

Arboricultural Report

23 October 2018

**Christchurch City Council
Naval Point Development
(Lyttelton Recreation Ground & Marina)
54-56 Godley Quay & 16-25 Marina Access
Lyttelton**



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1.0 Executive Summary

This tree assessment was commissioned by Kristine Bouw, Project Manager, Capital Delivery Community Facilities, Christchurch City Council. The tree assessment is intended to assist with investigations for the production of the Naval Point Development Plan.

The Development Plan will include Council land and facilities at Naval Point, Lyttelton, such as the Lyttelton Recreation Ground, the public boat ramp and the Magazine Bay Marina. The site is located at 54-56 Godley Quay and 16-25 Marina Access.

The trees and shrubs within the site were inspected in August 2018. The inspections included non-invasive visual tree assessment methods (measurements are approximate). The condition of each tree was scored using the Christchurch City Council tree assessment method (April 2017 version).

Approximately 334 native and exotic trees and shrubs were surveyed within the following five areas.

1. There is relatively large group of trees and shrubs on the southern boundary of the Lyttelton Recreation Ground; comprising mostly Leyland Cypress with some Monterey Cypress, Ngaio and other understory shrubs. Some of the Cypress trees are affected by canker disease and are expected to have a limited useful life;
2. There is a group of mostly native trees and shrubs within the vicinity of the Lyttelton Sea Scouts building;
3. There are groups of native and exotic trees and shrubs along the edges of Marina Access;
4. There are groups of native and exotic trees and shrubs around the Coastguard Canterbury building; and,
5. There are groups of native and exotic trees and shrubs within the vicinity of the public boat ramp.

The results for some individual trees were documented but the majority of trees and shrubs were assessed as groups, with estimated quantities and dominant condition ratings. Not all of the shrubs were included in the survey, but the majority of the larger shrubs were included.

The site maps contained in Appendix 2 of this report show the locations of the individual trees and groups of trees and shrubs that were included in the survey, and the survey results are contained in Appendix 1.

The trees do not have asset identification numbers, and there is no previous tree assessment or maintenance information to compare against the current survey results. During the survey, the trees did not appear to have been proactively managed, although there had been some pruning carried out over what appeared to be a number of decades (but not recently).

The Christchurch District Plan rules relating to the protection of trees on parks or public open space and road corridors do not include Lyttelton, and a resource consent will not be required for the removal of trees or works within the vicinity of trees within the site. However, other Christchurch District Plan rules (such as the site being within Natural Character in the Coastal Environment and Nga Turanga Tupuna areas) may apply to the removal of vegetation if a resource consent is required for other activities.

The CCC Construction Standard Specification (CSS), Part 1, section 19.0: Protection of Natural Assets and Habitats outlines tree protection requirements and methodologies, and will apply to any works within the vicinity of trees that are retained.

A list of indigenous species that may be suitable for the site development is provided in Section 4.0 of this report.

2.0 Site & Tree Details

The Naval point site is located at 54-56 Godley Quay and 16-25 Marina Access, Lyttelton. The site comprises important facilities that require upgrading. As part of the site development there are opportunities to improve the layout, functionality and quality of the site, including the landscaping.

Information relating to the existing trees and shrubs will assist with informing the design, and approvals requirements where trees are to be removed. The survey included approximately 334 trees and shrubs within the five areas shown in Figure 1 below.

