



**Arboricultural Assessment
Report**

For

Julia Stone

Site

**3643 Channel Highway, Birches Bay,
7162, TAS**

Prepared By

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1. Executive Summary

Commissioned by Michela Forthini of Irene Inc on behalf of Julia Stone, Tree Pioneers was engaged to provide an Arboricultural Impact Assessment Report and respond to RFI for 3643 Channel Highway, Birches Bay.

The RFI and responses are listed below:

- ***We require a statement that the proposed access along the northeastern boundary will not impact the tree roots or tree health of the adjoining Crown Land.***

The site access has 16 trees on the adjacent crown land that require assessment. None of these trees are impacted by the proposed development. Tree Protection measures are to be erected to ensure the trees remain viable.



Figure 1. Image showing the entrance to the sight.

- ***An assessment of the health of the cherry trees along the southeastern corner. The client has advised that due to salt spray, the yield of these trees is far less than the other trees onsite. This area is where the client is also hoping to locate the dwelling. The plan is to plant more cherry trees in the centre of the site, where they are less affected by the coast, to provide for a net increase of cherry trees.***

The site is a commercial cherry farm that is proposing the removal and relocation of cherry trees to develop the least productive area of site. The trees at the Eastern section of the property are visibly smaller, have fewer fruiting buds, shorter extension growth and thinner canopy compared to other areas of site. The removal and relocation of trees will be more viable in the long term. The quantity of cherry trees is proposed to be increased and be located in a more productive area.

The site can be developed and effectively retain the landscape with the implementation of the following:

- Implement the Tree Protection measures stated in this report.
- Appoint a site arborist to confirm and document the installation of tree protection measures.
- TPZ fences to protect all trees from potential development impacts.

More specific details regarding the protection methods to implement are located within the document.

2. Overview

Commissioned by Michela Forthini of Irene Inc on behalf of Julia Stone, Tree Pioneers was engaged to provide an Arboricultural Impact Assessment Report and respond to RFI for 3643 Channel Highway, Birches Bay. The RFI questioned the encroachment and potential impact of trees in crown land. It also requires information on the quality of the cherry trees to the East of the site where the proposed house is to be developed.

3. Key Objectives

- Provide a tree assessment and record tree data.
- Discuss and provide recommendations for the management of trees on development sites.

4. Method

The site was inspected from the ground on the 3rd and 8th of June 2024 by Joe Loorham. The trees were assessed for the following:

- Species identification and origin
- Approximate age of the tree
- Stem diameter at 1.3 meters above ground level with DBH tape or at ground if not possible
- An estimation of the height and width of the tree canopy with clinometer
- The structure of the tree
- The health of the tree

The visual tree inspection was undertaken from the ground and recorded. No aerial assessment has taken place. An aerial inspection of the tree will be recommended if further assessment is required. Anything not visible from the ground cannot be accounted for. No underground investigation took place. The tree assessment relates to the data taken on the day of assessment and does not include any changes thereafter. Any changes to site will void the risk assessment.

5. Site

The site is a cherry farm at Birches Bay. It is in the municipality of Kingborough. The site is surrounded by water to the East and the Channel Highway to the North-West. There is crown land to the North-East of the site where there are large significant trees present. The site is a commercial cherry farm. It is covered with a large netting to protect the cherry trees.



Figure 2. Aerial map of site with the approximate boundary in yellow.

