ARBOR INFO LLC
2406 N Castle Way Brier, WA, 98036

Tree Assessment
For
Chen Residence
At
3869 80th Ave SE
Mercer Island, Washington

Date
August 23, 2019

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Addenda

1. Introduction

I was contacted by Chaohua Chang, CHC Architects to describe and assess the condition, viability and protection of trees at the Chen residence, 3869 – 80th Ave SE, Mercer Island, WA. This report summarizes my observations and conclusions.

2. Competence

- Certified Arborist (International Society of Arboriculture, ISA #23136)
- Registered Consulting Arborist (American Society of Consulting Arborists #499).
- Tree Risk Assessment Qualified (ISA).
- Certified forester (Society of American Foresters #951)
- Bachelor of Science degree in Forest Management from the University of Washington
- Licensed Washington State Real Estate Managing Broker #11534

3. Client

The client to whom this report is addressed is:

Chaohua Chang
CHC Architects
13301 SE 79th Place Unit A205
New Castle, WA 98509

chcarch@gmail.com

4. Assignment, Purpose and Use of Report

The assignment is to describe and assess the condition and viability of onsite and potentially affected off-site trees and to provide protection recommendations.

5. Limits of Assignment

The assignment is limited to the information gathered during the site visit August 21, 2019 (date of assessment) and references noted in this report. No excavation or sampling was undertaken to determine unseen defects. No inspection of trees not reported herein was made.

It is assumed herein that the subject trees 1-13, referenced on the attached site map and tree assessment form stand on the subject property. Trees A and B are assumed to be offsite. A site plan indicating a proposed development plan was provided and is included in the Addenda with tree locations noted.

6. Site Description

3869 – 80th Ave SE, Mercer Island, WA, King County Parcel No. 5459038695.

The subject property consists of a single-family residence on 10,162 square feet.

A new residence is planned to be built after removal of the existing house.

7. Methodology

I visited the site on August 21, 2019 and assessed the condition of the subject trees. Each tree was measured for diameter at 4.5-feet above ground, (or equivalent) total height, percentage of live green crown, and dripline (extent of live limbs).

Each tree was assessed as to its condition, or vigor:

The ratings used are:

- Good: Tree has no significant defects and is expected to survive without disturbance to its normal life expectancy.
- Fair: Tree has a defect either fungal decay or mechanical or over maturity that renders it unstable or not likely to survive to normal life expectancy
- Poor Tree has significant defects or mechanical issues or is senescent that render it not likely to survive ten years.

Viability is a term indicating whether the tree can be expected to survive to its normal life span or at least another 10-years.

8. Tree Description

Refer to the attached Tree Assessment Summary Form. A total of thirteen on-site trees and two off-site over 6-inches in diameter were found and located on the attached Tree Location Map. All trees are defined as "large trees" by the City of Mercer Island.

Tree No. 1 is indicated by the client to be removed. This tree has been extensively topped and had significant bole decay.

Of the remaining 12 trees on site, Tree No. 13 is recommended for removal due to extensive bole decay. Tree No. 2 has also been extensively topped and has bole decay but appears to have developed reaction wood sufficient to maintain it's viability.

All of the trees on site have been pruned to varying degrees but could all use a proper remedial pruning to maintain health and structure and repair snow damage.

The offsite trees labeled A and B are in good condition and should not be affected by the proposed home construction.

9. Discussion

Refer to the attached City of Mercer Island "Trees and Construction" document. This document describes tree removal permit requirements and protection measures and is included herein. A permit will be required to remove Tree No. 1. A replacement tree is required to be planted on the property, preferably of the same species. Birch trees similar to this tree have recently been susceptible to bronze birch borer infestations. I suggest that the replacement tree be selected from lists of trees suitable for residential sites, such as the City of Kirkland Tree List, attached.

10. Summary

Subject trees 2-12 are viable based on their size and condition. These could all benefit from remedial pruning. Trees 1 and 13 are heavily decayed and likely not viable. Trees A and B are viable.

Tree protections in addition to city regulations should include:

The attached Tree Assessment Form suggests limits of root disturbance, however in no instance should more than 30-percent of the tree root zone be severed. To the extent possible, root zone disturbance should be limited to one side of the tree only. Tree Protections during construction should include:

- Certified Arborist on site during excavation activities within the defined root zone of all trees.
- All trees to be retained are to be fenced at the edge of the recommended tree protection zone with 6-foot high cyclone type fencing.
- Utility lines should be bored. Bore access pits to be developed with 18" buckets or hand dug.
- Retaining wall footings to be minimally deep, no more than 12-inches.
- Tree roots over 1-1/2 inches in diameter encountered in all excavations are to be cut cleanly to the trench wall with clean sharp tools. Roots to be covered with soil or wetted burlap if they must remain exposed.
- Supplemental irrigation is to be provided during summer months (generally June-September) for all trees in the construction zones.
- Recommended protected tree root zones are to be covered with 4-inches of hog fuel at all times. Where machinery access is needed, the root zones should be covered with 12-inches of hog fuel, plywood or steel sheets.
- Stumps for trees to be removed are to be ground out (not excavated).

11. Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. Ownership of the subject trees as provided by the client is assumed to be correct. No responsibility is assumed for legal matters. No opinion as to the property line location is made.
2. Care has been taken to obtain all information from reliable sources. The consultant can neither guarantee nor be responsible for the accuracy of information provided by others.
3. The consultant shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made, including additional fees.
4. This report and any values expressed herein represent the opinion of the consultant, and the consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
5. The exhibits in this report are included to assist the reader and are not necessarily to scale.
6. Unless expressed otherwise, information in this report covers only items that were examined, and reflects the condition of those items at the time of inspection. The subject site was cleared of all vegetation at the time of inspection therefore the extent of removals is inferred from adjacent undisturbed areas. The inspection is limited to visual examination of accessible portions of the trees and plants.
7. Loss or alteration of any part of the report invalidates the entire report. Ownership of any documents related to this report passes to the client only.
8. The liability of ArborInfo LLC its contractors and employees is limited to the client only and only up to the amount of the fee actually received for the assignment.
9. *There is no warranty suggested for any of the trees subject to this report. Weather, latent tree conditions, and future man-caused activities could cause physiologic changes and deteriorating tree condition. Over time, deteriorating tree conditions may appear and there may be conditions, which are not now visible which, could cause tree failure. This report or the verbal comments made at the site in no way warrant the structural stability or long-term condition of any tree, but represent my opinion based on the observations made.*
10. *NEARLY ALL TREES IN ANY CONDITION STANDING WITHIN REACH OF IMPROVEMENTS OR HUMAN USE AREAS REPRESENT HAZARDS THAT COULD LEAD TO DAMAGE OR INJURY. THE ASSESSMENT IS VALID FOR TWO YEARS FROM THE DATE OF INSPECTION, ONLY.*
11. PERTINENT JURISDICTION RULES AND REGULATIONS SHOULD BE CONSULTED PRIOR TO THE REMOVAL OF ANY TREE.

Respectfully Submitted,

Thomas M. Hanson, CF, RCA

Glossary of Common Terms

DBH Diameter at breast height, 4 ½' above ground level

Basal In the vicinity of the root/trunk connection at ground level

Bole The tree stem (**Trunk)**

Butt Swell Abnormal swelling at the base of the tree

Canker Localized diseased area on stems, roots and branches. Often shrunken and discolored.

Codominant Two or more trunks originating from a single main trunk

Conk The fruiting body of a fungus

Critical Root Zone Variously defined as an area extending to or outside the dripline to as much as 1-foot per inch or 1.5 inches of trunk diameter at DBH

Crook Abrupt bend in a branch or trunk

Crown The live branches or live leaves or live needles of a tree

Crown ratio The percentage of live green leaves or needles to total height

Dieback Notable dead foliage, starting at the end of a branch or the top of a tree

Dripline The extent of live limbs from the trunk

Epicormic A shoot arising from a dormant bud following exposure to sunlight

Flat Side Trunk of the tree has a flattened appearance on the side, sometimes an indicator of internal decay

Girdling Root A root that winds around the stem at ground level

Included Bark Bark that is pinched between codominant stems; a common weak point

Leader The central stem tip

Leaf Spot Diseased areas on foliage

Limb Collar The swelling at the junction of the bole and limb

Photosynthesis The process of converting water, nutrients and CO2 to carbohydrates (wood)

Pitchy Excessive sap exuding from the tree trunk; often an indicator of stress

Pruning The cutting and removal of limbs **(Crown Raising)**

Rotten knot Point of the stem where limb removal has allowed pathogen infection and decay **(Black knot)**

Root Disease Fungal decay of the root system often causing tree failure

Taper The ratio of diameter on different points of a trunk, stem or branch

Thin Crown Comparatively low live foliage percentage; often an indicator of root disease

Topping Removal of the main stem above live, green limbs

Trimming Shortening or cutting of limbs; sometimes called **heading**

Trunk Seam A seam in the trunk, suggests internal decay

Viable A structurally sound and healthy condition, expected to live to normal life span

Vigor Tree health and growth rate

Vitality The suitability of the tree for the site.

Addenda

I. Tree Location Map
II. Tree Assessment Summary Table
III. Glossary of Common Terms
IV. Common/Scientific Species Names
V. Qualifications of Appraiser

