

Arborist Report

To: 3H Development, LLC c/o Sisi Duan
Site: 2419 72nd Ave SE, Mercer Island, WA 98040
Re: Tree Inventory
Date: July 24, 2024
Project Arborist: George White
ISA Certified Arborist PN-8908A
ISA Qualified Tree Risk Assessor
Reviewed By: Tyler Bunton
ISA Certified Arborist PN-8715A
ISA Qualified Tree Risk Assessor
Referenced Documents: Site Plan G1.0 (5ft2 Studio Architects, 6.5.2024)
Attached: Table of Trees
Tree Site Map

Summary

I inventoried and assessed 16 large (regulated) and exceptional trees on this site. I tagged each tree with a numbered aluminum tree tag. Tree identifiers correspond to the number on each tag.

Of the trees assessed, two met the exceptional tree criteria outlined in the Mercer Island City Code (MICC).

There were two adjacent trees that required documentation for this property. Trees on neighboring properties were documented if they appeared to be large (regulated) or exceptional trees 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). I used alphabetical tree identifiers for trees off-site.

Three of the inventoried trees (Trees 98, 101, and 102) are proposed to be removed prior to development through a hazard tree removal permit.

I reviewed Site Plan G1.0 (5ft2 Studio Architects, 6.5.2024) for tree retention feasibility. If these plans are implemented, nine additional on-site trees, will be removed. One adjacent tree, located in the ROW will also be removed.

All retained, on-and-off site trees will require tree protection measures during construction.

Assignment and Scope of Work

This report outlines the site inspection by George White of Tree Solutions Inc., on December 6, 2023. I was asked to visit the site and provide a formal report including findings and management recommendations. Sisi Duan, of 3H Development LLC, requested these services for project planning purposes.

Observations and Discussion

Site

This 9,000 square foot site is located on 72nd St SE in Mercer Island, WA and is in a residential (R-8.4) zone. According to the City of Mercer Island GIS Portal, no environmentally critical areas exist on-site. A small, ADU-style single family residence currently exists in the southwest corner of the site. The remainder of the site is undeveloped.

Understory vegetation had been recently cleared at the time of my site visit; however, the remaining vegetation was primarily invasive plant species such as English ivy (*Hedera helix*) and Himalayan blackberry (*Rubus bifrons*). Based on available imagery from Google Street View, invasive vegetation was pervasive ahead of recent brush clearing. All invasive vegetation should be removed during development.

Proposed Plans

The most recent plans (Site Plan G1.0, 5ft2 Studio Architects, 6.5.2024) propose the demolition of all existing structures and the construction of a new, single-family home and associated utilities.

Trees

I inventoried and assessed 16 large (regulated) and exceptional trees on-site. Tree species on-site were primarily native species including bigleaf maple (*Acer macrophyllum*), western redcedar (*Thuja plicata*), and Douglas-fir (*Pseudotsuga menziesii*). One shore pine (*Pinus contorta* var. *contorta*) was located in the adjacent ROW. Some ornamental species such as Portuguese laurel (*Prunus lusitanica*) and Fraser photinia (*Photinia fraserii*) also existed on-site but were below regulated size.

The trees on-site varied significantly in health and structural condition as several trees were determined to be in poor health or structure.

I identified two trees (94, 101) that meet the definition of a hazardous tree.

Tree 88

Tree 88 is an exceptional bigleaf maple in good health and good structure, growing immediately north of the existing building. While this tree has a high retention value, its retention may be difficult due to its proximity to the existing structure that is proposed for demolition.

Tree 93

Tree 93 is bigleaf maple in poor health and structural condition located centrally in the northern portion of the site. This tree is hollow, previously lost its top and is functionally a living snag. This tree should not be prioritized for retention.

Tree 94

Tree 94 is a bigleaf maple located centrally near the north property line. This tree has a significant phototropic lean to the north and sounds hollow near the base when sounded with a hammer. I identified signs of *Armillaria* sp. and *Kretschmeria deusta* at the base of this tree. This tree should be prioritized for removal because it targets the house to the north and may be considered a hazard tree.