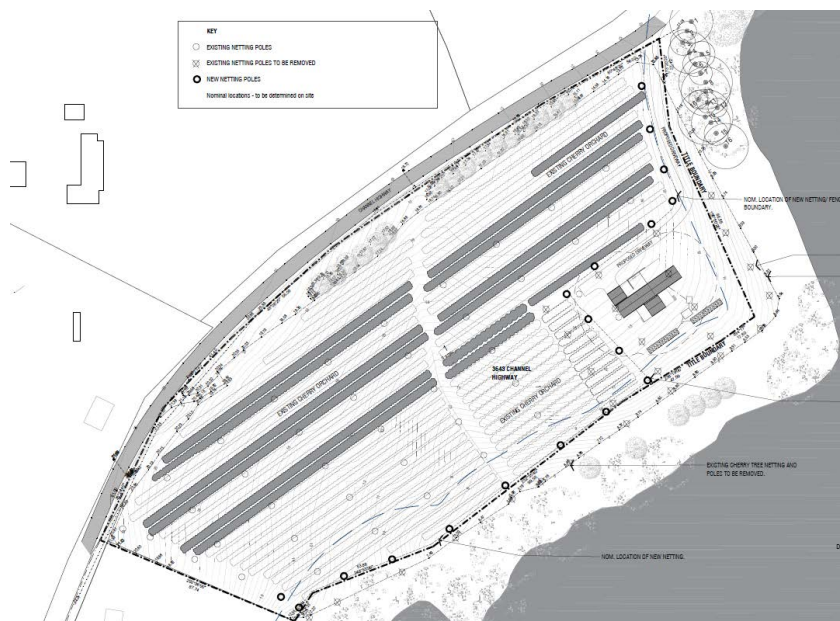


Figure 3. Site plans showing the proposed development. Provided by Michela Forthini of Irene Inc.

6. Site Plan

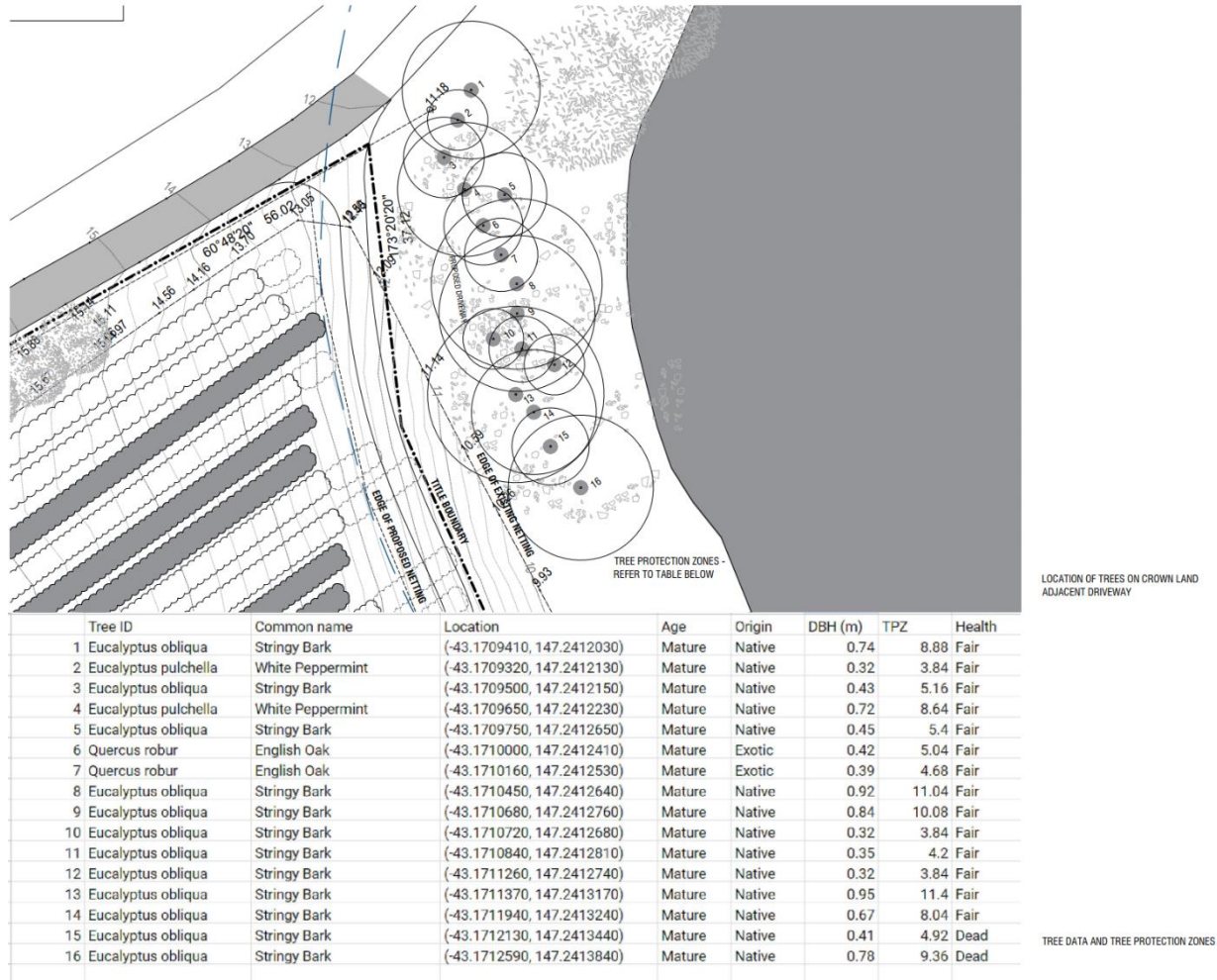


Figure 4. Site plans for the proposed development showing Tree Protection Zones (TPZ). Image shows no encroachment from proposed development.
 Provided by Irene Inc.

