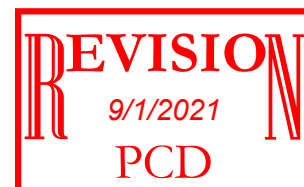


Project No. TS - 7546

**Arborist Report**

To: Pulte Group c/o Mariah Gill

Site: 5 Degrees, Shoreline WA

Re: Tree Inventory and Assessment for parcels:

777130-0110	2150 N 147TH ST 98133	12,237 sq ft
777130-0115	2142 N 147TH ST 98133	14,609 sq ft
777130-0125	2132 N 147TH ST 98133	14,052 sq ft
777130-0135	2122 N 147TH ST 98133	8,162 sq ft
777130-0140	2116 N 147TH ST 98133	8,163 sq ft
777130-0145	14710 MERIDIAN AVE N 98133	8,164 sq ft
777130-0150	14704 MERIDIAN AVE N 98133	8,164 sq ft
777130-0055	2105 N 148TH ST 98133	8,164 sq ft
777130-0060	14718 MERIDIAN AVE N 98133	8,164 sq ft
777130-0065	2117 N 148TH ST 98133	8,163 sq ft
777130-0070	2123 N 148TH ST 98133	8,162 sq ft

Date: April 9, 2021, Revised August 26, 2021 (changes highlighted)

Project Arborist: Holly Iosso, Registered Consulting Arborist # 567  
ISA Certified Arborist #PN- 6298A  
ISA Qualified Tree Risk Assessor

Connor McDermott,  
ISA Certified Arborist #PN- 8704  
ISA Qualified Tree Risk Assessor

Referenced Documents: Demo Site Plan G1.01 (Board & Vellum dated 2021.08.19)  
Road and Grading Plan C3.01/C3.02 (CORE Design dated 2021.08.19)  
Tree Protection Plan L0.1 (Board & Vellum dated 2021.08.19)  
Landscape Site Plan L1.0 (Board & Vellum dated 2021.08.19)  
Planting Plan L2.0 (Board & Vellum dated 2021.08.19)  
Arborist Report (Gilles Consulting, March 2020)

Attached: Arborist Tree Table (Tree Solutions 8.11.2021)  
Arborist Site Map (Tree Solutions 01.29.2021)  
Tree Retention Calculation Worksheet (Revised 8.11.2021)

DEV20-1621

## Summary

I inventoried and assessed 86 significant trees at the above addressed site. Based on the proposed plans for the site, 19 trees are proposed for retention. For this site, the minimum tree retention requirement states that 20 percent of significant trees must be retained (SMC 20.50.350). The current retention proposed for this site is 22 percent.

I assessed 5 significant trees on adjacent properties that had canopies overhanging the subject site. Trees on neighboring properties were documented if they appeared to be significant size and their driplines extended over the property line. All trees on adjacent properties were estimated from the subject site or public property such as the adjacent right-of-way (ROW). We used an alphabetical tree identifier for trees off-site.

In order to satisfy tree replacement requirements, 139 new trees must be planted on site, and 20 must be planted in the right of way. The plans show 110 new trees (less than required) on site and 33 new trees (more than required) in the right of way.

## Assignment and Scope of Work

This report outlines the site inspection by Holly Iosso and Connor McDermott, of Tree Solutions Inc, on January 29, 2021 and Connor McDermott on March 2, 2021. We were asked to visit 11 parcels and assess the significant trees on, and adjacent to, the site. We were asked to produce an arborist report documenting our findings and recommendations, as well as respond to comments from the City. Mariah Gill, of Pulte Group, requested these services for project planning and permitting purposes.

This report replaces a previous arborist report submitted (Gilles Consulting, May 5, 2020).

## Observations

### Site

The subject site consists of 11 parcels, totaling 105,681 square feet, located within the city of Shoreline. The site is currently developed as residential, although the parcels are zoned MUD-35 according to King County IMAP parcel data. Based on the city of Shoreline GIS Interactive Map, no environmentally critical areas exist on these parcels.

### Trees

The tree species on site include western redcedar (*Thuja plicata*), Douglas-fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), bigleaf maple (*Acer macrophyllum*), western yew (*Taxus brevifolia*), grand fir (*Abies grandis*), Pacific dogwood (*Cornus nuttallii*), apple (*Malus domestica*), flowering cherry (*Prunus serrulata*), Alaskan cedar (*Chamaecyparis nootkatensis*), Norway spruce (*Picea abies*), and cherry laurel (*Prunus laurocerasus*).

The trees were in varying health and structural condition from poor to good. Of these trees, 14 qualify for Landmark Tree status due to size.

### Offsite Trees

Tree species in the right of way (ROW) consist of saucer magnolia (*Magnolia x soulangiana*), red maple (*Acer rubrum*), European birch (*Betula pendula*), common hawthorn (*Crataegus monogyna*), cherry plum

(*Prunus cerasifera*), European mountain ash (*Sorbus aucuparia*), deodar cedar (*Cedrus deodara*), and flowering cherry.

Offsite trees include three Douglas-fir trees west of lot 777130-0110 (2150 N 147th St), a Pacific dogwood and cherry laurel west of lot 777130-0070 (2123 N 148th St), and a Douglas-fir tree north of lot 777130-0125 (2132 N 147th St). All will be retained and protected.

Offsite tree 'D' adjacent to 2127 N 148<sup>th</sup> St is a 9-inch cherry laurel (*Prunus laurocerasus*). It is a non-conifer (broadleaf evergreen) and therefore not "significant". The species is often planted as a shrub. This plant can be pruned at the property line, and will remain viable.

We have included an aerial photograph / survey of the site to serve as the site map and attached a table of trees that has detailed information about each tree.

### Discussion—Construction Impacts

I reviewed site and landscape plans dated 8/19/2021 and civil plans dated 8/19/2021 and believe if tree protection measures are followed as described below, and in the attached addendum dated 8/11/2021, retained trees will remain stable and viable long-term. There will be two clusters of trees retained: one on the southeast end of the project protecting a group of on and off-site trees, and a portion of a grove retained in the center of the property.

The grove on the southeast side is an open-grown group of 6 mature conifers, all of which will be retained. The proposed driveway has been moved west to allow adequate tree protection of these trees. Grading for the driveway will require root cutting of the large Doug-fir (#503) approximately 15 feet from the tree. An arborist should be present for initial demolition of the asphalt driveway and required grading in this area. The arborist will confirm that no large roots are ripped during the demolition process, and they should document the size and location any structural roots that must be cut for required grading.

The additional wind and solar exposure caused by the construction of this proposed development will be negligible for these trees. Root loss will be minimized by protecting the entire soil mass shared by the grove.

The grove in the center of the site is currently protected by houses and mature Douglas-fir and western redcedar trees to the south and west. They all have a low live crown ratios with tall, slim trunks because they have grown in forested conditions. Adjacent tree removals will impact them. I anticipate that the trees will respond and there will be an initial increase in branch breakage, the quantity and frequency which will taper off after several storms. The risk from these falling branches will be relatively low because they are small diameter branches.

These trees will respond to the increased sunlight by releasing latent buds along the trunks and branches. This new growth is critical to tree health and will help the trees remain stable by increasing trunk taper. New adventitious growth along trunks and branches must NOT be pruned out or removed.

I believe there is adequate soil and roots that will be protected with this recent plan set to maintain tree stability during normal weather events. I do not believe the trees will be subject to windthrow, and the risk of entire tree failure will be low.

**Path**

I have reviewed landscape plans (Board & Vellum dated 04.07.2021). There is a proposed path within the protected tree grove. This path should be installed with minimal disturbance to the soil, roots, and plants in these areas. The path should be a porous material, and should be installed at grade without edging, root barriers, plastic underlayment, compaction or application of herbicides or growth inhibitors. Path should be natural by nature and should be installed by hand-methods only.

**Tree Retention**

This lot requires that 20% of significant trees be retained.

The City may grant reductions or adjustments to other site development standards if more than 20% of trees on site are retained (SMC 20.50.350 C). Adjustments may include:

1. Reductions or variations of the area, width, or composition of required open space and/or landscaping;
2. Variations in parking lot design and/or any access driveway requirements;
3. Variations in building setback requirements;
4. Variations of grading and stormwater requirements.

**Tree Protection**

There is a Tree Protection Plan (sheet L0.1 Board and Vellum, dated 4.7.2021). This plan sheet outlines tree removals, tree protection limits and tree protection specifications. This plan sheet is critical to ensure that adequate tree protection is followed through the course of construction and should be relied upon during all phases of construction.

Retained on-site trees and off-site trees are subject to the tree protection provisions of SMC 20.50 and must be protected. Protection must be established at the driplines (SMC 20.50.370) or at the allowable TPZ listed in the Arborist Tree Table. The TPZ metric was determined individually per tree based on species tolerance to construction and relative age class as outlined in the ISA Best Management Practices: Managing Trees During Construction (Fite & Smiley 2016). These parameters are what guided the location of tree protection fencing and tree protection zones as drawn on the tree protection plan. If fencing is drawn within the dripline or TPZ, fencing extends further in a different part of the root zone to accommodate for this encroachment. Fencing should not deviate from these locations without consent from the project arborist.

All TPZ areas will require 6-foot tall chainlink fencing, tree protection signage on that fencing, and 4-6 inches of arborist wood chips installed **at the beginning of the project**, prior to any mobilization on site. This area will require supplemental irrigation during each dry season during construction as well as 3 years following construction completion.

