

Arborist Report

To: Catherine Moran
Site: 5000 West Mercer Way, Mercer Island, WA 98040
Re: Tree Inventory
Date: Feb. 27, 2023
Project Arborist: Joseph Sutton-Holcomb
ISA Board Certified Master Arborist #PN- 8397BM
Municipal Specialist; Qualified Tree Risk Assessor
Attached: Table of Trees
Tree Retention Worksheet
Tree Protection Plan
Tree Replanting Plan
Tree Removal Exemption Plan
Memorandum: Tree Removal Exemption Justification

Summary

Tree Solutions inventoried and assessed 27 large regulated trees on this lot. Based on the Mercer Island City Code (MICC) large regulated trees and exceptional trees are required to be assessed for development projects. Tree Solutions tagged each tree with an aluminum tree tag. Tree identifier corresponds to the number on each tag.

Of the site trees assessed, five met the exceptional tree criteria for size outlined in the MICC.

The code defines an exceptional tree grove as a group of eight or more trees that are 10 inches diameter at standard height (DSH) or greater with contiguous canopies. The entire site is an exceptional tree grove. Trees that are part of a grove shall also be considered exceptional trees.

There were six adjacent trees that required documentation for this property. Trees on neighboring properties were documented if they appeared to be greater than 10 inches DSH 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. We used an alphabetical tree identifier for trees off-site.

The proposed removal of 8 exceptional trees for construction requires the replanting of 48 trees. If there is not room to accommodate all replacement trees on-site, a fee in lieu of \$949 per tree will be required. Tree Solutions has produced a replanting plan showing 36 replacement trees proposed. That plan is attached to this report.

Assignment and Scope of Work

This report outlines the site inspection by Tree Solutions Inc, on September 15, 2020. We were asked to visit the site and provide a formal report including findings and management recommendations. Edward and Catherine Moran requested these services for project planning purposes.

Observations

Site

This 18,295 square foot site is located on West Mercer Ave on Mercer Island, zoned as an R-15 property. The site is undeveloped (Parcel # 1924059244) and is largely covered by trees. From the road, the site slopes steeply up to the east, before leveling off, and then sloping up steeply again.

According to King County iMap, there is an erosion hazard area on-site. According to Mercer Island GIS Portal, there is a protected slope that covers most of the eastern and western portions of the site.

The site is largely covered with invasive ivy (*Hedera* spp.) which is carpeting the ground and climbing into the canopies of trees. There is also English holly (*Ilex aquifolium*) and Himalayan blackberry (*Rubus bifrons*) on the site.

Native understory was primarily sword fern (*Polystichum munitum*). Native plant species should be retained in conjunction with the trees slated for retention.

Trees

Twenty-seven large regulated trees were tagged and assessed on-site. One additional tree, numbered 23 on the inventory, is not considered a large regulated tree because it is an English holly, which is an invasive species.

The trees are predominantly native species, and included bigleaf maple (*Acer macrophyllum*), western redcedar (*Thuja plicata*), and western hemlock (*Tsuga heterophylla*). Trees ranged from poor to good health and structural condition.

Five site trees (25, 26, 27, 31, and 35) are exceptional by size. All large trees are part of a grove on-site, meaning all large trees are exceptional.

Off-site tree E is also exceptional by size.

I have included an annotated 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

Tree Removals

Large regulated trees 22, 24, 25, 26, 27, 38, 45, and 46 are proposed for removal as they are within or adjacent to the new house footprint and associated grading. According to MICC 19.10.070 all exceptional trees proposed for removal must be replaced at a 6 to 1 ratio. Removal of these eight trees will require 48 replacement trees. If there is not room to accommodate all replacement trees a fee in lieu of \$949 per tree will be required.

Retained Trees

According to MICC 1910.060.5 at least 30 percent of trees must be retained on-site. All exceptional trees outside the buildable area must be retained to the extent feasible. All trees on the site are considered exceptional, except those that are invasive. The proposed plans show 70.3 percent of the large regulated trees on site proposed for retention during construction.

Tree Protection

Retained trees should be protected at the extent of the provided Minimum Limits of Disturbance (MLOD) wherever feasible. For this project, the MLOD is set at 8x trunk diameter, measured radially from the face of the trunk. The MLOD for each tree are provided in the attached table of trees.

Work within the limits of disturbance may require supplemental tree protection measures including but not limited to arborist monitoring, alternate excavation, and supplemental tree healthcare measures.

Retained trees should be fenced as a group and the outermost portion of MLOD should be connected with a straight fence line to maximize the tree protection area. Depending on the tree species, condition, and proposed site plan this can be adjusted in areas detailed within the report. The MLOD for each tree can be found in the attached table of trees.

Trees 20 and 21

These trees are proposed for retention, but will be impacted within their MLOD by installation of water, storm drain, and sanitary sewer lines.

In my opinion, if the water and storm drain lines are excavated using hydro excavation under the supervision of Tree Solutions within the MLOD of tree 20, the tree can be safely retained.

The plans propose that the portion of the sanitary sewer line within the MLOD of tree 21 will be directionally bored. In my opinion, as long as the tunnel is at least 3 feet below the existing grade and the tunnel begins outside the MLOD, the tree can be safely retained.

Trees 28 through 32

These trees are to the east, upslope, of the proposed soldier pile wall. There will be a 1 foot-deep trench that will be dug behind the wall in order to be backfilled with gravel. This must be done with pneumatic excavation wherever the trench is within the MLOD for these trees. Roots must be cleanly cut at the soil line or if possible retained and covered with gravel. Roots cannot be cut with an excavator as that leads to roots shattering and can compromise the structural stability of the tree.

If the above tree protection measures are followed, trees 28 through 32 can be safely retained.

Tree 35 through 37

These are a group of three bigleaf maples along the southern extent of the property. Tree 38, another bigleaf maple, is proposed for removal to the north of this grouping. Tree 38 must be directionally felled away from these trees. This could be left as a wildlife habitat snag. If a snag is not desirable, the stump should be cut flush with the ground and left in place, this should not be pulled out to prevent disturbance to the roots of adjacent trees.

Tree 35 has decay on the west side and wounds present. A qualified arborist must be on site during the installation of piles 14 and 15 to ensure that the machinery doesn't damage the tree.

If the above tree protection measures are followed, trees 35 through 37 can be safely retained.

Trees 39 through 44

This is a group of trees along the western edge of the property. Fencing should initially be installed at the MLOD of these trees. Excavation for the foundation should be done first with hydro excavation under supervision of an ISA certified arborist. Roots over 2 inches in diameter must be cleanly cut at the extent of excavation and covered with two layers of burlap. Tree protection fencing must be secured at the edge of excavation, or 5 feet from the foundation. Contractors must be prepared to work in a tight space along this side of the building.

Of all the trees in this group, 43 will be the most impacted within its MLOD. The plans I've reviewed show tree protection fencing approximately 14 feet from the trunk on the east side. In my opinion, if the above-described excavation and root cutting measures are followed, tree 43 and all other trees in this group can be safely retained.

Exceptional Tree Removal Justification

Exceptional trees 22, 25, 26, 27, and 38 are proposed for removal. Per MICC 19.10.060.A.3. removal of these trees must meet one or more of the following conditions.

- a. *Retention of an exceptional tree(s) with a diameter of 24 inches or more will result in an unavoidable hazardous situation; or*
- b. *Retention of an exceptional tree(s) with a diameter of 24 inches or more will limit the constructable gross floor area to less than 85 percent of the maximum gross floor area allowed under chapter 19.02 MICC; or,*
- c. *Retention of an exceptional tree(s) with a diameter of 24 inches or more will prevent creation of a residential lot through a subdivision or short subdivision that is otherwise allowed by this title.*

Attached to this report is a diagram and memorandum from William Gottlieb of Plan One, the project architect, discussing how the removal of trees 22, 25, 26, 27 and 38 meets the conditions described in MICC 19.10.060.A.3.b.

Based on my discussions with Mr. Gottlieb and my review of the plans, I agree with the analysis presented in those documents. It is my opinion that the current plans represent the best compromise between tree retention and feasible development of the site.

Invasive species management

All invasive plants should be removed prior to the start of construction. Invasive ivy within the driplines of the retained trees must be removed by hand by a qualified restoration specialist. Once ivy is removed the tree protection areas must be covered with 4 inches of coarse arborist woodchips, which should be kept 1 foot from the trunks of the trees.

Tree 23 is an invasive holly tree that should be removed. There are numerous other non-significant holly trees that should also be removed to prevent the spread around the property.

Irrigation of retained trees

Supplemental irrigation is required for the dry season (June through September) and should be run two to three times per month with a goal of saturating the soil to a depth of 8 to 12 inches.

Recommendations

- Obtain all necessary permits and approval from the City prior to commencement of site work.
- Tree Solutions must monitor all excavation and disturbance of rooting area proposed within the MLOD for retained trees.
- Excavation behind the soldier pile wall must be done with pneumatic excavation to cleanly expose and cut roots. Roots must be retained and pushed down under the gravel if possible.
- Excavation for utility lines must be done using alternative methods where specified in this report and the associated plans.
- Tree protection consisting of chain-link fencing should be installed at the dripline of all retained trees. Trees growing in a group should be protected at the edge of their shared driplines. General tree protection specifications can be found in Appendix F, and should be included in the plan set when soliciting bids for construction work.
- All off-site trees must be protected during construction. See specifications in Appendix F.
- All pruning should be conducted by an International Society of Arboriculture (ISA) certified arborist following current ANSI A300 specifications.
- All tree retention and removal regulations must be followed and are outlined in MICC Chapter 19.10.
- Ensure tree protection standards comply with MICC 19.10.080 and ISA Best Management Practices (BMP) – Managing Trees During Construction.