7. Tree data

	Tree ID	Common name	Location	Age	Origin	DBH (m)	TPZ	Health
1	Eucalyptus obliqua	Stringy Bark	(-43.1709410, 147.2412030)	Mature	Native	0.74	8.88	Fair
2	Eucalyptus pulchella	White Peppermint	(-43.1709320, 147.2412130)	Mature	Native	0.32	3.84	Fair
3	Eucalyptus obliqua	Stringy Bark	(-43.1709500, 147.2412150)	Mature	Native	0.43	5.16	Fair
4	Eucalyptus pulchella	White Peppermint	(-43.1709650, 147.2412230)	Mature	Native	0.72	8.64	Fair
5	Eucalyptus obliqua	Stringy Bark	(-43.1709750, 147.2412650)	Mature	Native	0.45	5.4	Fair
6	Quercus robur	English Oak	(-43.1710000, 147.2412410)	Mature	Exotic	0.42	5.04	Fair
7	Quercus robur	English Oak	(-43.1710160, 147.2412530)	Mature	Exotic	0.39	4.68	Fair
8	Eucalyptus obliqua	Stringy Bark	(-43.1710450, 147.2412640)	Mature	Native	0.92	11.04	Fair
9	Eucalyptus obliqua	Stringy Bark	(-43.1710680, 147.2412760)	Mature	Native	0.84	10.08	Fair
10	Eucalyptus obliqua	Stringy Bark	(-43.1710720, 147.2412680)	Mature	Native	0.32	3.84	Fair
11	Eucalyptus obliqua	Stringy Bark	(-43.1710840, 147.2412810)	Mature	Native	0.35	4.2	Fair
12	Eucalyptus obliqua	Stringy Bark	(-43.1711260, 147.2412740)	Mature	Native	0.32	3.84	Fair
13	Eucalyptus obliqua	Stringy Bark	(-43.1711370, 147.2413170)	Mature	Native	0.95	11.4	Fair
14	Eucalyptus obliqua	Stringy Bark	(-43.1711940, 147.2413240)	Mature	Native	0.67	8.04	Fair
15	Eucalyptus obliqua	Stringy Bark	(-43.1712130, 147.2413440)	Mature	Native	0.41	4.92	Dead
16	Eucalyptus obliqua	Stringy Bark	(-43.1712590, 147.2413840)	Mature	Native	0.78	9.36	Dead

8. Observations

The site is a commercial cherry farm in Birches Bay. The location selected for the development is to the East of site. This is right on the edge of site near the D'Entrecasteaux Channel. The development will result in the removal of a portion of cherry trees.

Cherry Trees Removal

The cherry trees growing in the area proposed for development appear to be smaller in height and have a smaller trunk size compared to the other trees. They also have significantly more deadwood present in their canopy. The number of buds present of these trees are significantly fewer than elsewhere on the farm. The extension growth between buds is shorter in length compared to trees elsewhere. The farm is tree lined along the coast at all parts of the site except for this Eastern boundary. The exposed eastern section of the site presents a hostile environment for tree growth. This section of the site has less protection for crops. Exposure to wind and salt spray are among elements which are contributing to a poor growing environment.

The proposed plan to relocate the position of the crops to a more protected and viable area is sound. It will allow for the building to shield crops from harsh coastal environment.



Figure 5. Image of the cherry trees at the edge of the site where the proposed development is. Noticeably reduced size and thinner canopy than the rest of site.

Crown Land Encroachment

The proposed access to the site runs along the northern boundary. The driveway access borders crown land which has 15 large trees. There are no trees with encroachment.

These trees have no encroachment and will not be affected by development.



Figure 6. Images of the tree 1 -5. Larger trees which are closest to the site.

9. Conclusion/Recommendations

Temporary Tree Protection Measures

Listed below are protection measures to be implemented, prior & during. These can be removed after all works are complete.

- Installation of Tree Protection Zones (TPZ) fences. Figure 9 shows a typical TPZ fence. This method is not practical for every individual tree in Crown land. A strained wire fence with orange bunting at the edge of the proposed driveway which will be the boundary between the site and crown land.
- Install TPZ 2 meters from cherry trees being retained to ensure there is no damage to trees or growing environment. A strained wire fence with orange bunting along the length of the rows to exclude access for construction material, plant and workers.
- A sign installed on the Tree protection zone and along TPZ fences to ensure no access to area.
- Appoint a site arborist.
- Inspection by site arborist to 'sign off' Tree Protection measures implementation.

