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Borough of Queenscliffe

Rec Reserve & Victoria Park Caravan Park Tree Risk Assessment 2022 Update

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Woodland Tree Reports
ARBORICULTURAL CONSULTANT

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1. Assignment

This report has been commissioned by Daniel Alexander, Engineer, Borough of Queenscliffe to provide an update to the annual risk assessment carried out within Queenscliff Recreational Reserve and Victoria Park, Queenscliff. The update is regarded as necessary based on the level of tree and branch failure that has continued to occur since the storm event that occurred on the 29th October 2021.

2. Assessment Methodology

Assessed by

Jason Eales- Diploma Horticulture (Arboriculture)

Date of inspection

12th January 2022

Inspection method

All trees have been assessed by visual tree assessment (VTA) (Matheny & Clark 1998) from the ground only. Only the visual aspect has been undertaken. No invasive methods have been undertaken at this stage.

No inspection was performed on the root system other than any that were visible due to soil erosion.

All photos have been taken using a 10 mega pixel digital camera.

Weather at the time of assessments was partially cloudy with moderate winds and good visibility.

Limitations

None. All areas of the trees were easily accessible.

3. Observations

The tables on the following pages provide detailed information relating to observations on the day of inspection. Risk rating and recommendations including timeframes are also included.

There is a significant increase in trees being rated high or medium risk which is a direct result of the storm event that occurred on the 29th October 2021.

The increase in risk rating is supported by the numerous requested inspections carried since that day and subsequent reports provided.

Table of observations and recommendations – Queenscliff Recreation Reserve Caravan Park

Queenscliff Rec Reserve Tree Inspection 2022 - Observations/Recommendations													
Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
1	4	*Cupressus stephensonii*	Cuyamaca Cypress	6	6	600	Fair	Poor	Poor	Medium	Mature	Small tree with significant lean to east is moving in the ground during moderate wind load, although canopy reduction has reduced load somewhat. Ground heave on west side. Canopy decline evident with necrosis in root plate and trunk base. Car parked on top of root plate at time of inspection.	Remove dead branches. Monitor tree and root plate/ground heave regularly. Avoid allowing campers to park vehicles on top of the root plate. Any further movement identified removal will be required to remove the risk of this tree failing and falling onto the access road. Reinspect in 12 months.	6-12 months
2	Rear of 16	*Melaleuca lanceolata*	Moonah	5	7	250, 240	Fair	Poor	Poor	Medium	Mature	Small Moonah with numerous broken branches and wounds evident. Entire crown epicormic growth.	Remove broken and damaged branches. Crown reduce over extended branches. Monitor. Any further branch failure remove tree.	ASAP
3	B12	*Melaleuca armillaris*	Bracelet Honey Myrtle	5	9	280, 550	Good	Fair	Good	Medium	Mature	Small spreading tree with a fractured branch on the south west side of the canopy.	Remove fractured branch and monitor tree for further decline or failure.	ASAP
4	B05.	*Melaleuca lanceolata*	Moonah	8	12	400, 500, 700	Good	Fair	Fair	Medium	Mature	Medium sized tree has detailed deadwood throughout the canopy, broken branches, decay and necrotic tissue from stem removals at base. Recent branch pruning carried out to accommodate a gazebo.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider non-invasive cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely**. Works required - Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
5	B03.	*Agonis flexuosa*	Willow Myrtle	7	8	400, 540	Good	Fair	Good	Low	Mature	Medium sized tree has detailed deadwood, rubbing and crossing branches throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw.	12 Months
6	B01.	*Agonis flexuosa*	Willow Myrtle	7	12	1200	Good	Fair	Good	Low	Mature	Medium sized tree has detailed deadwood, rubbing and crossing branches throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw.	12 Months
7	B34.	*Agonis flexuosa*	Willow Myrtle	6	10	680	Good	Fair	Good	Low	Mature	Medium sized tree has detailed deadwood, rubbing and crossing branches throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw.	12 Months
8	B16	*Casuarina cunninghamiana*	River Sheoak	11	11	600	Fair	Fair	Fair	Medium	Mature	Large tree with detailed deadwood, broken, rubbing, crossing and twisted branches throughout the canopy.	Remove broken branches and prune out all deadwood greater than 25mm diameter and monitor for further decline. An E.W.P will be required for these works.	6-12 months

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
9	Site B37	*Melaleuca lanceolata*	Moonah	7	5	31	Poor	Poor	Poor	Medium	Mature	Small tree with declining canopy, decay and recent bark damage at base leaning on van awning. Possible vehicle damage recently that has affected the root plate and decay within. Detailed deadwood, broken, rubbing, crossing and twisted branches throughout the canopy.	Monitor tree health for further decline and structure including root plate for failure indicators regularly. Prune out all deadwood greater than 25mm diameter. This work can be done using a polesaw.	6-12 months
10	Site B39.	*Melaleuca lanceolata*	Moonah	7	9	600	Poor	Poor	Poor	Medium	Mature	Medium sized tree has decay in base and upper trunk with bracket fungus attached and epicormic growth at the crown union and base indicating stress reactions within the tree at these points.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider non-invasive cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Monitor tree health for further decline and structure including root plate for failure indicators regularly.	6-12 months
11	Site B18	*Melaleuca lanceolata*	Moonah	10	12	570, 420	Fair	Poor	Fair	Medium	Mature	Large multi-trunked tree with spreading crown has decay pockets in trunk in various locations. Epicormic growth at the base on both sides indicating stress reactions within the tree at these points. Detailed deadwood, rubbing and crossing branches throughout the canopy.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider non-invasive cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely**. Works required - Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using an EWP. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
12	Site B19.	*Melaleuca lanceolata*	Moonah	8	14	320, 500, 550, 580, 600	Good	Poor	Fair	High	Mature	Large multi-trunked tree has decay pockets in all trunks in various locations with bracket fungus attached. The east side stem has a pruning wound with a habitat hollow and an epicormic branch growing on top of this point. Reactive tissue has expansion cracking evident at union. The west side stem which is leaning out over the access road has a deep pocket of decay on the south side at 1.5m above ground which is visible from the site van. Surface roots getting larger on the south side of the trunk base. Detailed deadwood, rubbing and crossing branches throughout the canopy.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider non-invasive cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely**. Works required - Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using an EWP. Monitor tree health for decline and structure including root plate for failure indicators regularly.	As soon as practical (3months)

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
13	Site B43.	*Melaleuca lanceolata*	Moonah	9	7	480	Good	Fair	Fair	High	Mature	Tall tree bifurcated in trunk and also at the base with Tetragonia growing all over the base. East side trunk removed down to 1 metre high stump with decay hollow present with top heavy canopy. Broken branches evident on east side above van. Detailed deadwood throughout the canopy also.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider non-invasive cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Remove broken branches asap. Prune out all deadwood greater than 25mm diameter and monitor. An E.W.P will be required for these works.	**Remove broken branches asap.** (3months)
14		*Araucaria heterophylla*	Norfolk Island Pine	20	13	980	Fair	Good	Fair	Medium	Mature	Very large tree has a large wound on the east side of the trunk that has Bacterial Slime Flux or Wet wood present. Broken branch in canopy on west side.	**Remove broken branch asap**. This can be done with polesaw and rope. Bacterial Slime Flux cannot be controlled. Only tree health can be improved to help the tree's defences to fight off the infection and grow reactive tissue that will eventually close off the wound. A solution of water and Chlorine mixed at 10 to 1 ratio can be sprayed onto the wound at fortnightly intervals to reduce and kill the bacteria on the outer surface of the wound. The ideal treatment would be to mulch out to the trees dripline, apply slow release fertiliser, remove and deadwood or broken branches and stubs to remove pathogen entry points.	**Remove broken branches asap.** (3months)
15	Site B53.	*Melaleuca lanceolata*	Moonah	7	7	520	Good	Fair	Fair	Low	Mature	Medium sized tree has detailed deadwood and rubbing branches throughout the canopy. Active habitat hollow in trunk and canopy branches. Large broken branch stubs evident from storm event.	Prune out rubbing branches and all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw.	12 Months
16	East of Camp Kitchen	*Allocasuarina verticillata*	Drooping Sheoak	4	5	80, 80	Good	Poor	Poor	Medium	Juvenile	Small tree located east of camp kitchen against fence with fractured bifurcated union in trunk.	Remove tree.	As soon as practical (3months)