There can be no disturbance within the tree protection zone, and minimal planting of new plants. All soil and existing vegetation within these areas are protected. Excavation, grubbing, fill, dumping, staging, material storage, pedestrian, and vehicular access are all prohibited in these areas. If the tree protection zone established is larger than the minimum listed in the Arborist Tree Table, the project arborist may approve some minor activity in these outer areas if they are monitored by an arborist.

Demolition and removal of the existing shed in the tree protection area must be by hand. Small backhoe may be used if adequate soil protection is in place. Regardless of method, arborist must be present during this removal.

I recommend that an arborist be required to be present during the initial pre-construction meeting to confirm tree protection mulch, fencing and signage is adequately in place. Additionally, an arborist should be scheduled for routine site visits bi-monthly during the initial demolition and grading phase. Successful tree retention relies on regular contact between the contractor and the project arborist.

See Appendix F for specifications that should be put on construction documents.

### Tree Removals and Calculations

The majority of the site is proposed for clearing, leaving a grove of trees in the center of the site as well as a grove on the southeast corner. The cluster on the southeast end includes 3 offsite trees growing with adjacent on-site trees. All other trees will be removed.

Table 1. Significant Trees (excludes ROW or offsite trees adjacent to parcel)

		Calculation	Source
Trees on Lot (total)	86		
Removals (qty of significant trees) - A	67		
Retained (qty of significant)	19*		
% Retained	22%	Retained / Total	
Replacement exemption (B)	16	(105,681 sq ft – 7200 sq ft / 7200 sq ft ) + 3 Rounded down.	Pre-Application Letter from Cate Lee dated March 13, 2020
Trees requiring replacement	51	# Removals – # Exemption	
Replacement Trees	139		See Table 2 below.

*\*Retention requirements may be reduced if the director allows. Trees on private property that need to be removed due to required frontage improvements do not count towards the retention requirements (see SMC Exception 20.50.350(B)(5)). These calculations do not account for any removals required for frontage improvements.*

### Tree Replacement

For all clearing activities, tree replacement is required. In order to satisfy the replacement requirements, one tree must be planted for each significant tree removed. For trees larger than minimum significant size every additional 3 inches diameter requires one additional replacement tree. The maximum number of replacement trees required is up to three trees.

The following replacement calculations are only for on-site tree planting and do not account for right of way removals or required street tree planting.

Table 2. Replacement Calculations (excludes ROW or offsite trees adjacent to parcel)

		Calculations	Replacement Trees
Removals (qty of significant trees) - A	67		
Removals (Landmark)	15	15 x 3 = 45	45
Removals (Significant - 3 replacements req'd)	42 – 16*	26 x 3 = 78	78
Removals (Significant - 2 replacements req'd)	6	6 x 2 = 12	12
Removals (Significant - 1 replacements req'd)	4	4 x 1 = 4	4
Total			139

\*# of exemptions

Table 3. Replacement Calculations (ONLY ROW trees)

		Calculations	Replacement Trees
Removals (qty of trees > 6" diameter)	12		
Removals (Landmark)	1	1 x 3 = 3	3
Removals (Significant - 3 replacements req'd)	3	3 x 3 = 9	9
Removals (Significant - 2 replacements req'd)	0	0 x 2 = 0	0
Removals (Significant - 1 replacements req'd)	0	0 x 1 = 0	0
Removals (Non-significant but > 6" diameter – 1 replacement req'd)	8	8 x 1 = 8 *	8
Total			20

\*SMC 12.30.040 (B)(4) states "all existing trees six inches in diameter... or greater...shall be replaced... following the replacement formula in SMC 20.50.360(C)(1-3)." However SMC 20.50.360 only defines replacement values starting with significant-size conifers >8" and significant-sized non-conifers >12". The calculation in this table assumes the intent of the code is that non-significant trees in the ROW >6" should be replaced at a 1:1 ratio.

Replacement Tree Calculation Examples (SMC 20.50.360):

Conifer Tree

Size	Replacement Trees
8 inches	1
11 inches	2
14 + inches	3

Non-conifer Tree

Size	Replacement Trees
12 inches	1
15 inches	2
18 + inches	3

Minimum size requirements for deciduous replacement trees must be at least 1.5 inches in caliper and coniferous replacement trees must be at least 6 feet in height. All replacement trees must meet or

exceed current American Nursery and Landscape Association or equivalent organization's standards for nursery stock.

There are 110 new site trees on the proposed planting plan (L2.0 Planting Plan / Board and Vellum dated 08.19.2021), which is 29 less than the 139 required. Therefore, because of the site constraints, I recommend that a reduction to the replacement tree requirements be requested.

Due to limited space, the proposed building dimensions, and the extensive tree protection area where large new trees should not be planted, it would not likely be possible to plant this quantity of trees on the project site. Overcrowding the site with large trees could result in future conflicts with infrastructure and a poor long term tree planting. In some cases, the City will allow a reduction to the required replacement trees or permit planting at an off-site location.

In addition to 110 new site trees, there are 32 new street trees on the planting plan. This is 12 trees more than the 20 required to replace the 12 tree removals within the right of way per SMC 12.30.040 and SMC 20.50.350(B)(5).

Respectfully submitted,

Holly Iosso  
Consulting Arborist

## Appendix A Glossary

**DBH or DSH:** The diameter of any tree trunk, measured at four and one-half feet above average grade. For species of trees whose normal growth habit is characterized by multiple stems (e.g., hazelnut, vine maple) diameter shall mean the average diameter of all stems of the tree, measured at a point six inches from the point where the stems digress from the main trunk. In no case shall a branch more than six inches above average grade be considered a stem. For the purposes of Code enforcement, if a tree has been removed and only the stump remains, the size of the tree shall be diameter of the top of the stump (Shoreline Municipal Code 20.20.016)

**dripline:** An area encircling the base of a tree, the minimum extent of which is delineated by a vertical line extending from the outer limit of a tree's branch tips down to the ground (Shoreline Municipal Code 20.20.016)

**ISA:** International Society of Arboriculture

**tree:** A self-supporting woody plant characterized by one main trunk or, for certain species, multiple trunks, with a potential at maturity for a trunk diameter of two inches and potential minimum height of 10 feet (Shoreline Municipal Code 20.20.048).

**tree, broadleaf:** Trees with flat leaves, not scaled or needle shaped, which usually lose their foliage at the end of the growing season. Examples include maples, alders, willows, and Pacific Madrone (Shoreline Municipal Code 20.20.048).

**tree, canopy:** The total area of the tree or trees where the leaves and outermost branches extend, also known as the "dripline" (Shoreline Municipal Code 20.20.048).

**tree, coniferous:** Any of various mostly needle-leaved or scale-leaved, chiefly evergreen, cone-bearing gymnospermous trees, such as pines, spruces, and firs (Shoreline Municipal Code 20.20.048).

**tree, deciduous:** Trees that shed or otherwise lose their foliage at the end of the growing season, such as maples, alders, oaks, and willows (Shoreline Municipal Code 20.20.048).

**tree, evergreen:** Trees that maintain the majority of their foliage each year when grown in the Shoreline area. Examples of evergreen trees include pines, firs, Douglas fir, and the Pacific Madrone (Shoreline Municipal Code 20.20.048).

**tree, hazardous:** A tree that is dead, or is so affected by a significant structural defect or disease that falling or failure appears imminent, or a tree that impedes safe vision or traffic flow, or that otherwise currently poses a threat to life or property (Shoreline Municipal Code 20.20.048).

**tree, landmark:** Any healthy tree over 30 inches in diameter at breast height or any tree that is particularly impressive or unusual due to its size, shape, age, historical significant or any other trait that epitomizes the character of the species, or that is an regional erratic (Shoreline Municipal Code 20.20.048).

**tree, significant:** Any tree eight inches or greater in diameter at breast height if it is a conifer and 12 inches or greater in diameter at breast height if it is a non-conifer excluding those trees that qualify for complete exemptions from Chapter 20.50 SMC, Subchapter 5, Tree Conservation, Land Clearing, and Site Grading Standards, under SMC 20.50.310(A). (Ord. 669 § 1 (Exh. A), 2013). (Shoreline Municipal Code 20.20.048)

**tree, stand or cluster:** A group of three or more trees of any size or species, whose driplines touch (Shoreline Municipal Code 20.20.048)



## Appendix B References

Accredited Standards Committee A300 (ASC 300). ANSI A300 (Part 1) Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Londonderry: Tree Care Industry Association, 2017.

Fite, Dr. Kelby and Dr. E. Thomas Smiley. Best Management Practices: Managing Trees During Construction, Second Edition. Champaign, IL: International Society of Arboriculture (ISA), 2016.

