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.
- 6.2.51. Tree 51. *Casuarina 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.
- 6.2.52. Tree 52. *Casuarina 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.
- 6.2.53. Tree 53. *Eucalyptus robusta***
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.
- 6.2.54. Tree 54. *Casuarina 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.
- 6.2.55. Tree 55. *Eucalyptus robusta***
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.
- 6.2.56. Tree 56. *Casuarina 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.

- 6.2.57. Tree 57. *Eucalyptus robusta***
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.
- 6.2.58. Tree 58. *Eucalyptus scoparia***
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 % which is significantly greater than the minor encroachment as defined by AS 4970-2009. This tree will not be viable to be retained under the proposed development.
- 6.2.59. Tree 59. *Morus spp.***
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 10% which is equal to the minor encroachment as defined by AS 4970-2009. This tree will be viable to be retained under the proposed development.
- 6.2.60. Tree 60. *Casuarina spp***
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. This tree will not be viable to be retained under the proposed development.
- 6.2.61. Tree 61. *Casuarina spp***
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. This tree will not be viable to be retained under the proposed development.
- 6.2.62. Tree 62. *Casuarina spp***
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. This tree will not be viable to be retained under the proposed development.
- 6.2.63. Tree 63. *Casuarina grove***
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 10% which is equal to

the minor encroachment as defined by AS 4970-2009. This tree will be viable to be retained under the proposed development.

6.2.64. Tree 64. *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.

6.2.65. Tree 65. *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.

6.2.66. Tree 66. *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.

6.2.67. Tree 67. *Corymbia maculata*

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.

7.0 Recommendations

Tree 45 is dead with no visible habitat and is recommended for removal. The southern co dominant trunk of Tree 56 is dead and is recommended for removal.

Tree 33 has decay and cavity within the trunk which places this tree at increased risk of failure. This tree is located on the neighbouring property and a risk assessment is recommended for this tree. Tree 50 also has decay evident within the trunk. If this tree is to be retained we recommend further investigation by means of Resistograph Testing and Risk Assessment.

Tree 3 has a bark inclusion present at the primary junction which places this tree at increased risk of failure. This tree is located on the neighbouring property and a risk assessment is recommended for this tree.

The Tree Protection Zones (TPZ) Trees 10, 36, 38, 39, , 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 58, 60, 61, 62, 64, 65, 66 and 67 are encroached by the proposed construction and required earthworks by a major encroachment as defined by AS4970-2009 *Protection of Trees on Development Sites*. These trees will not be viable to be retained and are recommended for removal.

The Tree Protection Zones (TPZ) Trees 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 2, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 31, 32, 33 and 34 are encroached by the footprint of the proposed works by a major encroachment however based on

consideration of the barrier provided by the existing buildings under consideration of clause 3.3.4 of AS 4970-2009 there will effectively be no encroachment of the TPZ of these trees. These trees will remain viable to be retained.

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>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
2.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
3.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0. Bark Inclusion. Recommend Risk Assessment.
4.	<i>Grevillea robusta</i>	Retain	Retain and protect in accordance with 8.0.
5.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
6.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
7.	<i>Grevillea robusta</i>	Retain	Retain and protect in accordance with 8.0.
8.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
9.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
10.	<i>Eucalyptus pilularis</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
11.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
12.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
13.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
14.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
15.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
16.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
17.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
18.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
19.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
20.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.

21.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
22.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
23.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
24.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
25.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
26.	<i>Callitris columellaris</i>	Retain	Retain and protect in accordance with 8.0.
27.	<i>Grevillea robusta</i>	Retain	Retain and protect in accordance with 8.0.
28.	<i>Grevillea robusta</i>	Retain	Retain and protect in accordance with 8.0.
29.	<i>Callitris columellaris</i>	Retain	Retain and protect in accordance with 8.0.
30.	<i>Corymbia maculata</i>	Retain	Retain and protect in accordance with 8.0.
31.	<i>Callistemon citrinus</i>	Retain	Retain and protect in accordance with 8.0.
32.	<i>Corymbia maculata</i>	Retain	Retain and protect in accordance with 8.0.
33.	<i>Callitris columellaris</i>	Retain	Retain and protect in accordance with 8.0.
34.	<i>Callistemon viminalis</i>	Retain	Retain and protect in accordance with 8.0.
35.	<i>Butia spp</i>	Retain	Retain and protect in accordance with 8.0.
36.	<i>Corymbia maculata</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
37.	<i>Corymbia maculata</i>	Retain	Retain and protect in accordance with 8.0.
38.	<i>Corymbia maculata</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
39.	<i>Corymbia maculata</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
40.	<i>Corymbia maculata</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
41.	<i>Banksia integrifolia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
42.	<i>Banksia integrifolia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
43.	<i>Banksia integrifolia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.

