



Greenforest Incorporated



Consulting Arborist

TO: Farzad Ghazvinian

REFERENCE: Arborist Report
Permit Application 2007-015

SITE ADDRESS: 2928 72nd PL SE, Mercer Island, WA 98040

DATE: September 23, 2020

PREPARED BY: Favero Greenforest, ISA Certified Arborist # PN -0143A
ISA Tree Risk Assessment Qualified
ASCA Registered Consulting Arborist® #379

You contacted me and contracted my services as a consulting arborist. My assignment is to prepare a *significant tree inventory* of the regulated trees on the site, as per MI code §19.10.090.

You provided me a topographic survey prepared by Site Surveying, Inc., dated 3/13/2020. I visited the site 6/11/2020 and visually inspected the trees on this site, which are the subject of this report.

Summary:

	<i>Onsite</i>	<i>Offsite</i>
<i>Large</i>	<i>1</i>	<i>5</i>
<i>Exceptional</i>	<i>1</i>	<i>2</i>
<i>Grove</i>	<i>0</i>	<i>0</i>

This report establishes, via the most practical means available, the existing conditions of the trees on the subject property. Ratings for health and structure, as well as any recommendations are valid only through the development and construction process. This report is based solely on what is readily visible and observable, without any invasive means.

There are several conditions that can affect a tree's condition that may be pre-existing and unable to be ascertained with a visual-only analysis. No attempt was made to determine the presence of hidden or concealed conditions which may contribute to the risk or failure potential of trees on the site. These conditions include root and stem (trunk) rot, internal cracks, structural defects or construction damage to roots, which may be hidden beneath the soil. Additionally, construction and post-construction circumstances can cause a relatively rapid deterioration of a tree's condition.

TREE INSPECTION

I visually inspected each tree from the ground. I performed a Level 1 risk assessment.¹ This is the standard assessment for populations of trees near specified targets, conducted in order to identify obvious defects or specified conditions such as a pre-development inventory. This is a limited visual assessment focuses on identifying trees with imminent and/or probable likelihood of failure, and/or other visible conditions that will affect tree retention.

I recorded tree species and size (DBH). I estimated the average dripline of each tree. I rated the condition of each tree, both health and structure/form. A tree's structure/form is distinct from its health. This inspection identifies what is visible with both.

High-risk trees can appear healthy in that they can have a dense, green canopy. This may occur when there is sufficient sapwood or adventitious roots present to maintain tree health, but inadequate strength for structural support.

Conversely, trees in poor health may or may not be structurally stable. For example, tree decline due to root disease is likely to cause the tree to be structurally unstable, while decline due to drought or insect attack may not.

One way that tree health and structure/form are linked is that healthy trees are more capable of compensating for structural defects. A healthy tree can develop adaptive growth that adds strength to parts weakened by decay, cracks, and wounds.

This report identifies unhealthy trees based on existing health conditions and tree structure, and specifies which trees are most suitable for preservation.²

No invasive procedures were performed on any trees. The results of this inspection are based on what was visible at the time of the inspection.

¹ Companion publication to the ANSI A300 Part 9: Tree Shrub and Other woody Plant Management – Standard Practices, Tree Risk Assessment. 2011. ISA.

² Companion publication to the ANSI A300 Part 5: Tree Shrub and Other woody Plant Maintenance – Standard Practices, Managing Trees During Construction. 2008. ISA.

The attached inventory summarizes my inspection results and provides the following information for each tree:

Proposed Action – indicates if tree is to be removed or retained.

Threshold – for exceptional designation.

Regulated Tree Category – indicates if tree is small, large or exceptional as defined by Municipal code.

Grove tree – there are no grove trees associated with this parcel.

> 24" – indicates trees with DBH equal to or greater than 24".

Tree number as shown on attached exhibit.

DBH stem diameter in inches measured 4.5 feet from the ground. DBH for offsite trees is estimated, and not measured.

QMD - multiple-stemmed trees are reported as a single integer, using quadratic mean.

