

Riverhead Plan Change

Arboricultural Assessment

Version 1.5 September 2023

Document Status

Responsibility	Name
Author	Allan Holmes
Reviewer	Christy Reynolds

Revision Status

Version	Date	Reason for Issue				
1.1	27 th May 2022	First Draft				
1.2	20 June 2022	Draft for client review				
1.3	22 June 2022	Final Report following client review				
1.4	2 December 2022	Final Minor Changes				
1.5	29 September 2023	Changes to proposed Plan Change area				

Acronyms

Acronym/Term	Description
PRZ	Protected Root Zone
TPZ	Tree Protection Zone
SRZ	Structural Root Zone
CR	Crown Radius
DBH	Diameter at Breast Height
TPM	Tree Protection Methodology
VTA	Visual Tree Assessment
AC	Auckland Council
AUP-OP	Auckland Unitary Plan Operative in part 2016
RC	Resource Consent
TOA	Tree Owner Approval
LOA	Land Owner Approval
RMA	Resource Management Act 1991
SEA	Significant Ecological Area
RPMP	Regional Pest Management Plan 2019-2029
DOC	Department of Conservation
VTA	Visual Tree Assessment

Contents

1	Intro	ductionduction	1
	1.1	Background	1
	1.2	Project Description	2
	1.3	Site Features	3
2	Statu	ıtory Context	4
	2.1	Native Fauna and Flora	4
	2.2	Auckland Unitary Plan- Operative	4
	2.3	Pest Plants	4
3	Arbo	ricultural Planning	5
	3.1	Approach to Arboricultural Planning	5
4	Meth	odology and Analysis	6
	4.1	Assessment Methodology	6
	4.1.1	Surveying	6
	4.1.2	Tree Categorization	6
	4.1.3	Neighbouring and Non-protected Vegetation	7
	4.1.4	Limitations	7
5	Conc	clusion	8
6	Refe	rences	9

1 Introduction

1.1 Background

GreensceneNZ Ltd has been engaged by the Riverhead Landowner Group (Fletcher Residential Limited, Matvin Group and the Neil Group) to survey and assess the trees within and immediately adjacent to the proposed site at Riverhead, see Figure 1 below.

This report provides an assessment of the arboriculture associated with the proposed Plan Change. This assessment has been prepared to inform the Riverhead Structure Plan and Plan Change. This report has been compiled with reference to the proposed Structure Plan and Plan Change site boundary, see Figure 1:

The key matters addressed in this report are as follows:

- (a) Identify and categorise the existing trees within and encroaching into the Project site;
- (b) Identify trees that are protected under the AUP-OP; and
- (c) Recommend measures as appropriate mitigation.



Figure 1: Riverhead Proposed Riverhead Structure Plan and Plan Change area outlined in red.

1.2 Project Description

The proposal includes a Structure Plan and Private Plan Change (PPC). The Structure Plan will set out how 75ha of the Future Urban zone can be developed for urban use, including residential activities. The PPC will involve rezoning the land from Future Urban to Residential – Mixed Housing Suburban, Business – Local Centre, Business – Neighbourhood Centre, and Rural – Mixed Rural (Figure 2).

GreensceneNZ Limited has been engaged by Riverhead Landowner Group (Fletcher Residential Limited, Matvin Group and the Neil Group) to provide an assessment of the trees on the 75ha proposed to include an urban zoning. This report will provide details on the trees that could be considered suitable to be included in the notable tree schedule for the AUP-OP.

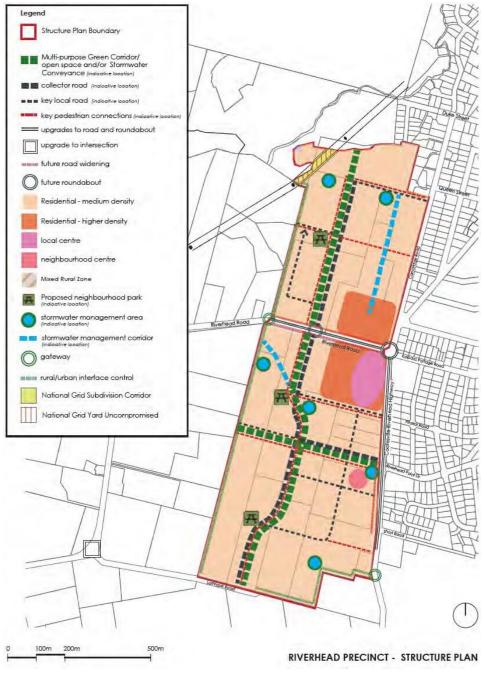


Figure 2: Riverhead Proposed Plan change area outlined in red.

1.3 Site Features

The site comprises of single family dwellings, farmland and lifestyle blocks used for fruit and tree crops with numerous established and mature linear shelterbelts. Individual mature exotic trees can be found predominantly within the residential garden areas along Riverhead Road and Coatesville-Riverhead Highway, including one Notable tree candidate. To the north of the site exotic trees such as poplar (*Populus* sp.) and willow (*Salix* sp.) dominate the riparian areas of the connected ponds. Along Riverhead Road, early mature Japanese cedar (*Cryptomeria japonica*) and sheoak (*Casuarina* sp.) form a continuous shelter belt hedge within the road reserve. To the north of Riverhead Road two densely wooded areas appear to be planted for firewood with Australian blackwood (*Acacia melanoxylon*).



Photograph 1: Australian Blackwood firewood plantation with understory of Tī kōuka



Photograph 2: Typical land use, agriculture and shelterbelts

2 Statutory Context

2.1 Native Fauna and Flora

Trees provide a source of food, habitat, breeding and dispersal methods for native fauna as well as potential habitat for native flora e.g. epiphytes such as mistletoe, orchids and lichen. Native fauna which includes birds, bats, lizards and some invertebrates are protected under the Wildlife Act 1953. Management of natural resources including any significant indigenous vegetation and significant habitats of indigenous fauna are covered under the **RMA**. This provides sustainable management for the use and development of natural resources by avoiding, remedying, or mitigating any adverse effects.

2.2 Auckland Unitary Plan- Operative

Under the **AUP-OP** assessment criteria for trees and vegetation include rules, activities and standards covered in a number of chapters most notably;

- D13: Notable Trees Overlay
- E15: Vegetation management and biodiversity
- E16: Trees in open space zones
- E17: Trees in roads
- E26: Infrastructure

Any discretionary or restricted discretionary activities will require **RC**, while permitted activities do not. Notwithstanding any trees affected by proposed works which **AC** maintains a regulatory interest (such as open space trees or trees in roads) will require a **TOA**.