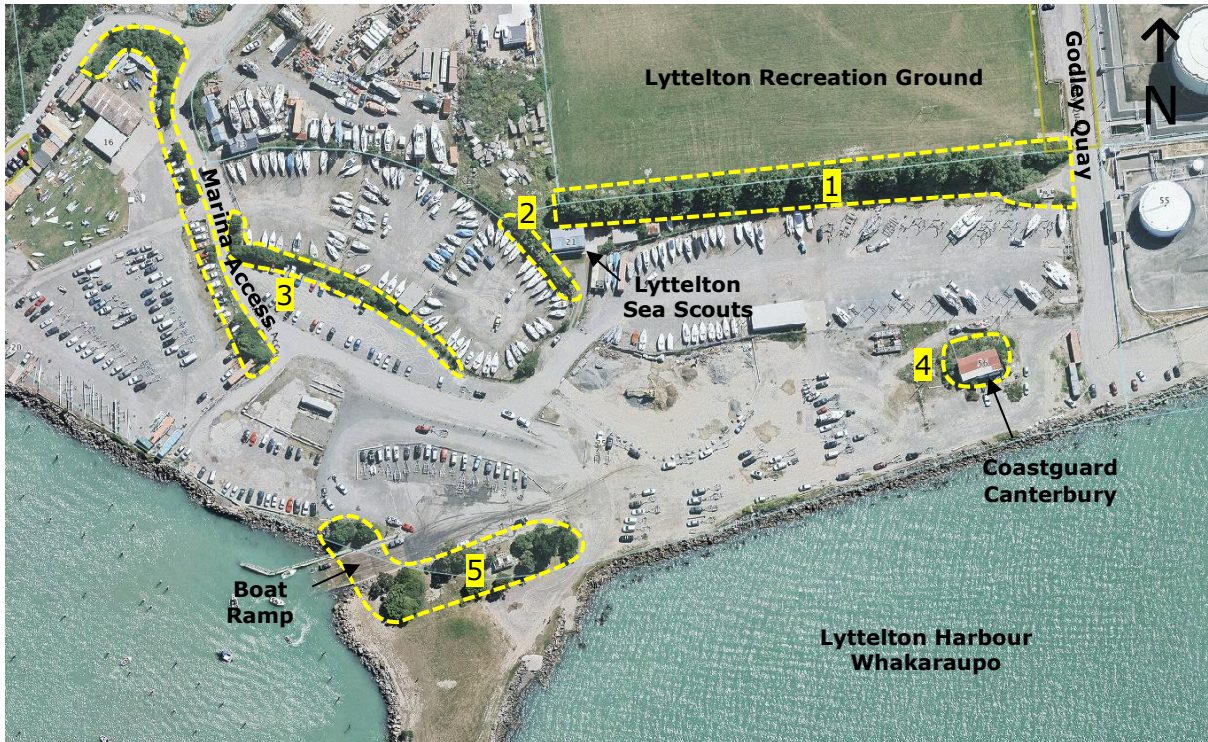


Figure 1: Site and tree survey areas.

2.1 Lyttelton Recreation Ground

The group of trees on the southern boundary of the Lyttelton Recreation Ground is approximately 190 metres long, extending from Godley Quay to the Lyttelton Sea Scouts building.

The dominant species is Leyland cypress, with some Monterey Cypress and areas with Ngaio and other understory shrubs. Not all of the understory shrubs were surveyed.

Although there were no significant structural failures observed, some of the Leyland cypress and Monterey Cypress were found to be affected by canker disease and are expected to have a limited useful life.



Figure 2: Trees near the Lyttelton Sea Scouts building.

Survey Summary

In this area the survey included the following 77 trees/shrubs:

- 37 Leyland Cypress (*Cupressus x leylandii*)
- 15 Monterey Cypress (*Cupressus macrocarpa*)
- 15 Ngaio (*Myoporum laetum*)
- 9 Cypress (*Cupressus sp.*)
- 1 Karo (*Pittosporum crassifolium*)

The condition of the trees/shrubs included:

- 35 in fair condition

The trees that were assessed as being in fair condition had reasonably good foliage density and no significant structural defects. However, six of the Leyland Cypress Monterey Cypress had obvious signs of canker disease (affecting less than 30% of the tree canopies at the time of the survey).

- 30 in poor condition

The trees that were assessed as being in poor condition had decline resulting in more than 30% foliage density loss, poor structure and/or significant crown suppression.

- 12 in very poor condition

The trees that were assessed as being in very poor condition had advanced decline resulting in more than 70% foliage density loss, or significant crown suppression.

2.2 Lyttelton Sea Scouts Building

The group of trees and shrubs on the western side of the Lyttelton Sea Scouts building is approximately 40 metres long and is similar to other mixed species border plantings within the site.

The group contained approximately 35 trees and shrubs that were included in the survey. The dominant species is Cordyline, with some Ngaio, Karo and other understory shrubs, as well as Cherry Plum trees. Not all of the understory shrubs were surveyed.

The size of the trees and shrubs that were surveyed ranged from approximately 2.0 metres to 7.5 metres in height.



Figure 3: Trees and shrubs near Lyttelton Sea Scouts.

Survey Summary

In this area the survey included the following 35 trees/shrubs:

- 15 Cabbage Tree (*Cordyline australis*)
- 7 Ngaio (*Myoporum laetum*)
- 7 Karo (*Pittosporum crassifolium*)
- 5 Cherry Plum (*Prunus cerasifera*)
- 1 Kohuhu (*Pittosporum tenuifolium*)

The overall condition of the trees/shrubs within the group was assessed as fair (average).