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
17	Camp Kitchen	*Melaleuca lanceolata*	Moonah	8	9	270, 290, 340, 400	Good	Fair	Fair	Medium	Mature	Medium sized tree has steel wire cable within the upper canopy and decay in base with bracket fungus attached. Over-extended branch leaning to north above camp kitchen has epicormic growth at bend where extra load would be placed on the trunk structure indicating stress in that area. Due to succulents and epicormic growth around base of tree trunk structure integrity unable to be assessed. Recent underground boring carried out between trunk and camp kitchen. Small broken branches in canopy.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider increasing non-invasive cable and bracing system to north trunk to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Prune out all deadwood greater than 25mm diameter and monitor. Remove succulents and epicormic growth growing over base of tree so structural integrity assessment can be carried out. This work can be done using a polesaw. Works should be completed within 6-12 months.	6 -12 Months
18	Site A07.	*Melaleuca armillaris*	Bracelet Honey Myrtle	5	6	270	Fair	Fair	Fair	Low	Semi-mature	Small tree at back of site with deadwood and small broken and rubbing branches on perimeter steel fence.	Remove broken branches, deadwood and reduce canopy off fence.	12 Months
19	Site A07.	*Melaleuca lanceolata*	Moonah	6	6	400	Good	Fair	Fair	Low	Mature	Medium sized tree located at rear of site has detailed deadwood throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw.	12 Months
20	Site A07.	*Melaleuca lanceolata*	Moonah	7	8	230, 240, 400	Good	Fair	Fair	Low	Mature	Medium sized tree located at rear of site has detailed deadwood throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw.	12 Months
21	Site A06.	*Melaleuca lanceolata*	Moonah	7	6	180, 200, 320	Good	Fair	Fair	Low	Mature	Medium sized tree located at rear of site has detailed deadwood throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw.	12 Months
22	Site A06.	*Melaleuca lanceolata*	Moonah	4	5	180	Good	Good	Good	Low	Semi-mature	Small tree located at rear of site has detailed deadwood throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw.	12 Months
23	Site A05.	*Melaleuca lanceolata*	Moonah	7	7	470	Good	Fair	Fair	Low	Mature	Medium sized tree located at rear of site has detailed deadwood throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw.	12 Months
24	Site A04.	*Melaleuca lanceolata*	Moonah	7	6	370, 360	Good	Fair	Fair	Low	Mature	Medium sized tree located at rear of site has detailed deadwood throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw.	12 Months
25	Site A03.	*Melaleuca lanceolata*	Moonah	7	8	460, 150	Good	Fair	Fair	Low	Mature	Medium sized tree located at the top of the embankment at the rear of the site. Exposed surface roots evident. Detailed deadwood throughout.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw.	12 Months
26	Site A03.	*Allocasuarina verticillata*	Drooping Sheoak	6	7	230, 230	Fair	Poor	Fair	Medium	Mature	Small tree with bifurcated trunk and a historical fracture on the north side. Remainder of tree has bifurcations, detailed deadwood, broken, rubbing, crossing and twisted branches throughout the canopy.	Remove broken branches and monitor tree for further decline or failure in trunk.	6 -12 Months
27	West entrance gateway	*Melaleuca lanceolata*	Moonah	6	8	300, 280	Good	Fair	Fair	High	Semi-mature	Medium sized broad canopied tree with broken branch hanging from canopy on outside of reserve fence.	Remove broken and damaged branches and monitor tree.	**Remove broken branches asap.** (3months)

Table of observations and recommendations – Victoria Park

Victoria Park Queenscliff Tree Inspection 2021 - Observations/Recommendations													
Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
28		Melaleuca lanceolata	Moonah	5	6	120, 120, 240	Good	Fair	Fair	Medium	Juvenile	Small tree with split bifurcated stem on the north side. Small broken branches and bifurcations through the rest of the canopy also.	Reduce fractured branch back to trunk union as soon as practical. Monitor tree health and structure.	**Remove broken branch asap.** (3months)
29	Site 117.	*Melaleuca lanceolata*	Moonah	8	10	680	Fair	Fair	Fair	High	Senescent	Large mature tree has broken branches in upper canopy. Active habitat hollows within the trunk. Trunk has decay and necrotic tissue present also and epicormic growth at base. Over extended branch on east side has a crack or expansion crack. Canopy branches growing from decayed and hollow crown union. A large broken branch stub on north side evidence of a recent branch failure and further bird damage to bark and in branch unions.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely**. Works required - Remove broken branches. Weight reduce over-extended branches. Prune out all deadwood greater than 25mm diameter and monitor. Conduct aerial inspection of upper canopy and unions whilst carrying out works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	**Remove broken branch asap.** (3months)
30	Site 40.	*Melaleuca lanceolata*	Moonah	8	9	890	Fair	Poor	Fair	High	Senescent	Large mature tree with steel cables holding the canopy together indicating potential failure at trunk unions at some point. Small amounts of canopy decline since last inspection. Broken branches in canopy on north west side above bolt attachment point. Detailed deadwood throughout the canopy with bark damage from high vehicles on the north side above the access road. A small bracket fungus has appeared above the cable bolt on the west side stem indicating a decay regime present. Borer and bird damage also.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Monitor tree and cable unions as well as stem with bracket fungus for structural change. Remove broken branches and detailed deadwood. Conduct aerial inspection of upper canopy and unions whilst carrying out works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	**Remove broken branch asap.** (3months)
31	Site 41.	*Melaleuca lanceolata*	Moonah	7	10	200, 250, 400, 400	Good	Fair	Good	Low	Mature	Medium sized tree has detailed deadwood and broken branch stubs throughout the canopy.	Tidy up broken stubs and monitor tree for decline or failure. This work can be done using a polesaw.	12 months
32	Site 42A.	*Melaleuca lanceolata*	Moonah	8	10	400, 340	Fair	Poor	Fair	Medium	Senescent	Large mature tree with trunk decayed and necrotic tissue present. Numerous fungal fruiting bodies/bracket fungus along trunks and branches indicating extensive internal decay. Trunks recently propped to reduce risk of fracture and failure at structurally weak points in trunk base. Large epicormic branch on east side growing from propped area of trunk adding load to this area. Detailed deadwood throughout the canopy and active habitat hollows within the trunk. Epicormic growth at the base indicating stress reactions within the tree at these points.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely**. Works required - Weight reduce over-extended branches. Prune out all deadwood greater than 25mm diameter and monitor. Conduct aerial inspection of upper canopy and unions whilst carrying out works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	As soon as practical (3months)

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
33	Site 42A/43	*Melaleuca lanceolata*	Moonah	8	8	300, 320, 380, 400, 410	Poor	Poor	Poor	High	Senescent	Large tree is bifurcated and decayed at the base. East stem has a fracture evident from base up to union point with main stem with entire canopy almost dead. West side declining in the canopy and centre stem also Decay evident in west trunk, detailed deadwood and broken branches throughout west stem. Epicormic growth at the base indicating stress reactions within the tree at these points.	Remove east stem due to immediate risk of trunk failure. Either reduce west side stem to alleviate load on decay and fractures in trunk or remove west trunk down to habitat hollows.	As soon as practical (3months)
34	43	*Melaleuca lanceolata*	Moonah	7	6	300	Fair	Fair	Fair	Medium	Senescent	Medium sized tree leaning to the north over the vehicle access road. Decay and necrotic tissue in trunk base and hollow now exposed since last inspection. Vehicle damage has increased to the bark layer 2-3 metres above road in numerous locations with the most recent lower. A large crack is present in the necrotic heart wood exposed by the vehicle damage which potentially has occurred with recent vehicle interactions. Root plate has necrosis and decay on tension side with exposed surface roots and disturbed soil potential indicator of root plate movement or failure. Broken branches in canopy above road.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider protecting the tree from vehicle damage by reducing the distance vans and large vehicles can be driven past or remove access below the tree completely.** Alternatively if either cannot be achieved, weight reduction pruning should be carried out to alleviate load on defects. Remove broken branches and detailed deadwood. Monitor tree health for decline and structure including root plate for failure indicators regularly.	**Remove broken branches asap.** (3months)
35	Site 45.	*Melaleuca lanceolata*	Moonah	8	10	250, 260, 300, 340, 600	Fair	Poor	Fair	Medium	Senescent	Large multi-stemmed tree is decayed and damaged in the root plate at the points of attachment. Trunks and over extended branches have recently been propped to reduce load exerted on the root plate which have decay present, although Rhagodia growing over the trunk bases inhibits ability to assess whether trunk unions and root plate are structurally sound. Detailed deadwood and rubbing, crossing and twisted branches throughout canopies.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider further cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Prune out all deadwood greater than 25mm diameter and monitor. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	As soon as practical (3months)
36	Adjacent to Site 46.	*Melaleuca lanceolata*	Moonah	8	9	600, 620, 540	Fair	Fair	Fair	Medium	Senescent	Large mature tree located in revegetation area adjacent to west perimeter fence and south west access path. Decay and necrotic tissue present in trunk along with numerous fungal fruiting bodies/bracket fungus indicating internal decay. Over extended branches and detailed deadwood throughout the canopy. Rhagodia growing over the trunk bases inhibits ability to assess whether trunk unions and root plate are structurally sound.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Prune out all deadwood greater than 25mm diameter and monitor.	6-12 months
37	Adjacent to Site 46.	*Melaleuca lanceolata*	Moonah	8	10	600, 620, 541	Fair	Fair	Fair	Medium	Senescent	Large mature tree located in revegetation area adjacent to south west access path and west vehicle access road. Decay and necrotic tissue present in trunk and branch unions. Broken and damaged branches evident. Over extended branches and detailed deadwood throughout the canopy. Rhagodia growing over the trunk bases inhibits ability to assess whether trunk unions and root plate are structurally sound.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Remove broken branches. Prune out all deadwood greater than 25mm diameter and monitor.	**Remove broken branches asap.** (3months)