2.3 Pest Plants

Where appropriate invasive plant species have been identified that are listed in the **RPMP**, this also includes animal pests and diseases such as kauri dieback (*Phytophthora agathadicida*). While pest species may be recommended for removal they also provide habitat and ecosystem services, control of pest plants should be part of a management plan to ensure the ecosystem services they provide are not compromised by removal.

3 Arboricultural Planning

Total quantity of trees

- There is a total estimated quantity of 5602 individual trees including trees within the groups.
- There are fifty-eight groups of trees comprising of shelterbelts, firewood plantations, riparian vegetation and crop trees.
- There are sixty-one individually identified trees including four kauri trees subject to biosecurity protocols.
- One tree (Tree 33) has been identified as a candidate Notable Tree in accordance with the Guidelines for Nominating a Notable Tree for Evaluation in the AUP-OP.

3.1 Approach to Arboricultural Planning

A key objective of the Project is to provide a sustainable, liveable, compact and accessible place with successful centres and residential options close to a variety of employment opportunities. That is well connected to the wider Auckland Region through the rail and road networks where cultural and heritage values are respected.

Table 1: AUP-OP planning chapters, activities and standards

Planning chapters and assessment standards									
D13: Notable trees	There are no scheduled notable trees within or encroaching into the site. However one Copper beech tree (Tree number 33) has been assessed as a Notable Tree Candidate. See Appendix IV.								
E15: Vegetation management and biodiversity	 There is no Significant Ecological Area (SEA) overlay. There is no Wetland Management Area overlay. 								
E17: Trees in roads	 There are two groups of shelterbelts which are located within the road reserve. This is a Restricted Discretionary activity, 								

4 Methodology and Analysis

4.1 Assessment Methodology

4.1.1 Surveying

As recognised by the New Zealand Arboricultural Association, GreensceneNZ utilise the British Standard BS5837:2012 Trees in relation to Design, Demolition and Construction on development sites for tree surveying.

Except where permission to gain site access had been obtained, surveying was undertaken from publicly accessible sites using the following equipment:

- Nikon Forestry Pro Rangefinder
- Million Diameter Tape
- PLS laser
- Thor 710 Hammer (as appropriate)
- 450mm probe (as appropriate)

Tree biometric data and spatial location were recorded using TreePlotter online application. Tree data was subsequently exported into ArcGIS for formatting and design purposes. Raw tree biometric data included tree height, crown radius, diameter at **DBH** and relevant basal diameters. All trees over 75mm **DBH** were inspected from the ground level, utilising the Visual Tree Assessment (**VTA**) method expounded by Mattheck and Breloer (1994) and Lonsdale (1999).

All negative observations including dieback, obvious signs of defects or pathogenic fungal associations were recorded and investigated where deemed necessary. Individual tree life stages were determined as either young, semi mature, mature, over mature or veteran, post survey. Life stage is based upon the maximum achievable size and age recorded for each native species in New Zealand, (Dawson et al., 2011).

This tree assessment is a snapshot of the trees at the time of surveying, as trees are dynamic living organisms they are subject to change. It is possible that some changes may occur throughout the course of this proposed development.

4.1.2 Tree Categorization

All trees and groups were classified as either category A, category B, category C or category U in accordance with the British Standard method for trees in relation to design, demolition and construction (BS5837:2012). A numerical subcategory denoting the trees arboricultural, landscape, cultural and conservation value was also designated to the trees, see Appendices I and II.

Trees are categorized according to British Standard BS 5837:2012 and fall under four categories:

- Category U: Trees in such a condition that they cannot realistically be retained for longer than 10 years
- Category A: Trees of high quality with an estimated life expectancy of at least 40 years
- Category B: Trees of moderate quality with an estimated life expectancy of at least 20 years

 Category C: Trees of low quality with an estimated life expectancy of at least 10 years or young trees with a DBH of <150mm

The Category A, Category B and Category C trees are of a high, moderate or low quality respectively and are a material constraint. Category U trees are deemed unworthy of being a material constraint and cannot be realistically retained due to their severe decline, associated biosecurity issues, high risk or excessive nuisance. It is recognised that there may still be some cultural or ecological value, however this falls outside.

All Category A trees were further assessed using the notable tree assessment, see Appendix IV.

4.1.3 Neighbouring and Non-protected Vegetation

A duty of care will apply in relation to neighbouring privately owned trees. In respect of neighbouring trees, a similar tree protection methodology afforded to generally protected trees should apply and, in particular:

- Identification of the tree (vegetation) protection zone;
- Consultation with the neighbouring property owner(s), should any adverse effects be identified or removal required;
- All works within the TPZ should be under the direction of a qualified arborist;

4.1.4 Limitations

There are limitations with the data collected. The tree survey was conducted using the latest sub meter accurate global positioning system (GPS), however there are some technological limitations. In dense tree stands, locations can be approximate due to the strength of global positioning satellite signals. To rectify this where trees are likely to have an incursion into their **TPZ** by the proposed construction a point to point laser can be used to increase the relative location accuracy for important individual trees. Dense tree canopies can also inhibit laser accurate tree heights measurement; therefore most tree heights were estimated.

The British Standard BS5837:2012 for the assessment of trees in relation to design, demolition and construction is not a tree hazard assessment, therefore this survey does not constitute a quantified risk assessment.

Further limitations apply due to the incomplete field work assessment resulting from the COVID19 level four lockdown. Although there is enough information for outline of arboricultural constraints for this Plan Change it is recommended that further tree assessments are carried out for resource consent purposes.

5 Conclusion

- According to the AUP-OP there are no protected trees within the Structure Plan and Plan Change area.
- There is one significant tree within the Structure Plan and Plan Change area that is deemed worthy of protection as it achieves a score qualifying to be nominated as a Notable Tree under the AUP-OP.
- There are two shelterbelts which are located offsite and are protected trees within the road reserve which have tree protection zones and or canopies encroaching into the project site.