### Shoreline Municipal Code (SMC)

- |           |  |
|-----------|--|
| 12.30.040 | Right-of-way street trees                      |
| 20.50.350 | Development standards for clearing activities. |
| 20.50.360 | Tree replacement and site restoration.         |
| 20.50.370 | Tree protection standards.                     |
| 20.80     | Critical areas.                                |

### Appendix C Site Map / Photos

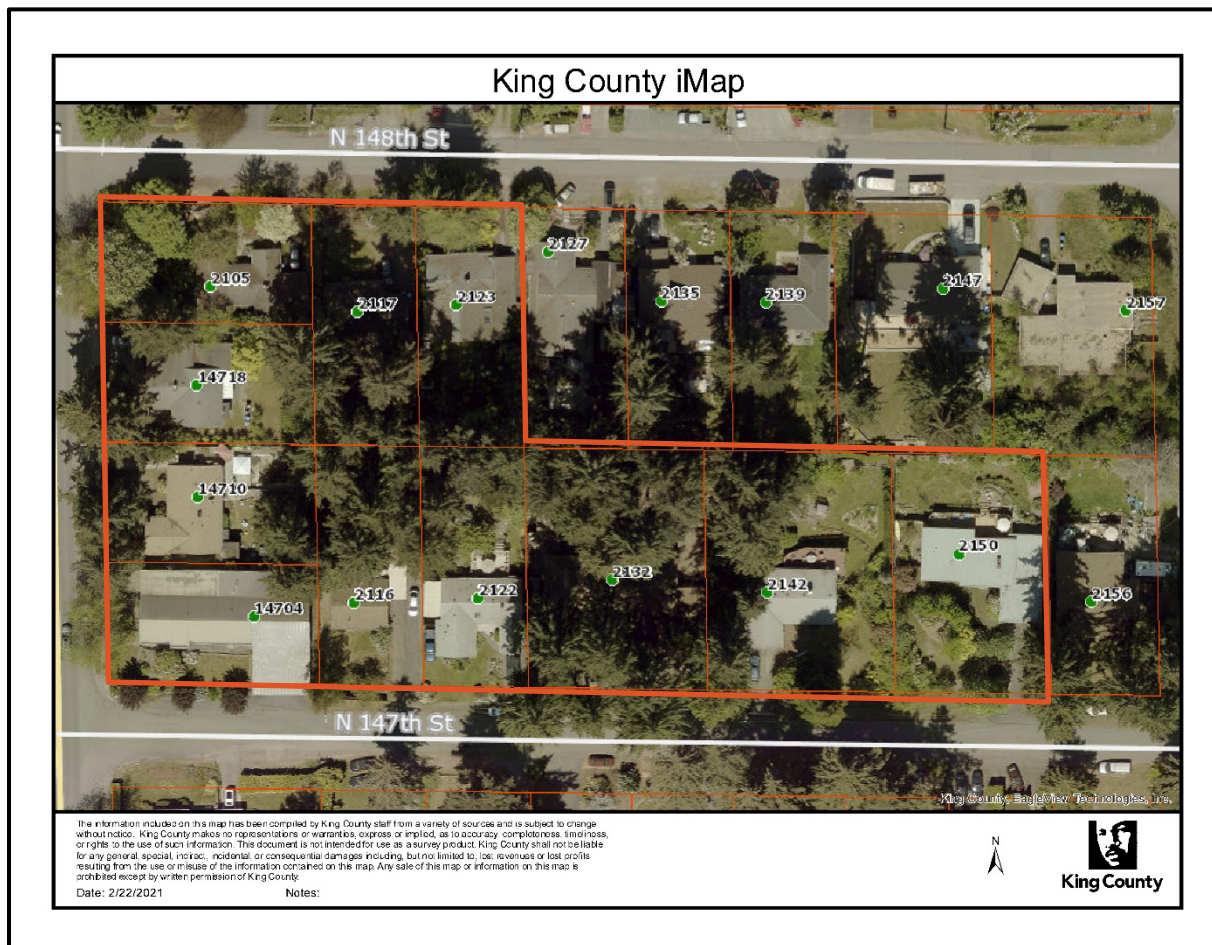


Figure 1. Aerial photograph from King County iMAP GIS the subject site is site is outlined in red (Accessed 2/22/2021).



Photograph 1. Trees A, B, and C are east of parcel 777130-0110.



Photograph 2. Tree D, the laurel in the foreground, has canopy that overhangs parcel 777130-0070.





Tree E

Photograph 3. Tree E is east of parcel 777130-0070.



Tree F

Photograph 4. Tree F is north of fence and parcel 777130-0125.





Photograph 5. Tree 8987 on parcel 777130-0055 is only one tree, mis-drawn on the survey as two trees. This is one tree with a codominant union near the base.



Photograph 6. Tree 98 is a non-significant cherry laurel on parcel 777130-0135

## Appendix D Assumptions & Limiting Conditions

- 1 Consultant assumes that the site and its use do not violate, and is in compliance with, all applicable codes, ordinances, statutes or regulations.
- 2 The consultant may provide a report or recommendation based on published municipal regulations. The consultant assumes that the municipal regulations published on the date of the report are current municipal regulations and assumes no obligation related to unpublished city regulation information.
- 3 Any report by the consultant and any values expressed therein represent the opinion of the consultant, and the consultant's fee is in no way contingent upon the reporting of a specific value, a stipulated result, the occurrence of a subsequent event, or upon any finding to be reported.
- 4 All photographs included in this report were taken by Tree Solutions, Inc. during the documented site visit, unless otherwise noted. Sketches, drawings and photographs (included in, and attached to, this report) are intended as visual aids and are not necessarily to scale. They should not be construed as engineering drawings, architectural reports or surveys. The reproduction of any information generated by architects, engineers or other consultants and any sketches, drawings or photographs is for the express purpose of coordination and ease of reference only. Inclusion of such information on any drawings or other documents does not constitute a representation by the consultant as to the sufficiency or accuracy of the information.
- 5 Unless otherwise agreed, (1) information contained in any report by consultant covers only the items examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, climbing, or coring.
- 6 These findings are based on the observations and opinions of the authoring arborist, and do not provide guarantees regarding the future performance, health, vigor, structural stability or safety of the plants described and assessed.
- 7 Measurements are subject to typical margins of error, considering the oval or asymmetrical cross-section of most trunks and canopies.
- 8 Tree Solutions did not review any reports or perform any tests related to the soil located on the subject property unless outlined in the scope of services. Tree Solutions staff are not and do not claim to be soils experts. An independent inventory and evaluation of the site's soil should be obtained by a qualified professional if an additional understanding of the site's characteristics is needed to make an informed decision.
- 9 Our assessments are made in conformity with acceptable evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.

## Appendix E Methods

### **Measuring**

We measured the diameter of each tree at 54 inches above grade, diameter at standard height (DSH). If a tree had multiple stems, we measured each stem individually at standard height and determined a single-stem equivalent diameter for each tree. For species with a typical habit of one trunk, we used the quadratic formula as discussed in the Guide for Plant Appraisal. For species typically with a multi-stem habit, we provided an average of the stem diameters (SMC 20.20.016 D – DBH). The method used for each tree is noted in the Arborist Tree Table in the column titled “Multi-stem calculation method”.

A tree is regulated based on this single-stem equivalent diameter value. Because this value is calculated in the office following field work, some non-significant trees may be included in our data set. These trees are included in the tree table for informational purposes only and not factored into tree totals discussed in this report.

### **Tagging**

Trees were numbered and tagged before our site visit by a different arborist. During our site visit, we confirmed each tree had a tag, and if there was one missing, we re-tagged the tree with a rectangular aluminum tag at eye level. We used the numerical identifier previously assigned to each tree on our map and in our tree table, corresponding to this tree tag.

We used alphabetical identifiers for trees off-site. Offsite trees are not tagged.

### **Flagging**

We flagged each tree with yellow flagging that was slated for removal according to the most recent plan set as of the date of our site visit.

### **Evaluating**

We evaluated tree health and structure utilizing visual tree assessment (VTA) methods. The basis behind VTA is the identification of symptoms, which the tree produces in reaction to a weak spot or area of mechanical stress. A tree reacts to mechanical and physiological stresses by growing more vigorously to re-enforce weak areas, while depriving less stressed parts. An understanding of the uniform stress allows the arborist to make informed judgments about the condition of a tree.

### **Rating**

When rating tree health, we took into consideration crown indicators such as foliar density, size, color, stem and shoot extensions. When rating tree structure, we evaluated the tree for form and structural defects, including past damage and decay. Tree Solutions has adapted our ratings based on the Purdue University Extension formula values for health condition (*Purdue University Extension bulletin FNR-473-W - Tree Appraisal*). These values are a general representation used to assist arborists in assigning ratings.

Excellent - Perfect specimen with excellent form and vigor, well-balanced crown. Normal to exceeding shoot length on new growth. Leaf size and color normal. Trunk is sound and solid. Root zone undisturbed. No apparent pest problems. Long safe useful life expectancy for the species.

Good - Imperfect canopy density in few parts of the tree, up to 10% of the canopy. Normal to less than ¾ typical growth rate of shoots and minor deficiency in typical leaf development. Few pest

issues or damage, and if they exist they are controllable or tree is reacting appropriately. Normal branch and stem development with healthy growth. Safe useful life expectancy typical for the species.

Fair - Crown decline and dieback up to 30% of the canopy. Leaf color is somewhat chlorotic/necrotic with smaller leaves and "off" coloration. Shoot extensions indicate some stunting and stressed growing conditions. Stress cone crop clearly visible. Obvious signs of pest problems contributing to lesser condition, control might be possible. Some decay areas found in main stem and branches. Below average safe useful life expectancy

Poor - Lacking full crown, more than 50% decline and dieback, especially affecting larger branches. Stunting of shoots is obvious with little evidence of growth on smaller stems. Leaf size and color reveals overall stress in the plant. Insect or disease infestation may be severe and uncontrollable. Extensive decay or hollows in branches and trunk. Short safe useful life expectancy.