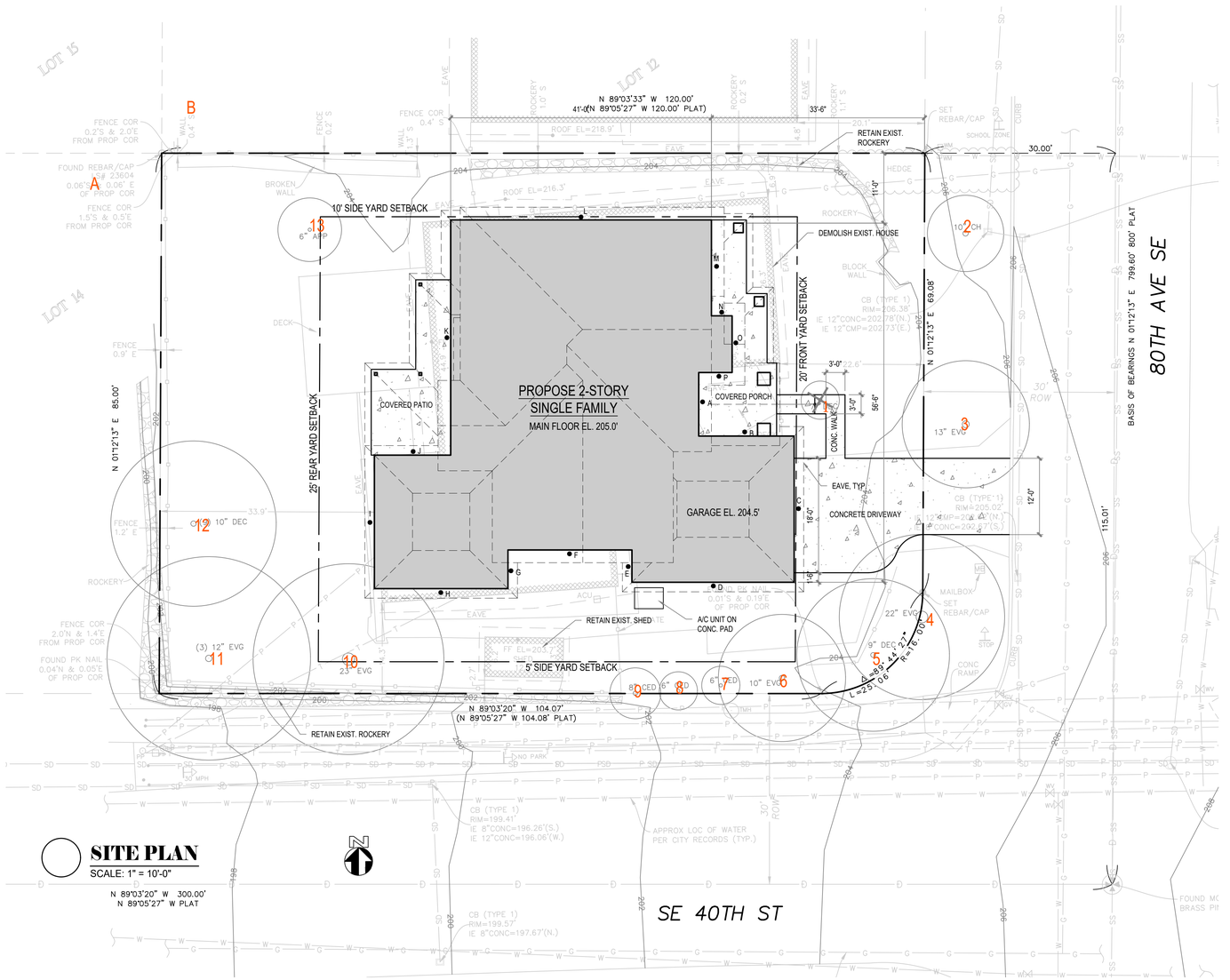
Chen Tree Locations

AVERAGE BUILDING ELEVATION

#	WALL LENGTH	EXIST. ELEVATION
A	10.0	203.8
B	15.0	203.8
C	23.0	203.8
D	25.5	203.6
E	5.1	203.6
F	19.5	203.6
G	6.1	203.6
H	21.0	203.4
I	21.0	203.4
J	12.0	203.4
K	37.0	203.4
L	41.0	203.6
M	15.1	203.8
N	3.3	203.8
O	8.9	203.8
P	5.3	203.8
A.B.E.		

A.B.E. = (W1 x E1 + W2 x E2 + ...) / (W1 + W2 +...) = 203.6

MAX. STRUCTURAL HT. ALLOWED = 203.6 + 30 = 233.6' (SEE SHEET A5, A6)



SITE PLAN

SCALE: 1" = 10'-0"

N 89°03'20" W 300.00'
N 89°05'27" W PLAT

CHC ARCHITECTS

13301 SE 79th PL Unit A205
NEWCASTLE WA 98059
(M) 425.785.3992
(O) 425.988.3618
chcarch@gmail.com

8666 REGISTERED ARCHITECT
CHAOHUA CHANG
STATE OF WASHINGTON

CHEN RESIDENCE

3869 80TH AVE SE MERCER ISLAND WA 98040

NUMBER	DATE	DESCRIPTION OF REVISIONS
	09-05-2017	PERMIT PLANS

SHEET TITLE
SITE PLAN

JOB NUMBER

SHEET NUMBER
A0

CITY STAMP

Tree Protection Assessment Form

Date: 8/22/2019

Site:

Inspector: Tom Hanson

Tree #	Species		DBH	Height	Crown	Drip Line(ft)				Vigor	Viable	Class	Disturbance	Defects	Recommendations
	Common	*Scientific*	(inches)	(feet)	Ratio (%)	N	S	E	W				LOD(ft)		
On Site															
1	White Birch	*Betula Papyrifera*	7.8	10	40	3	5	4	4	Fair	No	Large	4	Bole decay, Poor top sprouting	Planned for Removal
2	Flowering Cherry	*Prunus sp.*	10.2	12	40	7	7	7	7	Fair	Yes	Large	7	Bole Decay	Monitor
3	Blue Spruce	*Picea pungens*	15.6	48	80	10	12	12	8	Good	Yes	Large	11		Protect, Retain
4	Western Red Cedar	*Thuja Plicata*	24.2	46	80	16	16	16	16	Good	Yes	Large	16		Protect, Retain
5	Crab Apple	*Malus coronaria*	8.8	18	90	5	14	6	12	Fair	Yes	Large	9	Multiple sprouts, hangs over St.	Protect, Retain
6	Austrian Pine	*Pinus nigra*	11.4	24	40	8	14	12	10	Fair	Yes	Large	11	Utility pruning	Protect, Retain
7	Arborvitae	*Arborvitae*	6.1	20	100	4	4	4	4	Good	Yes	Large	4		Protect, Retain
8	Arborvitae	*Arborvitae*	6	20	100	4	4	4	4	Good	Yes	Large	4		Protect, Retain
9	Arborvitae	*Arborvitae*	8	20	100	4	4	4	4	Good	Yes	Large	4		Protect, Retain
10	Scots Pine	*Pinus sylvestris*	24.6	22	70	14	20	14	14	Fair	Yes	Large	16	2 Codominants, hangs over St.	Protect, Retain
11	Scots Pine	*Pinus sylvestris*	20.5*	24	70	14	16	14	12	Fair	Yes	Large	14	3 Codominants, hangs over St.	Protect, Retain
12	Red Maple	*Acer rubra*	13.4*	22	80	16	14	16	8	Fair	Yes	Large	14	Poorly pruned	Protect, Retain
13	Flowering Cherry	*Prunus sp.*	6.3	16	70	4	4	4	4	Poor	No	Large	4	Lower trunk decay	Remove
Off Site															
A**	Grand Fir	*Abies grandis*	24	80	80	4	8	16	14	Good	Yes	Large	11		Protect, Retain
B**	Western Red Cedar	*Thuja plicata*	28	75	80	18	18	18	16	Good	Yes	Large	18		Protect, Retain

CITY OF MERCER ISLAND

DEVELOPMENT SERVICES GROUP
9611 SE 36TH STREET | MERCER ISLAND, WA 98040
PHONE: 206.275.7605 | www.mercergov.org
Inspection Requests: Online: www.MyBuildingPermits.com VM: 206.275.7730

TREES and CONSTRUCTION

Trees Benefit the Environment...and Your Home Value

The Purpose section of the Tree Ordinance underscores some of the benefits of trees "...including minimizing erosion, siltation and water pollution, surface water and ground water runoff, risks of slides and the need for additional storm drainage facilities, preserving trees for the reduction of noise, wind protection, slope stabilization, animal habitat, and reduction in air pollution." National studies confirm that houses sell more quickly and for a higher sales price when they are surrounded by mature, healthy trees.