Tree Species Latin and common name.

Dripline average branch extension from the trunk as radius in feet.

Health and Structure/Form ratings '1' indicates good to excellent condition; no visible health-related problems or structural defects, '2' indicates fair condition; minor visible problems or defects that may require attention if the tree is retained, and '3' indicates poor condition; significant visible problems or defects and tree removal is recommended.

Comments on Condition obvious structural defects or diseases visible at time of inspection.

Tree type – indicates if tree is coniferous, deciduous or broadleaf evergreen.

PROPOSED TREE RETENTION

Both onsite trees are viable for retention. Tree #2 is proposed for removal, and its removal will have no impact on remaining trees on your parcel or on adjoining parcels.

TREE PROTECTION MEASURES

Minimum six (6) foot temporary chain-link fence shall be installed at the dripline of tree #1, except where covered in paving. This area includes non-paved area around small tree directly east and across the driveway. Fencing on the north side of tree #1 shall include protection for offsite tree #3. Install fence posts using pier block only. A City planner must approve any modifications to the fencing material and location. (See attached exhibit.)

No stockpiling of materials, vehicular or pedestrian traffic, material storage or use of equipment or machinery shall be allowed within the protective fencing. Fencing shall not be moved or removed unless approved by a City planner. Any work, activity or soil disturbance

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within the protection fencing, or critical root zone, shall be reviewed, approved and monitored by the project arborist.

Instructions and specifications for pruning roots or branches shall be addressed individually for specific trees based on the proposed encroachment.

Fencing signage as detailed (see attached) must be posted every fifteen (15) feet along the fencing.

Upon Review of Sheet 1 a.

In addition to my experience as a consulting arborist for the past 32 years, the following guides and standards are used to determine the limits of allowable disturbance and critical root zones for the subject trees.

Andrew R. Benson, Andrew Koeser, Justin Morgenroth. *Responses Of Mature Roadside Trees To Root Severance Treatments*. 2019. Journal of Urban Forestry & Urban Greening.

Coder, Kim D. 2005. Tree Biomechanics Series. University of Georgia School of Forest Resources.

Companion publication to the ANSI A300 Series, Part 5: Managing Trees During Construction. 2008. ISA.

Fite, Kelby and E. Thomas Smiley. 2009. Managing Trees During construction; Part Two. Arborist News. ISA.

Smiley, E. Thomas, Ph. D. Assessing the Failure Potential of Tree Roots, Shade Tree Technical Report. Bartlett Tree Research Laboratories.

Although limits of allowable disturbance (LOAD) are provided for all trees, soil disturbance is proposed near only one tree: offsite tree #3: offsite tree 3, an exceptional native Western red-cedar. For all other trees, equipment use will occur on paved surfaces, and worker access upon 9" woodchips.

Additionally, for all trees, proposed and *potential encroachment* is limited to only one side of the tree, as all trees are either at the perimeter of the subject parcel, or along the edge of the ingress/egress easement at the site entrance.

Equipment use for construction and for deliveries shall be limited to existing paved surfaces.

The use of wood chips around the perimeter of the house will allow construction and worker access, and reduce soil water loss and prevent soil compaction.

Category	Tree No.	DBH (In.)	Species	Dripline (R')	LOAD (R')
Exceptional	1	38"	Deodar cedar	27'	20'
Large	2	26"	Alpine fir	12'	13'
OFFSITE TREES					
Exceptional	3	36"	Western red-cedar	18'	See attached exhibit.
Large	4	26"	Western red-cedar	16'	13'
Large	5	20"	Western hemlock	19'	10'
Exceptional	6	48"	Sweet cherry	0	18'
Large	7	12,16,16"	Western red-cedar	14'	16'
Large	8	22"	Douglas-fir	16'	12'
Large	9	18"	Western hemlock	0	10'

Proposed Encroachments, Critical Root Zones, and Recommendations to Minimize Impact

Category	Tree No.	Species DBH	Dripline (R')	Proposed Encroachment/ Recommendations
Exceptional	1	Deodar cedar, <i>Cedrus deodar</i> 38"	27'	Tree to be retained. No encroachments proposed within dripline or LOAD. Tree protection fencing (TPF) to follow edge of existing driveway as shown on attached exhibit, both north and east of the tree. This TPF is also to protect roots of offsite tree 6, and allows for worker access and construction activities around the perimeter of the house.
Large	2	Alpine fir, <i>Abies procera</i> 26"	12'	Tree to be removed.