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
38	Site 113.	*Melaleuca lanceolata*	Moonah	6	5	470	Poor	Poor	Poor	High	Senescent	Small tree with decay and fractures in trunk. Continuing to decline in health with dieback/deadwood in upper canopy. Root plate movement has increased since last inspection indicating increased risk of complete root plate failure.	**Based on condition as well as damage sustained to other Moonahs in similar condition, consider removing this tree down to a habitat trunk or complete removal. Alternatively weight reduce crown to alleviate load on defect in base of tree or remove access below and around the tree completely.**	As soon as practical (3months)
39	North side of Site 46.	*Melaleuca lanceolata*	Moonah	8	9	700, 900	Fair	Poor	Fair	Medium	Senescent	Large mature tree is located within a mulched garden area. It has detailed deadwood throughout the canopy and active habitat hollows within the trunk. Trunk has decay and necrotic tissue present also along with numerous fungal fruiting bodies/bracket fungus indicating extensive internal decay. Rhagodia growing over the trunk bases inhibits ability to assess whether trunk unions and root plate are structurally sound.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Prune out all deadwood greater than 25mm diameter and monitor.	6-12 months
40	North side of Site 46.	*Melaleuca lanceolata*	Moonah	8	9	810	Fair	Poor	Fair	Medium	Senescent	Large mature tree is located within a mulched garden area. It has detailed deadwood throughout the canopy and active habitat hollows within the trunk. Trunk has decay and necrotic tissue present also along with numerous fungal fruiting bodies/bracket fungus indicating extensive internal decay. Rhagodia growing over the trunk bases inhibits ability to assess whether trunk unions and root plate are structurally sound.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Prune out all deadwood greater than 25mm diameter and monitor.	6-12 months
41	North side of Site 46.	*Melaleuca lanceolata*	Moonah	9	10	800	Fair	Poor	Fair	High	Senescent	Large multi trunked tree is located within a mulched garden area. It has detailed deadwood throughout the canopy and active habitat hollows within the trunk. Trunk union has decay and necrotic tissue present with a large fracture now evident since last inspection with numerous fungal fruiting bodies/bracket fungus indicating extensive internal decay. Rhagodia growing over the trunk bases inhibits ability to assess whether trunk unions and root plate are structurally sound. A small Eucalyptus lehmanii growing on the west side along the perimeter fence is now becoming large enough to cause damage to the tree branches.	**To retain this tree is its current condition, a cable and bracing system will be required to prevent further trunk failure at the fracture point. Remove access below the tree completely. Remove indigenous ground cover growing over base of tree so complete structural integrity assessment can be carried out.** Remove Eucalyptus lehmannii sapling damaging the subject tree.	As soon as practical (3months)
42	North side of Site 48.	*Melaleuca lanceolata*	Moonah	8	14	700, 650	Fair	Poor	Fair	Medium	Senescent	Large multi trunked mature tree is located within a mulched garden area and leaning over the access road. It has damaged branches above the road from vehicles hitting them. Detailed deadwood throughout the canopy and active habitat hollows within the trunk. Trunk has decay and necrotic tissue present also along with numerous fungal fruiting bodies/bracket fungus indicating extensive internal decay. Upper canopy branches rubbing against each other. Rhagodia growing over the trunk bases inhibits ability to assess whether trunk unions and root plate are structurally sound.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider a cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Reduce over extended branch above road. Remove broken branches and deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
43	North side of Site 48.	*Melaleuca lanceolata*	Moonah	8	12	200, 410, 420, 430	Fair	Poor	Fair	Medium	Senescent	Large mature tree is located within a mulched garden area. It has broken branches and detailed deadwood throughout the canopy and active habitat hollows within the trunk. Trunk has decay and necrotic tissue present also along with numerous fungal fruiting bodies/bracket fungus indicating extensive internal decay. East side branches over extended above vehicle access road. Rhagodia growing over the trunk bases inhibits ability to assess whether trunk unions and root plate are structurally sound.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Reduce over extended branch above road. Remove broken branches and deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
44	Site 110.	*Melaleuca lanceolata*	Moonah	7	8	400	Good	Fair	Fair	High	Mature	Medium sized tree located in a mulched garden area with canopy biased to the north. Decay in trunk with beehive present. Crown and trunk union also has decayed hollow. Detailed deadwood throughout the canopy, broken branches and epicormic growth at the trunk base. Unstable to assess root plate integrity due to bees present.	Relocate beehive to reduce risk to public and allow further inspection. Prune out all deadwood greater than 25mm diameter and monitor.	**Beehive relocation asap.** Other works 12 months
45	Site 110.	*Eucalyptus gomphocephala*	Tuart	12	12	700	Fair	Fair	Fair	High	Mature	Large tree has a bifurcated trunk, detailed deadwood and bark damage in unions and branches from birds throughout the canopy. West side branch appears to have either a torsional crack or bark cracking from expansion growth.	Carry out aerial inspection to determine if branch is cracked. Reduce back to next union if crack present. Prune out all deadwood greater than 25mm diameter and monitor. An E.W.P will be required for these works.	Aerial inspections soon as practical. (3months)
46	Site 108.	*Pinus pinea*	Stone Pine	11	17	570	Good	Fair	Fair	Medium	Mature	This very large tree with the crown biased to the north over the revegetation area has rubbing branches in the upper canopy, bark damage on the trunk and detailed deadwood throughout.	Remove all deadwood greater than 25mm diameter and monitor. An E.W.P will be required for these works.	6-12 months
47	Site 101.	*Melaleuca lanceolata*	Moonah	8	8	590	Poor	Poor	Poor	Medium	Senescent	Large mature tree is located within a mulched garden area. It has detailed deadwood throughout the canopy and broken branch stubs indicating previous branch failures.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
48	Site 101.	*Melaleuca lanceolata*	Moonah	8	9	700	Fair	Poor	Poor	High	Senescent	Large mature tree is located within a mulched garden area. Large broken branches, detailed deadwood throughout the canopy and broken stubs indicating previous branch failures. A very large area of damage and decay in the trunk indicates previous branch or trunk failure at this point as well as extensive decay throughout the trunk.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Remove broken branches and deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	**Remove broken branches asap.** (3months)