6 References

- Auckland Council (2021) Operational Plan 2021-2030: Implementing the Auckland Regional Pest Management Plan 2020 2030
- Dawson, J., Lucas, R., Connor, J., & Brownsey, P. J. (2011). New Zealand's Native Trees: Craig Potton. Nelson, New Zealand.
- Lonsdale, D. (1999). *Principles of tree hazard assessment and management*. Stationery Office Ltd, Publications Centre.
- Mattheck, C., & Breloer, H. (1994). Field guide for visual tree assessment (VTA). *Arboricultural Journal*, *18*(1), 1-23.
- Standard, B. 5837: 2012, Trees in relation to design, demolition and construction-Recommendations UK. *British Standards Intuition*.

Appendix I

Groups of trees

Tree or Group number	Number of Trees	Land Use	BS5837 Category	Life Stage	Common name	AUP (OP) Protection status
G1	70	Farm	C2	Mature	Leyland cypress	Not Protected
G2	96	Farm	C2	Mature	Leyland cypress	Not Protected
G3	75	Farm	C2	Mature	Leyland cypress	Not Protected
G4	98	Farm	C2	Mature	Japanese cedar	Not Protected
G5	18	Farm	C2	Mature	Japanese cedar	Not Protected
G6	70	Farm	C2	Mature	Sheoak	Not Protected
G8	100	Farm	C2	Mature	Macrocarpa	Not Protected
G9	100	Farm	C2	Mature	Macrocarpa	Not Protected
G10	57	Farm	C2	Mature	Japanese cedar	Not Protected
G11	50	Farm	C2	Mature	Japanese cedar	Not Protected
G12	83	Farm	C2	Mature	Sheoak	Not Protected
G13	64	Farm	C2	Mature	Sheoak	Not Protected
G14	100	Farm	C2	Mature	Macrocarpa	Not Protected
G15	200	Farm	C2	Mature	Japanese cedar	Not Protected
G16	80	Farm	СЗ	Semi-mature	Black wattle	Not Protected
G17	140	Farm	C2	Mature	Sheoak	Not Protected
G18	164	Farm	C2	Mature	Sheoak	Not Protected
G19	110	Farm	C2	Mature	Sheoak	Not Protected
G20	100	Farm	C2	Mature	Lilly pilly	Not Protected

Tree or Group number	Number of Trees	Land Use	BS5837 Category	Life Stage	Common name	AUP (OP) Protection status
G21	80	Farm	С3	Early-mature	Tree privet, Lilly pilly	Not Protected
G22	44	Farm	C2	Mature	Lilly pilly	Not Protected
G23	100	Farm	C2	Mature	Japanese cedar	Not Protected
G24	27	Farm	C2	Mature	Japanese cedar	Not Protected
G25	144	Farm	C2	Mature	Tree privet, Poplar, Lilly pilly	Not Protected
G26	194	Farm	C2	Mature	Sheoak	Not Protected
G27	90	Farm	C2	Mature	Sheoak	Not Protected
G28	97	Farm	C2	Mature	Sheoak	Not Protected
G29	87	Farm	C2	Mature	Sheoak	Not Protected
G30	161	Farm	C2	Mature	Sheoak	Not Protected
G31	204	Farm	C2	Mature	Sheoak	Not Protected
G32	100	Farm	C2	Early-mature	Tree privet, Viburnum	Not Protected
G33	95	Farm	C2	Mature	Sheoak	Not Protected
G34	20	Farm	C2	Early-mature	Tree privet	Not Protected
G35	250	Farm	C12	Mature	Tī kōuka, Black acacia	Not Protected
G36	100	Farm	C2	Early-mature	Japanese cedar	Road Reserve Protected
G37	250	Farm	C2	Mature	Japanese cedar	Road Reserve Protected
G38	80	Farm	C2	Early-mature	Sheoak	Not Protected

Tree or Group number	Number of Trees	Land Use	BS5837 Category	Life Stage	Common name	AUP (OP) Protection status
G39	80	Farm	C2	Early-mature	Sheoak	Not Protected
G40	80	Farm	C2	Early-mature	Sheoak	Not Protected
G41	80	Farm	C2	Early-mature	Sheoak	Not Protected
G42	70	Farm	C2	Early-mature	Sheoak	Not Protected
G43	70	Farm	C2	Early-mature	Sheoak	Not Protected
G44	70	Farm	C2	Early-mature	Sheoak	Not Protected
G46	70	Farm	C2	Early-mature	Japanese cedar	Not Protected
G47	120	Farm	C2	Early-mature	Sheoak	Not Protected
G48	60	Farm	C2	Early-mature	Sheoak	Not Protected
G49	40	Farm	C2	Mature	Black acacia	Not Protected
G50	60	Road Reserve	C2	Early-mature	Sheoak	Road Reserve Protected
G51	30	Road Reserve	C2	Early-mature	Sheoak	Not Protected
G52	50	Road Reserve	C2	Early-mature	Sheoak	Not Protected
G53	100	Farm	C2	Early-mature	Sheoak	Not Protected
G54	18	Farm	C2	Early-mature	White poplar	Not Protected
G55	150	Farm	C2	Early-mature	Japanese cedar	Not Protected
G56	150	Farm	C12	Early-mature	Chestnut	Not Protected
G57	120	Lifestyle block	C2	Early-mature	Sheoak	Not Protected

Arboricultural Assessment

Tree or Group number	Number of Trees	Land Use	BS5837 Category	Life Stage	Common name	AUP (OP) Protection status
G58	100	Lifestyle block	C2	Early-mature	Japanese cedar	Not Protected
G59	100	Lifestyle block	C2	Early-mature	Japanese cedar	Not Protected
G60	25	Farm	C12	Early-mature	Tī kōuka, Kahikatea, Maple, Beech, Dawn redwood, Scarlet oak, Pin oak, English oak, White willow, Tortured willow, Liquidambar, Willow	Not Protected