Therefore, we recommend that before designing or adding on to your home, you assess and locate the Regulated Trees on your property and in the right of way. You will then be better able to design your project to minimize impacts to your trees. We recommend that you confer with a qualified arborist when making this assessment.

Site Design Tree Ordinance Requirements

The tree ordinance requires that you use **"reasonable best efforts to design and locate any improvements"** in a way that preserves large (regulated) trees (MICC 19.10.040.B.2). To save a Regulated Tree, you may be asked to relocate a driveway, walkway, uncovered patio or move the building footprint if there are other reasonable options. During the preliminary design phase, builders are encouraged to consider creative construction methods to minimize the construction impact on trees including construction of pilings, cantilevered decks, tunneling, hand digging within drip lines and the consolidation of stormwater detention tanks and utilities under driveways. The city arborist is a resource to help you explore these and other reasonable options.

Large (Regulated) Tree: Any conifer tree that is six feet tall or more or any deciduous tree with a diameter of more than six inches.

When making the effort to preserve a tree, you will be asked to temporarily fence the tree at the drip line, defined by the outermost leaves on a tree. The area within the drip line contains the most critical roots and should not be disturbed. Remember, the bigger the tree, the further out the drip line and roots extend.

Plan Submittal Requirements

In an effort to help you design around your healthy trees, you must show on the permit application the location, diameter and/or size, and species of all Regulated Trees. Trees proposed to be cut shall be identified and differentiated from those trees not being cut. For a permit involving any critical tree area, the applicant shall also identify vegetative cover that will be retained or removed (MICC 19.10.080.A.3).

Refer to page 2 for specific tree plan submittal requirements.

For more information, visit www.mercergov.org/trees
or call the City Arborist at 206.275.7713

Tree Plan Submittal Requirements

Note: This information is required for intake screening meetings and submittal of plans for permits.

1. Use reasonable best efforts to design the home, driveway, underground utilities and other proposed improvements in a manner that provides for reasonable development while minimizing impacts to Regulated Trees on site and in the right of way. Conduct all work in accordance with best construction practices to retain as many trees as possible.

2. Show on Utility/Civil/Drainage plan sheet:

   a. **Location, species, and diameter** of all Regulated Trees on private property as well as trees in the right of way adjacent to the site. Trees in the right-of-way are owned by the City and protecting them is a priority. Garages, driveways, utilities, and other improvements shall be designed to avoid these trees and their roots.

   b. The **approximate size and location** of all Regulated Trees within 15' of property boundary.

   c. **Number trees** on plans for easy identification of individual trees to be saved and/or removed.

   d. **Clearly mark** with an "X" all trees proposed to be cut.

   e. **Tree protection plan** for work proposed within drip lines of protected trees. **Limits of Disturbance** (The boundary between the protected area around a tree and the allowable site disturbance as determined by a qualified professional measured from the trunk) Will be needed.

   f. **Limits of excavation** will be needed for development near potential saved trees. This should be shown on the plans and you may be asked to be marked in the field.

   g. **Show drip lines** of Regulated Trees to scale and tree protection fencing around all Regulated Trees at drip lines.

   h. **Critical areas:** Identify vegetation that will be retained/removed.

3. Criteria for a Qualified Professional producing a report:
   An individual who is an International Society of Arboriculture (ISA) Certified Arborist with a TRAQ Qualification or equivalent and three years' experience with preservation of trees during construction. The report must also be prepared by a company not in the business of removing trees.

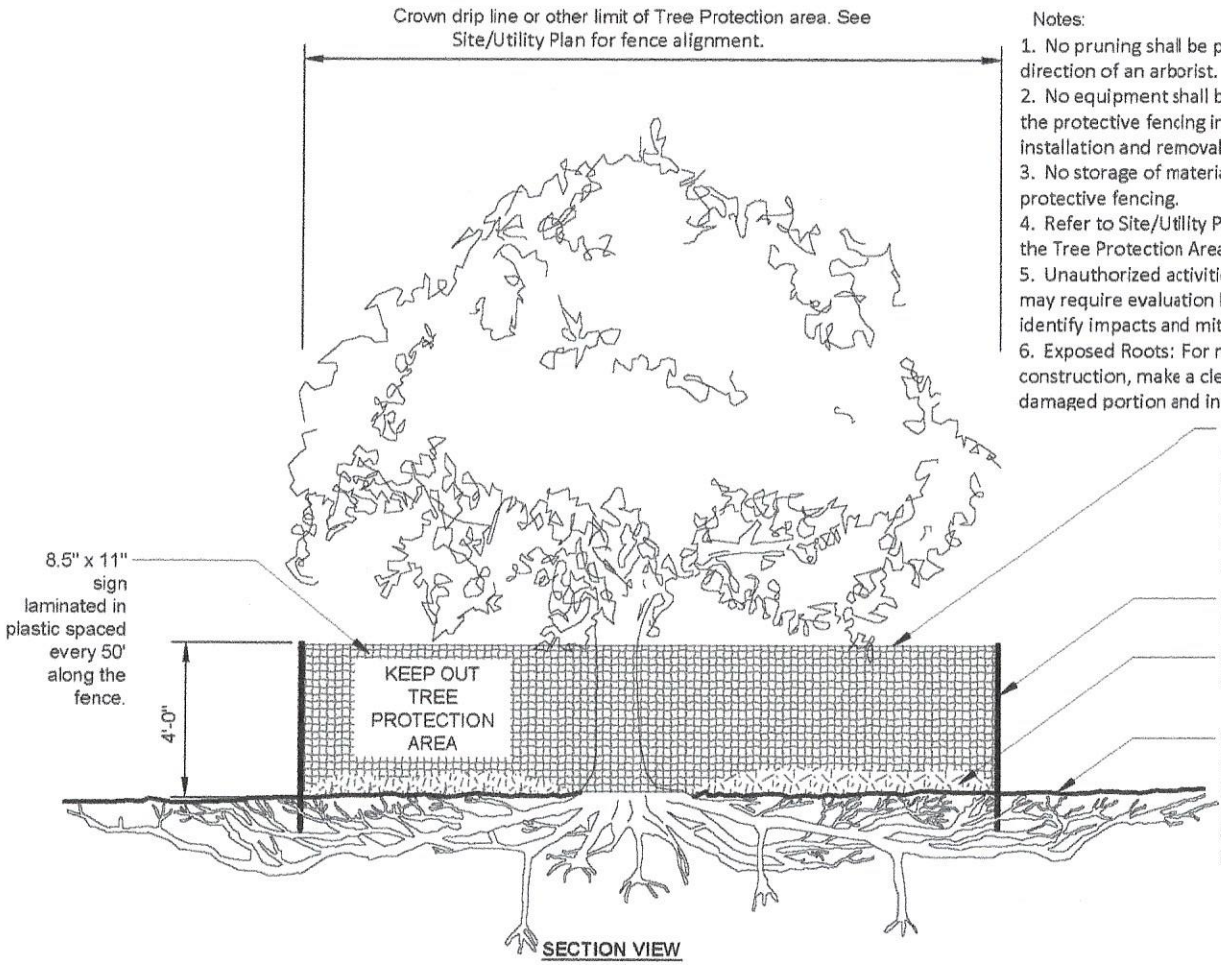
Large (Regulated) Tree: Any conifer tree that is six feet tall or more or any deciduous tree with a diameter of more than six inches.