Trees 97, 99, and 100

Trees 97, 99, and 100 are western redcedar trees in poor health located near the eastern property edge. These trees should not be prioritized for retention because they are unlikely to recover due to the species susceptibility to construction impacts.

Tree 101

Tree 101 is a 28-inch bigleaf maple located near the southern property edge. This tree is in good health but is in poor structural condition. This tree is codominant at 8 feet with a narrow union and included bark. The southern stem, which targets the house south of the subject property is poorly attached and poses a risk to the adjacent structure. I recommend mitigating this hazard by reducing the southern stem of the tree and installing a dynamic cable between the two stems to prevent failure.

Tree 102

Tree 102 is an exceptional Douglas-fir located near the existing driveway. This tree is in excellent health and fair structural condition, as it has been previously topped. This tree has a high retention value, but the remaining crown should be managed through pruning.

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

Discussion – Tree Regulations

Required Tree Retention

MICC 19.10.060.A.2.a requires that 30 percent of the large trees be retained during development projects located in a single-family residential zone. A total of 13 regulated trees will remain on-site following the removal of trees 98, 101, and 102 under a hazard tree removal permit; therefore, a total of four regulated trees must be retained during the project.

Five trees (Trees 87-89, 91, and 92) are currently proposed for retention satisfying these requirements.

Exceptional Trees

The city of Mercer Island requires projects to minimize the removal of exceptional trees, trees greater than 24 inches in diameter, and trees that are part of a healthy grove per MICC 19.10.060.A.2.b. Trees located outside of the area of land disturbance must also be retained unless their retention conflicts with proposed utilities, driveways, etc.

No exceptional trees, or trees with diameter greater than 24 inches are proposed for removal as part of this development project.

Trees Located on Public Property

Trees located on public property are regulated under MICC 19.10.100. A tree permit must be obtained prior to removing or pruning any tree located on public property, including the ROW.

No trees on public property are currently proposed for removal. All trees on public property must be protected during construction.

Replacement Trees

Replacement trees are required to be planted for trees removed for site development per MICC 19.10.070. Replacement tree requirements are outlined in Table 1. below

Diameter of Removed Tree	Number of Replacement Trees Required
Less than 10 inches	1
10 inches up to 24 inches	2
24 inches up to 36 inches	3
More than 36 inches and any exceptional trees	6

Table 1. Tree replacement requirements (*Per MICC 19.10.070 – Tree Replacement*)

For this project a total of 16 replacement trees will be required. Additional replacement trees, or fees-in-lieu of replacement may also be required for the two trees that are proposed to be removed prior to development via a hazard tree removal permit.

In general, replacement trees are required to be planted on-site and are required to be species native to the pacific northwest. Planted deciduous trees must be at least 1.5 inches in caliper and planted evergreen trees must be at least 6 feet tall. The city arborist may approve off-site planting, alternative replacement species, or fee-in-lieu of replacement if specific conditions exist.

Discussion—Construction Impacts

Tree Removal

Trees 90, and 93-100 are proposed for removal because their root zones conflict with the locations of proposed improvements. All removed trees must be felled directionally or be pieced down by an ISA certified arborist.

The stumps of removed trees that are located within the recommended limits of disturbance (RLOD) of a retained tree should be ground in place or cut to grade and abandoned and should not be ripped out with machinery.

Tree Protection

All retained, on-site trees and all off-site trees must be protected during construction to the standards outlined in MICC 19.10.080.

No ground disturbance is allowed within the minimum limits of disturbance (MLOD), defined as five times DSH, or 6 feet from the tree trunk, whichever is greater. Development work within the MLOD has high a potential for mechanical damage to structural roots and may destabilize trees.

Development work may occur within the RLOD, defined as eight times DSH or greater, depending on individual tree species and/or condition. All work proposed within the RLOD must be reviewed and approved by the project arborist and the City of Mercer Island. Tree protection fencing consisting of 6-foot-tall chain-link fencing is required to be installed at the RLOD of each protected tree. The RLOD for each retained tree is listed in the attached table of trees.