Category	Tree No.	Species DBH	Dripline (R')	Proposed Encroachment/ Recommendations
OFFSITE TREES TO BE PROTECTED				
Exceptional	3	Western red-cedar, <i>Thuja plicata</i> 36"	18'	Existing covered concrete patio is 13' from this tree. It likely acts as a root growth obstruction, and the existing overhead cover blocks precipitation, also reducing root growth beneath it. A new thickened edge is proposed at the perimeter of this slab 12" wide and 12" deep, which will require excavation of an additional 6" below the existing slab edge. This soil disturbance has potential to expose and injury roots. TPF must not only protect the tree but also allow for worker access and construction activities around the house. The area between the house and TPF shall be covered and maintained in 9" woodchips during construction, to reduce soil water loss and prevent soil compaction.
Large	4	Western red-cedar, <i>Thuja plicata</i> 26"	16'	Tree stands along ingress/egress easement on abutting parcel. Canopy is high and will not be injured by equipment access. All vehicles must stay on paved asphalt driveway to prevent soil compaction and buttress root injury.
Large	5	Western hemlock, <i>Tsuga heterophylla</i> 20"	19'	5' from existing house foundation, ground between PL and house to be covered and maintained in 9" woodchips during construction to reduce soil water loss, and prevent soil compaction.

Category	Tree No.	Species DBH	Dripline (R')	Proposed Encroachment/ Recommendations
Exceptional	6	Sweet cherry, <i>Prunus avium</i> 48"	0	This tree is 8' from existing house corner. Has ben over pruned and its canopy is nearly all above the abutting parcel. No soil disturbance is proposed around the SW corner of the existing house or within this tree's LOAD, and this area to be open for construction access, and the ground covered and maintained in 9" woodchips during construction.
Large	7	Western red-cedar, <i>Thuja plicata</i> 12,16,16" (27")	14'	Trees along ingress/egress easement on abutting parcel. Canopies are high and will not be injured by equipment access. All vehicles must stay on paved asphalt driveway to prevent soil compaction and buttress root injury.
Large	8	Douglas-fir, <i>Pseudotsuga menzeisii</i> 22"	16'	
Large	9	Western hemlock, <i>Tsuga heterophylla</i> 18"	0	Ground between PL and house to be covered and maintained in 9" woodchips during construction to reduce soil water loss, and prevent soil compaction.

REPLACEMENT TREES

Recommended species for replacement:

- Incense cedar, *Calocedrus decurrens*
- Lawson cypress, *Chamaecyparis lawsoniana*
- Garry oak, *Quercus garryana*

Recommended planting sites are shown on the attached exhibit.



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Replacement trees shall be 6-8 feet tall, each with a single, straight trunk without defect or deformity. Each tree shall have even branch distribution around and along the trunk's axis, with a minimum 90% live crown ratio (percent of trunk with foliage-bearing branches).

Deciduous trees shall be minimum 2" caliper, a trunk free from defect or injury, even and uniform branch distribution, and a LCR of 30% or greater.

The trees shall have foliage that is normal in color and density, and shoot growth evident of good tree vitality.

Tree planting activities shall comply with ANSI A-300 Part 6:Tree, Shrub, and Other Woody Plant Maintenance – Standard Practice (Transplanting). And shall follow ISAs Best Management Practices – Tree Planting (2005).