Definitions

Definitions used within the tree ordinance

Diameter	Circumference of tree divided by pi (3.14) and measured at a point 4 ½ feet above ground.
Hazardous Tree	Any tree that receives an 11 or 12 rating under the International Society of Arboriculture rating method set forth in Hazard Tree Analysis for Urban Areas and may also mean any tree that receives a 9 or 10 rating at the discretion of the city arborist.
Large Tree	Any conifer tree that is six feet (6') tall or more or any deciduous tree with a diameter of more than six inches (6").
Protected Slope Area	Any area within a 40 foot radius of the base of the subject tree if there is any point within that area that is at least 12 feet higher or lower than the base of the tree.
Prune or Pruning	The pruning of a tree through crown thinning, crown cleaning, windowing, or crown raising but not including crown topping of trees or any other practice or act which is likely to result in the death of or significant damage to the tree. Where the listed types of pruning practices are further defined as:
Crown Cleaning	The removal of dead, dying, diseased, crowded, weakly attached, low-vigor branches, and watersprouts from a tree's crown.
Crown Topping	The removal of the upper portion of the crown of a tree by cutting back young shoots to a bud or older branches or trunk to a stub or lateral branch not sufficiently large enough to assume the terminal role.
Crown Raising	The removal of the lower branches of a tree in order to provide a height of up to 8' for pedestrian clearance, up to 14' for equestrian clearance and up to 16' for vehicular clearance or such other increased height as deemed appropriate for clearance by the city arborist.
Crown Thinning	The selective removal of braches not to exceed more than 25 percent of the leaf surface to increase light penetration and air movement, and to reduce weight.
Windowing	The selective removal of branches not to exceed more than 25 percent of the leaf surface while retaining the symmetry and natural form of the tree in order to increase views and light penetration.

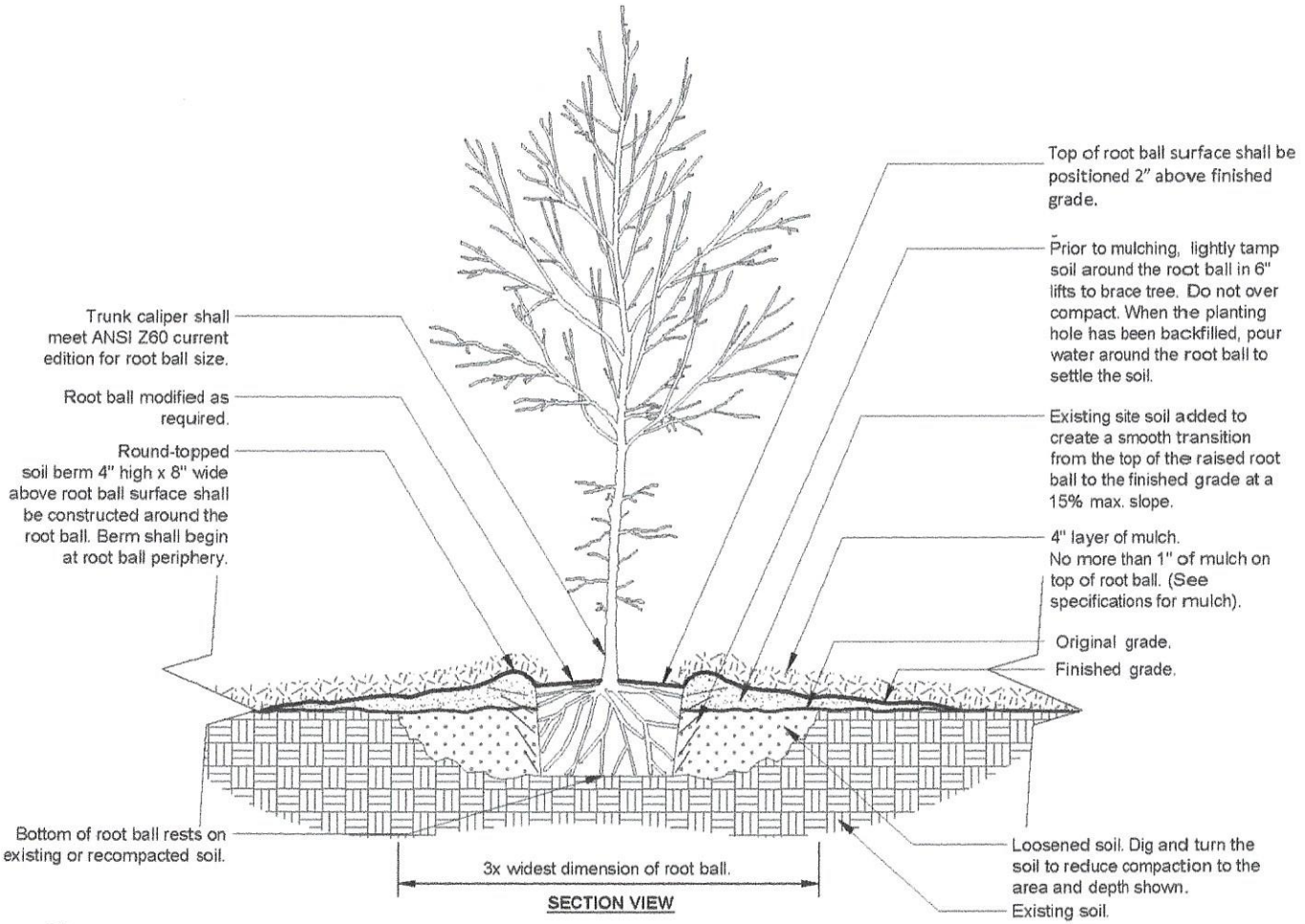
This handout is for information purposes only and is not intended to be a substitute for the regulations contained in the Mercer Island City Code (MICC 19.10 – Trees)
S:DSG/FORMS/2015Forms/Tree/TreeHightlights