## Appendix F Tree Protection Specifications

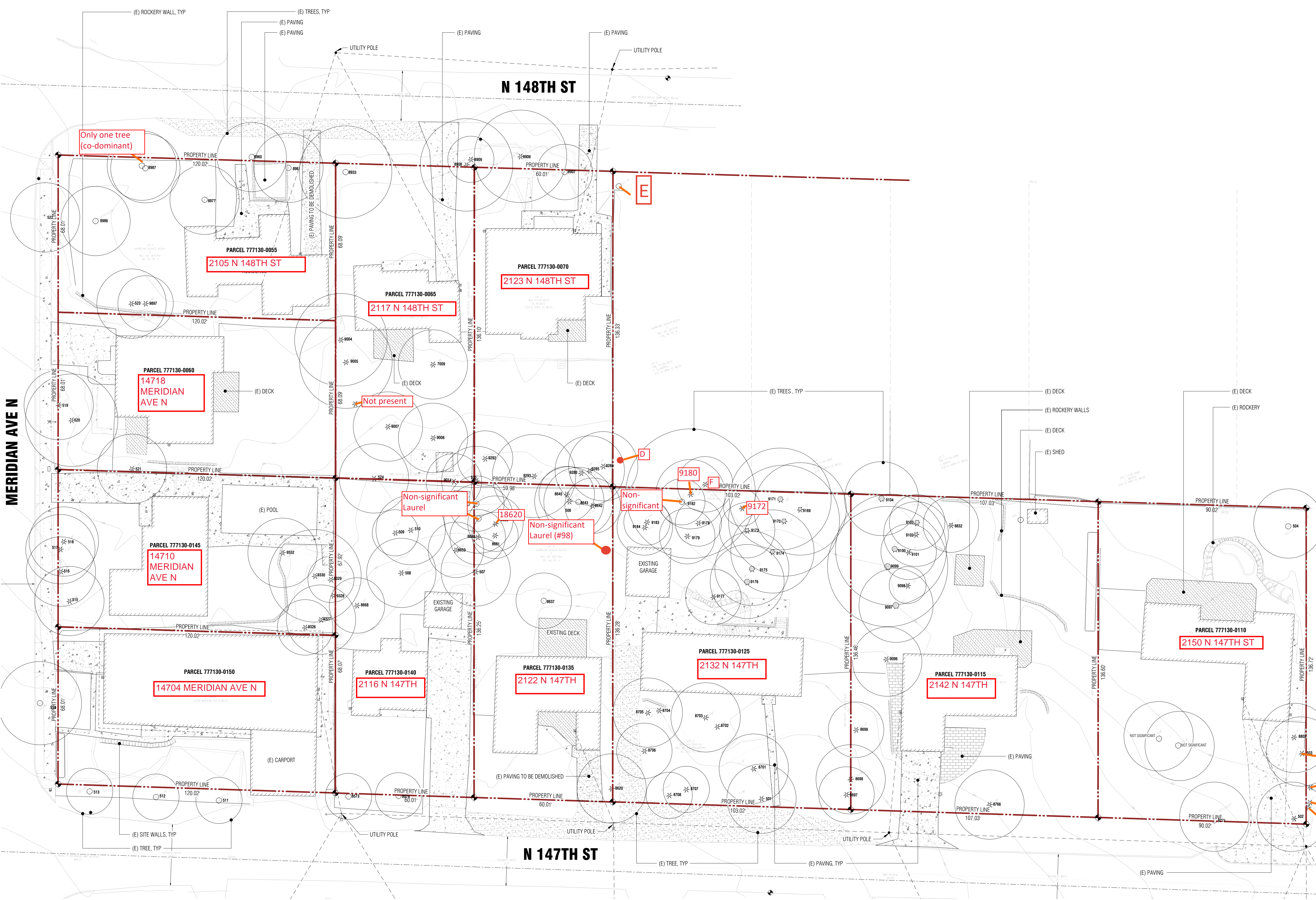
*The following is a list of protection measures that must be employed before, during and after construction to ensure the long-term viability of retained trees.*

1. **Project Arborist:** The project arborists shall at minimum have an International Society of Arboriculture (ISA) Certification and ISA Tree Risk Assessment Qualification.
2. **Tree Protection Zone (TPZ):** The TPZ shall be delineated by the project arborist as defined by the International Society of Arboriculture (SMC 20.50.370B). Work within the TPZ must be approved and monitored by the project arborist.
3. **Tree Protection Fencing:** Tree protection shall consist of 6-foot chain-link fencing installed at the TPZ as approved by the project arborist. Fence posts shall be anchored into the ground or bolted to existing hardscape surfaces.
  - a. Where trees are being retained as a group the fencing shall encompass the entire area including all landscape beds or lawn areas associated with the grove.
  - b. Per arborist approval, TPZ fencing may be placed at the edge of existing hardscape within the TPZ to allow for staging and traffic.
  - c. If the TPZ fencing must be moved for any reason, the project arborist must be present. This ensures that work within the TPZ is completed to specification.
  - d. Where trees are protected at the edge of the project boundary, construction limits fencing shall be incorporated as the boundary of tree protection fencing.
4. **Access Beyond Tree Protection Fencing:** In areas where work such as installation of utilities is required within the TPZ, a locking gate will be installed in the fencing to facilitate access. The project manager or project arborist shall be present when tree protection areas are accessed.
5. **Tree Protection Signage:** Tree protection signage shall be affixed to fencing every 20 feet. Signage shall be fluorescent, at least 2' x 2' in size, with 3" tall text. Signage will note: "Tree Protection Area – Do Not Enter: Entry into the tree protection area is prohibited unless authorized by the project manager." Signage shall include the contact information for the project manager and instructions for gaining access to the area.
6. **Filter / Silt Fencing:** Filter / silt fencing within the TPZ of retained trees shall be installed in a manner that does not sever roots. Install so that filter / silt fencing sits on the ground and is weighed in place by sandbags or gravel. Do not trench to insert filter / silt fencing into the ground.
7. **Monitoring:** The project arborist shall monitor all ground disturbance at the edge of or within the TPZ, including where the TPZ extends beyond the tree protection fencing.
8. **Soil Protection:** No parking, foot traffic, materials storage, or dumping (including excavated soils) are allowed within the TPZ. Heavy machinery shall remain outside of the TPZ. Access to the tree protection area will be granted under the supervision of the project arborist. If project arborist allows, heavy machinery can enter the area if soils are protected from the load. Acceptable methods of soil protection include applying 3/4-inch plywood over 4 to 6 inches of wood chip mulch or use of AlturnaMats® (or equivalent product approved by the project arborist). Retain existing paved surfaces within or at the edge of the TPZ for as long as possible.
9. **Duff/Mulch:** Apply 4-6 inches of arborist wood chip mulch or hog fuel over bare soil within the TPZ to prevent compaction and evaporation. TPZ shall be free of invasive weeds. Keep mulch 1 foot away from the base of trees and 6 inches from the base of retained understory vegetation. Retain and protect as much of the existing duff and understory vegetation as possible.
10. **Soil Remediation:** Soil compacted within the TPZ of retained trees shall be remediated using pneumatic air excavation according to a specification produced by the project arborist.

11. **Canopy Protection:** Where fencing is installed at the limits of the TPZ, canopy management (pruning or tying back) shall be conducted at a minimum to ensure that vehicular traffic, scaffolding, cranes or aerial lines do not damage canopy parts. Exhaust from machinery shall be located five feet outside the dripline of retained trees. No exhaust shall come in contact with foliage for prolonged periods of time.
12. **Excavation:** Excavation done at the edge of or within the TPZ shall use alternative methods such as pneumatic air excavation or hand digging. If heavy machinery is used, use flat front buckets with the project arborist spotting for roots. When roots are encountered (inside or outside of the TPZ), STOP EXCAVATION and cleanly sever roots before proceeding. Avoid ripping roots at all costs. The project arborist shall monitor all excavation done within the TPZ.
13. **Fill:** No fill is allowed within the TPZ of retained trees.
14. **Root Pruning:** Limit root pruning to the extent possible. All roots shall be pruned with a sharp saw making clean cuts. Do not fracture or break roots with excavation equipment.
15. **Root Moisture:** Root cuts and exposed roots shall be immediately covered with soil, mulch, or clear polyethylene sheeting and kept moist. Water to maintain moist condition until the area is back filled. Do not allow exposed roots to dry out before replacing permanent back fill.
16. **Hardscape Removal:** Retain hardscape surfaces for as long as practical. Remove hardscape in a manner that does not require machinery to traverse newly exposed soil within the TPZ. Where equipment must traverse the newly exposed soil, apply soil protection as described in section 8. Replace fencing at edge of TPZ if soil exposed by hardscape removal will remain exposed for any period of time.
17. **Tree Removal:** All trees to be removed that are located within the TPZ of retained trees shall not be ripped, pulled, or pushed over. The tree should be cut to the base and the stump either left or ground out. A flat front bucket can also be used to sever roots around all sides of the stump, or the roots can be exposed using hydro or air excavation and then cut before removing the stump.
18. **Irrigation:** Retained trees will require supplemental water from June through September. Acceptable methods of irrigation include drip, sprinkler, or watering truck. Trees shall be watered three times per month during this time to keep the soil from becoming hydrophobic.
19. **Pruning:** Pruning required for construction and safety clearance shall be done with a pruning specification provided by the project arborist in accordance with American National Standards Institute ANSI-A300 2017 Standard Practices for Pruning. Pruning shall be conducted or monitored by an arborist with an ISA Certification.
20. **Landscaping:** No new plants may be planted within the TPZ without project arborist approval. Approved plant material must remain 6 feet from each trunk and be 1 gal or 4" pots. Do not grub out existing vegetation.
21. **Plan Updates:** All plan updates or field modification that result in impacts within the TPZ or change the retained status of trees shall be reviewed by the senior project manager and project arborist prior to conducting the work.
22. **Materials:** Contractor shall have the following materials onsite and available for use during work in the TPZ:
 