Construction

Listed below are the procedures for building onsite for the protection of the trees.

General

- Any tree removal or tree pruning work has to be undertaken by a suitable qualified person with a minimum of a Certificate 3 in Arboriculture.
- Tree Protection measures to stay 'active' until development has been completed.

Driveway

- Install driveway without entering the Tree Protection Zone.

10. Tree Protection

Tree Protection Zones (TPZ)

The specific area set aside above ground at a given distance from the trunk set aside for the protection of the tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.

Structural Root Zones (SRZ)

The area around the base of a tree is of value for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in meters. This zone considers the trees structural stability only, not the root zone required for a tree's vigour and long-term viability, which will usually be much larger area.

Development sites

Development sites incorporating trees need to implement protection measures to ensure the tree remains viable in the future landscape. Damage to trees during development can occur directly to the tree and indirectly to it through its environment;

- Direct damage includes mechanical injury to the trunk, severing roots, or alterations to the soil environment in the immediate vicinity of the roots. This included compactions or loss of organic matter.
- Indirect damage includes soil moisture alterations, changes in water tables and drainage patterns.

On development site, the protection of trees is achieved with a TPZ (Tree Protection Zone). TPZ are calculated according to *AS 4970-2009 Protections of amenity trees on development sites*. TPZ are 12 times the trunk diameter at 1.4m above ground level. Once the TPZ has been calculated, a TPZ fence is erected to protect the tree and its environment. This Fences must be erected before any work takes place.

Guidelines for TPZ's (Tree Protection Zones):

- No building structures or hard landscape features.
- No building material storage.
- No excavation or soil disturbance work
- No placing of fill.
- No lighting of fire or preparing of chemicals.
- No vehicles or pedestrian access.

TPZ requirements:

- Erect signs along the entire length of the protective fence.
- Construct TPZ to prevent pedestrian and vehicle access.
- Mulch TPZ area to a depth of 150mm with wood chips.
- Irrigate the TPZ periodically, as determined by the arborist.

TPZ Guidelines and requirements need to be adhere to at all stages of the design and development process.

Encroachment

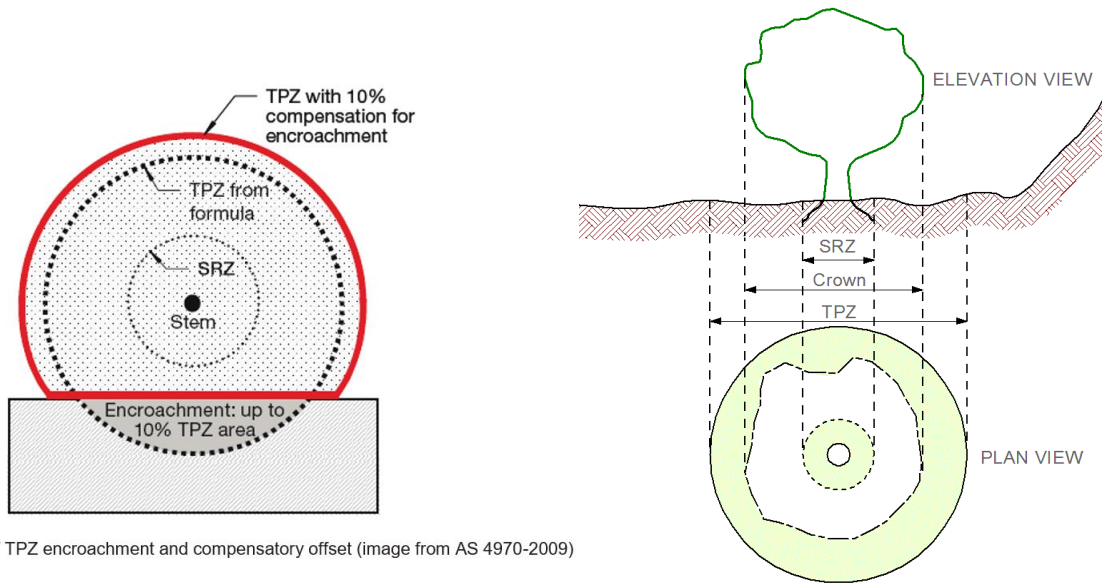
In some case, encroachment into the TPZ is necessary. There are provisions for encroachment, within the Australian standards framework. Encroachment is categories as minor or major.