44.	<i>Banksia integrifolia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
45.	<i>Dead tree</i>	Remove	
46.	<i>Eucalyptus pilularis</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
47.	<i>Eucalyptus scoparia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
48.	<i>Eucalyptus leucoxylon</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
49.	<i>Eucalyptus leucoxylon</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
50.	<i>Eucalyptus leucoxylon</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
51.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
52.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
53.	<i>Eucalyptus robusta</i>	Retain	Retain and protect in accordance with 8.0.
54.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
55.	<i>Eucalyptus robusta</i>	Retain	Retain and protect in accordance with 8.0.
56.	<i>Casuarina spp</i>	Retain	Retain and protect in accordance with 8.0.
57.	<i>Eucalyptus robusta</i>	Retain	Retain and protect in accordance with 8.0.
58.	<i>Eucalyptus scoparia</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
59.	<i>Morus spp.</i>	Retain	Retain and protect in accordance with 8.0.
60.	<i>Casuarina spp</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
61.	<i>Casuarina spp</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
62.	<i>Casuarina spp</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
63.	<i>Casuarina grove</i>	Retain	Retain and protect in accordance with 8.0.
64.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.

65.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
66.	<i>Callistemon viminalis</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.
67.	<i>Corymbia maculata</i>	Remove	Not viable to be retained due to encroachment of TPZ by the proposed development.

8.0 Pre-Construction Tree Protection Measures

8.1 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.

8.2 Identification

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

8.3 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.

8.4 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.

8.5 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.

9.0 Site Management Issues

9.1 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 gaseous exchange capacity of the root system which will slow critical metabolic processes such as respiration which produces Adenosine Triphosphate (ATP) which provides energy for the photosynthesis, which in turn provides photosynthates such as glucose. These photosynthates provide the carbohydrates required for tree extension growth, girth expansion, reproduction and pest and disease resistance. No pedestrian or plant access is permissible to the TPZ.

9.2 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.

9.3 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)

9.4 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.

10.0 Tree Protection Measures During Construction

10.1 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.

10.2 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.

10.3 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.

10.4 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.

10.5 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 Superintendent. 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.

10.6 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.

10.7 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.

11.0 Environmental / Heritage/ Legislative Considerations

None of the subject trees are identified as threatened species or elements of endangered ecological communities within the Threatened Species Conservation Act 1995.

12.0 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

13.0 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					
<p><u>Legend for Matrix Assessment</u></p> <div style="text-align: right;">  </div>						
	<p>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.</p>					
	<p>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.</p>					
	<p>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.</p>					
	<p>Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.</p>					

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
146-154 O'riordan Street Mascot