Respectfully submitted,
Joseph Sutton-Holcomb
Consulting Arborist

Appendix A Photographs



Photo 1. Looking up at the previously broken top (red arrow) of tree number 40. If retained, some reduction pruning should be done on the limb extending out over the road. Additionally, an aerial assessment should be conducted to determine the condition of the branch attachments.



Photo 2. Tree 46 has a large wound that initiates at the base, this tree has a low retention value.

Appendix B 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 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. Some cases require 12 times the trunk diameter. 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 C 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 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.

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 is to be set at the Minimum Limits of Disturbance (MLOD) listed in the Table of Trees. For this project the MLOD is defined as 8x the trunk diameter. 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**

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. Dripline is measured from the center of the tree to the outermost extent of the canopy. *Critical Root Zone is the radius extending from the center point of the tree

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)				Exceptional Threshold	Over 24 inches	Exceptional	Limits of Disturbance (8X trunk Diameter)	Proposed Action	Notes
							N	E	S	W						
20	<i>Thuja plicata</i>	Western Redcedar	28.6		Good	Good	15.2	13.2	12.2	15.2	30.0	Yes	Exceptional Grove	21.5	Retain	Some erosion present on ditch side; structural roots exposed but still good structure
21	<i>Alnus rubra</i>	Red alder	18.0		Good	Good	10.8	0.0	10.8	20.8	-	No	Exceptional Grove	13.5	Retain	Heavy ivy coverage; diameter at standard height estimated; assessment limited due to ivy; phototropic west
22	<i>Acer macrophyllum</i>	Bigleaf Maple	25.3		Good	Good	23.1	23.1	23.1	23.1	30.0	Yes	Exceptional Grove	19.0	Remove	Hollow at base; looks stable; corrected lean; codominant at approximately 20 feet
23	<i>Ilex aquifolium</i>	English holly	15.1	6.3,7.5,6.7, 6.8,6.3	Good	Good	12.6	12.6	12.6	12.6	-	No	Exceptional Grove	11.3	Remove - Invasive	Multistem at base
24	<i>Acer macrophyllum</i>	Bigleaf Maple	12.5	10,7.5	Fair	Fair	8.5	8.5	8.5	8.5	30.0	No	Exceptional Grove	9.4	Remove	Codominant near base; heavy ivy coverage; diameter at standard height estimated; trunk wound on larger stem
25	<i>Acer macrophyllum</i>	Bigleaf Maple	41.6	28.8,28.9, 8	Good	Good	29.7	19.7	25.7	21.7	30.0	Yes	Exceptional - Size	31.2	Remove	Codominant at base; third trunk could be subordinated; heavy ivy at base and climbing into canopy; remove ivy; consider advanced assessment
26	<i>Acer macrophyllum</i>	Bigleaf Maple	50.0		Good	Good	23.1	14.1	32.1	18.1	30.0	Yes	Exceptional - Size	37.5	Remove	Heavy ivy coverage; previous basal sprouting; slightly swollen base
27	<i>Acer macrophyllum</i>	Bigleaf Maple	33.4		Good	Good	15.4	19.4	25.4	19.4	30.0	Yes	Exceptional - Size	25.1	Remove	Ivy at base; starting to climb trunk
28	<i>Acer macrophyllum</i>	Bigleaf Maple	14.2	9.7,10.4	Good	Fair	12.6	12.6	12.6	12.6	30.0	No	Exceptional Grove	10.7	Retain	Codominant at base; cavity with hollow
29	<i>Tsuga heterophylla</i>	Western Hemlock	10.0		Fair	Fair	8.4	6.4	8.4	4.4	24.0	No	Exceptional Grove	7.5	Retain	

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Over 24 inches	Exceptional	Limits of Disturbance (8X trunk Diameter)	Proposed Action	Notes
30	<i>Tsuga heterophylla</i>	Western Hemlock	14.3		Good	Good	12.6	12.6	8.6	12.6	24.0	No	Exceptional Grove	10.7	Retain	
31	<i>Acer macrophyllum</i>	Bigleaf Maple	35.5		Good	Good	23.5	17.5	13.5	17.5	30.0	Yes	Exceptional - Size	26.6	Retain	Trunk wound approximately at 14 feet; ivy climbing trunk
32	<i>Acer macrophyllum</i>	Bigleaf Maple	14.0		Good	Good	10.6	0.0	12.6	22.6	30.0	No	Exceptional Grove	10.5	Retain	Diameter at standard height estimated due to thick ivy coverage; tension root to east; further evaluation should be done after ivy has been removed
33	<i>Acer macrophyllum</i>	Bigleaf Maple	21.7	10.2,19.2	Good	Good	8.9	8.9	26.9	26.9	30.0	No	Exceptional Grove	16.3	Retain	Measured above swollen base; fungi at base; stilted root; looks to be some erosion on site; canopy phototropic south/southwest
34	<i>Tsuga heterophylla</i>	Western Hemlock	15.8		Good	Fair	9.7	6.7	6.7	12.7	24.0	No	Exceptional Grove	11.9	Retain	Broken top or topped; four reiterated tops, decay likely
35	<i>Acer macrophyllum</i>	Bigleaf Maple	33.7		Good	Fair	13.4	7.4	37.4	17.4	30.0	Yes	Exceptional - Size	25.3	Retain	Stilted roots; possible slope failure at some point; corrected lean; ivy starting to climb trunk; decay on west side with wounds present
36	<i>Acer macrophyllum</i>	Bigleaf Maple	18.0		Good	Good	0.8	0.8	16.8	2.8	30.0	No	Exceptional Grove	13.5	Retain	
37	<i>Acer macrophyllum</i>	Bigleaf Maple	12.7		Good	Good	0.0	0.0	18.5	32.5	30.0	No	Exceptional Grove	9.5	Retain	
38	<i>Acer macrophyllum</i>	Bigleaf Maple	24.4		Good	Good	0.0	0.0	17.0	29.0	30.0	Yes	Exceptional Grove	18.3	Remove	
39	<i>Acer macrophyllum</i>	Bigleaf Maple	15.8		Fair	Fair	0.0	0.0	19.7	0.0	30.0	No	Exceptional Grove	11.9	Retain	Broken top; only drip to south
40	<i>Acer macrophyllum</i>	Bigleaf Maple	25.9		Fair	Poor	1.1	1.1	39.1	31.1	30.0	Yes	Exceptional Grove	19.4	Retain	Broken top; branches starting to regrow trunk; branch over road originating from decayed area; should remove or reduce branch

Table of Trees
5000 W Mercer Way, Mercer Island, WA

Arborist: Joseph S-H
Date of Inventory: 09.15.22
Table Prepared: 02.20.23

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Over 24 inches	Exceptional	Limits of Disturbance (8X trunk Diameter)	Proposed Action	Notes
41	<i>Thuja plicata</i>	Western Redcedar	12.4		Good	Fair	10.5	10.5	10.5	10.5	30.0	No	Exceptional Grove	9.3	Retain	Leaning trunk with branches growing vertically; rubbing on tree F
42	<i>Acer macrophyllum</i>	Bigleaf Maple	19.9		Fair	Fair	6.8	6.8	12.8	22.8	30.0	No	Exceptional Grove	14.9	Retain	Cavity at base; low vigor; heavy ivy at base
43	<i>Acer macrophyllum</i>	Bigleaf Maple	29.0	13.9,25.5	Fair	Fair	19.2	15.2	19.2	11.2	30.0	Yes	Exceptional Grove	21.8	Retain	Previous top failure; dogwood near base that looks nice; codominant trunks near base
44	<i>Acer macrophyllum</i>	Bigleaf Maple	17.0		Fair	Fair	22.7	0.0	0.0	28.7	30.0	No	Exceptional Grove	12.8	Retain	Previous top failure with trees reiterating
45	<i>Acer macrophyllum</i>	Bigleaf Maple	12.2		Fair	Poor	20.5	0.0	0.0	18.5	30.0	No	Exceptional Grove	9.2	Remove	Suppressed; previously broken top;wound to 12 feet
46	<i>Acer macrophyllum</i>	Bigleaf Maple	22.8		Fair	Poor	5.0	15.0	19.0	19.0	30.0	No	Exceptional Grove	17.1	Remove	Previous partial trunk failure; low retention value
47	<i>Tsuga heterophylla</i>	Western Hemlock	14.0		Fair	Fair	12.6	12.6	13.6	12.6	24.0	No	Exceptional Grove	10.5	Retain	Growing on large stump; diameter at standard height estimated
A	<i>Acer macrophyllum</i>	Bigleaf Maple	24.7	16,16,10	Good	Good	-	-	29.0	-	30.0	Yes	Exceptional Grove	18.6	Retain - offsite	Diameter at standard height estimated in direction canopy overhangs the site
B	<i>Acer macrophyllum</i>	Bigleaf Maple	23.0		Good	Good	-	-	26.0	-	30.0	No	Exceptional Grove	17.3	Retain - offsite	Diameter at standard height estimated in direction canopy overhangs the site
C	<i>Tsuga heterophylla</i>	Western Hemlock	18.0		Good	Good	-	-	-	14.8	24.0	No	Exceptional Grove	13.5	Retain - offsite	Diameter at standard height estimated in direction canopy overhangs the site
D	<i>Thuja plicata</i>	Western Redcedar	12.0		Good	Good	-	-	-	18.5	30.0	No	Exceptional Grove	9.0	Retain - offsite	Diameter at standard height estimated in direction canopy overhangs the site
E	<i>Acer macrophyllum</i>	Bigleaf Maple	40.0		Good	Good	-	-	-	33.7	30.0	Yes	Exceptional - Size	30.0	Retain - offsite	Diameter at standard height estimated in direction canopy overhangs the site



Table of Trees
5000 W Mercer Way, Mercer Island, WA

Arborist: Joseph S-H
Date of Inventory: 09.15.22
Table Prepared: 02.20.23

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Over 24 inches	Exceptional	Limits of Disturbance (8X trunk Diameter)	Proposed Action	Notes
F	<i>Acer macrophyllum</i>	<i>Bigleaf Maple</i>	25.5	18,18	Good	Fair	1.1	6.1	34.1	34.1	30.0	Yes	Exceptional Grove	19.1	Retain - offsite	Cedar tree, number 41, rubbing on trunk

CITY OF MERCER ISLAND

COMMUNITY PLANNING & DEVELOPMENT

9611 SE 36TH STREET | MERCER ISLAND, WA 98040

PHONE: 206.275.7605 | www.mercergov.org



MERCER ISLAND TREE INVENTORY & REPLACEMENT SUBMITTAL INFORMATION

PROJECT INFORMATION

Property Owner
Name: _____

Site Address or
Parcel Number: _____

Project Contact
Name: _____

Contact Email
Address: _____

Contact Phone
Number: _____

EXCEPTIONAL TREES

Exceptional Trees- means a tree or group of trees that because of its unique historical, ecological or aesthetic value constitutes an important community resource. A tree that is rare or exceptional by virtue of its size, species, condition, cultural/historical importance, age, and/or contribution as part of a tree grove. Trees with a diameter of more than 36 inches, or with a diameter that is equal to or greater than the diameter listed in the Exceptional Tree Table shown in MICC 19.16 under Tree, Exceptional.