2.3 Marina Access

There are groups of trees and shrubs located along the edge of Marina Access and a car parking area. Collectively the mixed species borders are approximately 200 metres long.

The groups contained approximately 96 trees and shrubs that were included in the survey. The dominant species is Ngaio, are there are also Karo, Kohuhu, Cabbage Trees, a Pohutukawa and a Tasmanian Blackwood, as well understory shrubs. Not all of the understory shrubs were surveyed.

The size of the trees and shrubs that were surveyed ranged from approximately 2.0 metres to 6.0 metres.



Figure 4: Trees and shrubs within Marina Access area.

Survey Summary

In this area the survey included the following 96 trees/shrubs:

- 58 Ngaio (*Myoporum laetum*)
- 29 Karo (*Pittosporum crassifolium*)
- 3 Kohuhu (*Pittosporum tenuifolium*)
- 3 Cabbage Tree (*Cordyline australis*)
- 1 Pohutukawa (*Metrosideros excelsa*)
- 1 Akeake (*Dodonaea viscosa*)
- 1 Tasmanian Blackwood (*Acacia melanoxylon*)

The condition of the majority of trees/shrubs within the groups was assessed as fair (average), but some were assessed as poor due to poor health or poor structural integrity.

2.4 Coastguard Canterbury

Three groups of trees and shrubs were surveyed near the Coastguard Canterbury building.

The groups contained approximately 25 trees and shrubs. Not all of the understorey shrubs were surveyed.

The size of the trees and shrubs that were surveyed ranged from approximately 1.0 metres to 6.5 metres in height.

The overall condition of the trees/shrubs within the groups was assessed as fair (average), but a Lacebark was in decline and in poor condition.



Figure 5: Trees near the Coastguard Canterbury building.

Survey Summary

In this area the survey included 25 trees/shrubs of the following species:

- Cabbage Tree (*Cordyline australis*)
- Karo (*Pittosporum crassifolium*)
- Kohuhu (*Pittosporum tenuifolium*)
- Koromuka (*Hebe sp.*)
- Lacebark (*Hoheria sp.*)
- Lancewood (*Pseudopanax crassifolius*)
- Ngaio (*Myoporum laetum*)
- Purple Akeake (*Dodonaea viscosa* 'Purpurea')
- Purple Cabbage Tree (*Cordyline australis* cultivar)
- Taupata (*Coprosma repens*)
- Variegated False Cypress (*Chamaecyparis sp.* 'Variegata')
- Variegated Pittosporum (*Pittosporum tenuifolium* 'Variegata')

2.5 Boat Ramp

Groups of trees and shrubs located around the boat ramp area were included in the survey. Collectively the groups contained approximately 101 trees and shrubs.

The dominant species were Karo and Akiraho, and there were also large growing trees such as Eucalypt, Pine, Pohutukawa, River She-oak, and Tasmanian Blackwood. The size of the trees ranged up to 14.0 metres in height, with the potential to develop further.

The condition of the majority of trees/shrubs within the groups was assessed as fair (average), but some were assessed as poor due to poor health or structural integrity.



Figure 6: Example of trees and shrubs near the Boat Ramp.

Survey Summary

In this area the survey included the following 101 trees/shrubs:

- 26 Karo (*Pittosporum crassifolium*)
- 24 Akiraho (*Olearia paniculata*)
- 13 Ngaio (*Myoporum laetum*)
- 12 Taupata (*Coprosma repens*)
- 10 Pohutukawa (*Metrosideros excelsa*)
- 4 Karaka (*Corynocarpus laevigatus*)
- 4 Chatham Island Akeake (*Olearia traversii*)
- 3 River She-oak (*Casuarina cunninghamiana*)
- 2 Tasmanian Blackwood (*Acacia melanoxylon*)
- 1 Eucalypt (*Eucalyptus sp.*)
- 1 Monterey Pine (*Pinus radiata*)
- 1 Cabbage Tree (*Cordyline australis*)

3.0 Tree Protection Rules

The rules relating to the protection of trees on parks or public open space and road corridors outlined in the Christchurch District Plan (Chapter 9 Natural and Cultural Heritage, 9.4 Significant and Other Trees) do not include Lyttelton. However, other District Plan rules (such as the site being within Natural Character in the Coastal Environment and Nga Turanga Tupuna areas) may apply to the removal of vegetation if a resource consent is required for other activities.