• <b>Sharp and clean bypass hand pruners</b>	• <b>Shovels</b>
• <b>Sharp and clean bypass loppers</b>	• <b>Trowels</b>
• <b>Sharp hand-held root saw</b>	• <b>Clear polyethylene sheeting</b>
• <b>Reciprocating saw with new blades</b>	• <b>Burlap</b>
	• <b>Water</b>





**Board & Vellum**  
 ARCHITECTURE AND DESIGN  
 115 15th Ave E, Suite 100 Seattle, WA 98112  
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9858 REGISTERED ARCHITECT  
*Jeffrey Alfred Pelletier*  
 JEFFREY ALFRED PELLETIER  
 STATE OF WASHINGTON

JURISDICTION STAMP AREA

**PULTE 5 DEGREES SHORELINE**  
 PROJECT ADDRESS: 14704 MERIDIAN AVE N SHORELINE, WA 98153  
 OWNER: JONES COLLEGE HOMES 8001 14TH AVE SE BELLEVUE, WA 98006

REVISION	DATE	DESCRIPTION
		Tree Solutions Inc. Tree Inventory January 29, 2021
		Trees tagged in the field Proposed removals flagged with yellow flagging

ISSUANCES	
DATE	DESCRIPTION
2020.08.07	BUILDING PERMIT SET

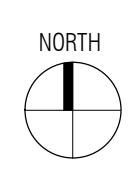
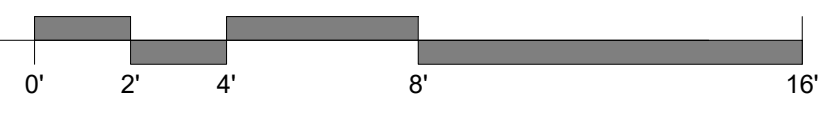
Shared Tree? **OK**

COPYRIGHT BOARD AND VELLUM LLC. ALL RIGHTS RESERVED.  
 ORIGINAL SHEET SIZE: 24"X36"

BOARD & VELLUM PROJECT #: 2019132.00  
 PROJECT #: PRE-20-0026  
 PLOT DATE: 2020.06.26

EXISTING SITE PLAN  
 SHEET NO.:

1 EXISTING SITE PLAN  
 1" = 20'-0"



**G1.00**





### Arborist Tree Table

5-Degrees

Shoreline, WA 98133

Arborist: HI and CM

Date of Inventory: 01/29/2021

Table Revised 08/11/2021

DSH (Diameter at Standard Height) is measured 4.5 feet above grade.

DSH for multi-stem trees are noted as a single stem equivalent, which is calculated by averaging all stem measurements if tree is often found in multi-stem habit. Otherwise calculated using the method defined in the Guide for Plant Appraisal, 10th Edition.

Letters are used to identify trees on neighboring property with overhanging canopies.

Dripline is measured from the outer-edge of the tree to the outermost extent of the canopy. For some trees, only avg dripline was collected.

Allowable TPZ (Tree Protection Zone) (8 or 12 x DSH, depending on species) was determined as outlined in the ISA Best Management Practices: Managing Trees During Construction. Some modifications were made based on species tolerance and site conditions.

**\*Replacement tree quantity does not account for replacement exemption. This value represents the number of replacement trees if the tree is removed and not exempt from replacement.**

Tree ID	Parcel/Lot #	Address	Scientific Name	Common Name	DSH or Single-Stem Equivalent (inches)	DSH Multistem	Multi-stem calc method	Health Condition	Structural Condition	Average Dripline	Dripline Radius (feet)				Proposed Action TBD	Allowable TPZ (radius in ft) in case by case situation	Significant/Non-significant/Landmark by Size	Qty of Replacement Trees * if tree is removed	Notes
											N	E	S	W					
98	777130-0135	2122 N 147TH ST	<i>Prunus laurocerasus</i>	Cherry laurel	6.7	8.2, 5, 7	Average	Good	Good	9					Remove	4	Non-significant	0	Collected data on this tree in response to reviewer's comment
501	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	36.0			Good	Good	30					Remove	24	Landmark	3	-
502	777130-0110	2150 N 147TH ST	<i>Picea abies</i>	Norway spruce	11.8			Good	Fair		4.5	6.5	14.0	12.0	Retain	8	Significant	2	Topped at 35 feet; pruned for powerline clearance
503	777130-0110	2150 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	37.0			Good	Good		15	16	11	20	Retain	25 (but as close as 14-15 ft is OK on the west if only encroached on one side of the tree)	Landmark	3	Some deadwood with 2 to 3 inch parts; shared canopy with offsite trees; dominant tree. Construction disturbance can get as close as 14-15 feet as show on the plans, but TPZ must remain parallel to the new driveway to increase protected area north and south of the closest cut.
504	777130-0110	2150 N 147TH ST	<i>Malus domestica</i>	Apple	9.2	11.5, 6.9	Average	Fair	Poor	10					Remove	6	Non-significant	0	Overpruned previously but maintenance lapsed and shoots extending from topping cuts
506	777130-0135	2122 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	21.3			Good	Good	20					Remove	14	Significant	3	-
507	777130-0135	2122 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	26.0			Good	Good	28					Remove	17	Significant	3	-
508	777130-0140	2116 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	40.2			Fair	Good	30					Remove	27	Landmark	3	Wire girdling trunk at 4.5 feet
509	777130-0140	2116 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	21.5			Good	Good	15					Remove	14	Significant	3	-
510	777130-0140	2116 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	28.2			Good	Good	15					Remove	19	Significant	3	-



## Arborist Tree Table

5-Degrees

Shoreline, WA 98133

Arborist: HI and CM

Date of Inventory: 01/29/2021

Table Revised 08/11/2021

Tree ID	Parcel/Lot #	Address	Scientific Name	Common Name	DSH or Single-Stem Equivalent (inches)	DSH Multistem	Multi-stem calc method	Health Condition	Structural Condition	Average Dripline	N	E	S	W	Proposed Action TBD	Allowable TPZ (radius in ft) in case by case situation	Significant/Non-significant/Landmark by Size	Qty of Replacement Trees * if tree is removed	Notes
511	ROW (777130-0150)	ROW (14704 Meridian Ave N)	<i>Prunus cerasifera</i>	Cherry plum	9.3			Fair	Fair	8					Remove	6	Non-significant (ROW)	1 (ROW)	Replacement calc. is 1 b/c it is ROW tree > 6"
512	ROW (777130-0150)	ROW (14704 Meridian Ave N)	<i>Prunus cerasifera</i>	Cherry plum	9.2			Fair	Fair	8					Remove	6	Non-significant (ROW)	1 (ROW)	Replacement calc. is 1 b/c it is ROW tree > 6"
513	ROW (777130-0150)	ROW (14704 Meridian Ave N)	<i>Prunus cerasifera</i>	Cherry plum	10.2			Fair	Fair	8					Remove	7	Non-significant (ROW)	1 (ROW)	Replacement calc. is 1 b/c it is ROW tree > 6"
514	ROW (777130-0150)	ROW (14704 Meridian Ave N)	<i>Acer rubrum</i>	Red maple	22.2			Good	Good	24					Remove	15	Significant (ROW)	3 (ROW)	Planted in right of way (ROW); surface roots to east towards sidewalk
515	777130-0145	14710 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	32.0			Fair	Poor	20					Remove	21	Landmark	3	Heavy ivy; DSH measurement estimated through ivy
516	777130-0145	14710 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	24.0			Fair	Poor	20					Remove	16	Significant	3	Heavy ivy; DSH measurement estimated through ivy
517	777130-0145	14710 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	28.0			Fair	Poor	20					Remove	19	Significant	3	Heavy ivy; DSH measurement estimated through ivy
518	777130-0145	14710 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	27.0			Fair	Poor	25					Remove	18	Significant	3	Heavy ivy; DSH measurement estimated through ivy
519	777130-0060	14718 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	29.8			Good	Good	25					Remove	20	Significant	3	-
520	777130-0060	14718 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	34.0			Good	Good	25					Remove	23	Landmark	3	-
521	777130-0060	14718 MERIDIAN AVE N	<i>Taxus brevifolia</i>	Western yew	11.0			Good	Good	10					Remove	7	Significant	1	-
522	ROW (777130-0055)	ROW (2105 N 148th)	<i>Acer rubrum</i>	Red maple	19.1			Good	Good	20					Remove	13	Significant (ROW)	3 (ROW)	-
523	777130-0055	2105 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	24.5			Good	Good	18					Remove	16	Significant	3	-