List the total number of trees for each category and the tree identification numbers from the arborist report.

Number of trees 36" or greater _____

List tree numbers: _____

Number of trees 24" or greater (including 36" or greater) _____

List tree numbers: _____

Number of trees from Exceptional Tree Table (MICC 19.16) _____

List tree numbers: _____

LARGE REGULATED TREES

Large Regulated Trees- means any tree with a diameter of 10 inches or more, and any tree that meets the definition of an Exceptional Tree.

Number of Large Regulated Trees on site _____ (A)

List tree numbers: _____

Number of Large Regulated Trees on site proposed for removal _____ (B)

List tree numbers: _____

Percentage of trees to be retained ((A-B)/Ax100) note: must be at least 30% _____ %

RIGHT OF WAY TREES

Right of Way Trees- means a tree that is located in the street right of way adjacent to the project property.

Number of Large Regulated Trees in right of way _____

List tree numbers: _____

Number of Large Regulated Trees in right of way proposed for removal _____

List tree numbers: _____

Reason for removal: _____

TREE REPLACEMENT

Tree replacement- removed trees must be replaced based on the ratio in the table below. Replacement trees shall be conifers at least six feet tall and or deciduous at least one and one-half inches in diameter at base.

Diameter of Removed Tree (measured 4.5' above ground)	Tree replacement Ratio	Number of Trees Proposed for Removal	Number of Tree Required for Replacement Based on Size/Type
Less than 10"*	1		
10" up to 24"	2		
Greater than 24" up to 36"	3		
Greater than 36" and any Exceptional Tree	6		
TOTAL TREE REPLACEMENTS			

****no replacement tree is needed if the tree fits all of the following;
Less than 10 inches in diameter, not an exceptional tree, and not a replacement tree from another tree permit. ****

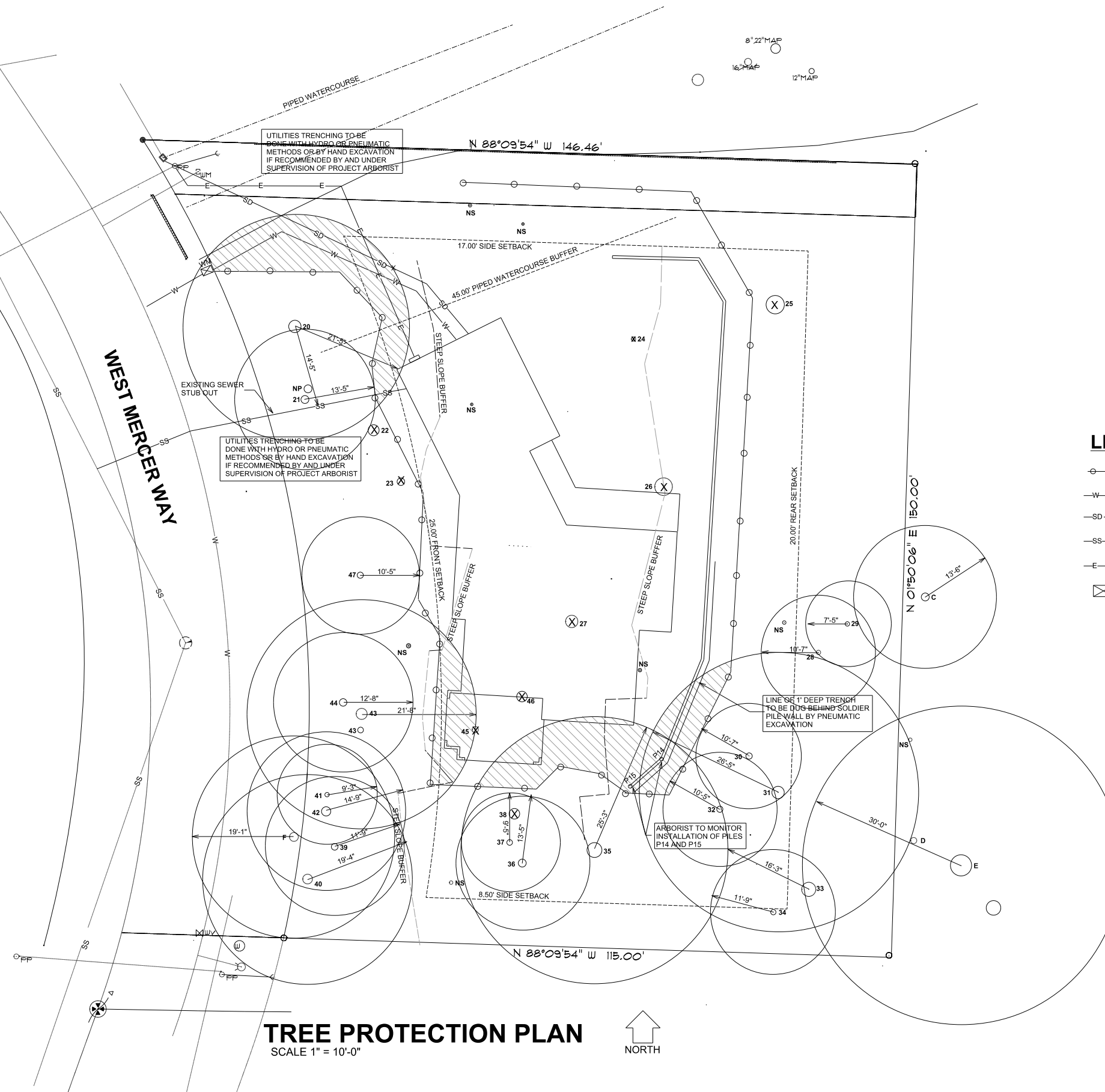
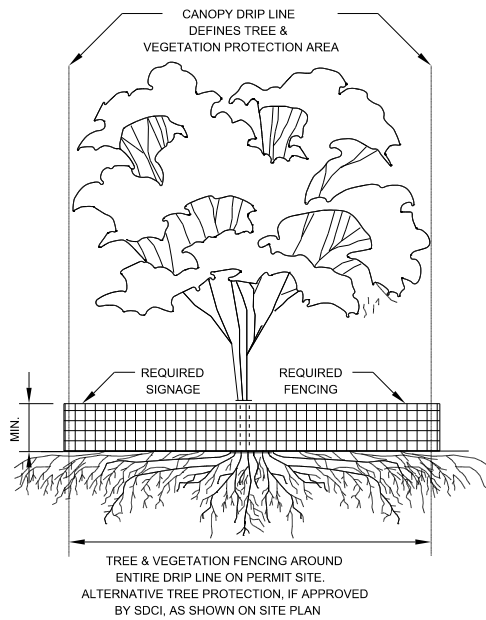
TREE & VEGETATION PROTECTION

TREE PROTECTION FENCING AND SIGN

- 6' H CHAIN LINK, WIRE MESH, OR SIMILAR OPEN RIGID MATERIAL (NO PLYWOOD)
- MUST BE INSTALLED PRIOR TO DEMOLITION OR GROUND DISTURBANCE
- KEPT IN PLACE FOR THE DURATION OF CONSTRUCTION
- NO SOIL DISTURBANCE OR ACTIVITY ALLOWED WITHIN FENCED AREA: MATERIAL STORAGE/STOCKPILING, PARKING, EXCAVATION, DUMPING, OR WASHING
- MODIFICATIONS OF THESE REQUIREMENTS BY APPROVAL OF SDCI PLANNER ONLY
- IF ROOTS GREATER THAN 2 INCH FOUND OUTSIDE OF FENCING, PROTECT BY HAND EXCAVATION AND, IF NECESSARY, CUT CLEANLY AND KEEP MOIST
- USE 3 INCHES OR DEEPER WOOD CHIP MULCH WITHIN TREE PROTECTION ZONES AS WELL FOR ALL TREES IMPACTED WITHIN THEIR LIMITS OF DISTURBANCE

VEGETATION PROTECTION

- ORANGE MESH OR SIMILAR OPEN MATERIAL
- MINIMIZE CONSTRUCTION ZONE
- PROTECT VEGETATION OUTSIDE CONSTRUCTION ZONE WITH FENCING AS SHOWN
- USE 3 INCHES OR DEEPER WOOD CHIP MULCH OUTSIDE FENCED AREAS TO PROTECT FEEDER ROOTS



TREE PROTECTION PLAN

SCALE 1" = 10'-0"

PNEUMATIC AIR OR HYDRO EXCAVATION TO BE UTILIZED AT FOUNDATION LOCATIONS IN CONFLICT WITH CRITICAL ROOT ZONES AND UNDER THE SUPERVISION OF PROJECT ARBORIST.