10-Jul-19

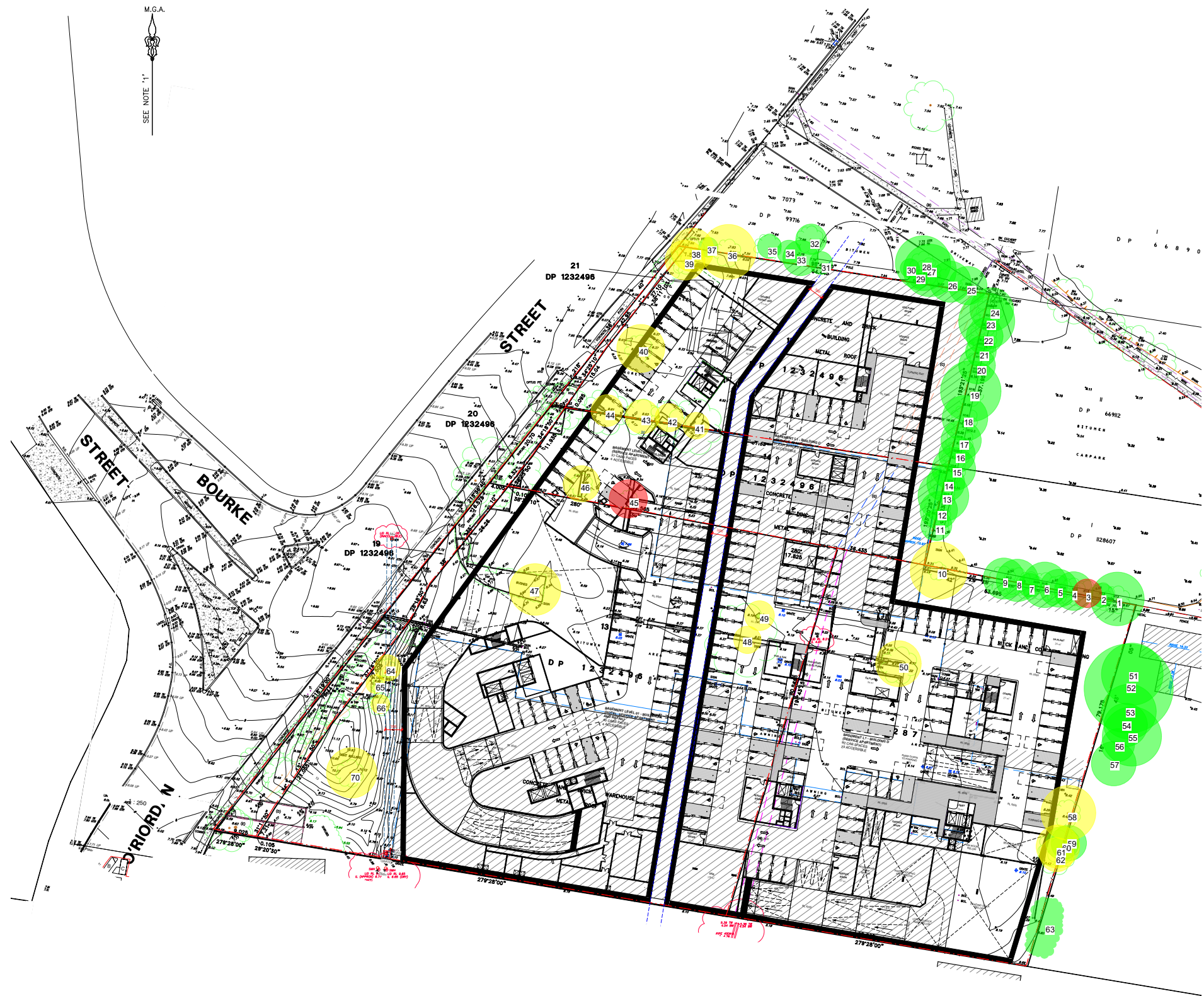
Tree no.	Species	Height	Spread(m)	DBH	TPZ Radius (m)	Maturity	Trunk (single, twin, multiple @)	Trunk lean	Form/Crown shape	Branching Habit	Crown Distribution	Stability	Branching Structure	Pruning History	Defects	Damage	Overall Health & Vigour	Canopy Density	Foliage	Deadwood	Epicormic Growth	Pest Infestation	Disease	Life expectancy	Env. & Landscape significance	Retention Value	Notes/Comments
1	Casuarina spp	14	8	470	5.64	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
2	Casuarina spp	12	6	210	2.52	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
3	Casuarina spp	12	4	260	3.12	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Bark inclusion	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Low	Bark inclusion. Remove
4	Grevillea robusta	17	8	340	4.08	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
5	Casuarina spp	17	6	330	3.96	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
6	Casuarina spp	17	8	400	4.8	Mature	Single	Slight N	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
7	Grevillea robusta	17	6	210	2.52	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
8	Casuarina spp	16	8	370	4.44	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
9	Casuarina spp	16	8	360	4.32	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
10	Eucalyptus pilularis	18	12	500	6	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
11	Casuarina spp	14	6	270	3.24	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
12	Casuarina spp	14	8	330	3.96	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
13	Casuarina spp	17	9	445	5.34	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
14	Casuarina spp	14	8	330	3.96	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
15	Casuarina spp	17		380	4.56	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
16	Casuarina spp	19	7	320	3.84	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
17	Casuarina spp	19	6	350	4.2	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
18	Casuarina spp	17	8	400	4.8	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
19	Casuarina spp	17	11	530	6.36	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
20	Casuarina spp	16	12	320	3.84	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
21	Casuarina spp	17	9	270	3.24	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
22	Casuarina spp	17	9	320	3.84	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
23	Casuarina spp	17	10	490	5.88	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
24	Casuarina spp	16	12	380	4.56	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
25	Casuarina spp	14	6	335	4.02	Mature	Multiple (5) @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
26	Callitris columellaris	16	3	360	4.32	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	Moderate	Moderate	
27	Grevillea robusta	20	10	460	5.52	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
28	Grevillea robusta	19	9	480	5.76	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	