Minor Encroachment AS 4970-2009

Minor encroachment is less than 10% of the TPZ and doesn't enter the SRZ (Structural Root Zone). Root investigation is required and the 10% must be compensated with an extension to the TPZ elsewhere. These TPZ encroachments must be supervised by the project arborist.

Major Encroachments AS 4970-2009

Major encroachment is more than 10% of the TPZ and into the SRZ. These encroachments must be supervised by the project arborist. The project arborist must demonstrate that the trees will remain viable. The area lost to encroachment must be compensated with an extension to the TPA elsewhere.



: Example of TPZ encroachment and compensatory offset (image from AS 4970-2009)

Figure 7. Example of compensation for TPZ

Figure 8. Alternate views of TPZ

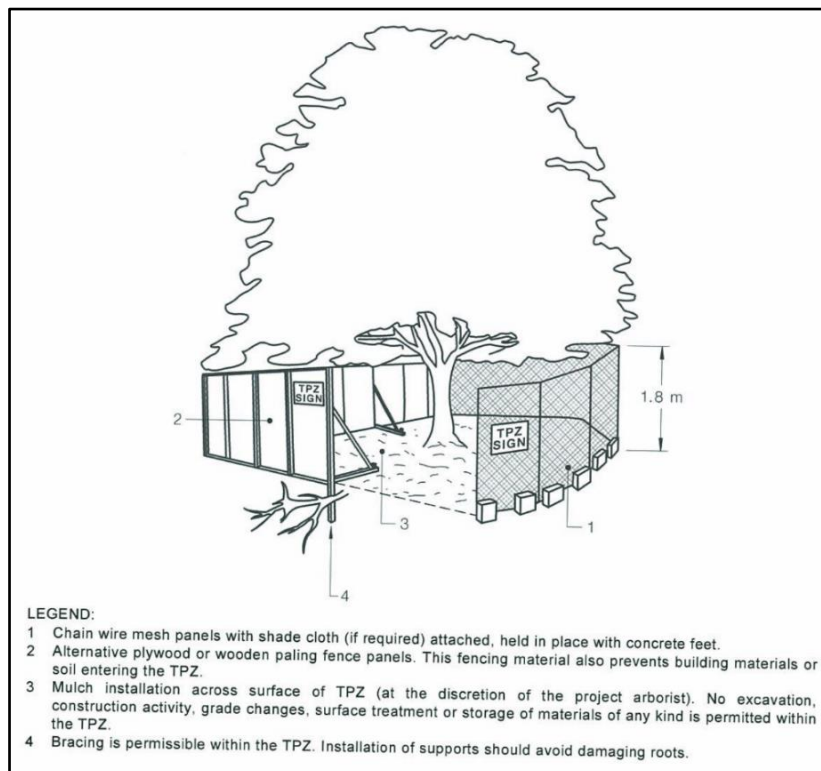


Figure 9. Tree Protection Fence and signs. Imaged sourced from the Australian Standard for Protection of Trees on the Development site.