Appendix II

Individually assessed trees

Tree Id	Life Stage	BS5837 Category	Common name	Botanical name	Location Description	Height (m)	DBH (mm)	TPZ radius (m)	AUP (OP) Protection status
1	Mature	B1	Macrocarpa	Cupressus macrocarpa	Farm	21	2000	15.0	Not Protected
2	Veteran	B1	Macrocarpa	Cupressus macrocarpa	Farm	21	3000	15.0	Not Protected
3	Veteran	B1	Macrocarpa	Cupressus macrocarpa	Farm	18	3000	15.0	Not Protected
4	Mature	B1	Large-leaved kōwhai	Sophora tetraptera	Single Family Dwelling	7	262. 3	3.2	Not Protected
5	Semi- mature	A1	Kauri	Agathis australis	Single Family Dwelling	13	350	4.2	Not Protected. Requires Biosecurity Protocols
6	Mature	B1	Large-leaved kōwhai	Sophora tetraptera	Single Family Dwelling	8	400	4.8	Not Protected
7	Mature	B1	Macrocarpa	Cupressus macrocarpa	Single Family Dwelling	15	800	9.6	Not Protected
8	Mature	B1	Macrocarpa	Cupressus macrocarpa	Single Family Dwelling	30	1000	12.0	Not Protected
9	Mature	B1	Macrocarpa	Cupressus macrocarpa	Single Family Dwelling	30	1500	15.0	Not Protected
10	Mature	B2	Ponga	Cyathea dealbata	Single Family Dwelling	6	450	5.4	Not Protected
11	Mature	B1	Macrocarpa	Cupressus macrocarpa	Single Family Dwelling	30	1500	15.0	Not Protected
12	Early- mature	A1	Tōtara	Podocarpus totara	Single Family Dwelling	12	700	8.4	Not Protected
13	Early- mature	B1	Pecan	Carya illinoinensis	Single Family Dwelling	11	300	3.6	Not Protected
14	Mature	B1	Macrocarpa	Cupressus macrocarpa	Single Family Dwelling	30	900	10.8	Not Protected
15	Mature	U	Macrocarpa	Cupressus macrocarpa	Single Family Dwelling	30	1200	14.4	Not Protected
16	Mature	B1	Macrocarpa	Cupressus macrocarpa	Single Family Dwelling	30	700	8.4	Not Protected
17	Early- mature	B1	Locust	Gleditsia sp.	Single Family Dwelling	11	400	4.8	Not Protected
18	Mature	B1	Ponga	Cyathea dealbata	Single Family Dwelling	5	450	5.4	Not Protected

Tree Id	Life Stage	BS5837 Category	Common name	Botanical name	Location Description	Height (m)	DBH (mm)	TPZ radius (m)	AUP (OP) Protection status
19	Mature	B1	Macrocarpa	Cupressus macrocarpa	Single Family Dwelling	25	900	10.8	Not Protected
20	Early- mature	B1	Flowering cherry	Prunus sp.	Single Family Dwelling	10	150	2.0	Not Protected
21	Mature	B1	Macrocarpa	Cupressus macrocarpa	Single Family Dwelling	30	1200	14.4	Not Protected
22	Mature	B2	Ponga	Cyathea dealbata	Single Family Dwelling	4	450	5.4	Not Protected
23	Early- mature	B1	Locust	Gleditsia sp.	Single Family Dwelling	11	300	3.6	Not Protected
24	Early- mature	A1	Tōtara	Podocarpus totara	Single Family Dwelling	10	500	6.0	Not Protected
25	Mature	U	Large-leaved kōwhai	Sophora tetraptera	Single Family Dwelling	7	200	2.4	Not Protected
26	Mature	C3	Phoenix palm	Phoenix canariensis	Single Family Dwelling	12	1000	12.0	Not Protected
27	Mature	B2	Camellia	Camellia sp.	Single Family Dwelling	5	400	4.8	Not Protected
28	Early- mature	A1	Kauri	Agathis australis	Single Family Dwelling	20	600	7.2	Not Protected. Requires Biosecurity Protocols
29	Early- mature	B2	Camellia	Camellia sp.	Single Family Dwelling	5	250	3.0	Not Protected
30	Mature	B1	Southern magnolia	Magnolia grandiflora	Single Family Dwelling	14	400	4.8	Not Protected
31	Early- mature	B2	Magnolia	<i>Magnolia</i> sp.	Single Family Dwelling	7	300	3.6	Not Protected
32	Mature	B1	Karaka	Corynocarpus laevigatus	Single Family Dwelling	10	400	4.8	Not Protected
33	Mature	A1	Copper beech	Fagus sylvatica 'Purpurea'	Single Family Dwelling	14	1450	15.0	Not Protected
34	Semi- mature	A1	Kahikatea	Dacrycarpus dacrydioides	Single Family Dwelling	13	400	4.8	Not Protected
35	Early- mature	B1	Claret ash	Fraxinus angustifolia 'Raywoodii'	Single Family Dwelling	10	600	7.2	Not Protected

Tree Id	Life Stage	BS5837 Category	Common name	Botanical name	Location Description	Height (m)	DBH (mm)	TPZ radius (m)	AUP (OP) Protection status
36	Early- mature	C3	Lilly pilly	Syzgium smithii	Single Family Dwelling	12	680	8.0	Not Protected
37	Early- mature	B1	Magnolia	Magnolia sp.	Single Family Dwelling	10	500	6.0	Not Protected
38	Early- mature	A1	Liquidambar	Liquidambar styraciflua	Single Family Dwelling	16	800	9.6	Not Protected
39	Mature	B2	Flowering cherry	Prunus sp.	Single Family Dwelling	7	406	4.9	Not Protected
40	Early- mature	B1	Honey locust	Gleditsia triacanthos	Single Family Dwelling	8	300	3.6	Not Protected
41	Semi- mature	B1	Rimu	Dacrydium cupressinum	Single Family Dwelling	12	320	3.8	Not Protected
42	Mature	B1	Ginkgo	Ginkgo biloba	Single Family Dwelling	13	500	6.0	Not Protected
43	Early- mature	B2	Magnolia	Magnolia sp.	Single Family Dwelling	7	300	3.6	Not Protected
44	Early- mature	B1	Liquidambar	Liquidambar styraciflua	Single Family Dwelling	16	450	5.4	Not Protected
45	Early- mature	B2	Magnolia	Magnolia sp.	Single Family Dwelling	6	150	2.0	Not Protected
46	Mature	A1	Tōtara	Podocarpus totara	Single Family Dwelling	15	1000	12.0	Not Protected
47	Mature	A1	Tōtara	Podocarpus totara	Single Family Dwelling	15	1200	14.4	Not Protected
48	Early- mature	B1	Rewarewa	Knightia excelsa	Single Family Dwelling	15	500	6.0	Not Protected
49	Mature	B1	Cedar	Cedrus sp.	Single Family Dwelling	18	1020	12.4	Not Protected
50	Semi- mature	B2	Feijoa	Acca sellowiana	Single Family Dwelling	5	250	3.0	Not Protected
51	Semi- mature	B2	Feijoa	Acca sellowiana	Single Family Dwelling	5	250	3.0	Not Protected
52	Early- mature	B2	Maple	Acer sp.	Single Family Dwelling	6	300	3.6	Not Protected