Rootballs shall be set on undisturbed or packed soil to prevent sinking, and the rootcrowns shall be exposed prior to planting and set level with finished grade. All wires, cords and burlap shall be removed at planting. If staking is required to keep the tree upright during establishment, all cores, stakes and wires shall be removed after one year.

English laurel may require pruning to provide space and light for replacement trees.

Attachments:

1. Assumptions and Limiting Conditions
2. Certification of Performance
3. Tree Protection and Planting Exhibit
4. Tree Protection Detail
5. Significant Tree Inventory
6. Tree Number Exhibit

Attachment No. 1 - Assumptions & Limiting Conditions

1. A field examination of the site was made 6/11/2020. My observations and conclusions are as of that date.
2. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/arborist can neither guarantee nor be responsible for the accuracy of information provided by others.
3. I am not a qualified land surveyor. Reasonable care was used to match the trees indicated on the sheets with those growing in the field.
4. Construction activities can significantly affect the condition of retained trees. All retained trees should be inspected after construction is completed, and then inspected regularly as part of routine maintenance.
5. Unless stated other wise: 1) information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of inspection; and 2) the inspection is limited to visual examination of the subject trees without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the subject tree may not arise in the future.
6. All trees possess the risk of failure. Trees can fail at any time, with or without obvious defects, and with or without applied stress. A complete evaluation of the potential for this (a) tree to fail requires excavation and examination of the base of the subject tree. Permission of the current property owner must be obtained before this work can be undertaken and the hazard evaluation completed.
7. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made.
8. This report and any values/opinions expressed herein represent the opinion of the consultant/appraiser, and the consultant's/appraiser'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.

Attachment No. 2 - Certification of Performance

I, Favero Greenforest, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately.
- I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinion, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client of any other party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of International Society of Arboriculture (ISA), and the ISA PNW Chapter, I am an ISA Certified Arborist (#PN-0143A) and am Tree Risk Assessment Qualified, and am a Registered Consulting Arborist® (#379) with American Society of Consulting Arborists. I have worked as an independent consulting arborist since 1989.

Signed:

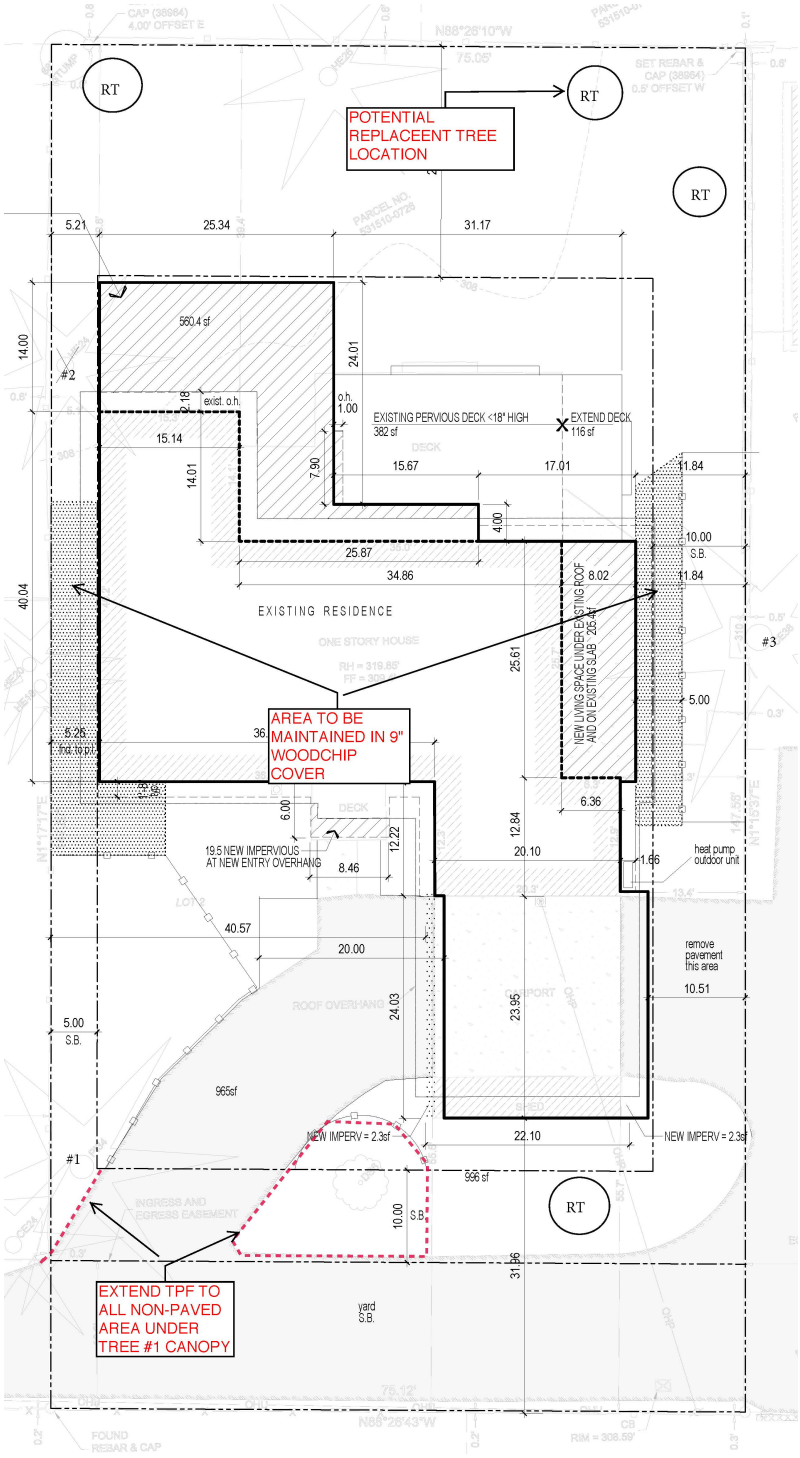


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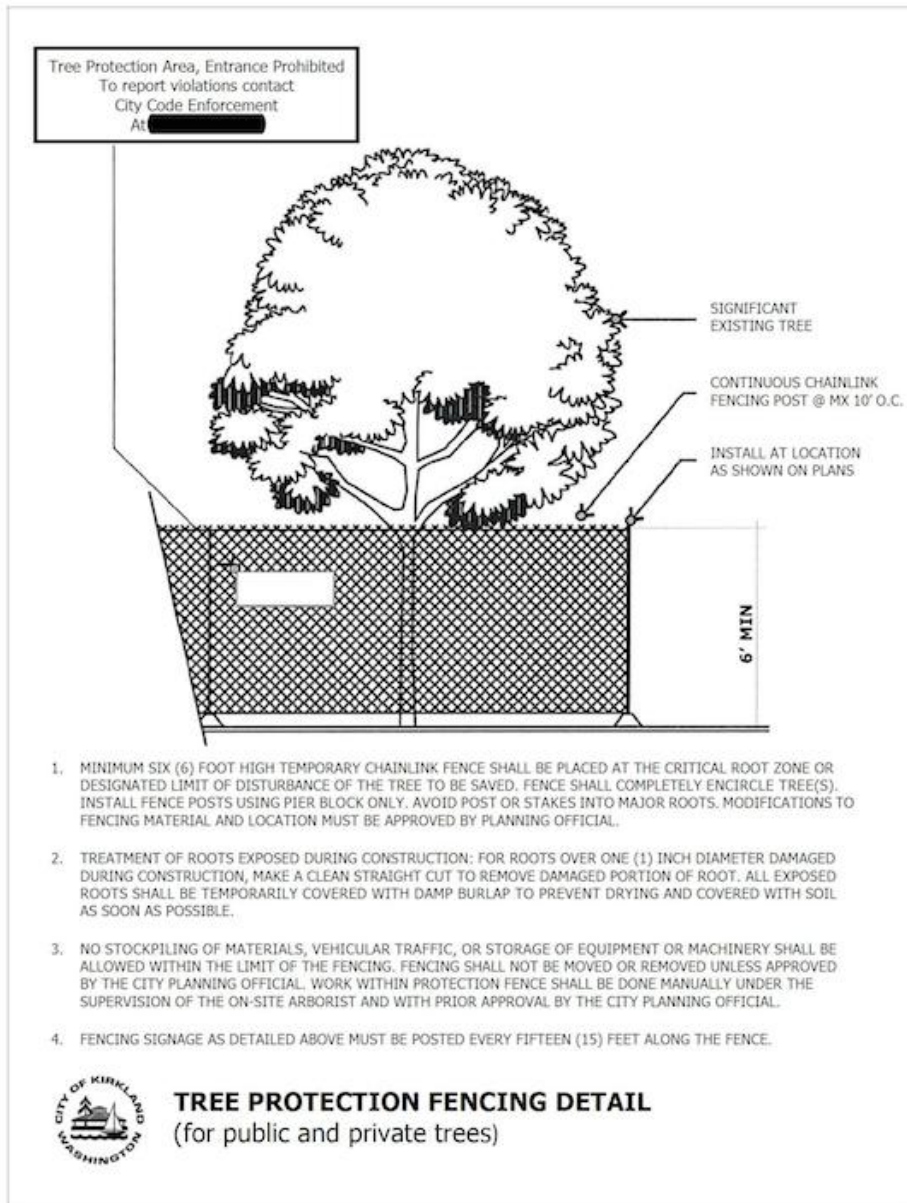
By Favero Greenforest, M. S.