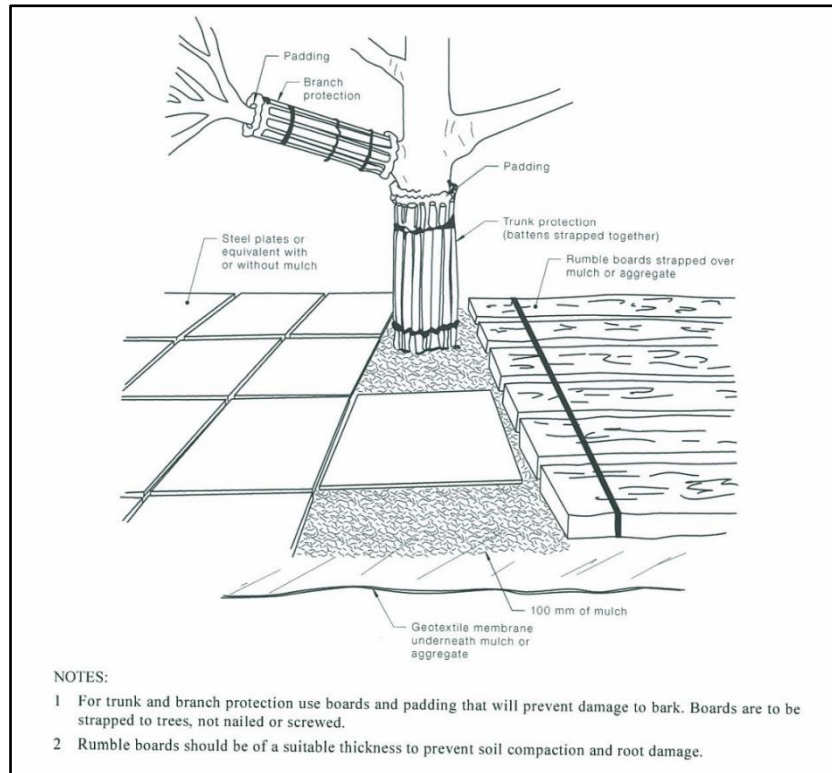


Figure 10. Trunk Protection and ground protection. Imaged sourced from the Australian Standard for Protection of Trees on the Development site.

A TPZ sign provides clear and readily accessible information to indicate that a TPZ has been established. Figure C1 provides an example of a suitable sign.



Figure 11. Tree Protection Zone Sign. Imaged sourced from the Australian Standard for Protection of Trees on the Development site.

11. References

Australian Standards – AS 4970-2009 Protection of trees on development site.

Australian Standards – AS 4373-2007 Pruning of Amenity trees.

Alex L. Shigo – *Modern Arboriculture: A Systems Approach to the care of trees and their associates*, 1st edition, published January 1991

Alex L. Shigo – *New tree Biology: Facts, Photos and Philosophies on trees and their problems and proper care*, 2nd edition, published June 1989

Mattheck, C. & Breleor, H. 1994, *The Body Language of Trees*, The Stationary Office, London, UK.

12. Glossary

Arboricultural terms used throughout the document.

Term	Meaning
Bifurcated	A tree or limb divides at a union into two main sections which is reasonable equal. Similar meaning as co-dominant stems.
Codominant stems	Two or more stems which are competing in size. They do not have branch collars but may form a bark ridge. In many cases this leads to included bark. Similar meaning to bifurcation.
Canker	A localized lesion; a dead spot. Canker doesn't allow the tree to callus over the wound.
Compartmentalization (CODIT)	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. As trees compartmentalize infected wood, storage space for energy reserves is reduced. Strong compartmentalization "keeps" the lost space to a minimum. Wounded wood is compartmentalized inside the trees structure.
Dieback	A tree dying back at the extremity's either the roots or shoots to survive. Reducing distance of translocation
Epicormic Epicormic bud Epicormic branch	Located along trunk and branches. They are carried in the cambium and are dormant for years. They are suppressed by hormones by active shoots further up the tree. They're suppressed until specific conditions are triggered like damage, pruning or increase light. They have a weak attachment point.
Included bark	Include bark forms when the branch bark ridge turns inward. This is common with codominant stems. Included bark is a condition where the tree has grown around the bark which leaves it included.
Primary disorder	The first disorder, most prevalent diagnosed condition.
Secondary disorder	the secondary disorder, a disease that follows the and results from an earlier disease.
Brown rot	Brown rot or brittle rot is the decay of heart wood, the cellulose is digested, and the lignin is altered. Very brittle.
White rot	White rot or white decay is the decay of heart wood, lignin is digested, and cellulose remains altered.

13. Tree Descriptors

AGE

The notation of age is based on the following categories.

Category	Description
Young	Less than 20% of the life expectancy of the tree.
Mature	20 – 80% of the life expectancy of the tree.
Over Mature	>80% of the life expectancy for the tree.
Dead	Tree is no longer alive.

HEALTH

Pertains to the health and growth potential of the tree. The notation of 'health' is based on the following categories.

Category	Description
Good	Full canopy, good foliage density, average leaf colour for species. Average growth indicators such as good extension of growth per growing season, typical leaf size. Little to no dieback in the canopy, minimal deadwood. Good wound wood development. Tree exhibits above average health and minimal to no work is required.
Fair	Tree has <25% deadwood and may have minor canopy dieback. Foliage density and colour may be slightly below average for species. Imperfections in canopy present, pathogen signs present. Average growth indicators such as good extension of growth per growing season, typical leaf size and canopy density. Moderate wound wood development. Tree exhibits below average health and remedial works may be employed to improve tree health.
Poor	Tree has >25% deadwood and has canopy die back. Foliage density and colour is below average for species. Leaf size distorted and discoloured. Epicormic growth is present throughout the canopy. Canopy is incomplete and has pathogen damage present. Poor wound wood development. Tree exhibits low health and remedial work or removal <u>may</u> be required.
Very Poor	Tree has more than 50% deadwood and extensive canopy dieback. Foliage density is sparse and leaf and colour is atypical for species. Epicormic shoots can make up large sections of canopy. Pathogen and stress agent is present are leading to decline. Very poor wound wood development. Tree exhibits low health and remedial work or removal <u>are</u> required.
Dead	Tree is no longer living.