Reductions to the limits of disturbance to below the RLOD, or work proposed within the RLOD will likely require specialized construction techniques including, but not limited to, alternative excavation, soil protection, and arborist monitoring.

Additional tree protection specifications can be found in Appendix F.

Specific tree protection recommendations for individual trees are discussed below:

Trees 87, 91, and 92

Trees 87, 91 and 92 should be protected with tree protection fencing placed outside the RLOD listed for each tree in the attached table of trees. This tree protection fencing should completely enclose the western portion of the site to clearly delineate a Tree Protection Zone (TPZ) (This TPZ will also include tree 88, however it will not enclose the entirety of its RLOD to the east). Tree Protection Fencing should be installed prior to any demolition or grading activities.

No excavation, grading, materials storage, trenching, or machine/vehicle access is permitted within this TPZ without coordination from the project arborist.

Tree 88

Because tree 88 is growing in immediate proximity to existing structures. All demolition should be conducted carefully under direct supervision of the project arborist. Where feasible, existing below-ground structures (such as concrete footings) should be abandoned in place to avoid unnecessary root damage. All demolition machinery must be operated from existing hardscapes, or soil protection methods must be implemented to avoid compaction and mechanical root damage. The concrete patio surrounding the tree should be demolished/removed by hand and the areas exposed following removal should be immediately covered with a 4-to-6-inch layer of uncomposted woody mulch.

Tree Protection fencing should be installed outside of the MLOD (5x trunk diameter) from the base of tree 88 to the east. The fencing should include the entire RLOD in all other cardinal directions.

No excavation is proposed within the RLOD of this tree.

Tree 89

Tree Protection fencing should be installed outside of the MLOD (5x trunk diameter) from the base of tree 89 to the east. The fencing should include the entire RLOD in all other cardinal directions.

No excavation is proposed within the RLOD of this tree.

Tree B

Tree B must be protected with tree protection fencing installed at the outside edge of its RLOD except for those areas protected by existing hardscapes. If existing hardscapes are removed, the tree protection fencing should immediately be moved outward to encompass the entire RLOD.

Mulch and Irrigation

To mitigate the stresses induced by construction on retained trees, I recommend installing a 4-to-6-inch layer of coarse, woody mulch (arborist woodchips) throughout the entire TPZ that surrounds trees 87, 88, 91 and 92. This mulch layer should be installed immediately following demolition.

Supplemental irrigation should also be implemented within the TPZ during the dry summer months from June through September. Irrigation should run once per week and should wet the soil to a depth of 8 inches below the mulch layer. Continued summertime irrigation is also recommended for the 3 years following construction.

Recommendations

Pre-Construction

- Obtain all necessary permits and approval from the city prior to commencement of site work.
- Obtain a separate tree removal permit prior to the removal of trees 101 and 102.
- Plan to protect all retained trees and all off-site trees to the standards outlined in MICC 19.10.080 and Appendix F.
- All relevant plan sheets must include:
 - The MLOD and RLOD of all retained trees.
 - The proposed locations of tree protection fencing consistent with the recommendations in this report.
 - The locations of all trees proposed for removal marked with an X.
 - Notes pertaining to specific tree protection efforts described in this report.
- Add 20 replacement trees to the landscape plan or pursue alternate planting or fees-in-lieu of planting.
- Have the project arborist present a pre-construction meeting to coordinate tree protection efforts

During Construction

- Tree protection consisting of 6-foot-tall chain-link fencing should be installed at the precise locations outlined in the body of this report prior to any construction related activities including demolition.
- The demolition of existing structures within the RLOD of tree 87 should be monitored by the project arborist.
- Install a 3–4-inch layer of mulch within the TPZ
- Establish and maintain supplemental irrigation within the TPZ from June to September.
- All required pruning should be conducted by an ISA certified arborist in accordance with current and applicable ANSI A300 pruning standards.
- Remove all invasive plant species during development.

Post-Construction

- Plant all required replacement trees.
- Continue supplemental summer irrigation for the 3 years following construction.