The CCC Construction Standard Specification (CSS), Part 1, Section 19.0: protection of natural assets and habitats outlines tree protection requirements and methodologies. It is recommended that this section of the CSS or any relevant amendments are complied with for the duration of the works. This will apply where the works occur within the dripline of trees (the canopy spread or half the height of a tree, whichever is greater).

Contractors that are engaged to carry out any construction works should appoint a Supervising Arborist. The Supervising Arborist is expected assist with identifying potential risks, recommend methodologies to protect the trees from potential damage during the works, and supervise the works as and when required. A methodology from the contractor in the form of a Tree Management Plan that is approved by the Council's Arborist before the commencement of the site works is also recommended.

4.0 New Tree Planting

The following indigenous species may be suitable for the site development, depending upon the concept design.

- Akeake (*Dodonaea viscosa*)
- Broadleaf (*Griselinia littoralis*)
- Cabbage Tree (*Cordyline australis*)
- Coprosma (*C. robusta*, *C. lucida*, *C. crassifolia*)
- Five Finger (*Pseudopanax arboreus*)
- Fragrant Tree Daisy (*Olearia fragrantissima*)
- Kanuka (*Kunzea robusta*)
- Kohuhu (*Pittosporum tenuifolium*)
- Kowhai (*Sophora microphylla*)
- Lacebark (*Hoheria angustifolia*)
- Lemonwood (*Pittosporum eugenioides*)
- Mahoe (*Melicactus ramiflorus*)
- Matai (*Prumnopitys taxifolia*)
- Ngaio (*Myoporum laetum*)
- Pokaka (*Elaeocarpus hookerianus*)
- Puka (*Griselinia lucida*)
- Ribbonwood (*Plagianthus regius*)
- Titoki (*Alectryon excelsus*)
- Totara (*Podocarpus totara*)

It is expected that the planting and establishment of the new trees will comply with the CCC Infrastructure Design Standards (IDS) Part 10: Reserves, Streetscape and Open Spaces, and the CSS Part 7: Landscapes.

Laurie Gordon
Arborist

NAVAL POINT DEVELOPMENT

Survey Area	Tree/Group	Species	Quantity	Height	Canopy Spread	DBH	Tree Health	Tree Form	Overall Condition	Comments
1	NP01	<i>Myoporum laetum</i> x7	7	4.5-6.5			3	3	3	Group of Ngaio are in a fair overall condition.
1	NP02	<i>Myoporum laetum</i> x3	3	6.5			3	4	4	Group of Ngaio are in a poor overall condition.
1	NP03	<i>Cupressus x leylandii</i> x2	2	9.0	6.0	0.20	5	5	5	Both trees are more than 70% dead.
1	NP04	<i>Cupressus sp.</i> x9	9	2.5-4.5			3	4	4	Stunted growth, multiple stems growing up through fence.
1	NP05	<i>Cupressus macrocarpa</i>	1	12.5	8.0	0.60	3	3	3	Co-dominant near base, no signs of structural defects.
1	NP06	<i>Cupressus x leylandii</i> x6	6	11.0-13.0	5.0-8.0	0.22-0.6	3	3	3	Some isolated die-back, less than 30%.
1	NP07	<i>Cupressus macrocarpa</i>	1	3.0	6.0	0.15	5	5	5	Heavily suppressed, die-back more than 70% of canopy missing.
1	NP08	<i>Myoporum laetum</i> x2, <i>Pittosporum crassifolium</i> x1	3	3.0-5.0			3	4	4	Heavily suppressed
1	NP09	<i>Cupressus x leylandii</i> x6	6	12.0-13.5	5.0-8.0	0.2-0.4	3	3	3	Some isolated die-back, less than 30%.
1	NP10	<i>Cupressus x leylandii</i> x2	2	7.0	4.0	0.15-0.3	5	5	5	Advanced decline, more than 70% dead.
1	NP11	<i>Cupressus x leylandii</i> x4	4	12.0-13.5	6.0-8.0	0.35-0.6	3	3	3	Some multiple stems, but no structural defects.
1	NP12	<i>Cupressus x leylandii</i> x1, <i>Myoporum laetum</i> x2	3	6.0-8.0	5.0-15		5	4	5	Heavily suppressed Ngaio, one is multi-stemmed at base and has structural failures.
1	NP13	<i>Cupressus x leylandii</i> x3	3	14.0-16.0	6.0-8.0	0.45-0.7	4	3	4	<i>Cupressus</i> canker, die-back more than 30% decline.
1	NP14	<i>Cupressus macrocarpa</i>	1	16.0	9.0	0.90	3	3	3	Multiple stems near base, but no significant structural defects. Crown suppression.
1	NP15	<i>Cupressus x leylandii</i> x3, <i>Cupressus macrocarpa</i> x1	4	15.0-16.0	9.0	0.3-0.8	3	3	3	Canker die-back affecting up to 30% of canopy.
1	NP16	<i>Cupressus x leylandii</i> x2, <i>Cupressus macrocarpa</i> x2	4	15.0-16.0	9.0	0.3-0.8	3	3	3	Canker die-back affecting less than 30% of canopy of <i>C. leylandii</i> .