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
49	Site 98.	*Melaleuca lanceolata*	Moonah	9	19	640	Fair	Poor	Fair	High	Senescent	Large mature tree is located adjacent to the site. Small broken branches in upper canopy, detailed deadwood and broken stubs indicating previous branch failures. The base of the tree is a large mass of epicormic growth indicating stress reactions within the tree at these points.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Reduce epicormic growth growing around the base of tree so structural integrity assessment can be carried out. Remove broken branches and deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	**Remove broken branches asap.** (3months)
50	Site 93.	*Eucalyptus gomphocephala*	Tuart	17	20	1100	Fair	Fair	Fair	High	Mature	Very large tree has been lopped previously a long time ago. The regrowth is now significant in size and height and over-extended. There are broken branches and detailed deadwood throughout, poor branch unions, bark damage in unions and branches from birds and large epicormic growth poorly attached to lopping points throughout. Expansion cracks in bark as well as torsional crack in lower branch in west and south sides.	Weight reduce entire crown by reducing over extended epicormic growth throughout the canopy. Remove broken branches and deadwood throughout canopy. Reduce rubbing, crossing and twisted branches and carry out comprehensive aerial inspection of all branch unions, especially where bird damage has occurred for structural integrity. An E.W.P will be required for these works.	As soon as practical (3months)
51	Site 92.	*Allocasuarina verticillata*	Drooping Sheoak	12	10	460	Good	Fair	Fair	High	Mature	Large tree has detailed deadwood throughout the canopy. Appears to have fractures in the 2nd and 4th branches on the north side of the tree but these defects are obscured.	Inspect tree and branches with potential fractures. If defects are present remove back to union and prune out all deadwood greater than 25mm diameter and monitor. This work will require an E.W.P.	As soon as practical (3months)
52	Site 56.	*Allocasuarina verticillata*	Drooping Sheoak	10	11	610	Good	Fair	Fair	Low	Mature	Large tree previously lopped for powerline clearance. Bifurcated trunk, detailed deadwood, epicormic growth, rubbing, crossing, twisting branches throughout the canopy.	Reduce deadwood, epicormic growth, rubbing, crossing and twisted branches and monitor bifurcation. This work can be done using a polesaw or E.W.P.	12 months
53	Site 58.	*Melaleuca lanceolata*	Moonah	8	14	380, 650, 700	Fair	Fair	Fair	Medium	Senescent	Large multi-stemmed tree positioned on the west perimeter fence line. The south side stem has failed in the ground. The damaged trunk union has decay evident with mycelial growth present also. The trunk adjacent has a bracket fungus present indicating the decay regime has spread from the root plate through to the trunks of this side of the tree. Detailed deadwood throughout the canopy that has been pruned for powerline clearance for many years which has contributed to the trees decline. Since last inspection non-invasive nylon cable has been installed to alleviate the risk of further trunk failure causing serious injury or damage.	Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
54	Site 68.	*Melaleuca lanceolata*	Moonah	7	7	380, 430	Fair	Fair	Fair	Medium	Senescent	Medium sized bifurcated tree has decay and necrotic tissue in both trunk in various locations with habitat hollows present. Detailed deadwood, rubbing, crossing and twisted branches throughout the canopy. Numerous fungal fruiting bodies/bracket fungus indicating internal decay on north trunk. North east branches pruned recently to accommodate large caravan parked to the east of the tree. With the loss of the tree adjacent on the south east side during the October storm event, this tree is now exposed to a new wind pattern which will be adding increased load on the defects already identified.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
55	Site 68.	*Hesperocyparis macrocarpa*	Monterey Cypress	8	5	320	Fair	Fair	Fair	High	Semi mature	Medium sized tree with broken branches, declining canopy, detailed deadwood and rubbing, crossing and twisted branches throughout the canopy.	Tidy up stubs, reduce deadwood greater than 25mm diameter and monitor tree for decline or failure. This work can be done using a polesaw or E.W.P.	12 months
56	Site 80.	*Melaleuca lanceolata*	Moonah	8	9	680	Good	Poor	Fair	High	Senescent	Large tree has exposed root plate, decay, necrotic tissue, damage from branch failure and habitat hollows in the trunk. Structurally it is bifurcated at 2m above ground. A broken branch is evident in the upper canopy on the north side. Included bark, detailed deadwood, rubbing, crossing and twisted branches throughout the canopy also.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove broken branches, stubs and deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	**Remove broken branches asap.** (3months)
57	Site 80.	*Eucalyptus gomphocephala*	Tuart	12	11	610	Good	Fair	Fair	Medium	Mature	Large tree has broken branches, bark damage in unions and branches from birds, detailed deadwood throughout the canopy. Low branch on south side suppressing small Moonah and taller over extended branches rubbing against other trees as well.	Remove broken branches and deadwood throughout canopy. Reduce rubbing, crossing and twisted branches and carry out comprehensive aerial inspection of all branch unions, especially where bird damage has occurred for structural integrity. An E.W.P will be required for these works.	**Remove broken branches asap.** (3months)
58	Site 80.	*Allocasuarina verticillata*	Drooping Sheoak	12	9	400	Good	Fair	Good	Medium	Mature	Large tree previously with epicormic growth at the trunk base, bifurcated trunk at 6 metres from ground, small broken branches, detailed deadwood, epicormic growth, rubbing, crossing, twisting branches throughout the canopy.	Reduce deadwood, epicormic growth, rubbing, crossing and twisted branches and monitor bifurcation. This work can be done using a polesaw or E.W.P.	6-12 months
59	Site 78.	*Pinus pinea*	Stone Pine	18	18	1100	Fair	Fair	Fair	Medium	Mature	Large tree that was damaged significantly in the recent Oct 21 storm event. Large fractured branches have been removed and suspected unions aerially inspected to determine structural integrity. The entire canopy still has minor rubbing, crossing and twisted branches and detailed deadwood throughout. Bark damaged from birds in upper unions also will continue to provide areas that require regular inspections.	Reduce rubbing, crossing and twisted branches and carry out comprehensive aerial inspection of all branch unions, especially where bird damage has occurred for structural integrity. An E.W.P will be required for these works.	6-12 months
60	Site 4.	*Melaleuca lanceolata*	Moonah	9	7	610, 420	Poor	Poor	Poor	High	Senescent	Large mature tree is located in the middle of the site. Was three large trunks but south trunk fractured during the October storm event. Latest inspection observed a historic fracture in the north east trunk from the root plate opened up with new cracks appearing alongside and above this area. The west side trunk has had part of the south trunk wedged in-between a branch union as a habitat pole. This trunk is adding load to a stem that has necrosis and a fracture with decay in the root plate. The base of the tree is covered in Rhagodia which has impeded the ability to assess the root plate. Since the inspection the crown of the north east trunk has been removed to alleviate the immediate risk presented to the area below this tree.	**Based on age and condition as well as damage sustained, either remove tree completely or remove access below the tree and create a revegetation area using the trunks as habitat. Remove the propped trunk from the west side trunk and reposition in a way it removes the load exerted on the root plate and trunk union.**	**Remove broken branches asap.** (3months)

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
61	Site 4.	*Melaleuca lanceolata*	Moonah	8	9	480	Fair	Poor	Poor	High	Senescent	Large mature tree is located in a revegetation garden bed on the west side of the site. Was three large trunks but south and north trunks have fractured in the base and fallen. South trunk some time ago. North trunk recently with the canopy leaning onto perimeter fence and into property adjacent. Numerous epicormic trunks have been growing around the base for a few years now. Large hollow and decay in the trunk base also. Broken branches in upper canopy. Active habitat hollows within the trunk. Broken branch stubs and bird damage to bark and in branch unions.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider a cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Remove broken branches and deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	**Remove broken branches asap.** (3months)
62	Site 4.	*Melaleuca lanceolata*	Moonah	7	8	390, 250, 200, 160, 160	Fair	Poor	Fair	Medium	Mature	Medium sized mature tree is located in a revegetation garden bed on the north west corner of the site. Trunk leaning to north towards the perimeter fence and pedestrian footpath. Numerous epicormic trunks have been growing around the base for a few years now from the trunk base which has an old stump located beneath the Rhagodia ground cover. Low branch on west side of main trunk is leaning into neighbouring property. Also small epicormic stem on south side has fallen onto fence. Large hollow and decay in the trunk base also. Minor broken branches and deadwood in upper canopy.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider a cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Remove broken branches and deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
63	Site 4.	*Melaleuca lanceolata*	Moonah	8	7	620	Fair	Poor	Fair	Medium	Senescent	Large mature tree is located in a revegetation garden bed on the north side of the site. Trunk is growing form a very old necrotic stump with a hollow completely filled with solid and debris. Trunk base covered by Rhagodia and a large wound from a branch failure is evident on the north side with internal decay present. Medium sized broken branch on south side and detailed deadwood in upper canopy.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider a cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Remove broken branches and deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
64	Site 4.	*Melaleuca lanceolata*	Moonah	8	9	570	Fair	Poor	Fair	Medium	Senescent	Large mature tree is located in a revegetation garden bed on the north east corner of the site adjacent to the park entrance asphalt pedestrian path. Trunk is bifurcated at 2 metres above ground and leaning to the north towards the perimeter fence and pedestrian footpath. A large historically failed trunk is laying along the perimeter fence. Numerous epicormic trunks have been growing for a few years now from the trunk base which has an old stump located on the south side beneath the Rhagodia ground cover. Minor broken branches and deadwood in upper canopy.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider a cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Remove broken branches and deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
65	Site 4.	*Melaleuca lanceolata*	Moonah	5	8	320, 310, 280. 180, 160	Good	Fair	Good	Low	Mature	Medium sized multi stemmed tree located in garden bed in front of toilet block. Older trunks appear to have some decay in the base. Branches encroaching over perimeter fence and concrete footpath.	**Monitor tree health for decline and structure including root plate for failure indicators regularly.**	12 months