## Arborist Tree Table

5-Degrees

Shoreline, WA 98133

Arborist: HI and CM

Date of Inventory: 01/29/2021

Table Revised 08/11/2021

Tree ID	Parcel/Lot #	Address	Scientific Name	Common Name	DSH or Single-Stem Equivalent (inches)	DSH Multistem	Multi-stem calc method	Health Condition	Structural Condition	Average Dripline	N	E	S	W	Proposed Action TBD	Allowable TPZ (radius in ft) in case by case situation	Significant/Non-significant/Landmark by Size	Qty of Replacement Trees * if tree is removed	Notes
524	777130-0065	2117 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	30.0			Good	Good	25					Remove	20	Landmark	3	DSH estimated due to limited access to tree
525	777130-0070	2123 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	12.0			Good	Fair	10					Remove	8	Significant	2	-
7009	777130-0065	2117 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	38.0			Good	Good	25					Remove	25	Landmark	3	-
8573	ROW (777130-0140)	ROW (2116 N 147TH ST )	<i>Betula pendula</i>	European white birch	10.1			Good	Poor	12					Remove	7	Non-significant (ROW)	1 (ROW)	Replacement calc. is 1 b/c it is ROW tree > 6"
8574	ROW (777130-0140)	ROW (2116 N 147TH ST )	<i>Crataegus monogyna</i>	Common hawthorn	9.2			Good	Fair	7					Remove	6	Non-significant (ROW)	1 (ROW)	Replacement calc. is 1 b/c it is ROW tree > 6"
8620	777130-0135	2122 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	40.8			Good	Fair	30					Remove	27	Landmark	3	Codominant at 18 feet; potential decay down seem from union; included bark
8637	777130-0135	2122 N 147TH ST	<i>Prunus serrulata</i>	Flowering cherry	12.5			Good	Good	10					Remove	8	Significant	1	
8642	777130-0135	2122 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	12.5			Poor	Fair	12					Remove	8	Significant	2	Broken out top; multiple tops present; multiple conks on trunk
8643	777130-0135	2122 N 147TH ST	<i>Prunus laurocerasus</i>	Cherry laurel	7.2			Good	Fair	12					Remove	5	Non-significant	0	
8645	777130-0135	2122 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	10.6			Good	Good	12					Remove	7	Significant	1	-
8659	777130-0140	2116 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	24.5			Good	Good	20					Remove	16	Significant	3	-
8668	777130-0140	2116 N 147TH ST	<i>Thuja plicata</i>	Western redcedar	28.8			Good	Fair	25					Remove	20	Significant	3	Wire girdled at 4.5 feet
8681	777130-0135	2122 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	15.6			Good	Good	12					Remove	10	Significant	3	-
8682	777130-0135	2122 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	14.0			Good	Good	12					Remove	9	Significant	2	-
8697	777130-0125	2132 N 147TH ST	<i>Thuja plicata</i>	Western redcedar	24.2			Good	Poor	15					Remove	17	Significant	3	Pruned for line clearance
8698	777130-0125	2132 N 147TH ST	<i>Thuja plicata</i>	Western redcedar	36.5			Good	Good	25					Remove	25	Landmark	3	Multistemmed at base; narrow union so measured as single stem



## Arborist Tree Table

5-Degrees

Shoreline, WA 98133

Arborist: HI and CM

Date of Inventory: 01/29/2021

Table Revised 08/11/2021

Tree ID	Parcel/Lot #	Address	Scientific Name	Common Name	DSH or Single-Stem Equivalent (inches)	DSH Multistem	Multi-stem calc method	Health Condition	Structural Condition	Average Dripline	N	E	S	W	Proposed Action TBD	Allowable TPZ (radius in ft) in case by case situation	Significant/Non-significant/Landmark by Size	Qty of Replacement Trees * if tree is removed	Notes
8699	777130-0115	2142 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	32.7			Fair	Good	18					Remove	22	Landmark	3	Deadwood on bottom quarter of canopy
8701	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	30.3			Good	Good	25					Remove	20	Landmark	3	-
8702	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	26.5			Good	Good	12					Remove	18	Significant	3	-
8703	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	27.5			Good	Good	30					Remove	18	Significant	3	-
8704	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	14.2			Good	Good	15					Remove	9	Significant	3	-
8705	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	29.0			Good	Good	20					Remove	19	Significant	3	-
8706	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	17.0			Good	Good	10					Remove	11	Significant	3	-
8707	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	28.5			Good	Good	20					Remove	19	Significant	3	-
8708	777130-0125	2132 N 147TH ST	<i>Thuja plicata</i>	Western redcedar	25.1	19.2, 16.1	Appraisal Guide	Good	Good	15					Remove	17	Significant	3	-
8766	777130-0115	2142 N 147TH ST	<i>Abies grandis</i>	Grand fir	26.0			Good	Good	15					Remove	17	Significant	3	-
8771	ROW 777130-0110	ROW (2150 N 147TH ST)	<i>Sorbus aucuparia</i>	European mountain ash	10.0	11,11,10,8	Average	Fair	Fair	15					Remove	7	Non-significant (ROW)	1 (ROW)	Multistemmed at base; in ROW; pruned for utilities; Replacement calc. is 1 b/c it is ROW tree > 6"
8803	777130-0110	2150 N 147TH ST	<i>Chamaecyparis nootkatensis</i>	Alaskan cedar	8.5			Good	Good	8					Retain	6	Significant	1	Young tree suppressed by Tree 503
8832	777130-0115	2142 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	12.0			Good	Fair		17	17	13	8	Retain	8	Significant	2	-
8906	ROW (777130-0070)	ROW (2123 N 148TH ST)	<i>Cedrus deodara</i>	Deodar cedar	39.6	27.6, 28.4	Appraisal Guide	Good	Fair	25					Remove	19	Landmark (ROW)	3 (ROW)	-
8907	777130-0070	2123 N 148TH ST	<i>Magnolia x soulangiana</i>	Saucer magnolia	9.6			Good	Good	12					Remove	6	Non-significant	0	
8908	ROW (777130-0065)	ROW (2117 N148 ST)	<i>Pseudotsuga menziesii</i>	Douglas-fir	19.6			Good	Good	20					Remove	13	Significant (ROW)	3 (ROW)	-
8909	ROW (777130-0065)	ROW (2117 N148 ST)	<i>Pseudotsuga menziesii</i>	Douglas-fir	7.2			Good	Good	10					Remove	5	Non-significant (ROW)	1 (ROW)	Replacement calc. is 1 b/c it is ROW tree > 6"
8933	777130-0065	2117 N 148TH ST	<i>Prunus cerasifera</i>	Cherry plum	27.7			Fair	Fair	25					Remove	18	Significant	3	-



## Arborist Tree Table

5-Degrees

Shoreline, WA 98133

Arborist: HI and CM

Date of Inventory: 01/29/2021

Table Revised 08/11/2021

Tree ID	Parcel/Lot #	Address	Scientific Name	Common Name	DSH or Single-Stem Equivalent (inches)	DSH Multistem	Multi-stem calc method	Health Condition	Structural Condition	Average Dripline	N	E	S	W	Proposed Action TBD	Allowable TPZ (radius in ft) in case by case situation	Significant/Non-significant/Landmark by Size	Qty of Replacement Trees * if tree is removed	Notes
8960	ROW (777130-0055)	ROW (2105 N 148th)	<i>Prunus serrulata</i>	Flowering cherry	10.4			Good	Good	15					Remove	7	Non-significant (ROW)	1 (ROW)	Replacement calc. is 1 b/c it is ROW tree > 6"
8961	777130-0055	2105 N 148TH ST	<i>Cornus nuttallii</i>	Pacific dogwood	13.4	10.6, 8.2	Appraisal Guide	Good	Good	15					Remove	6	Significant	1	
8977	777130-0055	2105 N 148TH ST	<i>Prunus serrulata</i>	Flowering cherry	15.1			Good	Good	20					Remove	10	Significant	2	-
8986	777130-0055	2105 N 148TH ST	<i>Prunus serrulata</i>	Flowering cherry	24.9	13.1, 18.5, 9.8, 9.5	Appraisal Guide	Good	Fair	25					Remove	8	Significant	3	Multistemmed at base
8987	777130-0055	2105 N 148TH ST	<i>Acer macrophyllum</i>	Bigleaf maple	22.9	18.8, 13.1	Appraisal Guide	Good	Fair	24					Remove	11	Significant	3	Multistemmed 12 inches above base
9004	777130-0065	2117 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	44.0			Good	Good	25					Remove	29	Landmark	3	-
9005	777130-0065	2117 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	32.5			Good	Good	25					Remove	22	Landmark	3	-
9007	777130-0065	2117 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	29.8			Good	Good	25					Remove	20	Significant	3	-
9008	777130-0065	2117 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	24.8			Good	Good	20					Remove	17	Significant	3	-
9014	777130-0065	2117 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	18.4			Good	Good	10					Remove	12	Significant	3	-
9096	777130-0115	2142 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	21.8			Good	Good		13	12	17	15	Remove	15	Significant	3	-
9097	777130-0115	2142 N 147TH ST	<i>Thuja plicata</i>	Western redcedar	30.8			Good	Good		12	19	18	20	Remove	21	Landmark	3	-
9098	777130-0115	2142 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	9.8			Good	Fair		6	16	8	8	Retain	7	Significant	1	-
9099	777130-0115	2142 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	31.8			Good	Good		10	20	23	20	Retain	21	Landmark	3	-
9100	777130-0115	2142 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	28.3			Good	Good		19	25	10	18	Retain	19	Significant	3	-
9101	777130-0115	2142 N 147TH ST	<i>Thuja plicata</i>	Western redcedar	9.0			Good	Fair		10	8	9	15	Retain	6	Significant	1	-
9102	777130-0115	2142 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	15.0			Good	Fair		10	20	10	5	Retain	10	Significant	3	Suppressed by tree 9103; iterative top at 30 feet from base
9103	777130-0115	2142 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	22.8			Good	Good		18	20	12	15	Retain	15	Significant	3	-
9104	777130-0115	2142 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	28.3			Good	Good		16	15	10	13	Retain	19	Significant	3	-