Tree no.	Species	Height	Spread(m)	DBH	TPZ 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
29	Callitris columellaris	15	4	360	4.32	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
30	Corymbia maculata	6	3	120	1.44	Mature	Single	Prominent N	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
31	Callistemon citrinus	9	6	200	2.4	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Longitudinal wound	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
32	Corymbia maculata	13	7	270	3.24	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Poor	Sparse	Chlorotic	40%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	Significant apical dieback
33	Callitris columellaris	15	4	310	3.72	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
34	Callistemon viminalis	4.5	5	210	2.52	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	Moderate	Moderate	
35	Butia spp	6	4		2.5	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
36	Corymbia maculata	17	8	480	5.76	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
37	Corymbia maculata	6	4	170	2.04	Semi-mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
38	Corymbia maculata	15	8	380	4.56	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
39	Corymbia maculata	15	11	350	4.2	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
40	Corymbia maculata	14	11	420	5.04	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
41	Banksia integrifolia	7	7	230	2.76	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
42	Banksia integrifolia	6	4	250	3	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
43	Banksia integrifolia	9	4	300	3.6	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
44	Banksia integrifolia	6	4	280	3.36	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	Moderate	Moderate	
45	Dead tree				0	Dead	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Dead	Dead	Nil	100%	Nil	No evidence	No evidence	Dead	Low	Low	
46	Eucalyptus pilularis	10	8	320	3.84	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
47	Eucalyptus scoparia	10	9	450	5.4	Mature	Single	Slight W	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
48	Corymbia citriodora	10	7	240	2.88	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
49	Corymbia citriodora	11	6	260	3.12	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Fair	Thinning	Normal	20%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	Moderate apical dieback
50	Corymbia citriodora	13	9	400	4.8	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Evidence of decay	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	Extensive decay at base of trunk. Resistograph
51	Casuarina spp	18	12	540	6.48	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
52	Casuarina spp	18	12	780	9.36	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
53	Eucalyptus robusta	15	14	480	5.76	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
5	Casuarina spp	14	8	380	4.56	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
55	Eucalyptus robusta	15	11	520	6.24	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
56	Casuarina spp	13	9	290	3.48	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	Southern co dominant trunk dead
57	Eucalyptus robusta	11	12	390	4.68	Mature	Twin @ 1m	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
58	Eucalyptus scoparia	13	9	480	5.76	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	

Tree no.	Species	Height	Spread(m)	DBH	TPZ 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
59	Morus spp.	10	12	310	3.72	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	On neighbouring property
60	Casuarina spp	15		290	3.48	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
61	Casuarina spp	17		380	4.56	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
62	Casuarina spp	16		300	3.6	Mature	Twin @ base	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Bark inclusion	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
63	Casuarina grove	15	6	250	3	Mature	Grove	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
64	Callistemon viminalis	7	5	230	2.76	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	Moderate	Moderate	
65	Callistemon viminalis	5	4	150	1.8	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	
66	Callistemon viminalis	4	4	140	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	Moderate	Moderate	
67	Corymbia maculata	15	11	440	5.28	Mature	Single	NIL	Normal	Normal	Balanced	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	Moderate	Moderate	

Appendix D Tree Location Plans

Tree Protection Plans



- Legend**
- Tree to be Retained and Protected
 - Tree not viable to be retained due to proposed development
 - Tree to be Removed
 - Tree Protection Zone (TPZ) in accordance with AS4970-2009

Birds Tree Consultancy

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Project: 146-154 O'Riordan St Mascot
 Client: Toplace
 DWG: A01 REV A
 Plan: Tree Location Plan
 Date: 08 Aug 2019 Scale : 1:1000 @ A3