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
66	Site 4.	*Melaleuca lanceolata*	Moonah	5	7	200, 200, 180, 1800, 170	Good	Fair	Good	Low	Semi mature	Medium sized multi stemmed tree located in garden bed on east side of the toilet block. Branches encroaching over perimeter fence and concrete footpath.	**Monitor tree health for decline and structure including root plate for failure indicators regularly.**	13 months
67	Site 72.	*Melaleuca lanceolata*	Moonah	10	10	610	Fair	Poor	Poor	Medium	Senescent	Large tree leaning to west has necrotic tissue along trunk near canopy union. Damaged, rubbing and crossing branches, habitat hollows and boxes and detailed deadwood throughout the canopy. Bark damage in unions and branches from birds	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. In this instance propping the trunk may also benefit considering the lean of the tree and load on the root plate.** Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
68	Site 72.	*Melaleuca lanceolata*	Moonah	8	7	340	Fair	Poor	Fair	Medium	Senescent	This medium sized tree has decay in the trunk base and root plate and detailed deadwood throughout the canopy. The tree adjacent recently failed in the root plate due to decay, necrosis and strong easterly winds all contributing to a loss of structural integrity. The crown has been removed which has exposed this tree to a new wind pattern which has the potential of increasing root plate failure when experiencing strong easterly winds.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
69	Site 72.	*Melaleuca lanceolata*	Moonah	9	9	580	Poor	Poor	Poor	High	Senescent	Medium sized tree leaning to west has decay and necrotic tissue along trunk. Root plate and trunk failure occurred on the 5th January 2022. Immediate risk works were carried out where the crown was removed and the trunk now remains as habitat for the short term.	**Based on age and condition as well as damage sustained, to prevent complete trunk failure impacting the public or assets, either remove trunk completely or remove public access below and around the trunk.**	As soon as practical (3months)
70	Adjacent to Site 9.	*Melaleuca lanceolata*	Moonah	8	9	450	Good	Fair	Fair	Medium	Mature	This medium sized tree is located in a revegetation area on the north side of the site. It has small broken branches, detailed deadwood throughout the canopy and epicormic trunks growing around the base indicating stress reactions within the tree at these points. A stump on the north side of the trunk indicates a trunk failure at some point in time with decay evident in the centre.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
71	Adjacent to Site 9.	*Melaleuca lanceolata*	Moonah	8	10	560, 580	Good	Fair	Fair	Medium	Mature	This medium sized tree is located in a revegetation area on the north side of the site. Bifurcated trunk at 1 metre above ground. A recent large branch failure on the west side is evident with the broken branch stub still present. Detailed deadwood throughout the canopy. Epicormic growth growing around the base of the trunk indicating stress reactions within the tree at these points.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
72	Site 86.	*Melaleuca lanceolata*	Moonah	9	10	400, 420, 650	Fair	Poor	Fair	High	Senescent	Medium sized multi stemmed tree has decay and necrosis in trunk base with a habitat hollows present. Canopy biased to the north and west adding load to the trunk defects. All necrotic and decayed tissue has historic fractures evident. Detailed deadwood and rubbing, crossing and twisted branches throughout the canopy. New wind pattern will be affecting the canopy from the removal of the large Cypress and Moonah to the south since the October storm event.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	As soon as practical (3months)
73	Site 86.	*Melaleuca lanceolata*	Moonah	10	10	500, 520, 530	Fair	Poor	Poor	High	Senescent	Large multi-stemmed tree located in vegetated area adjacent to access road. Decay, rubbing and crossing branches and detailed deadwood throughout the canopy. West stem leaning over revegetation area. Central stem has a hollow union approximately 4 metres above ground on the north side that had a beehive in it until moved recently. A cracked branch is above this hollow and is leaning out to the west. East stem that appeared to have a branch fracture in the union above the road failed recently (5th Jan). Recent and historic bark damage from birds and necrosis in the unions also. New wind pattern will be affecting the canopy from the removal of the large Cypress and Moonah to the south since the October storm event.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	As soon as practical (3months)
74	Site 85.	*Melaleuca lanceolata*	Moonah	10	10	600, 610, 640	Poor	Poor	Poor	High	Senescent	Large multi-stemmed tree located in vegetated area adjacent to access road. North stem has a hollow at 1 metre and numerous at 3 metres in pruning wounds above ground with decay present. Central stem leaning to the west above the revegetation area had a Beehive until recently removed to carry out works after the 29th October storm event. A large branch that was attached on the south side of this trunk fractured and fell recently onto the ground and access road below. The south-east stem has active habitat hollow in the trunk and is leaning out over the service road. All three trunks were assessed for possible movement during the strong winds. The south-east stem was observed moving in the ground during a recent inspection away from the north trunk indicating loss of structural integrity within the root plate. Risk mitigation works were implemented immediately based on risk level and high occupancy within the park with the crown removed and the three trunks braced together with 2.5 tonne ratchet straps to ensure minimal risk of further failure until further assessment and recommendations could be carried out and provided. A large part of the reason this tree has had numerous recent failures is the new wind pattern now present from the removal of the large Cypress to the south since the 29th October storm event will be adding increased wind load and affecting the structural integrity of the tree.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	As soon as practical (3months)

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
75	Site 127.	*Melaleuca lanceolata*	Moonah	7	8	300, 300	Fair	Fair	Fair	Medium	Mature	Medium sized tree located between sites, bifurcated in trunk at 1 metre has a necrotic stump at the base of the trunk indicating a previous trunk failure and removal. Active hollow in trunk base with decay present. Detailed deadwood, rubbing, crossing and twisted branches throughout the canopy.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove deadwood greater than 25mm diameter. Weight reduce over extended branches to alleviate load on defects in trunk. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
76	Site 105.	*Brachychiton populneus*	Kurrajong	9	7	380	Poor	Poor	Poor	Low	Mature	Medium sized tree with bifurcation at 6 metres above ground. Recent dead crown reduction works carried out. Epicormic growth has sprouted at canopy and trunk union.	Monitor tree for decline or failure.	No works required.
77	Site 96.	*Melaleuca lanceolata*	Moonah	9	8	600	Fair	Poor	Poor	High	Senescent	Large tall mature tree with a top-heavy canopy located within a revegetation area adjacent to the site. Small broken branches, minor detailed deadwood and rubbing, crossing and twisted branches are present within the canopy. Decay, active habitat hollows, necrosis and bird damage also present. The trunk is bifurcated at approximately 4 metres above ground with necrotic tissue in the union and possible historic fracture.	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove deadwood greater than 25mm diameter and carry out comprehensive aerial inspection of all branch unions, especially where necrotic tissue and bird damage has occurred for structural integrity. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	As soon as practical (3months)
78	Site 121	*Melaleuca lanceolata*	Moonah	6	6	290, 180	Good	Fair	Fair	High	Semi mature	Medium sized tree located between site and wheelie bin area. Multiple broken branches within the canopy are evident. Epicormic growth has sprouted at base of trunk where indigenous groundcover has grown over and around the trunk base.	Remove broken branches as soon as possible. Monitor tree health for decline and structure including root plate for failure indicators regularly. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.	**Remove broken branches asap.** (3months)
79	Site 123.	*Melaleuca lanceolata*	Moonah	8	7	280, 530	Fair	Poor	Poor	Medium	Mature	Medium sized multi-trunked tree that was severely damaged in the 29 October storm event. Majority of the east trunk crown was lost due to fractures. Branch on west side of main trunk has necrosis with a possible fracture at the branch unions. Decay, active habitat hollows and bird damage also present. Most of this tree was reduced to a habitat trunk.	Based on recent damaged sustained, monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
80	Site 12/13.	*Melaleuca lanceolata*	Moonah	10	14	400, 590	Poor	Poor	Poor	High	Mature	Large bifurcated mature tree is located within a small, vegetated area adjacent to the site. North east trunk has a large hollow and wound with decay and necrotic tissue throughout the trunk and canopy. Within the hollowed inner trunk there is a large crack in the necrotic tissue. South west trunk leaning out over access road to the west is sparse with a small canopy at the top of a tall single trunk. Epicormic growth at the base of both trunks indicating stress in these areas. During an inspection on 26th December 2021, large cracks were observed in the soil and mulch at the base of both trunks indicating the root plate has shifted and failed with the strong winds experienced from October to December. As there was already works being carried out on other high risk trees, it was determined reducing the west stem down to a habitat pole would alleviate the immediate risk of this trunk failing and falling onto persons or assets below. Latest inspection observed further canopy decline in east side trunk indicating the root plate failure has affected the health and structural integrity of the tree.	**Based on age, condition, target potential below as well as damage sustained to the root plate, complete canopy removal from the east stem is recommended to reduce the risk of complete tree failure. This will allow the main trunk to remain as habitat. Install cable and bracing system between west and east trunks to reduce the risk of trunk failure also.** An E.W.P will be required for these works. Monitor root plate for failure indicators regularly.	As soon as practical (3months)
81	Sites 15/16.	*Melaleuca lanceolata*	Moonah	10	10	530, 700	Fair	Poor	Fair	High	Mature	Large bifurcated mature tree is located between both sites at the rear adjacent to the chain mesh perimeter fence. A very large fracture was observed in the trunk base where the trunk union has formed during the 26 December inspection. Decay, active habitat hollows and bird damage also present with epicormic growth at the base of both trunks. West trunk has a hole through central stem. Detailed deadwood, rubbing, crossing and twisted branches throughout canopy. **Upper canopy on west trunk was reduced by half on site at the same time of inspection to reduce load on defect in trunk and root plate reducing the risk of complete trunk failure over the road. A 2,500kg load ratchet strap was installed in the tree above the fracture below habitat hollow in the stems to reduce risk of complete tree failure.**	**Based on catastrophic fracture present in the trunk, complete tree removal should be carried out. If any part of the tree is preferred to be retained consider complete canopy reduction and a cable and bracing system installed between the trunks to keep the tree as intact as possible. Also remove access below the tree completely.** An E.W.P will be required for these works. Monitor root plate for failure indicators regularly.	As soon as practical (3months)