ALL GRADING AND EXCAVATION WORK WITHIN THE LIMITS OF DISTURBANCE AS INDICATED BY CROSS-HATCHING SHALL BE MONITORED BY PROJECT ARBORIST

LEGEND

- ○ ○ ○ ○ TREE PROTECTION FENCING AND LIMITS OF CLEARING, GRADING AND EXCAVATION
- W — WATER SERVICE
- SD — STORMWATER DRAIN SYSTEM
- SS — SANITARY SEWER
- E — UNDERGROUND ELECTRICAL SERVICE
- ⊗ WATER METER

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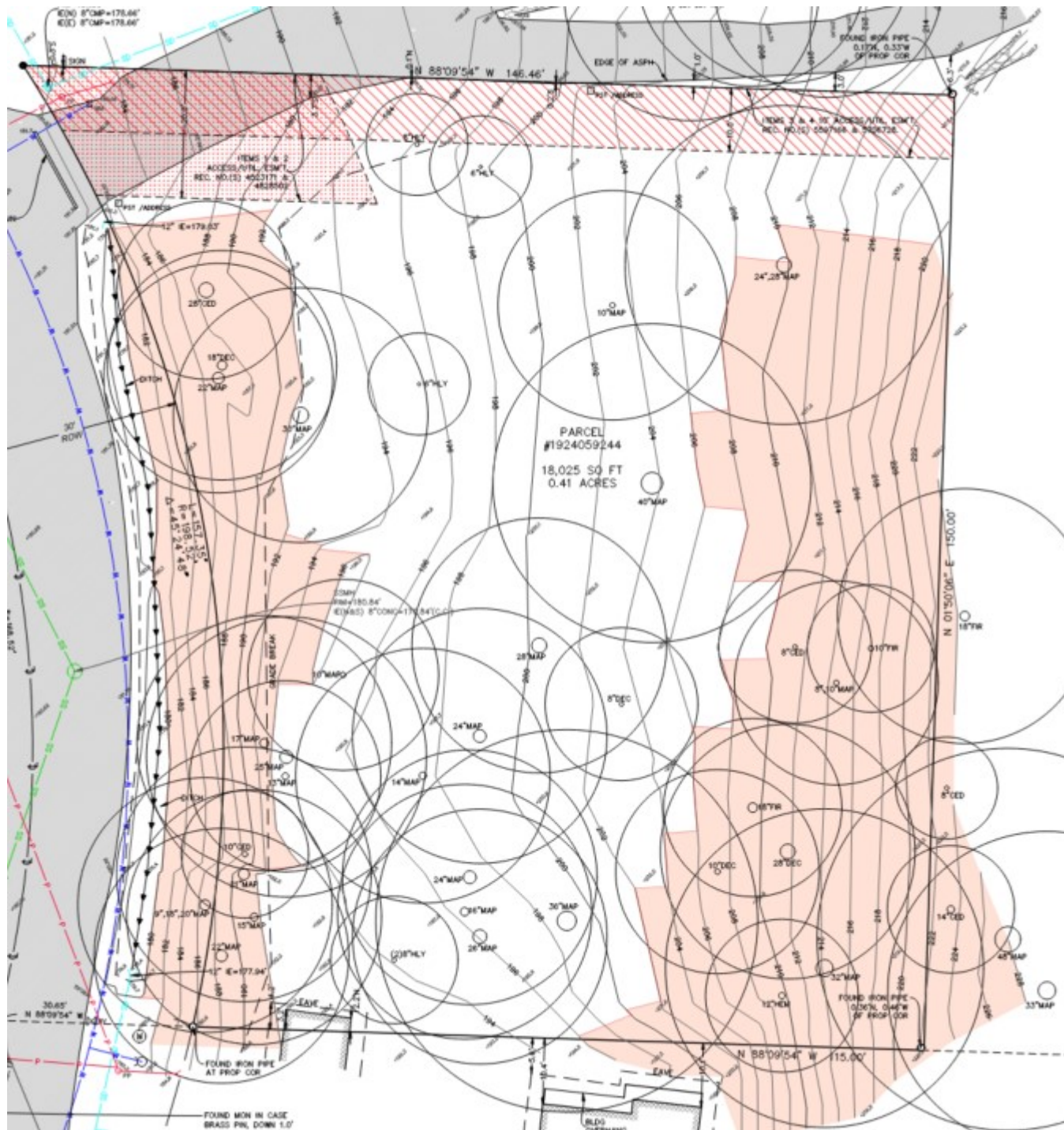
DATE	BY	REVISIONS
12/08/2022		REVISED

EDWARD & CATHERINE MORAN
WEST MERCER WAY
MERCER ISLAND, WA 98040

PLAN ONE
FINE HOME DESIGN
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Seattle, Washington 98118
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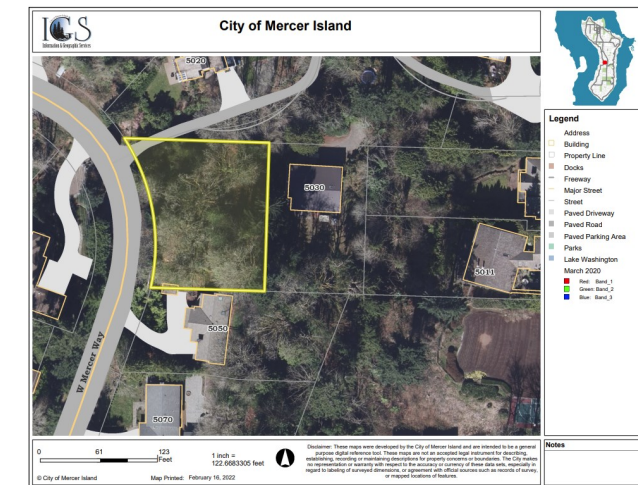
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DATE: APRIL 25, 2022
PLAN NO.

SHEET NO.
16



Source: Topographic & Boundary Survey (Terrane, 8/27/2020)

Key Map



Existing ecological functions:

- Habitat (bird, amphibian, small mammals)
- Soil stabilization (roots)
- Stormwater filtering, detention, infiltration (foliage and dense twigs)



Tree Solutions Inc

Consulting Arborists

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Seattle, WA 98109
www.treesolutions.net
206-528-4670

Joseph Sutton-Holcomb
ISA BCMA #PN-8397BM
Municipal Specialist; Qualified
Tree Risk Assessor

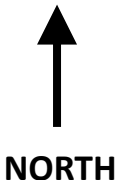
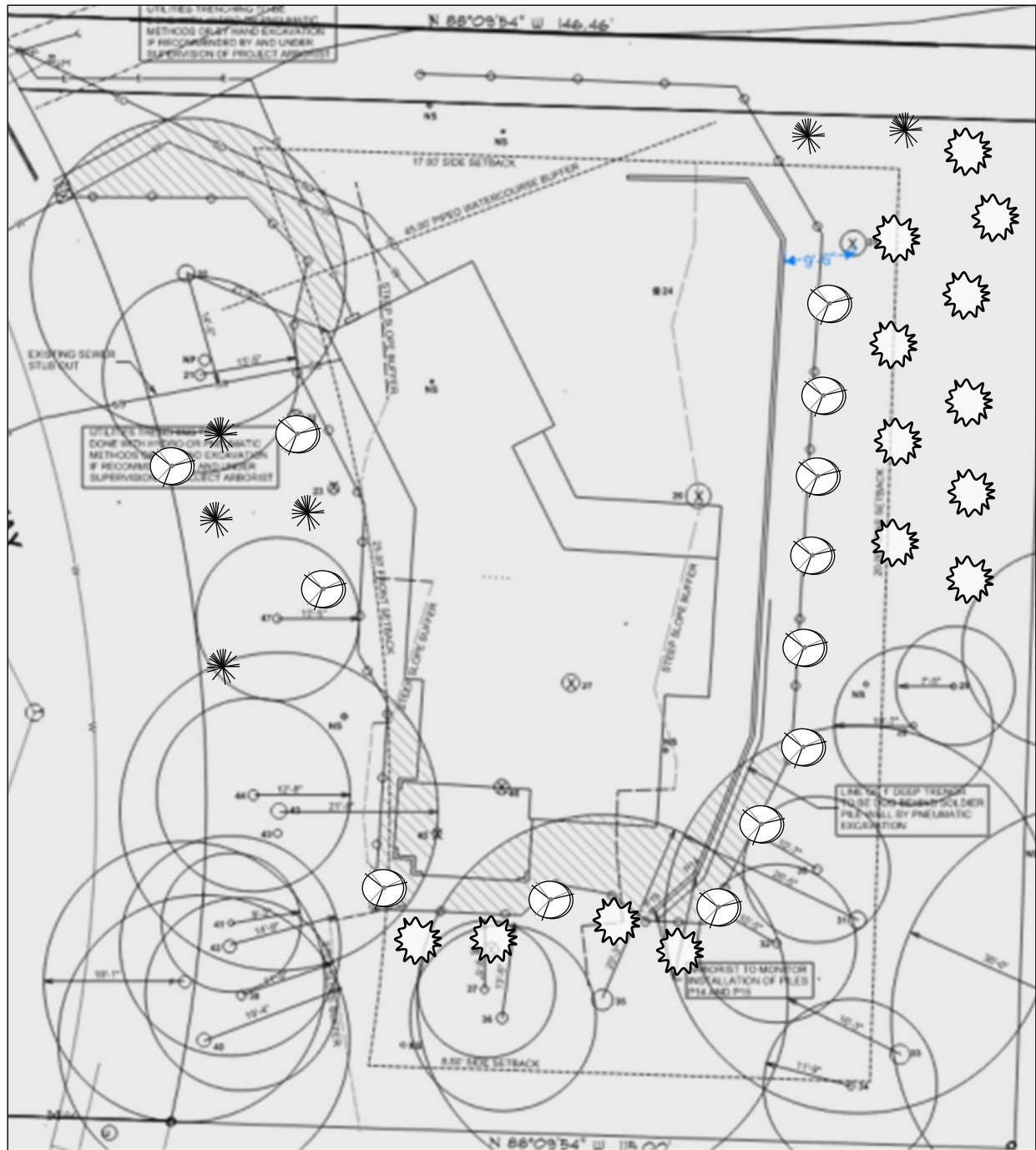
Moran Residence
5000 W Mercer Way
Mercer Island, WA
Parcel # 1924059244

February 23, 2023




Existing Conditions

Sheet #

L-1



NOTES:
 8 trees are proposed for removal, and 48 replacement Trees are required.
36 new trees will be planted on site.
 The remaining 12 required replacement trees will be covered with the fee-in-lieu (\$949), resulting in a total fee of **\$11,376**

SYM	QTY	NAME	SCIENTIFIC NAME	SIZE	SPACING
Trees / Shrubs					
	14	Mountain hemlock	<i>Tsuga mertensiana</i>	6 ft	10' o.c.
	6	Douglas-fir	<i>Pseudotsuga menziesii</i>	6 ft	15' o.c.
	13	Vine maple	<i>Acer circinatum</i>	1.5" cal.	10' o.c.