Notes:

1. No pruning shall be performed unless under the direction of an arborist.
2. No equipment shall be stored or operated inside the protective fencing including during fence installation and removal.
3. No storage of materials shall occur inside the protective fencing.
4. Refer to Site/Utility Plan for any modifications to the Tree Protection Area.
5. Unauthorized activities in tree protection area may require evaluation by private arborist to identify impacts and mitigation required.
6. Exposed Roots: For roots >1" damaged during construction, make a clean straight cut to removed damaged portion and inform city arborist.

TREE PROTECTION DETAIL



SECTION VIEW

TREE REPLANTING DETAIL

CITY OF MERCER ISLAND

DEVELOPMENT SERVICES GROUP
9611 SE 36TH STREET | MERCER ISLAND, WA 98040
PHONE: 206.275.7605 | www.mercergov.org

Highlights of Tree Regulations

1. **Do I need a permit to cut a tree on my property?**

Permit Not Required: A tree permit is **not** required in the following situations:

- **Normal pruning and maintenance** – does not require a permit provided the pruning is limited to not more than 25% of a tree's total leaf area and the pruning conforms to the limitations described within the Definitions section at the end of this document. Also, see the "Pruning Basics" brochure for more detailed information about pruning.
- **Small trees** – Cutting a small tree does not require a tree permit unless the tree is a designated Landmark tree or tree within a Landmark grove. A small tree is any conifer tree that is less than six feet (6') tall or any deciduous tree with a diameter of six inches (6") or less measured at a point 4-1/2 feet above the ground.
- **Residential lots** – a tree permit is not required to cut any tree on a private lot in a residential zone unless one of the following situations apply:
    - Cutting of the tree is incident to construction work
    - The tree is located in a Critical Tree Area.
    - The tree is designated as a Landmark Tree or is located within a Landmark Grove.

  See the "Permit Required" section of this handout for further information regarding Critical Tree Areas, Landmark trees, and when tree cutting is considered incident to construction work.
- **Emergency** – A tree on private property may be cut without a tree permit in an emergency situation involving immediate danger to life or property. The city arborist must be notified within seven (7) days of the tree cutting and must be provided with information that verifies the emergency condition. A tree permit must be obtained within 20 days following the cutting of the tree when it is determined that a tree permit would have been required.

Permit Required: A tree permit **is** required in the following situations:

- **Construction work** – A tree permit is required to cut any large tree as a result of construction work. Tree cutting is considered incident to construction work if the tree is cut within a two-year period before or after the creation of more than 500 square feet of impervious surface (structures, concrete patios, etc.). A large tree is any conifer tree that is six feet (6') tall or greater, or any deciduous tree with a diameter of more than six inches (6") measured at a point 4-1/2 feet above the ground.
- **Critical Tree Area** – A tree permit is required to cut any large tree located in a Critical Tree Area. A Critical Tree Area is any of the following areas:
    - A geologic hazard area – an area susceptible to erosion, sliding, earthquake, or other geological events based on a combination of slope, soil/geologic material, hydrology, vegetation, or alterations. See the City geologic hazard maps for known and suspected areas.
    - A protected slope area – any area within a forty foot (40') radius of the base of the subject tree if there is any point within that area that is at least twelve feet (12') higher or lower than the base of the tree.
    - A watercourse corridor. See the City watercourse maps.
    - A wetland or any area within 25 feet of the wetland edge.

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S:DSG/FORMS/2015Forms/Tree/TreeHightlights

- Any area on a recorded plat that restricts the removal of trees or vegetation (such as a native growth protective easement).

- **Commercial zone** – A tree permit is required to cut any large tree located within a commercial zone. A tree permit covering regulated improvements that have previously received Design Commission approval must first be reviewed and approved by the City's Design Commission.
- **Landmark tree/grove** – A tree permit is required to cut a landmark tree or a tree located in a landmark grove, whether that tree is large or small. A landmark designation can only be affixed with approval of the property owner. The City maintains a register of landmark trees and landmark groves.

2. **What are the criteria for granting a tree permit?**

When a permit is required, a tree permit will be issued if one of the following criteria is satisfied:

- The tree is hazardous, diseased, or dead.
- The tree removal is to enable construction work and reasonable best efforts have been made to avoid the removal.
- The tree cutting is to satisfy a covenant recorded on or before July 31, 2001.
- It is desirable for the enhancement of ecosystem and slope stability (based upon professional reports).
- In Commercial zones, Design Commission approval is required.