Respectfully submitted,

George White – Consulting Arborist

Appendix A Glossary

DBH or DSH: diameter at breast or standard height; the diameter of the trunk measured 54 inches (4.5 feet) above grade (Council of Tree and Landscape Appraisers 2019)

tree grove: a group of eight or more trees each 10 inches or more in diameter that form a continuous canopy. Trees that are part of a grove shall also be considered exceptional trees, unless they also meet the definition of a hazardous tree. (MICC 19.16.010)

exceptional tree: a tree measuring 36 inches DSH or greater or with a diameter that is equal to or greater than the diameter listed in the Exceptional Tree Table (MICC 19.16.010)

ISA: International Society of Arboriculture

large tree (regulated): A tree measuring 10 inches or greater DSH (MICC 19.16.010)

MLOD (Minimum Limits of Disturbance) Minimum Limits of Disturbance: represents a distance five (5) times that of the trunk or 6-feet, whichever is greater, and is the minimum distance from a trunk that a structural root can be cut to maintain tree stability.

RLOD (Recommend Limits of Disturbance): As outlined in ISA Best Management Practices: Managing Trees During Construction, this is calculated as a radial distance 8 times the trunk diameter or greater depending on tree species and/or condition. For the purpose of this report, this represents the critical root zone (CRZ).

Visual Tree Assessment (VTA): method of evaluating structural defects and stability in trees by noting the pattern of growth (Mattheck & Breloer 1994)

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.

Council of Tree and Landscape Appraisers, Guide for Plant Appraisal, 10th Edition Second Printing. Atlanta, GA: The International Society of Arboriculture (ISA), 2019.

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

Mattheck, Claus and Helge Breloer, The Body Language of Trees.: A Handbook for Failure Analysis. London: HMSO, 1994.

Mercer Island Municipal Code (MICC) 19.16.010. Definitions

Mercer Island Municipal Code (MICC) 19.10. Trees

Appendix C Photographs



Photograph 1. The base of tree 88. Careful demolition will be required to retain this tree.



Photograph 2. The base of tree 94. This tree poses a hazard to the house north of the property and should be prioritized for removal.



Photograph 3. Trees 97-99. Trees 97 and 99 are western redcedars in poor health.



Photograph 4. The base of tree 101 with a poor union. The southern stem (red arrow) should be reduced to mitigate the hazard posed by this tree to the adjacent house.



Photograph 5. Tree 102 (red arrow). This tree should be prioritized for retention. Growth in the upper crown should be managed through pruning.

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

I measured the diameter of each tree at 54 inches above grade, diameter at standard height (DSH). If a tree had multiple stems, I measured each stem individually at standard height and determined a single-stem equivalent diameter by using the method outlined in the Guide for Plant Appraisal, 10th Edition Second Printing published by the Council of Tree and Landscape Appraisers. A tree is regulated based on this single-stem equivalent diameter value. Because this value is calculated in the office following field work, some unregulated 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

I tagged each tree with a circular aluminum tag at eye level. I assigned each tree a numerical identifier on our map and in our tree table, corresponding to this tree tag. I used alphabetical identifiers for trees off-site.

Evaluating

I 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, I took into consideration crown indicators such as foliar density, size, color, stem and shoot extensions. When rating tree structure, I 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.

Health

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 $\frac{3}{4}$ 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.

Structure

Excellent - Root plate undisturbed and clear of any obstructions. Trunk flare has normal development. No visible trunk defects or cavities. Branch spacing/structure and attachments are free of any defects.

Good - Root plate appears normal, with only minor damage. Possible signs of root dysfunction around trunk flare. Minor trunk defects from previous injury, with good closure and less than 25% of bark section missing. Good branch habit; minor dieback with some signs of previous pruning. Codominant stem formation may be present, requiring minor corrections.

Fair - Root plate reveals previous damage or disturbance. Dysfunctional roots may be visible around the main stem. Evidence of trunk damage or cavities, with decay or defects present and less than 30% of bark sections missing on trunk. Co-dominant stems are present. Branching habit and attachments indicate poor pruning or damage, which requires moderate corrections.

Poor - Root plate disturbance and defects indicate major damage, with girdling roots around the trunk flare. Trunk reveals more than 50% of bark section missing. Branch structure has poor attachments, with several structurally important branches dead or broken. Canopy reveals signs of damage or previous topping or lion-tailing, with major corrective action required.