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 Parcel # 1924059244

February 23, 2023

Mitigation Plan

Sheet #

L-2

NOTES: Tree Removal and Planting

Tree Removals:

Trees # 22, 23, 25, and 38 are proposed for removal outside of the building footprint due to grading. These should be left as 10-foot-tall wildlife habitat snags. The base of the trees shall be girdled to prevent sprouting.

All logs from tree removals should be placed deliberately against the slope to remain as nurse logs to the extent feasible. Wood must be in contact with the ground and lay perpendicular to the slope. Smaller twigs and branches can be intentionally left on site as coarse woody debris or used as wattles to decrease surface erosion and create planting pockets. All wood, leaf and twig litter that cannot be re-used and left in direct contact with the ground, must be chipped to be used as woodchip much for new tree plantings or removed from the site

Clearing and Grubbing Notes:

No grading activity should occur within the restoration area.

All native plants shall be left in-tact throughout the restoration area, except where noted.

Vegetation removal and planting shall be done by hand (no wheeled nor tracked equipment will be used to remove or replace vegetation). Where possible, non-invasive vegetative material shall be composted on site discreetly in one or more concentrated compost pile(s) or properly disposed of off site. Compost piles shall be not more than three feet high and shall not be within 15 feet of an existing retained tree.

Removal of invasive plants will be done using a combination of hand tools, hand-held power equipment, and chemical controls such as foliar herbicide spray and spot-treatments following stem cutting.

Specifically, Ivy (*Hedera spp*) and Himalayan blackberry (*Rubus bifrons*) will be cleared and grubbed by hand -digging out the roots. If instability of slope precludes this grubbing, plants shall be cut at the base and chemical treatment shall be applied when the plants are actively growing. Remove invasive plant material from the site for disposal, if this is not feasible compost on-site on top of woody debris piles so that plant material is not in contact with the ground; this will prevent vegetative propagation. Once plant material is completely dry, it can be spread throughout the site as mulch material.

English holly (*Ilex aquifolium*) and Cherry laurel (*Prunus laurocerasus*) shall be treated with herbicide pellets injected directly into their stems. Trees and shrubs smaller than three inches diameter will be cleared and grubbed. Vegetative matter shall properly disposed of off site.

All herbicide use shall be performed under the supervision of a licensed pesticide applicator with a Commercial Applicator's License per WAC 16-228-1231. All on-site transport, use, and clean-up of pesticides / herbicides shall conform to regulations set forth by WAC 16-228-1220. The applicator will follow King County's noxious weed regulatory guidelines and King County's best management practices for invasive species removal using herbicide.

Basic Planting Instructions

(Partially abridged from the Seattle Standard Mitigation Plan)

Plant between mid-October and mid-December. If that is not possible, plant between mid-December and mid-April. Do not plant during dry months. No slope work should occur during periods of extreme wet weather.

Before planting, set out the plants according to the planting plan. Remove invasive vegetation, including English ivy and Himalayan blackberry, from all areas on the property.

Spacing is approximate and listed as distance between plants 'on center' (o.c.), where existing conditions allow. Adjust locations of plants if the planting hole location per the planting plan requires damaging existing tree roots or native vegetation.

Dig bowl-shaped planting holes at least twice the width of the potted plant. The hole should be just slightly shallower than that of the planted plant.

Rough up the sides of the planting hole.

Remove the plant from its container and gently loosen bound roots on the outer inch of the soil and cut roots that encircle the root ball.

Set the plant in the hole so that the top of the soil remains level with the surrounding soil. Fill the surrounding space with loose native soil. Cover any exposed roots but do not pile dirt on the stem as it can kill some plants.

Firmly press the filled soil to collapse air pockets, but allow the soil to remain loose. Form a temporary water basin around each plant to encourage water collection.

Overplanting can assist in less maintenance disturbance over time by reducing number of times slope is accessed. Assuming that monitoring goals are met.

Water thoroughly.

Mulch with 4 inches of wood chips. If wood chips are not available, mulch with leaves or compost. Do not allow mulch to touch the base of the plant.

Install temporary irrigation (water bags, tree gators, drip tubing etc). Test temporary irrigation and **water plants thoroughly again.**

Maintenance:

Maintenance of the restoration site involves temporary irrigation over a **five year establishment period**. It also includes removal of invasive plant material twice annually during the dry season (July through September). Annual and perennial grasses that seed in shall not be removed during maintenance.

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Moran Residence
5000 W Mercer Way
Mercer Island, WA
Parcel # 1924059244

February 23, 2023

Planting Specifications

Sheet #

L-3

Monitoring Requirements

Regular maintenance of this area is required for a minimum period of 5 years. This includes regular weeding, removal of invasive species, and supplemental irrigation.

Irrigation is intended to help young plants establish, and should be reduced in volume and frequency with each year so plants are self-sufficient at the end of the maintenance period and not shocked by lack of water when irrigation ceases.

Invasive plant species (specifically ivy) must be managed during the maintenance period. Management includes hand-grubbing, removal from site, and some chemical controls as specifically called out.

Annual inspections by a qualified professional should take place during the growing season. Inspectors should produce a memo with **photographic documentation**, and submit it to the city for review.

Criteria for determining the success of mitigation at the end of 5 years:

- **80% of new plants must be alive**, including all tree specimens.
- Invasive plants must not be present.
- 100% of ground must be covered by vegetation.
- Native plants that self seed will count towards the overall replacement plants.

Contingency actions if mitigation fails (including additional monitoring):

- When new plants die, they must be replaced. If (at any time during the 5 year monitoring period) trees die, or mortality exceeds 20%, the 5-year maintenance clock is restarted at the time of new planting. Re-planting should occur in the fall.
- If invasive plants are still present after 5 years, maintenance must continue until area is free of invasives for 3 consecutive years.

Ecological Function

Within these defined areas, the vegetation provides the following ecological functions:

Habitat (birds, amphibians, small mammals)

Soil stabilization (roots)

Stormwater filtering (foliage and twigs)

Trees Removed

8 trees (# 22, 24, 25, 26, 27, 38, 45, 46)

Tree Planting

36 trees

Restoration

Ivy, holly, and Himalayan blackberry removal

Existing ecological functions will be restored or improved in areas outside the house footprint. In most of the areas ivy is starting to climb canopies and lead to a decline in both growing conditions and ecological function of the site. Removal of invasive plants and restoration with native evergreen trees and understory plants will lead to a healthier longer term forest on the site. The fee-in-lieu will help replace the lost function of the trees removed in the area of the building footprint.



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Municipal Specialist; Qualified
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Moran Residence
5000 W Mercer Way
Mercer Island, WA
Parcel # 1924059244

February 23, 2023

**Monitoring &
Maintenance Plan**

Sheet #

L-4

TIMELINE

	Year 1 (summer)	Year 1 (fall)	Year 2	Year 3	Year 4	Year 5
Remove invasive plants: (Ivy, holly, blackberry)	Clear and grub (where possible) from restoration area; systemic herbicide as needed. Cover area with coir fabric to prevent surface erosion until planting	---	2 x remove or treat any regrowth or new seedlings (May, July). Test irrigation line and re-align in May the same time as first weeding.	1 x remove or treat any regrowth or new seedlings (May, July). Test irrigation line and re-align in May the same time as first weeding.	1 x remove or treat any regrowth or new seedlings (May, July). Test irrigation line and re-align in May the same time as first weeding.	
Existing Trees (Removed / Retained)	Cut ivy at the base and remove ivy from the base.	Pull out dead ivy from canopy if still present	Remove ivy as needed	Removed ivy as needed	--	
New trees, shrubs, ground-cover	--	Install in fall with soaker hoses laid horizontally along the slope. Use flagging on new plants so they don't get weeded out.	Irrigation (soaker hose): May x 1 (test line) June x 2 July x 4 August x 4 September x 3	Irrigation: June x 2 July x 3 August x 3 September x 1	Irrigation: June x 2 July x 3 August x 3 September x 1	
Temporary Irrigation						
Temporary sediment control	Install coir blanket across slope where slope is void of vegetation. Small plants can be planted after coir fabric is laid. Blanket will deteriorate within 1 year. Establish temporary maintenance path to avoid excessive surface erosion during weeding/ planting	From pruning, keep 2-4" diameter pieces of wood (if any) for wattles and planting pockets	Reinstall coir logs or blankets as needed	--	--	
Monitoring	Annual inspection with photo-documentation.		Annual inspection with photo-documentation.	Annual inspection with photo-documentation.	Annual inspection with photo-documentation.	Annual inspection with photo-documentation.