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Tree Protection and Planting Exhibit



Attachment No. 3 – Tree Protection Detail



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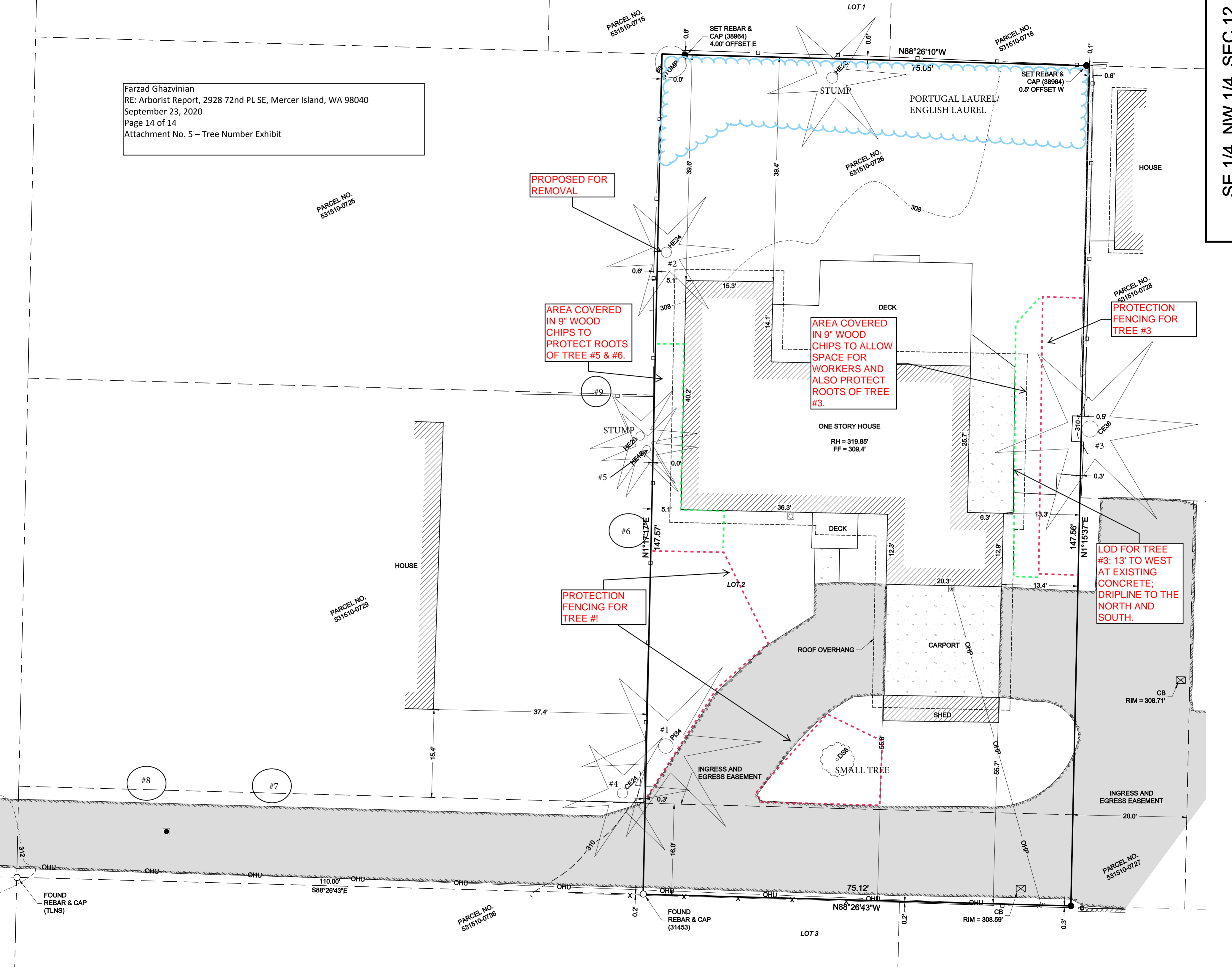
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Attachment No. 4 – Significant Tree Inventory