3. **Are there any seasonal restriction regulations when I can cut trees?**

Tree cutting is prohibited within geologic hazard areas or protected slope areas between October 1 and April 1 unless an administrative waiver has been granted or the cutting is necessary due to an emergency situation involving immediate danger to life or property. A waiver may be granted if the applicant demonstrates to the city arborist that the proposed tree cutting will not adversely impact the environmentally sensitive area. The city arborist will likely require geotechnical evaluation of the slope, erosion control, and restoration measures, an indemnification agreement, etc.

4. **Do I need to replace the trees that I am cutting down?**

- Tree replacement: Any trees that are cut pursuant to a tree permit shall be replaced on the subject property as specified in this section:
  Species – the property owner may select the species of replacement trees (unless the city arborist determines that the species selected is unlikely to survive, represents a danger or a nuisance, would threaten overhead or underground utilities, or would fail to provide adequate protection to any critical tree area).
- **Size** – All replacement trees shall be at least six feet (6') tall (unless a smaller size tree or shrub is approved by the city arborist).
- **Number of Replacement Trees** – the city arborist may require up to 4 replacement trees for each tree cut (depending upon geologic and slope stability concerns, tree size and species, lot size and area available for planting, etc).
- **Maintenance** – the applicant must maintain replacement trees in a healthy condition for a period of two years after planting. The applicant shall be obligated to replant any replacement tree that dies, becomes diseased, or is removed during this two-year time period.

5. **Are there any federal or state requirements that I should be aware of?**

Bald Eagle and other federal/state requirements:

Tree cutting must comply with all applicable federal and state laws, rules and regulations including the Endangered Species Act, the Bald Eagle Protection Act and the Migratory Bird Treaty Act. See the City Bald Eagle Nest location map for affected properties, and the Bald Eagle Management brochure for further information.

6. **Can a tree on public property be pruned to enhance my view?**

Prune for view:

This handout is for information purposes only and is not intended to be a substitute for the regulations contained in the Mercer Island City Code (MICC 19.10 – Trees)

Private individuals cannot cut or prune a public tree. However, a private property owner can apply for a permit to have a public tree pruned. The application must demonstrate compliance with all of the following criteria:

- The owner establishes that the tree is located on a City street (and not private property or City Park);
- The owner submits a valid petition executed by at least sixty percent (60%) of the property owners located within a 300 foot radius of the subject tree in favor of the proposed pruning;
- The city arborist determines that the proposed pruning can be performed without adversely affecting any critical tree areas;
- The owner pays a fee to cover all costs associated with reviewing the pruning request; and
- The pruning is performed by the City but at the sole cost and expense of the private property owner.

7. **What are the requirements for private utilities cutting or pruning trees?**

A tree permit is required for a private utility company to cut any tree. A tree permit will be issued to private utility companies to cut or prune trees located on public or private property if necessary for public safety, removal of hazardous trees, removal of diseased or dead trees, as part of any private utility tree maintenance program approved by the City, or for construction work. Regardless of whether or not a permit is required, all cutting or pruning of trees by private utility companies shall be performed under the supervision of a certified arborist and at the sole cost and expense of the utility company.

If a permit is granted to a private utility company and a property owner is unwilling to allow any replacement trees on the owner's property, the private utility company shall pay to the City the amount necessary to purchase and plant replacement trees on public property necessary to mitigate the impact of the removed trees based upon arborist industry standards.

Should you have any further questions or wish to obtain a tree permit, please contact the part-time city arborist:

http://www.mercergov.org/trees 206.275.7713 John.kenney@mercergov.org

Kirkland Plant List

Recommendations for Required Landscaping and Restoration Planting

Trees
Deciduous

	Height/Width (in ft)**	Drought Tolerant	Tolerates Wet Soil	Sun	Partial Sun	Shade	Developed Areas	Native Species	Details
Acer palmatum Japanese Maple	25/25			●	●		●		Low horizontal shape with excellent fall orange/red color. Many varieties.
Acer platanoides Norway Maple	varies		●	●	●		●		From narrow columnar varieties to globe and upright oval shaped, there are many form and color choices available.
Acer rubrum Red Maple	varies		●	●			●		Great fall color; tolerant of poorly drained soils. Forms narrow to oval vase shape.
Betula nigra River Birch	40/25		●	●	●			●	This pyramidal tree has attractive yellow fall foliage.
Betula jacquemontii Jacquemontii Birch	40/30		●	●					Bright white bark is featured on this tree.
Carpinus betulus 'Fastigiata European Hornbeam	35/25		●	●	●		●		Once established, this tree tolerates drought well. Narrow form widens with age.

** Approximate size in 20 years. Actual size will vary.

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	Height/Width (in ft)**	Drought Tolerant	Tolerates Wet Soil	Sun	Partial Sun	Shade	Developed Areas	Native Species	Details
									** Approximate size in 20 years. Actual size will vary.
Cercidiphyllum japonicum Katsura Tree	40/40			●	●		●		With graceful branding and heart-shaped leaves, this tree prefers rich moist (not wet) soil.
Cercis canadensis Eastern Redbud	35/25	●		●	●		●		This small horizontal-branched tree has purple-pink flowers and yellow fall foliage.
Cornus kousa Japanese Dogwood	20/20			●	●		●		Best in well-drained soils, this dogwood grows horizontally and has large white flowers.
Cornus mas Cornelian Cherry	25/20			●	●		●		A little taller and oval shaped, this yellow flowering dogwood is adaptable to all soils.
Cornus nuttallii Pacific Dogwood	35/20				●	●		●	Our prized native dogwood is subject to disease and harder to grow.
Crataegus phaenopyrum Washington Thorn	25/20	●		●			●		A popular tree because of its white blooms, red fruit, and orange/red fall color.