Tree Id	Life Stage	BS5837 Category	Common name	Botanical name	Location Description	Height (m)	DBH (mm)	TPZ radius (m)	AUP (OP) Protection status
53	Early- mature	B1	Walnut	Juglans sp.	Farm	12	500	6.0	Not Protected
54	Mature	B1	Maple	Acer sp.	Single Family Dwelling	10	400	4.8	Not Protected
55	Mature	A1	Monterey pine	Pinus radiata	Road Reserve	30	1100	13.2	Protected
56	Mature	A1	Monterey pine	Pinus radiata	Road Reserve	30	850	10.2	Protected
57	Semi- mature	B1	Kauri	Agathis australis	Single Family Dwelling	11	300	3.6	Not Protected. Requires Biosecurity Protocols
60	Early- mature	B1	Kauri	Agathis australis	Lifestyle block	9	320	3.8	Not Protected. Requires Biosecurity Protocols
63	Mature	B1	Macrocarpa	Cupressus macrocarpa	Farm	18	900	10.8	Not Protected
64	Mature	C1	Macrocarpa	Cupressus macrocarpa	Farm	13	900	10.8	Not Protected
65	Early- mature	B1	Norfolk Island pine	Araucaria heterophylla	Lifestyle block	22	900	10.8	Not Protected

Appendix III

Tree Location Maps



Map 1: Extent of Riverhead Structure Plan and Plan Change Area (red line)



Map 2: Northern Extent of Riverhead Structure Plan and Plan Change Area (red line)



Map 3: Central Extent of Riverhead Structure Plan and Plan Change Area (red line)



Map 4: Southern Extent of Riverhead Structure Plan and Plan Change Area (red line)

Appendix IV

Notable Tree Assessment

MEMORANDUM



GreensceneNZ Limited has been engaged by Fletcher Residential Limited to provide an assessment of the trees on the sites coved by this plan change for the Pook Block, Riverhead and to provide the details on the trees that could be considered suitable to be included in the notable tree schedule for the AUP-OP.



Plan of the Pook Block, Riverhead.

While there are several larger trees or trees that you would think would make the criteria to be included in the notable tree schedule over these sites, the notable tree assessment criteria is very tight and is quite restrictive in its application.

As detailed in the Auckland Council Guideline for Nominating a Notable tree, a tree can be scheduled as a notable tree if it achieves a score of 20 or more which is quite difficult to achieve without the tree being both older and having a visual contribution as three of the four scoring elements have a mid-value of 5. The first element has a matrix of vigour and vitality against age and health from which to draw a score with the value rage between 2 and 10. To keep with a score of 5 the tree needs to be 41-60 years old and have a vitality and vigour top score to get the 5 points.

Tree size is also a limiting factor as only those trees that are up to 25% larger than average are able to be scored at a 5. Less than 24% get 0 and greater than 25% get 10 points

The tree that we have identified as most likely to be evaluated and to reach this score of 20 is the Beech tree located at 298 Riverhead Road, Riverhead.



Photo 1: From Google street view looking south to the Beech tree from Riverhead Road.



Photo2: From Auckland Council GIS showing location of Beech tree in black circle at 298 Riverhead Road, Riverhead.

This tree is at the front of the site and has not been pruned to clear the power lines.

This is the dominant tree at the front of this site.

The lower canopy has been crown raised to allow some light though the adjacent dwelling and the establishment of other trees and shrubs in the front yard.

Within the Guidelines for Nominating a Notable Tree for Evaluation, this document provides the following Special Factors

A Heritage, this is not known for this tree and or site at this point.

B Scientific, this is not the largest beech tree in Auckland.

C Ecosystem service, it is not known if this tree provides a critical habitat for threatened species and it is an exotic tree.

D Cultural, It is not known if this tree meets this criteria.

E Intrinsic, This is the main reason for nominating this tree, its size, age, vigour, vitality and visual contribution.

F Negative effects

There are several factors that could weigh against this trees long term protection and they could be considered negative impacts on human health and or property with shade, leaf fall and root development of the tree, which are all manageable through arboricultural management with shade being the most difficult to achieve although it is a deciduous tree.

Given the proposed plan change there could be some options to address the negative impacts and move the people and property away from this tree. We know the trees potential size, and could use this to provide a suitable separation.

G Age and health

This is a tree that is greater than 61 years old and showing good signs of vigour and vitality.

H Character and form

This tree is an exceptional example of the species.

I Size

This tree is greater than the average sized beech tree.

J Visual contribution

This tree is highly visible being on a main road where between 100 and 5000 people will see the tree daily

Within the Guidelines for Nominating a Notable Tree for Evaluation, this document provides the following tables.

I have highlighted the score that I believe is appropriate for the Copper Beech tree located within the site

Scoring of tree specific factors

These scoring systems are to be used when evaluating a tree against the tree-specific factors in Section 6 (see page 10).

Age and health

Vigour	High	3	5	6	8	10
and	+	2	4	5	8	8
vitality		2	2 4	6 6		7
		2:	4	4.	5	5
	Low	2	2	2	3	3
	Age in Years	<40	41- 60	61- 80	81- 100	>100

This scoring system should be used when assessing the age and health of a tree. It allows for trees that are old and healthy to score much more highly than trees that are either unhealthy or young. The degree of vigour and vitality for any tree is assessed given the age of the tree. Therefore, a tree that is over 100 years old and showing high vigour and vitality, for a tree that age, will score a 10

Character or form

Not exceptional	0
Exceptional example locally	5
Exceptional example in Auckland	10

This scoring system should be used when assessing the character or form of a tree. It allows for trees that are exceptional examples at two spatial scales (from local to Auckland-wide) to score more highly than trees that are regarded as normal.