## Arborist Tree Table

5-Degrees

Shoreline, WA 98133

Arborist: HI and CM

Date of Inventory: 01/29/2021

Table Revised 08/11/2021

Tree ID	Parcel/Lot #	Address	Scientific Name	Common Name	DSH or Single-Stem Equivalent (inches)	DSH Multistem	Multi-stem calc method	Health Condition	Structural Condition	Average Dripline	N	E	S	W	Proposed Action TBD	Allowable TPZ (radius in ft) in case by case situation	Significant/Non-significant/Landmark by Size	Qty of Replacement Trees * if tree is removed	Notes
9169	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	18.5			Good	Fair		16	24	33	3	Retain	12	Significant	3	Top broken out at 25 feet; iterative branch growing as new top
9170	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	25.5			Good	Good		13	23	17	18	Retain	17	Significant	3	-
9171	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	25.7			Good	Good		24	11	10	18	Retain	17	Significant	3	-
9172	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	9.5			Good	Good		14	8	9	8	Retain	6	Significant	1	-
9173	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	18.4			Good	Good		13	8	5	4	Retain	12	Significant	3	-
9174	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	20.2			Good	Good		5	22	20	4	Retain	13	Significant	3	-
9175	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	26.2			Good	Good		15	11	23	25	Retain	17	Significant	3	-
9176	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	28.5			Good	Good		16	20	25	25	Retain	19 (14)	Significant	3	While 19 feet TPZ is ideal, disturbance can encroach as close as 14 feet on two sides of the tree due to change in topography / existing rockery.
9177	777130-0125	2132 N 147TH ST	<i>Tsuga heterophylla</i>	Western hemlock	26.8			Good	Fair		8	8	20	18	Remove	18	Significant	3	-
9178	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	22.2			Good	Good		11	13	12	12	Remove	15	Significant	3	-
9179	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	25.6			Good	Good		4	9	17	12	Remove	17	Significant	3	-
9180	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	33.8			Good	Good		28	21	12	20	Remove	23	Landmark	3	-
9182	777130-0125	2132 N 147TH ST	<i>Robinia pseudoacacia</i>	Locust	11.0			Good	Good	19					Remove		Non-significant	0	-
9183	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	20.3			Good	Good		12	2	14	20	Remove	14	Significant	3	
9184	777130-0125	2132 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	13.0			Good	Fair		2	16	12	12	Remove	9	Significant	2	
9284	777130-0070	2123 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	19.6			Good	Good	20					Remove	13	Significant	3	-



### Arborist Tree Table

5-Degrees  
Shoreline, WA 98133

Arborist: HI and CM  
Date of Inventory: 01/29/2021  
Table Revised 08/11/2021

Tree ID	Parcel/Lot #	Address	Scientific Name	Common Name	DSH or Single-Stem Equivalent (inches)	DSH Multistem	Multi-stem calc method	Health Condition	Structural Condition	Average Dripline	N	E	S	W	Proposed Action TBD	Allowable TPZ (radius in ft) in case by case situation	Significant/Non-significant/Landmark by Size	Qty of Replacement Trees * if tree is removed	Notes
9285	777130-0070	2123 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	23.5			Good	Good	20					Remove	16	Significant	3	-
9286	777130-0070	2123 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	15.5			Good	Good	20					Remove	10	Significant	3	-
9292	777130-0070	2123 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	22.9			Fair	Poor	20					Remove	15	Significant	3	Significant bird activity /excavation on stem
9293	777130-0070	2123 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	29.5			Good	Good	25					Remove	20	Significant	3	-
9326	777130-0145	14710 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	32.2			Good	Good		10	6	15	20	Remove	21	Landmark	3	
9327	777130-0145	14710 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	27.1			Good	Fair		9	17	20	13	Remove	18	Significant	3	Codominant at 50 feet
9328	777130-0145	14710 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	17.8			Good	Fair		6	5	7	7	Remove	12	Significant	3	-
9329	777130-0145	14710 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	11.8			Good	Good		12	8	7	9	Remove	8	Significant	2	-
9330	777130-0145	14710 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	28.6			Good	Fair		22	28	18	7	Remove	19	Significant	3	Codominant at 40 feet; invasive ivy at base
9552	777130-0145	14710 MERIDIAN AVE N	<i>Pseudotsuga menziesii</i>	Douglas-fir	7.2			Good	Fair		9	8	10	9	Remove	5	Non-significant	0	-
9897	777130-0055	2105 N 148TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	16.6			Good	Good	18					Remove	11	Significant	3	-
18620	777130-0135	2122 N 147TH ST	<i>Pseudotsuga menziesii</i>	Douglas-fir	23.0			Good	Good	19					Remove	16	Significant	3	Tagged as 8620.
A	Offsite (777130-0110)	Offsite (2150 N 147TH ST)	<i>Pseudotsuga menziesii</i>	Douglas-fir	20.0			Good	Good	15	13	-	15	16	Retain	13	Significant (Off Site)	0 (Offsite)	Borders property to east
B	Offsite (777130-0110)	Offsite (2150 N 147TH ST)	<i>Pseudotsuga menziesii</i>	Douglas-fir	13.0			Good	Good	11	10	-	12	12	Retain	9	Significant (Off Site)	0 (Offsite)	-
C	Offsite (777130-0110)	Offsite (2150 N 147TH ST)	<i>Pseudotsuga menziesii</i>	Douglas-fir	25.0			Good	Good	14	12	-	12	18	Retain	17	Significant (Off Site)	0 (Offsite)	-
D	Offsite (777130-0070)	Offsite (2123 N 148TH ST)	<i>Prunus laurocerasus</i>	Cherry laurel	9.0			Good	Good	15	12	-	14	18	Retain	7	Non-significant (Off Site)	0 (Offsite)	Diameter estimated from property line. One of the laurel branches extends over property line 20ft



**Arborist Tree Table**  
5-Degrees  
Shoreline, WA 98133

Arborist: HI and CM  
Date of Inventory: 01/29/2021  
Table Revised 08/11/2021

Tree ID	Parcel/Lot #	Address	Scientific Name	Common Name	DSH or Single-Stem Equivalent (inches)	DSH Multistem	Multi-stem calc method	Health Condition	Structural Condition	Average Dripline	N	E	S	W	Proposed Action TBD	Allowable TPZ (radius in ft) in case by case situation	Significant/Non-significant/Landmark by Size	Qty of Replacement Trees * if tree is removed	Notes
E	Offsite (777130-0070)	Offsite (2123 N 148TH ST)	<i>Cornus nuttallii</i>	Pacific dogwood	13.0			Good	Good	14	16	-	15	10	Retain	7	Significant (Off Site)	0 (Offsite)	Reduced allowable TPZ to 7 ft due to existing compaction (driveway present). Reduction contingent on no soil disturbance within this area (no stump removal, wood chip mulch, tarps over exposed cuts, no irrigation lines within 6 ft of tree and new planting holes larger than 1 gal)
F	Offsite (777130-0125)	Offsite (2132 N 147TH ST)	<i>Pseudotsuga menziesii</i>	Douglas-fir	12.0			Good	Good	8	-	9	6	9	Retain	8	Significant (Off Site)	0 (Offsite)	Diameter estimated from other side of fence.

Project No. TS - 7546

### Addendum – Arborist Report

To: Pulte Group c/o Mariah Gill  
Site: 5 Degrees, Shoreline WA  
Date: August 11, 2021  
Project Arborist: Holly Iosso, Registered Consulting Arborist #567  
ISA Certified Arborist #PN- 6298A  
ISA Qualified Tree Risk Assessor  
Referenced: Arborist Report, (Iosso, Tree Solutions Inc. 4/9/2021)  
Corrections letter response (Iosso, Tree Solutions Inc., 4/2/2021)  
PLN20-0139 Correction Letter 2 (Lee, City of Shoreline, 7/23/2021)  
Code references: Shoreline Municipal Code: Tree Conservation, Land Clearing and Site Grading  
Standards (SMC 20.50.290 through .370)  
Attached: Arborist Tree Table – **Revised 8/11/2021**  
Tree Calculation Worksheet- Revised 8/10/2021  
Arborist Report – Revised 8/11/2021

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This addendum is in addition to the revised arborist report, authored by me, revised April 9, 2021. This addendum intends to clarify the information stated in that report and correct inconsistencies noted in the Correction Letter (PLN20-0139 Correction Letter 2 dated July 23, 2021).

The following are my responses to tree-related concerns by the city reviewer:

**Reviewer comment:**

**26. There are three trees labeled #98 on Sheet L0.1. Please clarify/correct plans. I recommend doing a quality control check before submitting the next revisions to make sure there are no other instances like this—when I do my follow-up site visit for trees items like this should be addressed.**

Tree 98 is insignificant. Will be changed on plan to say 'not significant plant'.

**Reviewer comment:**

**28.B Once all information is internally consistent, I will make a site visit to confirm.**

We will need to revisit the site to confirm tree flagging has not been removed prior to the next site visit by the reviewer. Or visit the site in conjunction with the reviewer which is preferred.

**DEV20-1621**

**Reviewer comment:**

**28 C. The arborist report states that a 9-foot TPZ is needed for Tree E, but Sheet L0.1 shows only a 7-foot TPZ is provided. Revise plans to comply with arborist report.**

**Tree E**

I have modified the arborist tree table to allow disturbance within 7 ft of tree 'E'. I have approved this reduction because the existing area is heavily compacted and used as a driveway currently.