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 is to be set at the Recommended Limits of Disturbance listed in the Table of Trees. In some cases, the TPZ may extend outside tree protection fencing. Work within the TPZ must be approved and monitored by the project arborist.
3. **Tree Protection Fencing:** Tree protection shall consist of 6-foot-tall 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. Where work is planned within the TPZ, install fencing at edge of TPZ and move to limits of disturbance at the time that the work within the TPZ is planned to occur. 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:** 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. 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 or at the edge of 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 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. **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.
10. **Canopy Protection:** Where fencing is installed at the limits of disturbance within the TPZ, canopy management (pruning or tying back) shall be conducted to ensure that vehicular traffic does not damage canopy parts. Exhaust from machinery shall be located 5 feet outside the dripline of retained trees. No exhaust shall come in contact with foliage for prolonged periods of time.

11. **Duff/Mulch:** Apply 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 to facilitate mulch application. Keep mulch 1 foot away from the base of trees and 6 inches from retained understory vegetation. Retain and protect as much of the existing duff and understory vegetation as possible.
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, stop excavation and cleanly sever roots. The project arborist shall monitor all excavation done within the TPZ.
13. **Fill:** Limit fill to 1 foot of uncompacted well-draining soil, within the TPZ of retained trees. In areas where additional fill is required, consult with the project arborist. Fill must be kept at least 1 foot from the trunks of 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 of these specifications. Replace fencing at edge of TPZ if soil exposed by hardscape removal will remain 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 in place 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 with soil disturbance within the TPZ 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.
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. **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.
21. **Materials:** Contractor shall have the following materials onsite and available for use during work in the TPZ:
 - **Sharp and clean bypass hand pruners**
 - **Sharp and clean bypass loppers**
 - **Sharp hand-held root saw**
 - **Reciprocating saw with new blades**
 - **Shovels**
 - **Trowels**
 - **Clear polyethylene sheeting**
 - **Burlap**
 - **Water**

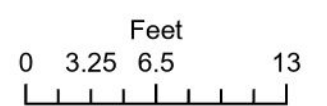


2940 Westlake Ave N #200
 Seattle, WA 98109
 206-528-4670

3H Development LLC
 2419 72nd Ave SE
 Mercer Island, WA 98040
 Parcel No. 2174504040

Legend

- Assessed Trees
- King County Parcels



Site Map

Date: December 8, 2023

Arborist:
 George White
 ISA PN-8908A
 ISA QTRA

Maxar, Microsoft, Esri Community Maps Contributors, City of Seattle, King County, WA State Parks GIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, King County, EagleView Technologies, Inc.

Parcel boundaries are located approximately.

DSH (Diameter at Standard Height) is measured 4.5 feet above grade, or as specified in the Guide for Plant Appraisal, 10th Edition, published by the Council of Tree and Landscape Appraisers.
DSH for multi-stem trees are noted as a single stem equivalent, which is 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.
Minimum Limit of Disturbance (MLOD) is defined as 5 times trunk diameter or 6 feet, whichever is greater.
Recommended Limit of Disturbance (RLOD) is 8 times trunk diameter or greater depending on tree species and/or condition.
Dripline is measured from the center of the tree to the outermost extent of the canopy.