Size

Average size for the species in this location	O
Greater than average size (up to 25% larger)	5
Substantially greater than average size (>25% larger)	10

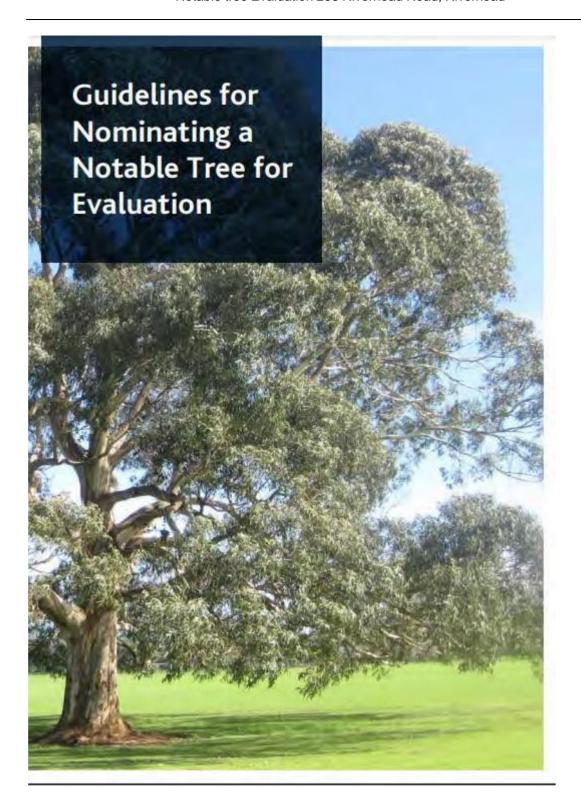
This scoring system should be used when assessing the size of a tree (including height, girth and lateral spread). It allows for trees that are larger than would be expected (on average) for a particular location to be scored more highly than trees that are at, or close to (or below), their average height.

Visual contribution

In backyard or gully	2	e.g. fewer than 100 people see the tree daily
Local park/community/ beside minor road or feeder road/catchment	5	e.g. between 100 and 5000 people see the tree daily
Main Road/motorway or higly visible landform	10	e.g. more than 5000 people see the tree daily

This scoring system should be used when assessing the visual contribution of a tree. It allows for trees that are seen by more people on a daily basis to score more highly than trees that are rarely seen.

A tree can be scheduled as Notable if it ac	nieves a score of 20 t	or more
	Score	Comments
Age and health Is notable because of its age (e.g., the oldest of its species in Auckland) and there is something about the vigour and vitality of the tree or group of trees which makes it notable given other factors (such as its age)	e explanatory notes)	
Character and form Is an exceptional example of the species in character and/or form (i.e., text book shape or has a particular relationship with its environment) or attributes that makes it unique	5	
Size It is an exceptional size for the species in this location (including height, girth or lateral spread)	5	
Visual contribution It makes a significant contribution to the visual character of an area or to the vista from elsewhere in Auckland	5	
Section 7: Negative effects		
Are there any matters that weigh against t protection at this location?	he tree's long term	
Hazard and negative effects	YES NO	
Does the tree present negative impacts upon human health and / or property?		
Are these negative effects manageable through arboricultural or property management means?		
Is the tree species listed in the Regional Pest Management Strategy as a Total Control or Containment Plant or listed under the Biosecurity Act 1993 as an Unwanted Organism?		



Nomination Guidelines

These guidelines outline the requirements for nominating a notable tree for evaluation by Auckland Council for inclusion on the region's Notable Tree Schedule. This document will assist you in completing and submitting the nomination form.

Nominating a tree

Any person or organisation may nominate a tree or group of trees for evaluation by completing and submitting the nomination form.

Before you submit a nomination, please read these guidelines to check whether nomination is appropriate, and to ensure that you complete the form correctly. You should only nominate a tree or group of trees if you consider it has significant value and would be a worthy addition to Auckland's Notable Tree Schedule.

Purpose of evaluation

The purpose of this evaluation is to identify notable trees for inclusion in Auckland's Notable Tree Schedule, or for other appropriate management to protect the tree such as a legal covenant.

Nomination of a tree or group of trees does not automatically guarantee that it will be evaluated or considered for scheduling. Priority will be given to nominations for trees on the nominator's property or on public land (open space, reserves or streets) and to those that are not already scheduled as part of a Significant Ecological Area, Priority will also be given to nominations that clearly identify the values of the tree and are supported by relevant background information. Therefore you are encouraged to make a persuasive case for the significance of the tree.

What is a Notable Tree?

Practically all trees play important economic, environmental and social roles in any district of New Zealand. However, some trees are often thought of as being of greater value than others. That is, there are some specimen trees, or groups of trees, that stand out as being notable, significant or distinguished. It is those trees that, for various reasons, are selected by territorial local authorities, throughout New Zealand, for inclusion on a notable tree schedule in a district plan. Through this mechanism they gain greater legal protection.

Notable trees are generally those that a community or nation regard as being of special importance because they commemorate important events in a nation's history, are exceptional or unique examples of a species, are critical to the survival of other species or are of such age, stature, character and visibility that they are regarded as the best in the district.

What is the Notable Tree Schedule?

Auckland's Notable Tree Schedule is a list of significant trees or groups of trees in the Auckland region. Inclusion of a tree or group of trees in the Schedule means that:

- It has been officially recognised by the Auckland Council as being a Notable Tree
- It is protected by provisions in district or unitary plans to ensure it is not damaged or destroyed
- · It may be eligible for grants and other incentives.

Criteria for scheduling Notable Trees

Auckland Council has proposed criteria for evaluating the importance of trees and the level of significance required to be considered for inclusion in the Notable Tree Schedule. There are three types of criteria: Special factors (stand alone), Negative factors and Tree Specific factors.

The special factor criteria are stand alone which means that if a tree or group of trees meets any one criterion then it is deemed notable. The tree-specific criteria require a cumulative assessment. That means, for a tree or group of trees to be notable, it must have a cumulative score of 20 or more out of 40 using the scoring systems described in Appendix 1.

Both the special factor and tree-specific criteria are used in combination to determine whether a tree or group of trees is notable. A tree will be notable if it meets only one of the special factors or the score threshold for tree-specific criteria.

In addition, the assessment against the Special factor and tree-specific criteria is then balanced by taking into account the potential negative effects of the tree. In situations where negative effects occur then these must be offset against the benefits of protecting a notable tree. This methodology does not provide a definitive way to make this decision but it relies on the expertise of trained arborists assessing the risk of the negative effects occurring and the overall significance of the tree. The critical part of this assessment is determining whether the hazard or negative effects are unmanageable. Most hazards and all nuisance effects can be managed but in instances where they are unmanageable a tree will not be scheduled as notable. Pest plants listed in the Regional Pest Management Strategy or Plan will not be scheduled.