This increased allowance is contingent on the following:

1. No soil disturbance should occur within this area.
2. Adjacent vegetation (rhododendron) cannot be ripped from the ground if it is removed. It can be left as a stump or use of a stump grinder is acceptable.
3. Wood chip mulch (6" deep) must be in place throughout the TPZ prior to demolition.
4. The face of any soil cuts (whether roots are exposed or not) must be covered with clear plastic or tarps at all times to reduce drying out of the soil.
5. New irrigation lines in this area must be installed parallel to, and within 6 inches of, the new sidewalk. No irrigation trenches are allowed closer to the protected tree.
6. No new plants are allowed within this area unless they are less than or equal to 1 gal containers.
7. Tree must be irrigated as specified throughout construction until permanent irrigation is operational.

**Reviewer comment:**

**31. There are still issues with trees proposed for retention being adequately protected per the arborist report and what is shown on Sheet L0.1. See table below. Please address these discrepancies in updated plans/arborist addendum.**

The allowable tree protection zone and dripline are differentiated on the arborist tree table. One column is labelled 'dripline' and one is labelled 'Allowable TPZ'. The reviewer's comment mistakenly calls out dripline measurements as the limits of disturbance instead of using the 'Allowable TPZ'.

**Tree 503**

I added language to the tree table to further define the limits of allowable disturbance. For this tree, disturbance can go as close to the tree as 15 feet (with tree protection fencing established as close as 14 feet). But where tree protection for this tree can increase to 25 feet, it should increase (e.g. parallel to the new driveway).

This increased allowance is contingent on the following:

1. An arborist must be present during demolition.
2. Adjacent vegetation/understory plants cannot be ripped from the ground or grubbed out if removed. It can be left in place or cut at grade.
3. Wood chip mulch (6" deep) must be in place prior to demolition in the tree protection area.

4. The face of any soil cuts (whether roots are exposed or not) must be covered with clear plastic or tarps at all times to reduce drying out of the soil.
5. New irrigation lines in this area must be installed parallel and within 6 inches of the new driveway. No irrigation trenches are allowed closer to protected trees within the tree protection area.
6. No new plants are allowed within this area unless they are 1 gal containers or smaller.
7. Tree must be irrigated as specified throughout construction until permanent irrigation is operational.

#### Tree 8832

This Doug-fir is relatively young and can withstand more disturbance than older trees can. While the dripline to the east is 17 feet, the allowable tree protection zone can go as close as 8, as it does for the cut-out of building G. The tree is subdominant with a smaller canopy and there will be little increased risk from this tree if roots are cut in this area.

#### Tree 9175

Disturbance is proposed 21 feet from this tree. Allowable TPZ in arborist report notes limits of disturbance can be as close as 17 feet from the tree, if disturbed on one side. This is not the case here, and there is adequate root retention proposed.

#### Tree 9176

Tree protection fencing is proposed as close as 14 feet from this tree where there was an existing rockery and change in topography. Proposed tree protection zone is extensive to the north and in my opinion leaves adequate roots intact.

This increased allowance is contingent on the following:

1. Adjacent tree (tree 9177) cannot be ripped from the ground or grubbed out when removed. It can be cut at 10 feet and left in place as a wildlife snag, ground out with a stump-grinder or cut at grade.
2. Wood chip mulch (6" deep) must be in place prior to demolition in the tree protection area.
3. The face of any soil cuts (whether roots are exposed or not) must be covered with clear plastic or tarps at all times to reduce drying out of the soil.
4. New irrigation lines in this area must be installed parallel and within 6 inches of the new driveway. No irrigation trenches are allowed beyond this within the tree protection area.
5. New plants are allowed within this area but should be minimized and should be as small as possible.
6. Tree must be irrigated as specified throughout construction until permanent irrigation is operational.

#### **Reviewer comment:**

**Within the tree protection fencing area indicated on plans there is a path and landscaping proposed. The arborist report addresses this briefly on Pages 3-4 of**

**the report, but plans don't address construction sequencing. Tree protection remains in place the duration of a site development permit, so how is the path and landscaping installed? Address in construction sequencing on plans (Sheet C2.31 and/or other appropriate sheets).**

Construction sequencing: Tree protection fencing should be in place, prior to any disturbance on site. Demolition of existing fence and potting shed within tree protection area should be removed by hand AFTER fencing and soil protection (wood chip mulch and plywood) are in place. An arborist should approve tree protection fencing and soil protection prior to proceeding with demolition.

Temporary irrigation should be in place in April in preparation for any construction during the dry season.

Fencing around preserved tree grove should have 2 locked gates to allow selective entry into this area and key should be kept with project engineer on site. All installation of paths and new plant material should be via hand methods, using wheelbarrows to transport materials.

Fencing may be moved only after the completion of construction – including the landscape installation phase—and with approval by the project arborist.

Add notes to plan for trees 9180, 9182, 9178, 9179, 9177 that trees cannot be ripped from the ground when removed. Stumps should be ground with a stump grinder or cut at grade and left in place.

Adjacent vegetation/understory plants cannot be ripped from the ground or grubbed out if removed. They can be left in place or cut at grade. Wood chip mulch (6" deep) must be in place prior to demolition in the tree protection area. The face of any soil cuts (whether roots are exposed or not) must be covered with clear plastic or tarps at all times to reduce drying out of the soil.

New irrigation lines in this area must be installed parallel and within 6 inches of the new driveway. No irrigation trenches are allowed beyond this within the tree protection area.

No new plants are allowed within this area unless they are 1 gal containers or smaller.

Tree must be irrigated as specified throughout construction until permanent irrigation is operational.

**Reviewer comments 29, 30, 35, 36, 37**

**Comments all mention that a revised Tree Retention Calculation Worksheet was not submitted. However, this was submitted. Tree retention calculations were all in submitted arborist report as well labelled as tables 1 and 2. (Therefore, these comments have already been addressed).**

To summarize:

67 significant trees will be removed from the site (excluding ROW trees)

139 new trees are required to be planted on site (excluding the ROW)

There are 110 new site trees proposed on site (excluding ROW trees). Therefore, the applicant is requesting a reduction in tree replacements be allowed from 139 down to 110.

## Tree Replacement reduction request criteria from SMC 20.50.360 (C):

*i. There are special circumstances related to the size, shape, topography, location, or surroundings of the subject property*

Yes, the site is oddly shaped and considering the size of the site, meeting the minimum replacement goals would create a situation where trees would be competing with each other for space and would not be good candidates for long-term retention on the site. As noted below, there is a large canopy of existing conifers that require significant area for the tree protection zone and planting the required number of replacement trees on this site while avoiding this zone would make development of the site very difficult and inefficient.

There is mature tree canopy adjacent to the parcel to the east. This tree cover, while not applicable to tree retention calculations, limits the available planting area on the east of the site to plant new trees on-site. These neighboring trees benefit the site by increasing canopy coverage in the vicinity but limit the potential planting area for replacement trees. Newly planted trees in this area would compete for water and sunlight, and new planting holes would disturb established root systems.

*ii. Strict compliance with the code may jeopardize reasonable use of property - ?*

The proposed landscape plan incorporates 110 out of the 139 required replacement trees. The area needed to plant an additional 29 trees on this site would require between 5000 and 20,000 sq feet<sup>1</sup>, which is 5-19%<sup>2</sup> more of the project site. This would impede the ability to develop the property to the density allowed by the MUR-35 zoning. The required spacing of trees from buildings, each other, and driveways does not allow for full compliance while also allowing for the proposed and remaining trees to grow in a healthy manner.

In addition, the dimensions of the required fire access lane both horizontal and vertical, preclude the ability to comply with planting the required trees without severely impacting the ability of the fire department to safely and securely access all the townhomes on the project site. This would jeopardize the safety of the residents of the proposed homes along with the surrounding existing residences.

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<sup>1</sup> Rounded to the nearest thousand. Calculated using canopy dimensions of a small tree (*Serviceberry / Amelanchier alnifolia*), and a medium tree (*Hedge maple / Acer campestre*) at maturity.

Small tree: 15 ft diameter. Square footage for a mature serviceberry =  $(15/2)^2 * 3.14 = 176.6$  sq ft

**176.6 sq ft \* 29 trees = 5122 sq feet**

Medium tree: 30 ft diameter. Square footage for a mature hedge maple =  $(30/2)^2 * 3.14 = 706.5$  sq ft

**706.5 sq ft \* 29 trees = 20,489 sq feet**

<sup>2</sup> Total area of site = 106,291 sq ft

% of site for 29 additional small trees:  $(5122 \text{ sq ft} / 106,291 \text{ sq ft}) * 100 \% = 4.8\%$

% of site for 29 additional medium trees:  $(20,489 \text{ sq ft} / 106,291 \text{ sq ft}) * 100 \% = 19\%$



- iii. *Proposed vegetation removal, replacement and any mitigation measure are consistent with the intent of the code –*

YES. The intent of the code is to keep tree canopy across the site where it can grow. The canopy of the existing conifers that are being protected far exceeds the tree canopy (in both quality and volume) of new deciduous trees. Conifers provide storm water management in the winter that small deciduous trees cannot provide. They also provide wildlife habitat, including nesting and perch opportunities that smaller trees will never be able to provide. Planting new trees within the tree protection zone and maximizing the number of trees per square foot of property, causes damage to existing root systems, increases competition for existing trees (sunlight, water, and nutrients), and fosters weaker, phototropic trees in an environment with increased disease potential. For these reasons, I do not advocate for over-planting this site, and have requested that new trees be minimally planted within tree protection zones.

- iv. *The granting of the standard reduction will not be detrimental to the public welfare –*

This is accurate. The proposed retention plan, in addition to the planting plan, will provide for heavy canopy cover at maturity, which is a benefit to the public, not a detriment.

Respectfully submitted,

Holly Iosso,  
Consulting Arborist