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	Dripline (feet)	Exceptional Threshold	Exceptional	24-Inch DSH or Greater	RLOD (feet)	Proposed Action	Replacement Trees	Notes
87	<i>Acer platanoides</i>	Norway maple	12.5		Good	Good	18.5	-		-	8	Retain	-	Debris, deck, and patio at base, phototropic lean to west
88	<i>Acer macrophyllum</i>	Bigleaf Maple	32.0		Good	Good	36.3	30.0	Exceptional - Size	Yes	21	Retain	-	Trunk enveloping existing structure, roots likely extend below existing structure (esp if constructed as slab on grade), tree lifting adjacent hardscapes
89	<i>Acer macrophyllum</i>	Bigleaf Maple	22.1		Good	Fair	25.9	30.0		-	15	Retain	-	Large wound on north side of trunk with considerable decay, decent reaction wood, tree may have been topped at 15 feet (historically)
90	<i>Acer macrophyllum</i>	Bigleaf Maple	19.2		Fair	Good	20.3	30.0		-	13	Remove	2	Ivy on trunk, abnormal flat spot on west side of trunk, hollow when sounded at base
91	<i>Acer macrophyllum</i>	Bigleaf Maple	20.9		Good	Good	27.9	30.0		-	14	Retain	-	Light ivy on trunk
92	<i>Thuja plicata</i>	Western Redcedar	27.8		Good	Good	15.2	30.0		Yes	19	Retain	-	Corrected phototropic lean to southwest
93	<i>Acer macrophyllum</i>	Bigleaf Maple	18.8		Poor	Poor	16.8	30.0		-	13	Remove	2	Living snag, one living branch remaining, significant decay with poor reaction growth, previously lost top at 15 feet above grade, wildlife habitat, armillaria present
94	<i>Acer macrophyllum</i>	Bigleaf Maple	19.6		Fair	Fair	29.8	30.0		-	13	Remove	2	Base hollow when sounded, Krestchmeria fruiting bodies at base, significant phototropic lean to north (20 degrees), targets house to north, significant armillaria on north side, old sealed wound present on east aspect
95	<i>Thuja plicata</i>	Western Redcedar	22.4		Fair	Good	12.9	30.0		-	15	Remove	2	Declining top, ivy on trunk, hollow, old wound at base with good reaction wood, chicken wire attached to trunk
96	<i>Thuja plicata</i>	Western Redcedar	21.8		Fair	Fair	18.9	30.0		-	15	Remove	2	Dead top and thinning foliage in upper crown, significant but corrected lean to east, bark lifting and quick reaction growth at base, wound at west side of base with good reaction wood, chicken wire attached to trunk
97	<i>Thuja plicata</i>	Western Redcedar	17.7		Poor	Poor	10.7	30.0		-	12	Remove	2	Dead top (removed), limited live foliage, ivy on trunk
98	<i>Acer macrophyllum</i>	Bigleaf Maple	21.5		Good	Poor	18.9	30.0		-	14	Remove- Non development permit	Replacement trees may be required pursuant to non-development tree permit	Large open cavity at base, previous top failure, completely hollow, vigorous epicormic sprouting, limited K. deusta at base
99	<i>Thuja plicata</i>	Western Redcedar	23.9		Poor	Poor	7.0	30.0		-	16	Remove	2	Tree mostly dead, top removed, large necrotic section on north side of tree, lean to south
100	<i>Thuja plicata</i>	Western Redcedar	14.8		Poor	Poor	7.6	30.0		-	10	Remove	2	Almost completely dead, top removed, tree to south completely dead, growing on rockery, not expected to survive longer than 1 year
101	<i>Acer macrophyllum</i>	Bigleaf Maple	28.4		Good	Poor	27.2	30.0		Yes	19	Remove- Non development permit	Replacement trees may be required pursuant to non-development tree permit	Phototropic crown to west southwest, narrow union with included bark at 8 feet above grade, south stem poorly attached (perched), targets house to south, pruning/cabling recommended
102	<i>Pseudotsuga menziesii</i>	Douglas-fir	34.5		Excellent	Fair	31.4	30.0	Exceptional - Size	Yes	23	Remove- Non development permit	Replacement trees may be required pursuant to non-development tree permit	Old tree, hardscapes and gravel fill at base, previously topped at approximately 65 feet with limited reiterative growth, reduction of overhead limbs recommended if proposed to overhang new house
<i>Off-Site Trees</i>														
A	<i>Thuja plicata</i>	Western Redcedar	26.0		Good	Good	17.1	30.0		Yes	17	Retain	-	Extends over prop line by 14 feet
B	<i>Pinus contorta</i>	Lodgepole Pine	13.1	8.2,10.2	Good	Good	19.5	6.0	Exceptional - Size	-	9	Retain	-	Tree growing in ROW, growing under utility lines, multiple poor pruning cuts on lower trunk