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
82	Sites 17/18.	*Melaleuca lanceolata*	Moonah	9	10	570, 600	Fair	Poor	Fair	High	Mature	Medium sized tree with a spreading canopy has necrotic stub in middle of stem union with decay, large active habitat hollow and decay in west stem adjacent to road at 4 metres above ground. Detailed deadwood, rubbing, crossing and twisted branches throughout canopy, bird damage also present with epicormic growth at the base of trunk on west side. The dense canopy was exerting considerable load on this defect during the 26 December inspection. An aerial inspection was then carried out also finding weight reduction pruning was required as upper branch unions had been damaged by birds, with necrosis forming in exposed wood and small fractures present. **Upper canopy branch on west trunk was reduced back to branch union to reduce load on fracture reducing the risk of branch failure over the road. A 2,500kg load ratchet strap was installed in the tree above the habitat hollow in the west stem to reduce risk of failure at the trunk union.**	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	As soon as practical (3months)
83	Sites 138/137.	*Melaleuca lanceolata*	Moonah	9	9	480, 600	Fair	Fair	Fair	Medium	Mature	Medium sized multi-trunked tree located between sites. Necrotic stump at base on north side. Tetragonia ground cover growing over the trunk bases and root plate. Small broken branches, detailed deadwood and rubbing, crossing and twisted branches and damaged stubs and bark tissue evident throughout the canopies. East stem has decay in trunk base, habitat hollow and bird damage in crown and branch unions. Epicormic growth at the base of trunks where decay and hollow is present	**Based on age and condition as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely. Remove indigenous ground cover growing over base of tree so structural integrity assessment can be carried out.** Remove broken branches and deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	As soon as practical (3months)
84	Site 139.	*Melaleuca lanceolata*	Moonah	10	9	150, 150, 160, 610	Fair	Poor	Poor	High	Mature	Medium sized multi-trunked tree that was recently reduced due to the 3 x epicormic stems growing from trunk base fracturing and falling onto the annex of the van adjacent. During the inspection on 26 December, a large fracture running from the root plate vertically along the trunk by approximately 1 metre. Habitat hollow, decay, borer damage and minor deadwood throughout the canopy. The canopy was removed down to the crown union on site at the same time of inspection to reduce load on defect in trunk base and risk of complete tree failure.	**Based on recent damage sustained from the strong wind events and fracture present in the trunk, complete tree removal should be carried out. If any part of the tree is preferred to be retained for habitat remove access below the trunk completely.** If retained monitor root plate for failure indicators regularly.	As soon as practical (3months)
85	Site 18/19	*Melaleuca lanceolata*	Moonah	5	5	90, 90, 100, 100, 110	Fair	Poor	Fair	Medium	Semi mature	Small tree located at the rear of the sites against the perimeter chain mesh fence. Bifurcated at the base the north stem has a fracture in the bifurcated union approximately 1 metre up from the ground.	Remove north stem with fracture back to the trunk union at ground level.	As soon as practical (3months)
86	Site 19.	*Eucalyptus lehmannii*	Bushy Yate	8	16	420, 480	Good	Fair	Fair	Medium	Mature	Large spreading tree with a bifurcation in the trunk union has broken branches, detailed deadwood, rubbing, crossing and twisted branches throughout the canopy. Large over extended canopy branches on south side of tree are increasing the load exerted on the bifurcated trunk union as they continue to grow and increase in size.	Remove broken branches, prune out all deadwood greater than 25mm diameter and monitor. Weight reduce canopy, especially over the onsite van and monitor tree for decline or failure. This work can be done using an E.W.P.	6-12 months

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
87	Site 22	*Melaleuca lanceolata*	Moonah	7	80	400	Fair	Fair	Fair	Low	Mature	Medium sized tree located at the rear of the site has detailed deadwood, rubbing, crossing and twisted branches throughout canopy, decay, and bird damage also present. Recent branch failure evident by damaged tissue and wound. Branch pruning on north side away from fence and bowls club evident. Epicormic stems growing at the trunk base indicating stress reaction at this point.	Prune out all deadwood greater than 25mm diameter and monitor tree for decline or failure. This work can be done using a polesaw or E.W.P.	12 months
88	Site 23.	*Leptospermum laevigatum*	Tea Tree	6	6	280	Poor	Fair	Poor	Medium	Mature	Medium sized tree located at the rear of the site is suppressed by the tree adjacent and has declined in canopy to point where it is almost dead. This tree provides no amenity value.	Remove tree.	6-12 months
89	Site 23.	*Melaleuca lanceolata*	Moonah	6	8	400	Fair	Fair	Fair	Low	Mature	Medium sized tree located at the rear of the site has detailed deadwood, rubbing, crossing and twisted branches throughout canopy, decay, and bird damage also present. Recent branch failure evident by damaged tissue and wound. Epicormic growth and Coprosma shrub growing around base of trunk.	Remove deadwood greater than 25mm diameter. Remove Coprosma. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	12 months
90	Site 23.	*Melaleuca lanceolata*	Moonah	7	8	420	Fair	Fair	Fair	Low	Mature	Medium sized tree located at the rear of the site has detailed deadwood, rubbing, crossing and twisted branches throughout canopy, decay in stump at base, exposed roots and bird damage also present in branch unions.	Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	12 months
91	Site 25.	*Melaleuca lanceolata*	Moonah	7	5	310	Poor	Poor	Poor	Medium	Mature	Medium sized tree located at the rear of the site has a sparse declining canopy. Detailed deadwood, rubbing, crossing and twisted branches throughout canopy and epicormic growth at the base.	Based on the further decline observed since the Oct 21 inspection, this tree will continue to present an increased risk if retained to the site van as well as the bowls club on the north side of the fence. Remove Tree	6-12 months
92	Site 26.	*Melaleuca lanceolata*	Moonah	7	6	340	Fair	Poor	Fair	Low	Mature	Medium sized tree located at the rear of the site. Trunk previously lopped with entire canopy epicormic growth and leaning to east over and on chain mesh perimeter fence.	Reduce east side canopy to alleviate load on fence. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	12 months
93	Garden bed/ median strip	*Melaleuca lanceolata*	Moonah	6	7	200, 270	Fair	Fair	Fair	Low	Mature	Small tree has bifurcated trunk. Minor detailed deadwood and rubbing, crossing and twisted branches throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw or E.W.P. Monitor tree health for decline and structure including root plate for failure indicators regularly.	12 months
94	Garden bed/ median strip	*Melaleuca lanceolata*	Moonah	7	7	370	Fair	Fair	Fair	Low	Mature	Medium sized tree with bifurcated trunk leaning to south. Minor detailed deadwood and rubbing, crossing and twisted branches throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw or E.W.P. Monitor tree health for decline and structure including root plate for failure indicators regularly.	12 months
95	Garden bed/ median strip	*Melaleuca lanceolata*	Moonah	8	8	400	Good	Fair	Fair	Low	Mature	Medium sized tree is leaning to west, has hose attached to trunk with a hook, minor detailed deadwood and rubbing, crossing and twisted branches throughout the canopy. Seam of delaminated bark along east side. Appears as expansion growth but after investigation cambium tissue damage has occurred and the bark is now dehydrating and lifting away from the wood.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw or E.W.P. Monitor tree health for decline and structure including root plate for failure indicators regularly.	12 months