Special Factors (stand alone)

A. Heritage

- Is associated with or commemorates an historic event (including Maori history or legend)
- Has strong public associations or has an historic association with a well known historic or notable figure
- Is strongly associated with a local historic feature and now forms a significant part of that feature

B. Scientific

- Is the only example of the species in Auckland or the largest known specimen of the species in Auckland (including height and lateral spread) (only applies to individual trees)
- Is a significant example of a species rare in Auckland or a native species that is nationally or regionally threatened (as assessed by the Department of Conservation (DOC) or on the regional threatened species list)
- Has outstanding value because of its scientific significance

C. Ecosystem service

 Provides critical habitat for a threatened native species population e.g., bats, chevron skinks, kiwi, yellow mistletoe etc.

D. Cultural

- Demonstrates a custom, way of life or process that was common but is now rare, is in danger of being lost or has been lost
- Has an important role in defining the communal identity and distinctiveness of the community through having special symbolic, spiritual, commemorative, traditional or other cultural value or represents important aspects of collective memory, identity or remembrance, the meanings of which should not be forgotten
- Is a landmark, or marker that the community identifies with

E. Intrinsic

 Is intrinsically notable because of a combination of factors including the size, age, vigour and vitality, stature and form or visual contribution of the tree or group of trees

Negative Effects

F. Negative effects

- Are there any matters that may weigh against the tree's long term protection at this location?
- Does the tree present negative impacts upon human health and / or property?
- Are these negative effects manageable through arboricultural or property management means?
- Is the tree species listed in the Regional Pest Management.
 Strategy as a Total Control or Containment Plant or listed under the Biosecurity Act. 1993 as an Unwanted Organism?

Tree-specific factors (see below for scoring)

G. Age and health

 Is notable because of its age (e.g., the oldest of its species in Auckland) and there is something about the vigour and vitality of the tree or group of trees which makes it notable given other factors (such as its age)

H. Character and form

 Is an exceptional example of the species in character and/or form (i.e., text book shape or has a particular relationship with its environment) or attributes that makes it unique

I. Size

 It is an exceptional size for the species in this location (including height, girth or lateral spread)

J. Visual contribution

 It makes a significant contribution to the visual character of an area or to the vista from elsewhere in Auckland



Thresholds

When applying tree-specific factors to groups of trees an average assessment for all trees in the group should be used. At least one individual in a group must be scheduled independently as notable and all trees in the group must be physically close to each other or form a collective or functional unit through meeting at least one of the following criteria: 1. Canopies touch; 2. Canopies overlap; 3. Canopies are not further than 5 metres apart.

To be considered eligible for inclusion in Auckland's Notable Tree Schedule, a tree or group of trees must meet at least one of the special factor criteria or achieve a score of 20 or more for tree-specific criteria.

Other tree specific factors are also taken into account in the decision to recommend a tree for scheduling. Sometimes scheduling is not the most appropriate way of protecting an important tree. For example, it may be part of a significant indigenous plant community and it would be more appropriate to schedule as a Significant Ecological Area (SEA) or it may already be within one of this SEAs and therefore a lower priority for evaluation. The final decision over whether to schedule a notable tree or group of trees is made by the Council after assessing the information obtained from this process.

What trees can be nominated?

Any tree or groups of trees may be nominated including those in towns, streetscapes and settlements, gardens, trees and plantings or they may be naturally occurring trees in parks, reserves or covenants.

Frivolous or vexatious nominations will not be accepted including nominations for:

- Any tree or groups of trees that has been planted and is less than 20 years old, other than in exceptional circumstances
- Moveable or portable trees such as those in planter
 haves.
- · Any tree that cannot be accurately located or identified.

Priority will be given to trees nominated for inclusion in Auckland's schedule of Notable Trees that occur on the property of the nominee or in a public reserve. Detailed nominations supported with good information will have an increased chance of being processed quickly for acceptance into the schedule and will be peer reviewed. Nominations providing limited information, or those for trees on another person's private property will be processed as and when resources are made available.



Completing the nomination form (see Appendix 1)

Before completing the form

Before you complete the nomination form (see Appendix 1) you should check your existing Notable Tree Schedule to ensure that the tree or group of trees is not already scheduled.

Completing the form

You are encouraged to complete and submit the nomination form in electronic format. You can download an electronic copy of the form from the Auckland Council website (http://www.aucklandcouncil.govt.nz)

Section 1 (Contact details)

We need to be able to acknowledge receipt of your nomination, verify information if needed, and keep you informed. We cannot accept anonymous nominations.

Section 2 (Address)

We need to know where the tree is. If it doesn't have a street address, you can provide the legal description or grid reference (using NZ Transverse Mercator coordinates). You can access these through the council's GIS viewer: http://maps.aucklandcouncil.govt.nz/aucklandcouncilviewer/

Legal description: use the "identify" button on the toolbars on the right of the screen Grid reference: go to Tools/capture map coordinates. Print out and attach an aerial photo of the site with the tree clearly circled. If there are multiple trees please show where each tree is located.

Section 3 (Owner/occupier)

Complete this section if you have access to this information.

Section 4 (Description)

You should include a description of the tree and its location. For example provide a description of the estimated height, age, species and context for the tree.

Section 5 (Threats)

It is useful to identify known threats to the tree, because this will assist in prioritising nominations. For example, pressure from development, risk of being removed to create views etc.

Sections 6 - 8 (Tree specific and special factors and negative effects)

You should evaluate the tree or group of trees against each of the criteria. This will be the primary means by which we will evaluate a tree.

Section 9 (Conclusions)

Summarise your conclusions about the tree or group of trees here.

Further assistance

If you need assistance with the form, please contact the Council's Heritage team by email at heritage@aucklandcouncil.govt.nz

Please complete the form in as much detail as possible.

Frequently Asked Questions

Can I provide information in confidence?

Generally not. Evaluation of Auckland's heritage is a public process. All members of the public, including the owner of a tree, are entitled to access all information held by the Council on a property. Councils are only required to restrict access to sensitive information about places of significance to tangata whenua as this is a statutory requirement under the Resource Management Act 1991. All other information relating to a property is public information, and is therefore available to members of the public upon request. If you have concerns about providing information that is, or may be sensitive or subject to copyright, you should discuss this with staff in the Council's Heritage Unit before providing the information.