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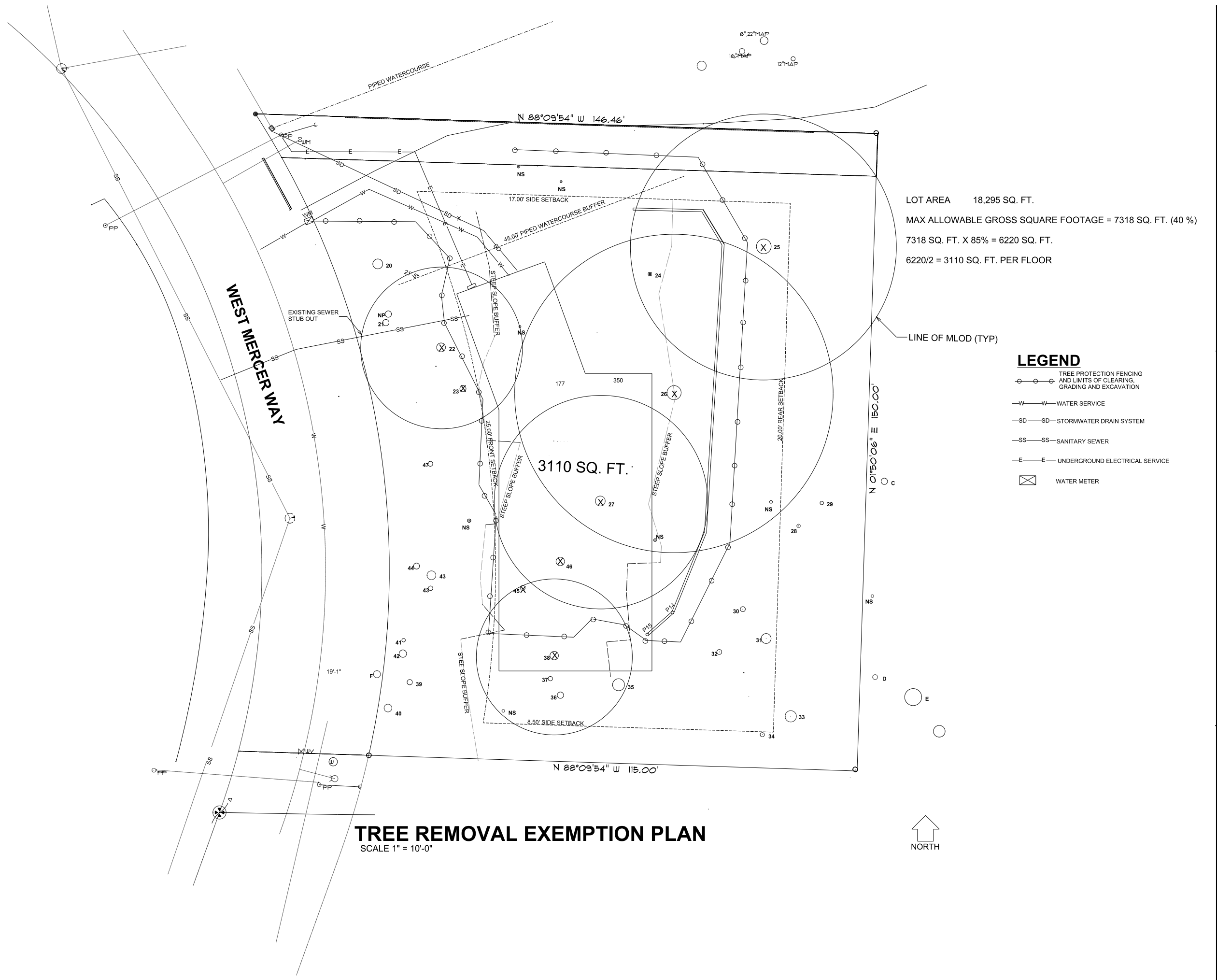
Moran Residence
5000 W Mercer Way
Mercer Island, WA
Parcel # 1924059244

February 23, 2023

Monitoring & Maintenance Plan

Sheet #

L-5



LOT AREA 18,295 SQ. FT.
 MAX ALLOWABLE GROSS SQUARE FOOTAGE = 7318 SQ. FT. (40 %)
 7318 SQ. FT. X 85% = 6220 SQ. FT.
 6220/2 = 3110 SQ. FT. PER FLOOR

LEGEND

- TREE PROTECTION FENCING AND LIMITS OF CLEARING, GRADING AND EXCAVATION
- W—W— WATER SERVICE
- SD—SD— STORMWATER DRAIN SYSTEM
- SS—SS— SANITARY SEWER
- E—E— UNDERGROUND ELECTRICAL SERVICE
- WATER METER

TREE REMOVAL EXEMPTION PLAN
 SCALE 1" = 10'-0"



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DATE	BY	REVISIONS
12/08/2022		REVISED

PLAN ONE
 FINE HOME DESIGN
 5125 47th Avenue S
 Seattle, Washington 98118
 (206) 612-8511 www.planone.biz

EDWARD & CATHERINE MORAN
 MERCER ISLAND, WA 98040
 WEST MERCER WAY

DRAWN BY
 WMG

DATE
 APRIL 25, 2022

PLAN NO.

SHEET NO.
17

Plan One
1501 Dayton Court NE
Renton, WA 98056-2766
(206) 612-8511

RE: Permit No. 2112-249
5028 West Mercer Way

Memorandum

Mercer Island City Code (MICC) Section 19.10.060.A.3 states the following:

Development proposals specified under subsection (A) (1) of this section shall retain exceptional trees with a diameter of 24 inches or more. Exceptional trees with a diameter of 24" or more that are retained shall be credited towards compliance with the retention requirements of subsection (A) (2) of this section. Removal of exceptional trees with a diameter of 24 inches or more, shall be limited to the following circumstances:

- a. Retention of an exceptional tree(s) with a diameter of 24" or more in an unavoidable of hazardous situation; or*
- b. Retention of an exceptional tree(s) with a diameter of 24" or more will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC; or*
- c. Retention of an exceptional tree(s) with a diameter of 24 inches or more will prevent the creation of a residential lot through a subdivision or short subdivision that is otherwise allowed by this title.*

Tree Proposed for Removal: 22

Justification (per MICC 19.10.060.A.3) Subsection b. Required excavation (within the MLOD) for the proposed home would impact this tree to the point that its stability and/or survivability would be of concern. Further, because of excavation required within the MLOD, retention of this tree will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC.

Tree Proposed for Removal: 25

Justification (per MICC 19.10.060.A.3) Subsection b. Required excavation (within the MLOD) for the proposed soldier pile retaining wall would impact this tree to the point that its stability and/or survivability would be of concern.

Tree Proposed for Removal: 26

Justification (per MICC 19.10.060.A.3) Subsection b. Retention of this tree would not be possible without limiting the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC. Further, the location of this tree in the middle of the property and its huge MLOD and the restrictions resulting from associated buffers and setbacks would prevent the construction of practically any residence on the property.

Tree Proposed for Removal: 27

Justification (per MICC 19.10.060.A.3) Subsection b. The location of this tree close to the middle of the property will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC. Further, the location of this tree on the property and its large MLOD would prevent the construction of any residence to the South of it.

Tree Proposed for Removal: 45

Justification (per MICC 19.10.060.A.3) Subsection b. The location of this tree within the footprint of the proposed residence will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC.

Tree Proposed for Removal: 46

The location of this tree within the footprint of the proposed residence will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC.

Tree Proposed for Removal: 38

Justification (per MICC 19.10.060.A.3) Subsection b. Required excavation (within the MLOD) for the proposed home would impact this tree to the point that its survivability would be of concern. Further, because of excavation required within the MLOD, retention of this tree will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC.

Site Notes

The location of the residence on the site is based on specific site requirements and restrictions. To the North is a Piped Watercourse Buffer that cannot be built in. On the East and West are steep slopes with their associated buffers in which there is some minimal

encroachment however, the steep slopes themselves cannot be built in. These left a rather narrow envelope to work within in which required the house to be stretched North and South through that resulting buildable area. Steep slopes on the West prevent any garage entrance facing that direction. The garage entrance cannot face the north because of the fall of the grade across the North face of the garage so the garage entrance is located on the East side of the garage and opening onto a parking apron. The house is located a particular distance south of the North property line in order to minimize the slope of the driveway and to satisfy the Fire Marshall, any closer and the driveway would become steeper.

Two trees on the site are particularly troublesome due to their locations. Tree 26 is practically in the middle of the property and with its huge MLOD, there is nothing that can be built north of it. If tree 26 is removed and 27 is retained, there is still no way to build without limiting gross square footage to less than 85% as allowed. Tree 27 is close enough to the middle of the property and along with it's large MLOD would limit of anything south of it to less than 85% of the allowable buildable gross square footage....and would require the removal of every tree south of it.

Every consideration was taken in the design of this project to minimize the removal of existing trees given the critical area buffers, piped watercourse buffer, zoning requirements and the topography of the buildable area.