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Survey Area	Tree/Group	Species	Quantity	Height	Canopy Spread	DBH	Tree Health	Tree Form	Overall Condition	Comments
1	NP17	<i>Myoporum laetum</i>	1	3.0	16.0	0.20	4	5	5	Heavily suppressed, horizontal growth. Multiple stems from ground level.
1	NP18	<i>Cupressus macrocarpa</i>	1	8.0	4.0	0.18	5	4	5	More than 70% decline.
1	NP19	<i>Cupressus x leylandii</i> x1, <i>Cupressus macrocarpa</i> x1	2	16.0-17.0	6.0-10	0.3-0.6	3	3	3	Minor isolated die-back in Leylandii, less than 30% decline.
1	NP20	<i>Cupressus x leylandii</i>	1	15.0	9.0	0.45	4	3	4	Canker, more than 30% decline.
1	NP21	<i>Cupressus x leylandii</i> x2, <i>Cupressus macrocarpa</i> x1	3	12.0-14.0	7.0-9.0	0.4-0.7	4	4	4	Canker, more than 30% decline in the C. leylandii. Macrocarpa has crown suppression.
1	NP22	<i>Cupressus x leylandii</i> x2	2	14.0	6.0-8.0	0.4-0.6	5	3	5	More than 70% decline.
1	NP23	<i>Cupressus macrocarpa</i> x6, <i>Cupressus x leylandii</i> x2	8	14.0-15.0	6.0-9.0	0.25-0.75	3	4	4	Suppression from adjacent trees.
2	NP24	<i>Myoporum laetum</i> x7, <i>Cordyline australis</i> x 15, <i>Prunus cerasifera</i> x5, <i>Pittosporum crassifolium</i> x7, <i>Pittosporum tenuifolium</i> x1	35	2.0-7.5			3	3	3	Group of mostly native trees alongside the Scout hut, are in a fair overall condition.
3	NP35	<i>Pittosporum crassifolium</i> x6	6	4.0			4	4	4	Group of trees are in an overall poor condition with more than 30% decline.
3	NP36	<i>Pittosporum crassifolium</i> x10, <i>Pittosporum tenuifolium</i> x3, <i>Myoporum laetum</i> x13	26	2.0-6.0			3	3	3	Large group of native trees, the majority of which are in a fair overall condition. The majority of trees have some suppression due to the close proximity of adjacent trees.
3	NP37	<i>Myoporum laetum</i> x17, <i>Cordyline australis</i> x1, <i>Pittosporum crassifolium</i> x1	19	2.5-5.0			3/4	3	3/4	Large group of native trees, the majority of which are in a fair overall condition. The majority of trees have some suppression due to the close proximity of adjacent trees. One dead Karo and three Ngaio with broken branches.