Proposed Action	Threshold for Exceptional (in.)	Category	Grove	≥ 24" DBH	Tree No.	DBH (QMD)	Species	Dripline (R')	Health	Structure	Comments on Condition	Tree Type
RETAIN	30"	Excep.	NO	YES	1	38"	Deodar cedar, <i>Cedrus deodar</i>	27'	1	2	Multiple stems, trunk covered in ivy	CE
REMOVE	36"	Large	NO	YES	2	26"	Alpine fir, <i>Abies procera</i>	12'	1	2	5' from existing house corner, growth obstruction	CE
Offsite	30"	Excep.	NO	YES	3	36"	Western red-cedar, <i>Thuja plicata</i>	18'				CE
Offsite	30"	Large	NO	YES	4	26"	Western red-cedar, <i>Thuja plicata</i>	16'				CE
Offsite	24"	Large	NO		5	20"	Western hemlock, <i>Tsuga heterophylla</i>	19'			5' from existing house foundation, growth obstruction	CE
Offsite	36"	Excep.	NO	YES	6	48"	Sweet cherry, <i>Prunus avium</i>	0			8' from existing house corner, growth obstruction. Several stems topped in past at PL	BD
Offsite	30"	Large	NO	YES	7	12,16,16" (27")	Western red-cedar, <i>Thuja plicata</i>	14'				CE
Offsite	30"	Large	NO		8	22"	Douglas-fir, <i>Pseudotsuga menzeisii</i>	16'				CE
Offsite	24"	Large	NO		9	18"	Western hemlock, <i>Tsuga heterophylla</i>	0				CE



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Attachment No. 5 – Tree Number Exhibit



PROPOSED FOR REMOVAL

AREA COVERED IN 9" WOOD CHIPS TO PROTECT ROOTS OF TREE #5 & #6.

AREA COVERED IN 9" WOOD CHIPS TO ALLOW SPACE FOR WORKERS AND ALSO PROTECT ROOTS OF TREE #3.

PROTECTION FENCING FOR TREE #3

PROTECTION FENCING FOR TREE #1

LOD FOR TREE #3: 13' TO WEST AT EXISTING CONCRETE; DRIPLINE TO THE NORTH AND SOUTH.

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Attachment No. 5 – Tree Number Exhibit