Tree No.	Site No.	Species	Common Name	Height (m)	Width (m)	D.B.H	Health	Structure	Condition	Risk	Age	Inspection findings	Recommendations	Time frame
96	Garden bed/ median strip	*Melaleuca lanceolata*	Moonah	8	10	470	Fair	Poor	Fair	High	Mature	Medium sized tree on significant lean to north above access road. Decay in base and minor detailed deadwood and rubbing, crossing and twisted branches throughout the canopy. Ground heave on south side of trunk indicates root plate is slowly failing with the load exerted from the overextended canopy on the north side.	Weight reduce north side of canopy and prop the trunk to alleviate the risk of complete root plate failure. This work can be done using a polesaw or E.W.P. Monitor tree health for decline and structure including root plate for failure indicators regularly.	As soon as practical (3months)
97	Garden bed/ median strip	*Melaleuca lanceolata*	Moonah	7	7	320	Fair	Fair	Fair	Low	Mature	Medium sized tree with canopy leaning to south with minor detailed deadwood and rubbing, crossing and twisted branches throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw or E.W.P. Monitor tree health for decline and structure including root plate for failure indicators regularly.	12 months
98	Garden bed/ median strip	*Melaleuca lanceolata*	Moonah	8	9	460	Poor	Fair	Fair	Low	Mature	Medium sized tree on significant lean to north above access road. Decay in base and detailed deadwood throughout the canopy.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw or E.W.P. Monitor tree health for decline and structure including root plate for failure indicators regularly.	12 months
99	Garden bed/ median strip	*Melaleuca lanceolata*	Moonah	8	10	290, 300, 330	Fair	Fair	Fair	Low	Mature	Medium sized multi-stemmed tree. Largest stem failed in October 21 storm event and was leaning on tree adjacent. This stem was removed leaving the two smaller trunks leaning to the north. Minor detailed deadwood and rubbing, crossing and twisted branches.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw or E.W.P. Monitor tree health for decline and structure including root plate for failure indicators regularly.	12 months
100	Garden bed/ median strip	*Melaleuca lanceolata*	Moonah	9	10	430, 480, 520	Good	Fair	Fair	Low	Mature	Medium sized multi-stemmed tree has epicormic growth at trunk base and minor detailed deadwood and rubbing, crossing and twisted branches.	Prune out all deadwood greater than 25mm diameter and monitor. This work can be done using a polesaw or E.W.P. Monitor tree health for decline and structure including root plate for failure indicators regularly.	12 months
101	Site 31.	*Melaleuca lanceolata*	Moonah	10	10	300, 400, 600	Fair	Poor	Fair	Medium	Mature	Medium sized tree has a large bracket fungus in the west trunk indicating internal decay. Also has epicormic growth at base, detailed deadwood throughout the canopy.	**Based on age, condition and location where strong west and south winds could exert considerable load on the defects within the tree, as well as damage sustained to other Moonahs in similar condition, consider cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove deadwood greater than 25mm diameter. An E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months
102	Site 36.	*Melaleuca armillaris*	Bracelet Honey Myrtle	6	13	120, 370, 400, 460	Fair	Poor	Fair	Medium	Mature	Medium sized multi-stemmed tree with a spreading canopy that appears to be declining with yellowing in colour. Decay in trunk with active habitat hollows present in and near branch unions.	**Based on age, condition and defects identified as well as damage sustained to other trees in similar condition, consider propping or cable and bracing system to prevent large branch or trunk failures affecting persons or assets below, or remove access below the tree completely.** Remove broken branches and deadwood greater than 25mm diameter. A polesaw or E.W.P will be required for these works. Monitor tree health for decline and structure including root plate for failure indicators regularly.	6-12 months

4. Discussion

Many more high and medium risk trees have been identified since the last inspection due to a combination of factors. As already mentioned in the previous reports, large amounts of exposed decay, hollows and wounds left from previous branch and trunk failures, dead and necrotic branches, poor trunk unions with multiple stems growing out from ground level are all indicators these trees are in a mortality spiral that is increasing in rate of decline every time an extreme weather event occurs.

Extreme winds events have contributed to the failures seen over the last 2 months as well as most probably further weakened these trees in trunks and branch unions where structural integrity has been compromised or lost.

Longer term seasonal changes may have also contributed to the decline in structural integrity with 'La Nina' weather events recorded in 2020 and 2021. The above average rainfall and increased humidity experienced in 'La Nina' weather events can cause a short term biological reaction to the increase in moisture and nutrient uptake where increased growth rates are observed adding significant amounts of reactive tissue and thicker, healthier and denser canopies where optimum energy production can be attained.

This can have an adverse effect on trees that are already in decline and structurally poor from the root plate, trunk and right throughout the canopy structure. As the increase in reactive wood and canopy leaf growth increases weight loads and sail mass, exposing the tree to increased load on weakened areas of the tree.

A sudden dry and windy period also has the potential to further damage already compromised trees with the reduction in available water causing a drying out effect within the tree leaving the branches and unions much drier and susceptible to cracking and failure in more moderate wind events.

Removal of severely damaged trees during storm events also can have a significant effect on adjacent trees as any wind and weather protection it previously provided is lost. This is most likely another contributing factor as to why so many Moonah's are failing at present.

The overall health and condition of the Moonah trees within Victoria Park is an increasing concern with continual tree failures being observed. The long term effects of the October Storm Event will continue to be felt as these senescing trees were damaged so badly in some instances the possibility of further failure is very high.

As the trees decline, the risk to users of the park will continue to increase after each wind or storm event unless measures are put in place to mitigate the level of risk as well as retain the remaining trees for as long as possible.

To continue the way it is at present, the only option to manage these trees will be to react each time a failure occurs with partial or total tree removal being the end result to ensure users of the park are safe.

An alternative could be to assess the way the park functions and investigate whether a different approach may see the park still being used as a camping ground whilst ensuring greater protection for the large mature and senescing trees.

5. Conclusion

The senescing Moonah trees within Victoria Park are presenting a much higher risk to users of the park since the October Storm Event occurred with significant failures still occurring 2 months after the event.

To enable the park to function in the same way it has in previous holiday seasons, for the remainder of the season, an increased inspection schedule should be implemented to identify failures or potential failures that could affect users of the park during this time, especially after strong wind and weather events.

During this time where trees are deemed to be a higher risk than what is acceptable, the option of moving the campers to another site and excluding the public from accessing this area would be preferable rather than removing the tree.

Long term, reducing the target potential adjacent to the senescing Moonahs such as removing sites in locations that could be seen as too great a risk to camp and creating revegetation areas such as those that already exist in the park would be the ideal outcome.

With careful planning, retention of some of the oldest trees within the park can be achieved whilst still allowing the park to function as it is at present.

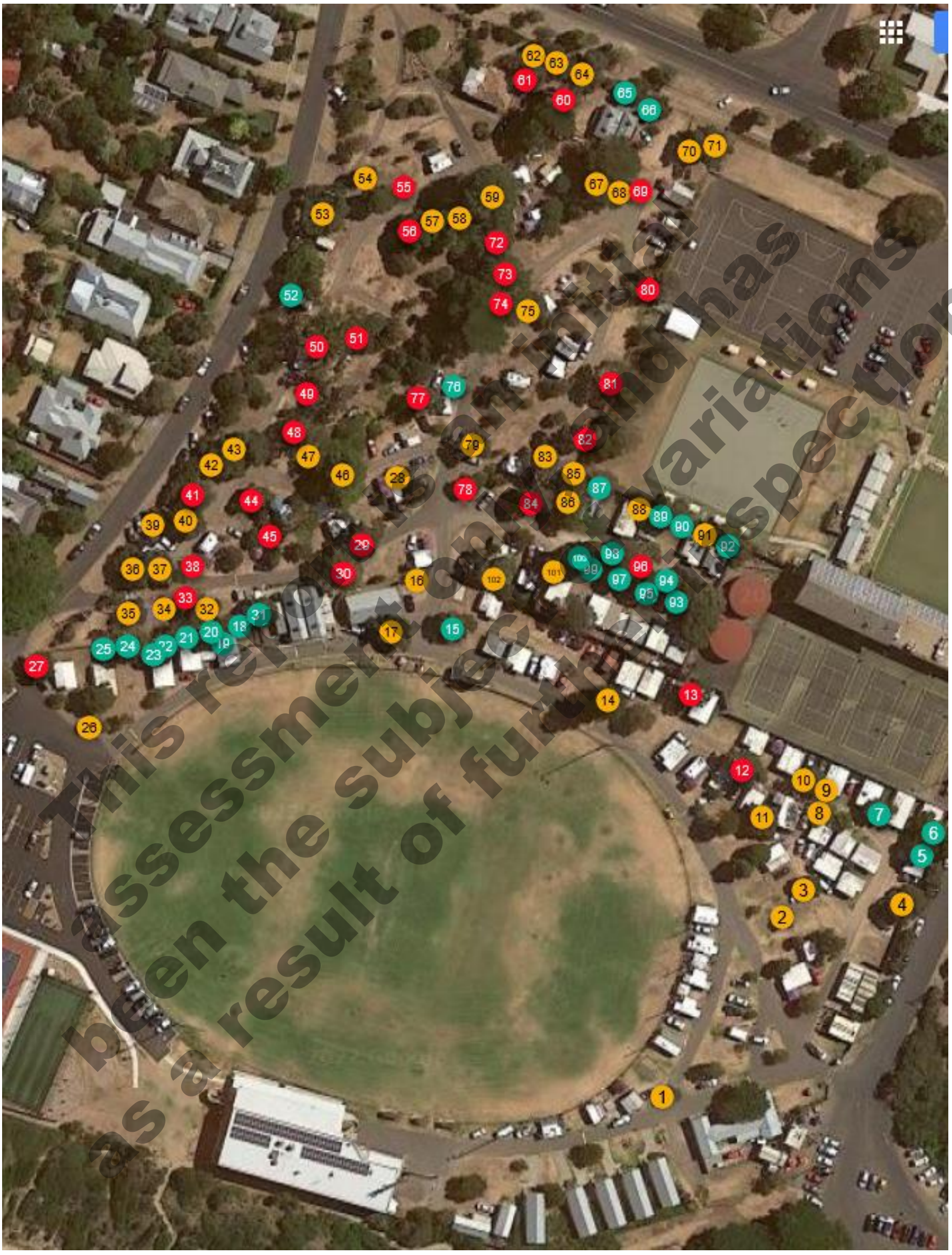
The Borough of Queenscliffe will need to consider what the long term outcome is for Victoria Park if retention of both the trees and campers is preferred, as the current arrangement has increased in risk substantially since the October storm event.