RETENTION VALUE

Retention Value is rated into three levels: LOW, MEDIUM and HIGH.

Category	Description
Low	Trees that offer little in terms of contributing to the future landscape. Should be considered for removal.
Medium	Trees with some beneficial attributes that may benefit the site. Could be considered for retention if possible.
High	Trees with the potential to positively contribute to the site. Should be considered for retention if possible.

STRUCTURE

Pertains to the physical structure of the tree including main scaffold branches and roots. Structure includes those attributes that may influence the probability of major, trunk, root or limb failure.

Category	Description
Good	<p>Tree has well-defined and balance canopy. Branch unions appear strong and without defects evident. Trunk and branches have nice taper. Tree is unlikely to suffer trunk or branch failure under normal conditions. The tree is considered a good example of the species with well-developed form.</p>
Fair	<p>Tree has some minor problems in the structure of the crown. The crown may slightly out on balance and some branch unions may exhibit structural faults. Tree may have a slight lean. Tree may have slight root damage. These defects are not likely to result in catastrophic trunk or branch failure, although some branch failure may occur under normal conditions.</p>
Poor	<p>Tree may have significant problems in structural scaffold limbs and trunk. Canopy may be lopped sided and have gaps. Limbs crossing in canopy. Branch unions may be poor with faults present. Tree may have substantial lean. Tree may have suffered significant root damage. Tree may have basal or trunk damage. Tree may have co-dominate stems. Tree may have bifurcated unions. These defects <u>may</u> predispose the tree to major truck and branch failure.</p>
Hazardous	<p>Tree has very significant problems in structural scaffold limbs and trunk. Canopy is lopped sided and has gaps. Limbs crossing in canopy causing rubbing and damage. Branch unions are poor with faults at the point of attachment. Tree has substantial lean. Tree has suffered significant root damage. Tree has basal or trunk damage. Tree has co-dominate stems. Tree has bifurcated unions. These defects <u>are</u> likely to predispose the tree to trunk and scaffold limb failure</p>

USEFUL LIFE EXPECTANCY (ULE)

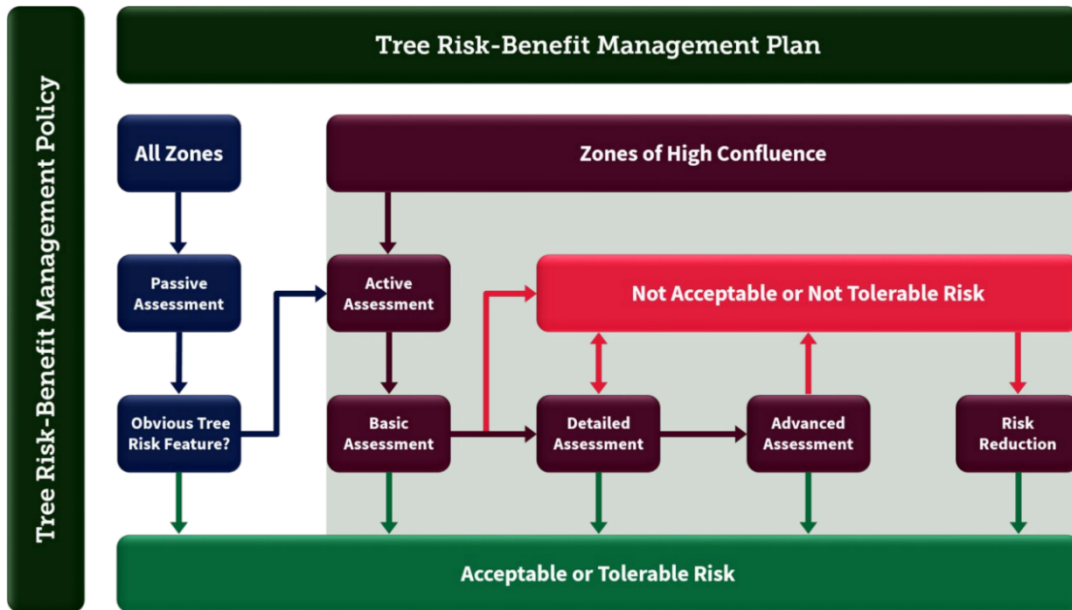
U.L.E. pertains to the span of time that the tree might reasonably be expected to provide useful amenity value with an acceptable level of safety at an acceptable cost. Trees with have varying U.L.E. according to the environment, economical and other factors. **(Note: Useful life expectancy is relevant to the tree if it is maintained and nothing significantly in the environment changes)**

The notation of U.L.E. is based on the following categories.