William Gottlieb
For Plan One

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. Dripline is measured from the center of the tree to the outermost extent of the canopy. *Critical Root Zone is the radius extending from the center point of the tree

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)				Exceptional Threshold	Over 24 inches	Exceptional	Limits of Disturbance (8X trunk Diameter)	Proposed Action	Notes
							N	E	S	W						
20	<i>Thuja plicata</i>	Western Redcedar	28.6		Good	Good	15.2	13.2	12.2	15.2	30.0	Yes	Exceptional Grove	21.5	Retain	Some erosion present on ditch side; structural roots exposed but still good structure
21	<i>Alnus rubra</i>	Red alder	18.0		Good	Good	10.8	0.0	10.8	20.8	-	No	Exceptional Grove	13.5	Retain	Heavy ivy coverage; diameter at standard height estimated; assessment limited due to ivy; phototropic west
22	<i>Acer macrophyllum</i>	Bigleaf Maple	25.3		Good	Good	23.1	23.1	23.1	23.1	30.0	Yes	Exceptional Grove	19.0	Remove	Hollow at base; looks stable; corrected lean; codominant at approximately 20 feet
23	<i>Ilex aquifolium</i>	English holly	15.1	6.3,7.5,6.7, 6.8,6.3	Good	Good	12.6	12.6	12.6	12.6	-	No	Exceptional Grove	11.3	Remove - Invasive	Multistem at base
24	<i>Acer macrophyllum</i>	Bigleaf Maple	12.5	10,7.5	Fair	Fair	8.5	8.5	8.5	8.5	30.0	No	Exceptional Grove	9.4	Remove	Codominant near base; heavy ivy coverage; diameter at standard height estimated; trunk wound on larger stem
25	<i>Acer macrophyllum</i>	Bigleaf Maple	41.6	28.8,28.9, 8	Good	Good	29.7	19.7	25.7	21.7	30.0	Yes	Exceptional - Size	31.2	Remove	Codominant at base; third trunk could be subordinated; heavy ivy at base and climbing into canopy; remove ivy; consider advanced assessment
26	<i>Acer macrophyllum</i>	Bigleaf Maple	50.0		Good	Good	23.1	14.1	32.1	18.1	30.0	Yes	Exceptional - Size	37.5	Remove	Heavy ivy coverage; previous basal sprouting; slightly swollen base
27	<i>Acer macrophyllum</i>	Bigleaf Maple	33.4		Good	Good	15.4	19.4	25.4	19.4	30.0	Yes	Exceptional - Size	25.1	Remove	Ivy at base; starting to climb trunk
28	<i>Acer macrophyllum</i>	Bigleaf Maple	14.2	9.7,10.4	Good	Fair	12.6	12.6	12.6	12.6	30.0	No	Exceptional Grove	10.7	Retain	Codominant at base; cavity with hollow
29	<i>Tsuga heterophylla</i>	Western Hemlock	10.0		Fair	Fair	8.4	6.4	8.4	4.4	24.0	No	Exceptional Grove	7.5	Retain	

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Over 24 inches	Exceptional	Limits of Disturbance (8X trunk Diameter)	Proposed Action	Notes
30	<i>Tsuga heterophylla</i>	Western Hemlock	14.3		Good	Good	12.6	12.6	8.6	12.6	24.0	No	Exceptional Grove	10.7	Retain	
31	<i>Acer macrophyllum</i>	Bigleaf Maple	35.5		Good	Good	23.5	17.5	13.5	17.5	30.0	Yes	Exceptional - Size	26.6	Retain	Trunk wound approximately at 14 feet; ivy climbing trunk
32	<i>Acer macrophyllum</i>	Bigleaf Maple	14.0		Good	Good	10.6	0.0	12.6	22.6	30.0	No	Exceptional Grove	10.5	Retain	Diameter at standard height estimated due to thick ivy coverage; tension root to east; further evaluation should be done after ivy has been removed
33	<i>Acer macrophyllum</i>	Bigleaf Maple	21.7	10.2,19.2	Good	Good	8.9	8.9	26.9	26.9	30.0	No	Exceptional Grove	16.3	Retain	Measured above swollen base; fungi at base; stilted root; looks to be some erosion on site; canopy phototropic south/southwest
34	<i>Tsuga heterophylla</i>	Western Hemlock	15.8		Good	Fair	9.7	6.7	6.7	12.7	24.0	No	Exceptional Grove	11.9	Retain	Broken top or topped; four reiterated tops, decay likely
35	<i>Acer macrophyllum</i>	Bigleaf Maple	33.7		Good	Fair	13.4	7.4	37.4	17.4	30.0	Yes	Exceptional - Size	25.3	Retain	Stilted roots; possible slope failure at some point; corrected lean; ivy starting to climb trunk; decay on west side with wounds present
36	<i>Acer macrophyllum</i>	Bigleaf Maple	18.0		Good	Good	0.8	0.8	16.8	2.8	30.0	No	Exceptional Grove	13.5	Retain	
37	<i>Acer macrophyllum</i>	Bigleaf Maple	12.7		Good	Good	0.0	0.0	18.5	32.5	30.0	No	Exceptional Grove	9.5	Retain	
38	<i>Acer macrophyllum</i>	Bigleaf Maple	24.4		Good	Good	0.0	0.0	17.0	29.0	30.0	Yes	Exceptional Grove	18.3	Remove	
39	<i>Acer macrophyllum</i>	Bigleaf Maple	15.8		Fair	Fair	0.0	0.0	19.7	0.0	30.0	No	Exceptional Grove	11.9	Retain	Broken top; only drip to south
40	<i>Acer macrophyllum</i>	Bigleaf Maple	25.9		Fair	Poor	1.1	1.1	39.1	31.1	30.0	Yes	Exceptional Grove	19.4	Retain	Broken top; branches starting to regrow trunk; branch over road originating from decayed area; should remove or reduce branch

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Over 24 inches	Exceptional	Limits of Disturbance (8X trunk Diameter)	Proposed Action	Notes
41	<i>Thuja plicata</i>	Western Redcedar	12.4		Good	Fair	10.5	10.5	10.5	10.5	30.0	No	Exceptional Grove	9.3	Retain	Leaning trunk with branches growing vertically; rubbing on tree F
42	<i>Acer macrophyllum</i>	Bigleaf Maple	19.9		Fair	Fair	6.8	6.8	12.8	22.8	30.0	No	Exceptional Grove	14.9	Retain	Cavity at base; low vigor; heavy ivy at base
43	<i>Acer macrophyllum</i>	Bigleaf Maple	29.0	13.9,25.5	Fair	Fair	19.2	15.2	19.2	11.2	30.0	Yes	Exceptional Grove	21.8	Retain	Previous top failure; dogwood near base that looks nice; codominant trunks near base
44	<i>Acer macrophyllum</i>	Bigleaf Maple	17.0		Fair	Fair	22.7	0.0	0.0	28.7	30.0	No	Exceptional Grove	12.8	Retain	Previous top failure with trees reiterating
45	<i>Acer macrophyllum</i>	Bigleaf Maple	12.2		Fair	Poor	20.5	0.0	0.0	18.5	30.0	No	Exceptional Grove	9.2	Remove	Suppressed; previously broken top; wound to 12 feet
46	<i>Acer macrophyllum</i>	Bigleaf Maple	22.8		Fair	Poor	5.0	15.0	19.0	19.0	30.0	No	Exceptional Grove	17.1	Remove	Previous partial trunk failure; low retention value
47	<i>Tsuga heterophylla</i>	Western Hemlock	14.0		Fair	Fair	12.6	12.6	13.6	12.6	24.0	No	Exceptional Grove	10.5	Retain	Growing on large stump; diameter at standard height estimated
A	<i>Acer macrophyllum</i>	Bigleaf Maple	24.7	16,16,10	Good	Good	-	-	29.0	-	30.0	Yes	Exceptional Grove	18.6	Retain - offsite	Diameter at standard height estimated in direction canopy overhangs the site
B	<i>Acer macrophyllum</i>	Bigleaf Maple	23.0		Good	Good	-	-	26.0	-	30.0	No	Exceptional Grove	17.3	Retain - offsite	Diameter at standard height estimated in direction canopy overhangs the site
C	<i>Tsuga heterophylla</i>	Western Hemlock	18.0		Good	Good	-	-	-	14.8	24.0	No	Exceptional Grove	13.5	Retain - offsite	Diameter at standard height estimated in direction canopy overhangs the site
D	<i>Thuja plicata</i>	Western Redcedar	12.0		Good	Good	-	-	-	18.5	30.0	No	Exceptional Grove	9.0	Retain - offsite	Diameter at standard height estimated in direction canopy overhangs the site
E	<i>Acer macrophyllum</i>	Bigleaf Maple	40.0		Good	Good	-	-	-	33.7	30.0	Yes	Exceptional - Size	30.0	Retain - offsite	Diameter at standard height estimated in direction canopy overhangs the site



Table of Trees
5000 W Mercer Way, Mercer Island, WA

Arborist: Joseph S-H
Date of Inventory: 09.15.22
Table Prepared: 02.20.23

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Over 24 inches	Exceptional	Limits of Disturbance (8X trunk Diameter)	Proposed Action	Notes
F	<i>Acer macrophyllum</i>	<i>Bigleaf Maple</i>	25.5	18,18	Good	Fair	1.1	6.1	34.1	34.1	30.0	Yes	Exceptional Grove	19.1	Retain - offsite	Cedar tree, number 41, rubbing on trunk

CITY OF MERCER ISLAND

COMMUNITY PLANNING & DEVELOPMENT

9611 SE 36TH STREET | MERCER ISLAND, WA 98040

PHONE: 206.275.7605 | www.mercergov.org



MERCER ISLAND TREE INVENTORY & REPLACEMENT SUBMITTAL INFORMATION

PROJECT INFORMATION

Property Owner
Name: _____

Site Address or
Parcel Number: _____

Project Contact
Name: _____

Contact Email
Address: _____

Contact Phone
Number: _____

EXCEPTIONAL TREES

Exceptional Trees- means a tree or group of trees that because of its unique historical, ecological or aesthetic value constitutes an important community resource. A tree that is rare or exceptional by virtue of its size, species, condition, cultural/historical importance, age, and/or contribution as part of a tree grove. Trees with a diameter of more than 36 inches, or with a diameter that is equal to or greater than the diameter listed in the Exceptional Tree Table shown in MICC 19.16 under Tree, Exceptional.

List the total number of trees for each category and the tree identification numbers from the arborist report.

Number of trees 36" or greater _____

List tree numbers: _____

Number of trees 24" or greater (including 36" or greater) _____

List tree numbers: _____

Number of trees from Exceptional Tree Table (MICC 19.16) _____

List tree numbers: _____

LARGE REGULATED TREES

Large Regulated Trees- means any tree with a diameter of 10 inches or more, and any tree that meets the definition of an Exceptional Tree.