6. Recommendation(s)

Carry out the recommendations in the tables on the previous pages.

7. Appendix 1

Map of Queenscliff Recreation Reserve Caravan Park and Victoria Park with tree locations



8. References

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9. Descriptors

Risk Rating:

High: Severe structural or health problems. These are indicating imminent failure and cannot be satisfactorily rectified by any reasonable financial input, or heightened management regime. Trees in this category are usually recommended for removal, but it is recognised that some trees will always be worthy of retention of due to their significance. In these cases, the decline of the tree maybe to the extent that all works will only slow the failure.

Medium: Moderate structural or health problems that can be managed to prevent the tree from increasing in risk of failure. Trees in this category will require financial and management commitments to maintain them in their current condition. The works that are needed will often need to be ongoing and not a single solution. In some cases, work that is conducted may reduce the risk to low.

Low: No significant problems are apparent. Health and structure are classed as fair, and the tree is actively repairing or controlling any damage or attack. Low rating does not imply that the tree will not fail.

Age:

Juvenile: Tree is actively growing and is still in its establishment phase. Tree currently makes little contribution to the amenity of the landscape. Trees of this age are possible candidates for relocation during development.

Semi-mature: Tree is still actively growing but has reached an age and size where it is starting to contribute to the landscape. The size of the tree would still be expected to increase considerably given no significant changes to the current situation.

Mature: Tree growth has slowed, and the size of the tree would not be expected to increase considerably without significant changes to the current situation (e.g. vegetation removal). Tree is not exhibiting any major signs of health or structural weakness because of age.

Senescent: Tree is in decline. Trees in this category may not be especially large or old, but are reaching the end of their expected life, often indicated by extreme poor health.

Health:

The tree's health is rated as Good, Fair and Poor as listed below. Tree ratings of Fair-Good and Fair-Poor indicate that the tree falls between the two categories. Dead trees are not given a rating, but are listed as Dead. Ratings generally meet the following descriptions:

Good: *Tree is showing no obvious signs of poor health or stress.* With a dense canopy that is free of dieback. Rot or pathogens are not obvious or are not considered to be a threat to the tree. Growth rates are acceptable.

Fair: *Tree is showing signs of reduced health or stress*. This is apparent through moderate foliage density, minor dieback, moderate stress response growth, minor to moderate rot, moderate pathogen infestation, stunted growth or a combination of the above symptoms.

Poor: *Tree is showing signs of poor health and/or severe stress.*
This is apparent through either low foliage density, moderate to large-scale dieback, severe stress response growth, severe rot, severe pathogen infestation, failure of wounds to heal, overall tree decline or a combination of the above symptoms.

Structure:

The tree's structure is rated as Good, Fair and Poor. Tree ratings of Fair-Good and Fair-Poor indicate that the tree falls between the two categories. Generally, the structure rating is based on the tree's likelihood of failure. However, it must be noted that this is not a full hazard or failure assessment of the tree.

Good: Tree has no obvious structural defects and is therefore not considered likely to fail.

Fair: Tree has at least one obvious structural defect, but this is manageable and of only moderate failure risk or the piece likely to fail may be small. Structural defects that may contribute to a fair rating are as follows:

Poor branch attachment (including deadwood and large epicormics); Bifurcated, but with a join that is considered to be solid; Moderate trunk lean but without other defects; Minor damage to the trunk base; Rot or other damage starting to compromise the structure; History of shedding minor branches.

Poor: Tree has at least one structural defect that is severe and considered to have a relatively high risk of failure. If targets are present then defect(s) require treatment, or alternatively the tree should be removed. In some cases, removal may be the only option for these trees. Structural defects that may contribute to a poor rating are as follows: Poor branch attachment (including deadwood and large epicormics); Bifurcated with swelling and/or included bark; Severe trunk lean associated with other defects such as injury in the plane of lean of root plate lift; Major damage to the trunk base or root system; Rot or other damage severely compromising the structure; History of shedding large branches. Structural defects may include one or many of the above.

Amenity value:

Very Low: Tree makes little or no contribution to the amenity value of the site or surrounding area. In some cases, the tree may be detrimental to the area's amenity value (e.g. unsightly, risk of weed spread).

Low: Tree makes some contribution to the amenity value of the site but makes no contribution to the amenity value of the surrounding area. Removal of the tree would result in little loss of amenity. Juvenile trees (including street trees) are generally included in this category; however, they may have the potential to supply increased amenity in the future.

Medium: Tree makes a moderate contribution to the amenity of the site and/or may contribute to the amenity of the surrounding area.

High: Tree makes a significant contribution to the amenity value of the site, or tree makes a moderate to significant contribution to the amenity vale of the larger landscape. The amenity value rating considers the impact the tree has on any neighbouring sites as being of equal importance to that supplied to the subject site. However, trees that contribute to the amenity of the general area (e.g. streetscape) are given greater weight. Comments: Any additional comments in relation to the above categories.

ULE:

The Useful Life Expectancy of the tree from a health, structure, amenity and weediness viewpoint given no significant changes to the current situation. This category is difficult to determine, and should be taken as an estimate only, in addition to this, factors not observed at the time of inspection can lead to tree decline.

0: Tree is a hazard or a weed and should be removed immediately.

0-10: Estimated SULE of less than 10 years.

10-20: Estimated SULE of 10 to 20 years.

20+: Estimated SULE of 20 years or greater.

Recommendation:

Remove: Tree is either not worthy of retention or requires removal (e.g. weed species).
Retain or Remove: Tree does not require removal but is of low retention value.
Retain if practical: Tree has a moderate retention value and should be retained if possible, during any development of the site.

Buttress:

A tree root that extends above the ground as a platelike outgrowth of the trunk supporting the tree.

Compartmentalisation:

Compartmentalization is the tree's defence process where boundaries form that resist spread of infections and that defend the liquid transport, energy storage and mechanical support systems.

Compaction: Where soil is compressed so that the infiltration of oxygen and water is reduced. Compacted soil restricts gaseous exchange to the roots thus limiting respiration in the root cells. The ability of water to permeate is also restricted, and the tree may die or can in time, react by shedding limbs to accomplish an equilibrium with the available water and nutrient supply. Compaction can be caused by vehicle, human and animal traffic; is difficult to alleviate, with the accepted method of alleviation being removal of the cause and the mulching of the root zone.

Callus: Undifferentiated tissue that develops on or around an injured or cut plant surface or in tissue culture. The tissue is formed by the tree at the perimeters of a wound to branch, trunk, or root and in some instances, with time, tends to seal the wound site completely.

DBH:

This is a measurement of the main stem at a height of 1.4m above the natural ground level. On sloping ground the height measurement is taken from a point midway across the slope. Multi stems are measured individually (up to five stems). The squared value of each of these measurements is added together and then the square root value found.

Epicormic Growth: Growth emanating from adventitious buds located along branches or at the site of heavy pruning or lopping. A feature of epicormic growth is the nature of the ongoing attachment of these branches. Unlike conventional branches that have developed an interlocking lamination between trunk and branch, epicormic growth develops quickly on the surface of a branch or trunk in reaction to the reduction of photosynthetic capacity. As the attachment is poor, epicormic branches are likely to fail in moderate storms.

TPZ:

The Tree Protection Zone of the tree measured as a radial distance in metres from the centre of the trunk. The TPZ is calculated using the method specified in *Australian Standard AS4970-2009 Protection of trees on development sites.*

10. Terms and Limitations of the Report

Any legal information in the report has been provided to the authors by an external source and it is assumed to be correct. All references to property title and/or control of ownership of land are assumed to be correct as the authors has been advised.

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