Category	Description
Short	The tree appears to be retainable with an acceptable level of risk for 5 to 15 years.
Medium	The tree appears to be retainable with an acceptable level of risk for 15 to 40 years.
Long	The tree appears to be retainable with an acceptable level of risk for more than 40 years.
Remove	The tree presents with a high level of risk that would need removal within the next 5 years

RISK

Risk is calculated using the following chart.



Passive Assessment - is simply picking up on Obvious Tree Risk Features you can't help but notice as you got about your daily routine. We carry it out in all zones of use. Passive Assessment is our most valuable risk management asset because it can be done by anyone and it's going on day in day out.

Active Assessment - is where we have trained assessors looking for risks that might not be Acceptable or Tolerable. Or where Passive Assessment has picked up an Obvious Tree Risk Feature that needs a closer look. Active Assessment has three levels to it that increase in depth of investigation from Basic, to Detailed, up to Advanced. We'll carry out Active Assessment in zones of high confluence every 5 years.

Risk Ratings - VALID has applied ISO 31000 : Risk Management and the Tolerability of Risk Framework to tree risk-benefit assessment and management, which we've adopted. We're going to manage the risk from our trees and branches falling using four easy-to-understand traffic light signal coloured risk ratings. Red Not Acceptable risks will be reduced to an Acceptable level Amber Not Tolerable risks will be reduced to an Acceptable level, but with a lower priority than red Not Acceptable risks Amber Tolerable risks will not be reduced but may require an increased frequency of assessment than green Acceptable risks Green Acceptable risks will not be reduced.

More documentation is attached.

TREE PROTECTION ZONES

The T.P.Z. applied is AS 4970-2009 'Protection of trees on development site'. AS 4970-2009 uses a multiplication method to determine the T.P.Z. based on T.P.Z. radius being 12 times stem diameter measured 1.4 metres above ground.

$$T.P.Z. \text{ radius} = DBH \times 12$$

STRUCTURAL ROOT ZONE

The S.R.Z. applied is AS 4970-2009 'Protection of trees on development site'. The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree.

$$SRZ \text{ radius} = (D \times 50)^{0.42} \times 0.64$$

14. Assumptions and limitations

1. Any legal description provided to Tree Pioneers is assumed to be correct. Any titles and ownerships to any property are assumed to be correct. No responsibility is assumed for matters outside the consultant's control.
2. Tree Pioneers assumes that any property or project is not in violation of any applicable codes, ordinances, statutes or other local, state or federal government regulations.
3. Tree Pioneers has taken care to obtain all information from reliable sources. All data has been verified insofar as possible; however Tree Pioneers can neither guarantee nor be responsible for the accuracy of the information provided by others not directly under Tree Pioneers control.
4. No Tree Pioneers employee shall be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.
5. Loss of this report or alteration of any part of this report not undertaken by Tree Pioneers invalidates the entire report.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by anyone but the client or their directed representatives, without the prior consent of the Tree Pioneers.
7. This report and any values expressed herein represent the opinion of the Tree Pioneers consultant and the Tree Pioneers fee is in no way conditional upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
8. Sketches, diagrams, graphs and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural drawings, reports or surveys.
9. Unless expressed otherwise: 1) Information contained in this report covers only those items that were covered in the project brief or that were examined during the assessment and reflect the condition of those items at the time of inspection; and 2) The inspection is limited to visual examination of accessible components without dissection, excavation or probing unless otherwise stipulated.
10. There is no warranty or guarantee, expressed or implied by Tree Pioneers, that the problems or deficiencies of the plants or site in question may not arise in the future.
11. All instructions (verbal or written) that define the scope of the report have been included in the report and all documents and other materials that the Tree Pioneers consultant has been instructed to consider or to take into account in preparing this report have been included or listed within the report.
12. To the writer's knowledge all facts, matter and all assumptions upon which the report proceeds have been stated within the body of the report and all opinion contained within the report have been fully researched and referenced and any such opinion not duly researched is based upon the writers experience and observation.