NAVAL POINT DEVELOPMENT

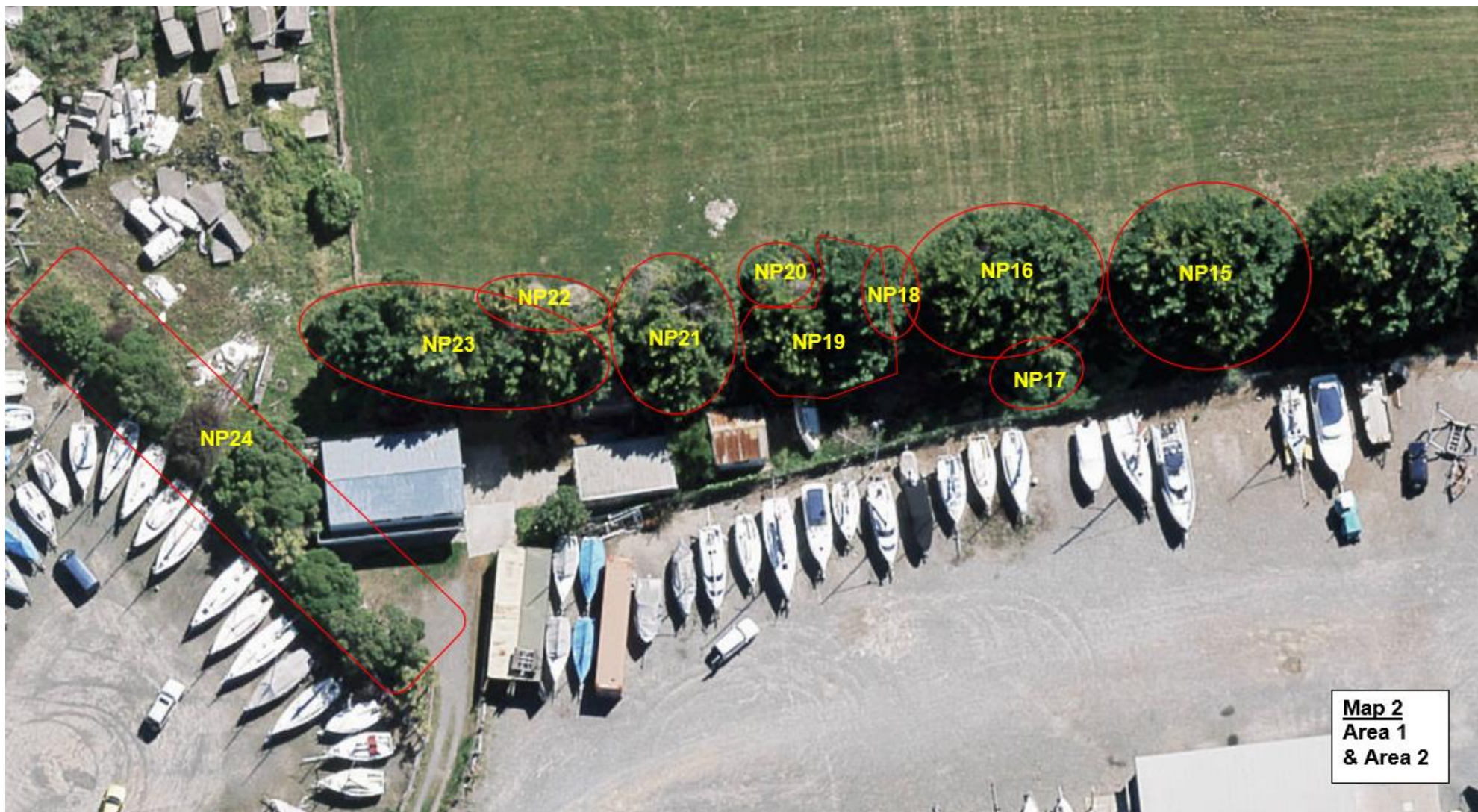
Survey Area	Tree/Group	Species	Quantity	Height	Canopy Spread	DBH	Tree Health	Tree Form	Overall Condition	Comments
3	NP38	<i>Myoporum laetum</i> x6, <i>Pittosporum crassifolium</i> x2	8	4.0-4.5			3/4	3	3/4	Large group of native trees, the majority of which are in a fair overall condition. The majority of trees have some suppression due to the close proximity of adjacent trees. Three Ngaio in poor/very poor condition, structural failures and canopy loss.
3	NP39	<i>Pittosporum crassifolium</i> x10, <i>Myoporum laetum</i> x22, <i>Acacia melanoxylon</i> x1, <i>Dodonaea viscosa</i> x1, <i>Cordyline australis</i> x2, <i>Metrosideros excelsa</i> x1	37	2.0-6.0			3	3	3	Large group of native trees, the majority of which are in a fair overall condition. The majority of trees have some suppression due to the close proximity of adjacent trees. Also, wilding plum seedlings, Coprosma, Acacia and Tree Lucerne.
4	NP40	<i>Dodonaea viscosa Purpurea</i> , <i>Chamaecyparis Variegata</i> , <i>Coprosma repens</i> , <i>Pseudopanax crassifolium</i> , <i>Hoheria sp.</i> , <i>Pittosporum tenuifolium Variegata</i>	10	1.5-6.5			3/4	3	3/4	Estimated quantity for a group of trees/shrubs, the majority of which are in a fair overall condition. The majority of trees have some suppression due to the close proximity of adjacent trees. Hoheria is in decline.
4	NP41	<i>Dodonaea viscosa Purpurea</i> , <i>Coprosma repens</i> , <i>Cordyline australis</i> , <i>Cordyline Purpurea</i> , <i>Myoporum laetum</i> , <i>Pittosporum tenuifolium</i> , <i>Pittosporum crassifolium</i> , <i>Hebe sp.</i>	15	1.0-4.0			3	3	3	Estimated quantity for 2x groups of trees/shrubs, the majority of which are in a fair overall condition. The majority of trees have some suppression due to the close proximity of adjacent trees.
5	NP25	<i>Pinus radiata</i>	1	10.0	10.0	0.50	3	3	3	Areas of sparse foliage density. Poor canopy shape, but no structural defects.
5	NP26	<i>Casuarina cunninghamiana</i>	1	7.0	5.0	0.45	3	4	4	Poor form/structure.
5	NP27	<i>Metrosideros excelsa</i> x2	2	5.0	6.0	0.10	2	3	3	Reasonably good condition.