What about my personal details?

The Council has a responsibility to comply with the Privacy Act 1993 and the Local Government Official Information and Meetings Act 1987. All information provided to, and held by Council as public records, is public information and is subject to disclosure upon request unless there are reasons why it should not be disclosed. If you have concerns, you should refer to the relevant Acts, and seek independent advice.

What if I don't have the time or knowledge to provide all the information you require?

The more supporting evidence you can provide the better. Nominations that lack sufficient information may be assigned a low priority for evaluation. You could approach your Local Board, botanical society or other community group to assist with the nomination or to make it on your behalf.

Why can't the Council evaluate all nominated trees?

The process of evaluating trees requires specialised personnel and resources. As well as public nominations, the council identifies potentially significant trees through its own work. All nominations receive an initial appraisal. Those that are unlikely to meet the significance thresholds or lack sufficient information will be assigned a low priority or may not proceed. In some cases nominated trees have been previously evaluated, so unless new information becomes available they will not be re-evaluated.

What is the best format for sending information to the Council?

Electronic files are preferred. Original photographs or documents should be scanned or copied. If you have large files (over 10MB) send them in parts or convert them to smaller file sizes (e.g. by converting them to PDF files) or copy them onto a CD.

Can I protect my tree even if my tree is not notable?

If you have a tree and you think it is special but is unlikely to be scheduled as notable then there are alternatives to enable it protection such as a private legal covenant.

Nominat	ion Form
groups of trees an average assessment f must be scheduled independently as no	assessing trees or groups of trees. When applying tree-specific factors to for all trees in the group should be used. At least one individual in a group table and all trees in the group must be physically close to each other or form neeting at least one of the following criteria: 1. Canopies touch; 2. Canopies is 5 metres apart.
ection 1: Your Contact Details	
Section 2: Address of the tree	
Section 3: Owner/occupier	
Section 4: Description	
Section 5: Threats to the tree	

A tree can be scheduled as Notable if it ac	Herea a	Jedie of Lo	or more
4	- 5.5	ore	Comments
Age and health Is notable because of its age (e.g., the oldest of its species in Auckland) and there is something about the vigour and vitality of the tree or group of trees which makes it notable given other factors (such as its age)	explan	atory notes)	
Character and form			
Is an exceptional example of the species in character and/or form (i.e., text book shape or has a particular relationship with its environment) or attributes that makes it unique			
Size It is an exceptional size for the species in this location (including height, girth or lateral spread)			
Visual contribution It makes a significant contribution to the visual character of an area or to the vista from elsewhere in Auckland			
Section 7: Negative effects			
Are there any matters that weigh against t protection at this location?	he tree'	's long term	
Hazard and negative effects	YES	NO	
Does the tree present negative impacts upon human health and / or property?			
Are these negative effects manageable through arboricultural or property management means?			
Is the tree species listed in the Regional Pest Management Strategy as a Total Control or Containment Plant or listed under the Biosecurity Act 1993 as an Unwanted Organism?			

Scoring of tree specific factors

These scoring systems are to be used when evaluating a tree against the tree-specific factors in Section 6 (see page 10).

Age and health

Vigour and vitality	High	3	5	6	8	10
	+	2	4	6	8	8
		2	4	6	6	7
	200	2	4	4	5	5
	Low	2	2	2	3	3
	Age in Years	<40	41- 50	61- 80	81- 100	>100

This scoring system should be used when assessing the age and health of a tree. It allows for trees that are old and healthy to score much more highly than trees that are either unhealthy or young. The degree of vigour and vitality for any tree is assessed given the age of the tree. Therefore, a tree that is over 100 years old and showing high vigour and vitality, for a tree that age, will score a 10.

Character or form

Not exceptional	0
Exceptional example locally	5
Exceptional example in Auckland	10

This scoring system should be used when assessing the character or form of a tree. It allows for trees that are exceptional examples at two spatial scales (from local to Auckland-wide) to score more highly than trees that are regarded as normal.

Size

Average size for the species in this location	0
Greater than average size (up to 25% larger)	5
Substantially greater than average size (>25% larger)	10

This scoring system should be used when assessing the size of a tree (including height, girth and lateral spread). It allows for trees that are larger than would be expected (on average) for a particular location to be scored more highly than trees that are at, or close to (or below), their average height.

Visual contribution

In backyard or gully	2	e.g. fewer than 100 people see the tree daily	
Local park/community/ beside minor road or feeder road/catchment	5	e.g, between 100 and 5000 people see the tree daily	
Main Road/motorway or higly visible landform	10	e.g. more than 5000 people see the tree daily	

This scoring system should be used when assessing the visual contribution of a tree. It allows for trees that are seen by more people on a daily basis to score more highly than trees that are rarely seen.

For a tree to be scheduled or Notable it needs to			
meet only one of these special factors	YES	NO	Comments
Heritage			
Is associated with or commemorates an historic event (including Maori history or legend)			
Has strong public associations or has an historic association with a well known historic or notable figure			
ls strongly associated with a local historic feature and now forms a significant part of that feature			
Scientific			
Is the only example of the species in Auckland or the largest known specimen of the species in Auckland (including height and lateral spread) (only applies to individual trees)			
Is a significant example of a species rare in Auckland or a native species that is nationally or regionally threatened (as assessed by DOC or on the regional threatened species list)			
Has outstanding value because of its scientific significance			
Ecosystem service			
Provides critical habitat for a threatened native species population e.g., bats, chevron skinks, kiwi, yellow mistletoe etc			
Cultural			
Demonstrates a custom, way of life or process that was common but is now rare, is in danger of being lost or has been lost			
Has an important role in defining the communal identity and distinctiveness of the community through having special symbolic, spiritual, commemorative, traditional or other cultural value or represents important aspects of collective memory, identity or remembrance, the meanings of which should not be forgotten			
ls a landmark, or marker that the community identifies with			
Intrinsic			
Is intrinsically notable because of a combination of factors including the size, age, vigour and vitality, stature and form or visual contribution of the tree or group of trees			

Include your fin	al assessment of whet	her or not the tree is n	otable and any addition it can be scheduled or h	al comments. Note that	under the
rree-specific ta	cuors, a score or 20 or r	nure is needed before	it can be scheduled or f	votable.	
T					

Please call me on (09) 623-3514 if further comment is required.

Kind regards,

Allan Holmes

GreensceneNZ Limited