Number of Large Regulated Trees on site _____ (A)

List tree numbers: _____

Number of Large Regulated Trees on site proposed for removal _____ (B)

List tree numbers: _____

Percentage of trees to be retained ((A-B)/Ax100) note: must be at least 30% _____ %

RIGHT OF WAY TREES

Right of Way Trees- means a tree that is located in the street right of way adjacent to the project property.

Number of Large Regulated Trees in right of way _____

List tree numbers: _____

Number of Large Regulated Trees in right of way proposed for removal _____

List tree numbers: _____

Reason for removal: _____

TREE REPLACEMENT

Tree replacement- removed trees must be replaced based on the ratio in the table below. Replacement trees shall be conifers at least six feet tall and or deciduous at least one and one-half inches in diameter at base.

Diameter of Removed Tree (measured 4.5' above ground)	Tree replacement Ratio	Number of Trees Proposed for Removal	Number of Tree Required for Replacement Based on Size/Type
Less than 10"*	1		
10" up to 24"	2		
Greater than 24" up to 36"	3		
Greater than 36" and any Exceptional Tree	6		
TOTAL TREE REPLACEMENTS			

****no replacement tree is needed if the tree fits all of the following;
Less than 10 inches in diameter, not an exceptional tree, and not a replacement tree from another tree permit. ****

Plan One
1501 Dayton Court NE
Renton, WA 98056-2766
(206) 612-8511

RE: Permit No. 2112-249
5028 West Mercer Way

Memorandum

Mercer Island City Code (MICC) Section 19.10.060.A.3 states the following:

Development proposals specified under subsection (A) (1) of this section shall retain exceptional trees with a diameter of 24 inches or more. Exceptional trees with a diameter of 24" or more that are retained shall be credited towards compliance with the retention requirements of subsection (A) (2) of this section. Removal of exceptional trees with a diameter of 24 inches or more, shall be limited to the following circumstances:

- a. Retention of an exceptional tree(s) with a diameter of 24" or more in an unavoidable of hazardous situation; or*
- b. Retention of an exceptional tree(s) with a diameter of 24" or more will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC; or*
- c. Retention of an exceptional tree(s) with a diameter of 24 inches or more will prevent the creation of a residential lot through a subdivision or short subdivision that is otherwise allowed by this title.*

Tree Proposed for Removal: 22

Justification (per MICC 19.10.060.A.3) Subsection b. Required excavation (within the MLOD) for the proposed home would impact this tree to the point that its stability and/or survivability would be of concern. Further, because of excavation required within the MLOD, retention of this tree will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC.

Tree Proposed for Removal: 25

Justification (per MICC 19.10.060.A.3) Subsection b. Required excavation (within the MLOD) for the proposed soldier pile retaining wall would impact this tree to the point that its stability and/or survivability would be of concern.

Tree Proposed for Removal: 26

Justification (per MICC 19.10.060.A.3) Subsection b. Retention of this tree would not be possible without limiting the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC. Further, the location of this tree in the middle of the property and its huge MLOD and the restrictions resulting from associated buffers and setbacks would prevent the construction of practically any residence on the property.

Tree Proposed for Removal: 27

Justification (per MICC 19.10.060.A.3) Subsection b. The location of this tree close to the middle of the property will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC. Further, the location of this tree on the property and its large MLOD would prevent the construction of any residence to the South of it.

Tree Proposed for Removal: 45

Justification (per MICC 19.10.060.A.3) Subsection b. The location of this tree within the footprint of the proposed residence will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC.

Tree Proposed for Removal: 46

The location of this tree within the footprint of the proposed residence will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC.

Tree Proposed for Removal: 38

Justification (per MICC 19.10.060.A.3) Subsection b. Required excavation (within the MLOD) for the proposed home would impact this tree to the point that its survivability would be of concern. Further, because of excavation required within the MLOD, retention of this tree will limit the constructable gross floor area to less than 85% of the maximum gross floor area allowed under Chapter 19.02 MICC.

Site Notes

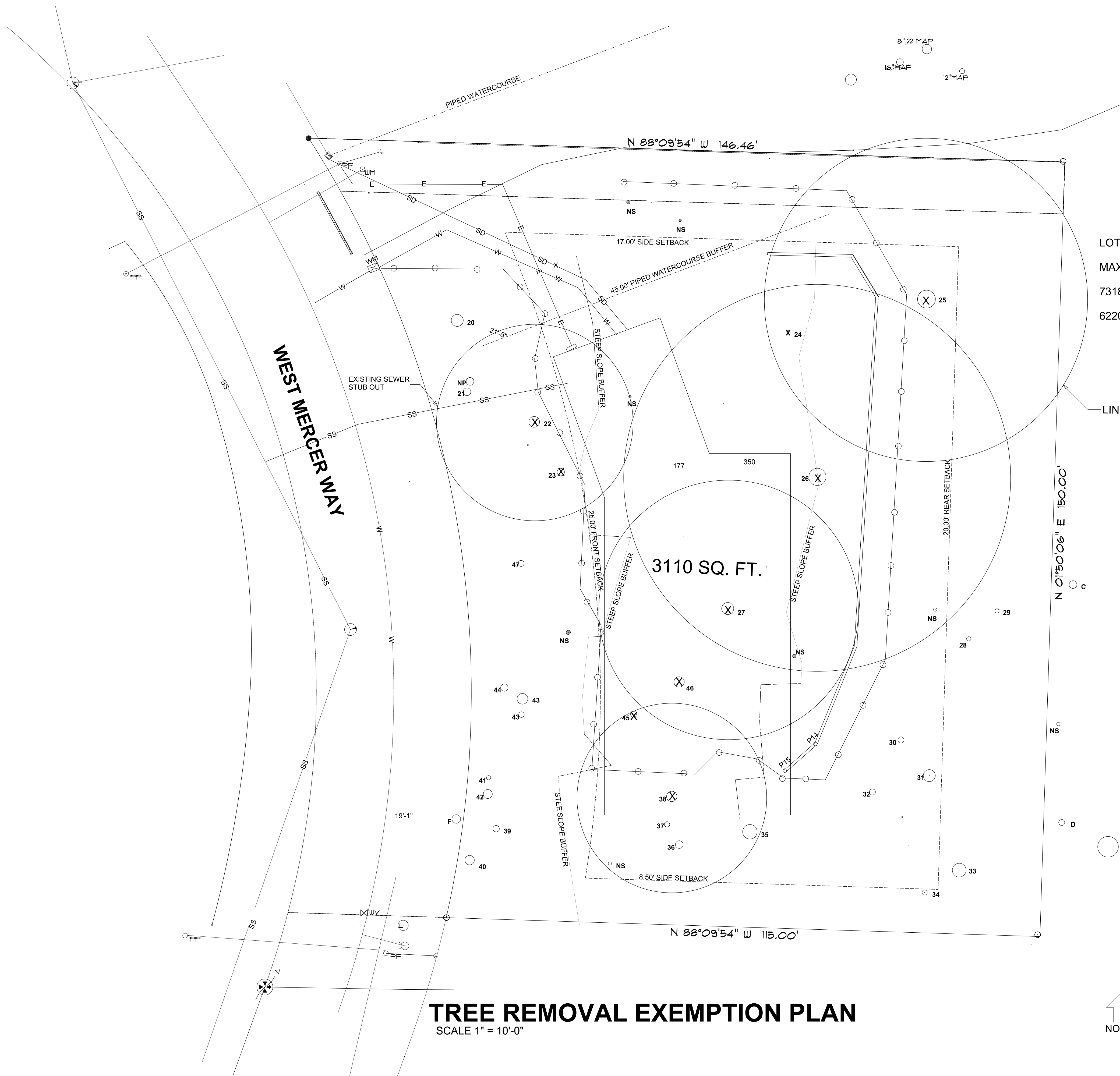
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encroachment however, the steep slopes themselves cannot be built in. These left a rather narrow envelope to work within in which required the house to be stretched North and South through that resulting buildable area. Steep slopes on the West prevent any garage entrance facing that direction. The garage entrance cannot face the north because of the fall of the grade across the North face of the garage so the garage entrance is located on the East side of the garage and opening onto a parking apron. The house is located a particular distance south of the North property line in order to minimize the slope of the driveway and to satisfy the Fire Marshall, any closer and the driveway would become steeper.

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William Gottlieb
For Plan One

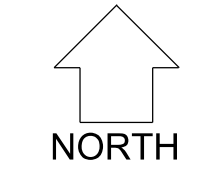


LOT AREA 18,295 SQ. FT.
MAX ALLOWABLE GROSS SQUARE FOOTAGE = 7318 SQ. FT. (40 %)
7318 SQ. FT. X 85% = 6220 SQ. FT.
6220/2 = 3110 SQ. FT. PER FLOOR

LINE OF MLOD (TYP)

- LEGEND**
- TREE PROTECTION FENCING AND LIMITS OF CLEARING, GRADING AND EXCAVATION
 - W—W— WATER SERVICE
 - SD—SD— STORMWATER DRAIN SYSTEM
 - SS—SS— SANITARY SEWER
 - E—E— UNDERGROUND ELECTRICAL SERVICE
 - ☒ WATER METER

TREE REMOVAL EXEMPTION PLAN
SCALE 1" = 10'-0"



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DATE	BY	REVISIONS
12/08/2022		REVISED

EDWARD & CATHERINE MORAN
WEST MERCER WAY
MERCER ISLAND, WA 98040

PLAN ONE
FINE HOME DESIGN
5125 47th Avenue S
Seattle, Washington 98118
(206) 612-8511 www.planone.biz

DRAWN BY
WMG
DATE
APRIL 25, 2022
PLAN NO.

SHEET NO.
17