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	Height/Width (in ft)**	Drought Tolerant	Tolerates Wet Soil	Sun	Partial Sun	Shade	Developed Areas	Native Species	Details
Crataegus x lavallei Lavalle Hawthorne	28/20	●		●	●		●		Has an irregular vase shape, dark green leaves, and orange fruit that hold on during early winter.
Fraxinus pennsylvanica Seedless Ash	varies	●	●	●			●		Forms vary from narrow (Summit Ash) to broadly oval (Marshall Seedless Ash). Good yellow fall color.
Ginkgo biloba Maiden Hair Tree	40/15	●		●			●		The Princeton Sentry variety is best as it is seedless and has better form.
Gleditsia triacanthos Honey Locust	45/35	●		●	●		●		Shademaster variety has a vase shape and open upright branching; very small leaflets; yellow in fall.
Liquidambar styraciflua Sweet Gum	55/45		●	●	●				Great fall color with red, orange, and purple leaves that hold until December. Palo Alto variety is preferred.
Liriodendron tulipifera Tulip Tree	60/30			●			●		Very different from the Magnolias, this Tulip Tree has smaller yellow flowers.

** Approximate size in 20 years. Actual size will vary.

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Trees
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	Height/Width (in ft)**	Drought Tolerant	Tolerates Wet Soil	Sun	Partial Sun	Shade	Developed Areas	Native Species	Details
									** Approximate size in 20 years. Actual size will vary.
Malus spp. Flowering Crabapple	20/20	●	●	●	●		●		Crabapples are now grown for their resistance to disease and improved form. Among several good varieties are Robinson and Snowdrift.
Prunus spp. Flowering Cherry	varies			●	●		●		Sargent and Mount Fuji cherries are tougher and more disease resistant. Narrow to rounded forms; most have aggessive roots
Prunus cerasifera Purple Leaf Plum	20/20	●		●			●		Variety Thundercloud is drought tolerant; others with purple leaves and pink flowers include Mt. Saint Helens and Newport.
Pyrus calleryana Ornamental Pear	35/15	●		●	●		●		Common varieties include Capital, Chanticleer, and Redspire. No fruit; white flowers and orange/red fall color.
Quercus rubra Red Oak	50/45			●			●		Fast-growing and wide, this tree needs space and deep, well-drained soils. Red fall color.
Stewartia pseudocamellia Japanese Stewartia	30/20	●		●	●		●		Unusual attractive peeling bark, white flowers, and yellow/red/purple fall colors make this a good garden tree.

Kirkland Plant List

Recommendations for Required Landscaping and Restoration Planting

Trees

Deciduous

	Height/Width (in ft)**	Drought Tolerant	Tolerates Wet Soil	Sun	Partial Sun	Shade	Developed Areas	Native Species	Details
Styrax japonicus Japanese Snowbell	25/25	●		●	●		●		Fragrant flowers; often low-branched. Has a rounded form.
Tilia cordata Little-Leaf Linden	40/30			●	●		●		Varieties have different shapes, most with yellow fall color. Leaves drop during dry Septembers.
Zelkova serrata Sawleaf Zelkova	40/38			●			●		Variety Village Green has a nice vase shape and better orange/red fall color.

** Approximate size in 20 years. Actual size will vary.

Glossary of Common Terms

DBH Diameter at breast height, 4 ½' above ground level

Basal In the vicinity of the root/trunk connection at ground level

Bole The tree stem (**Trunk)**

Butt Swell Abnormal swelling at the base of the tree

Canker Localized diseased area on stems, roots and branches. Often shrunken and discolored.

Codominant Two or more trunks originating from a single main trunk

Conk The fruiting body of a fungus

Crook Abrupt bend in a branch or trunk

Crown The live branches or live leaves or live needles of a tree

Crown Raising Removing lower branches

Crown ratio The percentage of live green leaves or needles to total height

Dieback Notable dead foliage, starting at the end of a branch or the top of a tree

Dripline The extent of live limbs from the trunk

Epicormic A shoot arising from a dormant bud following exposure to sunlight

Flat Side Trunk of the tree has a flattened appearance on the side, sometimes an indicator of internal decay

Girdling Root A root that winds around the stem at ground level

Included Bark Bark that is pinched between codominant stems; a common weak point

Leader The central stem tip

Leaf Spot Diseased areas on foliage

Limb Collar The swelling at the junction of the bole and limb

Photosynthesis The process of converting water, nutrients and CO2 to carbohydrates (wood)

Pitchy	Excessive sap exuding from the tree trunk; often an indicator of stress
Pruning	The cutting and removal of limbs **(Crown Raising)**
Rotten knot (Black knot)	Point of the stem where limb removal has allowed pathogen infection and decay
Root Disease	Fungal decay of the root system often causing tree failure
Root Plate	The subsurface portion of the tree from which roots emanate
Spike Knot	An acute angled limb and subsequent knot originating from a sprouted stem, subordinate to the main stem.
Taper	The ratio of diameter on different points of a trunk, stem or branch
Thin Crown	Comparatively low live foliage percentage; often an indicator of root disease
Topping	Removal of the main stem above live, green limbs
Trimming	Shortening or cutting of limbs; sometimes called **heading**
Trunk Seam	A seam in the trunk, suggests internal decay
Viable	A structurally sound and healthy condition
Vigor	Tree health and growth rate
Vitality	The suitability of the tree for the site.

Tree Species Common to The Pacific Northwest

Alaska yellow cedar	Cupressus nootkatensis
Bitter Cherry	*Prunus emarginata*
Black cottonwood	Populus nigra
Blue spruce	*Picea pungens* (non-native)
Douglas-fir	*Psuedotsuga menziesii*
Flowering cherry	Prunus kwanzan
Laurel	*Prunus lusitanica*
Locust	*(Robinia pseudoacacia)*
Lodgepole pine	*Pinus contorta*
Pacific dogwood	*Cornus nuttallii*
Pacific Madrone	*Arbutus menziesii*
Sitka Spruce	*Picea sitchensis*
Red Alder	*Alnus rubra*
Western red cedar	Thuya plicata
Western hemlock	*Tsuga heterophylla*
White birch	*Betula papyrifera*
Willow	*Salix scouleriana*