NAVAL POINT DEVELOPMENT

Survey Area	Tree/ Group	Species	Quantity	Height	Canopy Spread	DBH	Tree Health	Tree Form	Overall Condition	Comments
5	NP28	<i>Pittosporum crassifolium</i> x2, <i>Metrosideros excelsa</i> x2, <i>Olearia traversii</i> x4, <i>Olearia paniculata</i> x9, <i>Coprosma repens</i> x1, <i>Corynocarpus laevigatus</i> x4	22	2.0-5.0			3/4	3/4	3/4	Large group of native trees, the majority of which are in a fair overall condition. A few trees have more than 30% decline. The majority of trees have some suppression due to the close proximity of adjacent trees.
5	NP29	<i>Casuarina cunninghamiana</i>	1	7.5	9.0	0.45	4	4	4	Tree has some die-back in the crown, with more than 30% decline. Several included bark unions and some structural deterioration.
5	NP30	<i>Metrosideros excelsa</i> x4, <i>Pittosporum crassifolium</i> x4, <i>Myoporum laetum</i> x2, <i>Coprosma repens</i> x4, <i>Cordyline australis</i> x1, <i>Acacia melanoxylon</i> x2	17	2.0-5.0			3	3	3	Large group of native trees, the majority of which are in a fair overall condition. The majority of trees have some suppression due to the close proximity of adjacent trees.
5	NP31	<i>Eucalyptus sp.</i>	1	14.0	14.0	1.20	3	4	4	Tree has some isolated die-back in the crown, with up to 30% decline. Tree is multi-stemmed at approx. 1m from ground level and has several included bark unions showing signs of structural deterioration.
5	NP32	<i>Myoporum laetum</i> x11, <i>Pittosporum crassifolium</i> x12, <i>Olearia paniculata</i> x11	34				3	3	3	Large group of native trees, the majority of which are in a fair overall condition. The majority of trees have some suppression due to the close proximity of adjacent trees.
5	NP33	<i>Casuarina cunninghamiana</i>	1	9.0	6.5	0.25	3	3	3	Fair condition.
5	NP34	<i>Pittosporum crassifolium</i> x8, <i>Metrosideros excelsa</i> x2, <i>Olearia paniculata</i> x4, <i>Coprosma repens</i> x7	21	2.0-6.0			3	3	3	Large group of native trees, the majority of which are in a fair overall condition. The majority of trees have some suppression due to the close proximity of adjacent trees.

NAVAL POINT DEVELOPMENT





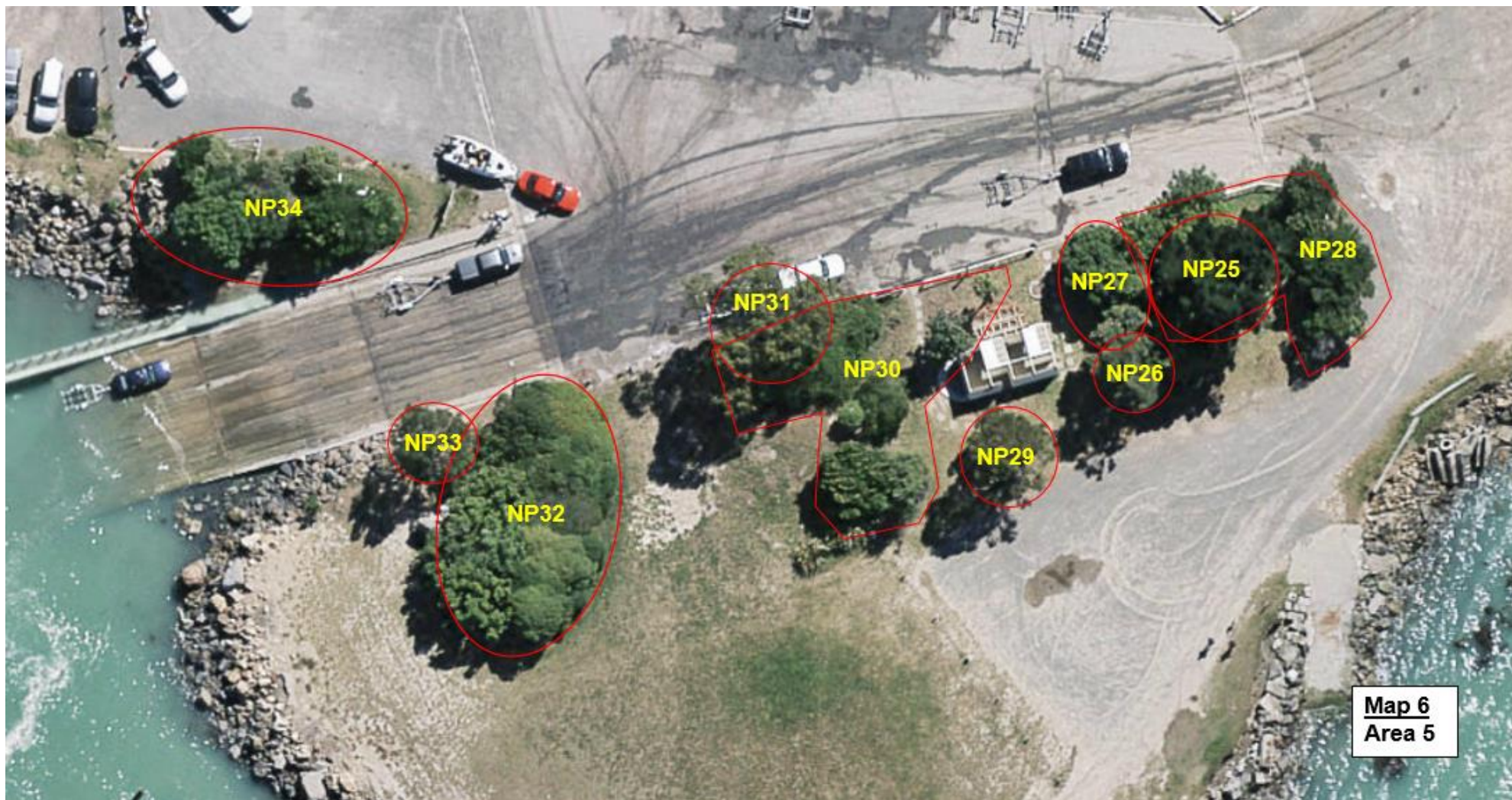
NAVAL POINT DEVELOPMENT



NAVAL POINT DEVELOPMENT







Christchurch City Council Tree Assessment Method

The tree inspections for this report were carried out in August 2018 and included non-invasive visual tree assessment methods (measurements are approximate). The condition of each tree was scored using the following Christchurch City Council tree assessment system (April 2017 version).

The condition of a tree is scored as Very Good (1), Good (2), Fair (3), Poor (4) or Very Poor (5). This relates to the Health and Form of a tree. The overall condition rating provided is the worst score for either Health or Form (e.g. if a tree scores Good for Health and Poor for Form, the Condition rating will be Poor).

Very Good for Health; where a tree has no more than approximately 5% disease or decline.

Very Good for Form; where a tree has no structural defects or abnormalities.

Good for Health; where a tree has no more than approximately 6-10% disease or decline.

Good for Form; where tree defects do not affect the structural integrity or continued well-being of the tree.

Fair for Health; where a tree has approximately 11-30% disease or decline.

Fair for Form; where defects are present, but can be rectified in order to maintain the structural integrity and continued well-being of tree.

Poor for Health; where a tree exhibits approximately 31-70% disease or decline.

Poor for Form; where tree maintenance may improve the framework or the continued well-being of tree, and defects result in loss of structural integrity that may be mitigated but are unlikely to be rectified.

Very Poor for Health; where a tree is in more than approximately 70% state of decline.

Very Poor for Form; where tree maintenance cannot improve the framework or the continued well-being of tree, and defects result in loss of structural integrity that cannot be mitigated or rectified.