ARBORIST REPORT

Date:
August 30, 2021

Prepared for:
Tomoko Lumpkin

Site Address:
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Mercer Island, WA

Prepared by:
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NARRATIVE

Scope of Work
You have asked me to prepare a summary of the tree assessment work that I have been engaged with you on since July of 2019. This summary provides an overall assessment and addresses the issues detailed by City Arborist John Kenney in his letter dated 5/21/2021, with specific reference to MIMC 19.10.060 and 19.10.080. You provided me with a revised site plan labeled C2.5 dated September 7, 2021.

Methodology
The methods and techniques used for this assessment are as outlined in *Tree Risk Assessment* by Julian Dunster and as adopted by the International Society of Arboriculture (ISA). Additional standards, practices and specifications are as detailed in *ANSI Standard A300 (Part 9)-2017 Tree Risk Assessment a. Tree Failure*. The end goal of most assessments is to provide the owner or manager of the tree(s) with factual information, enabling them to make decisions about the management of the tree(s). For this particular assessment, I used a Level II Assessment that includes inspection of the root collar, lower trunk, and canopy of the tree as can be seen from the ground. Basic assessment does not include climbing the tree or excavation of soils to inspect root structure or condition.

I measured each tree for its Diameter at Breast Height (DBH), an industry standard of measuring trees at 4.5' above grade. Each tree was tagged with a numbered metal tag that provides reference to the attached Tree Inventory. Thirty-six (36) trees were assessed.

You provided a survey of the tree locations upon which I labeled each tree with the corresponding reference number. Each tree was identified and assessed for its Species, Size (DBH), Dripline Radius, Condition, with Comments. A spreadsheet was produced that included information regarding whether certain trees are on-site or not, whether they will be retained or removed, and whether they are Exceptional, by code.

Condition ratings are as adopted by the ISA and are described as Poor, Fair, Good, Excellent.

We completed exploratory trenching in four (4) locations, as detailed below.

Findings and Observations
Thirty-six trees were assessed. Five (5) trees were located Off-site, not in the right-of-way (ROW); five (5) were located Off-site in the ROW; and eight (8) trees measured less than 10" DBH. A net of 18 Large or Exceptional trees will be detailed below.

Tree #201 through #209 are a line of Douglas fir planted along the eastern property line which abuts a ROW. The survey indicates that Tree #202, 203, 205, 207 and 209 are in the ROW. All of these trees have compacted gravel and roadway asphalt over nearly 50% of their dripline area. Tree Protection Fencing along the east side of these trees will provide protection for the

trunks, but cannot be installed at the dripline. The full dripline on the west side of these trees will have protection.

Tree #210 - #212 are Off-site on the property to the north. These trees, together with on-site Tree #213 are growing in and under the canopy of Tree #214. These trees will have little, if any, impact to their root systems as a result of the planned project. As detailed below, an exploratory trench was dug to explore and discover roots that might be present within the trench.

Tree #214 is a Douglas fir of Exceptional size; 41.3" DBH. The dripline radius of this tree extends 33' south and covers the dripline of most of the trees listed immediately above. The development plans include a site wall to be constructed at grade in the eastern portion of this property, said wall would require excavation within the dripline of Tree #214. An exploratory trench was excavated perpendicular to the proposed wall and at a distance of 18' from the centerline of Tree #214. This was determined to be the northern Limit of Disturbance (LOD) for the associated excavation. Tree protection for Tree #214, as well as Tree #213, will mimic the dripline with the exception of a 4' wide excavation 'alley' that will be created with protective fencing. Photo 1A and 1B below attempts to show that the excavated trench was clear of any roots larger than ½" in diameter, other than two roots that each measured 1.75" and 2.5" in diameter. These two larger roots were located at the very east end of the exploratory trench, which was dug 8' long in order to explore beyond what is expected to be the LOD. It should be possible to avoid and protect these specific roots during the excavation and construction of the proposed site wall. The absence of significant roots within the trench does not assure that other roots might be discovered as the foundation trench is excavated. My experience tells me that if there are additional roots present, they will be smaller in size as the excavation moves away from the subject tree. See additional specific protection measures detailed below.

Tree #215 and #216 are both 6.5" DBH and thereby not regulated. Tree #216 has Poor structure. Both trees will be removed.

Tree #217 is a 10.7" DBH Douglas fir tree in Fair to Poor condition, but it will be retained.

Tag #218 was not used.

Tree #219 and #220 were assessed as two separate trees though they are co-joined at the root collar. Tree #220 measured 9.6" DBH, and is in poor condition due to the more dominant Tree #219, measuring 18.7" DBH. These two trees are scheduled for removal.

Tree #221 through #224 (four trees) are located on the southern property line, along the ROW. It is unclear from the survey whether these four trees are located on-site or off. For the purpose of tree retention calculations, all four trees were considered as on-site. Tree #224 is less than 10" DBH. Tree #221, 222, 223, and 224 are scheduled for removal as their existing root system is exposed, damaged, and not likely to tolerate the additional impacts of having the existing broken concrete driveway and carport slab removed, regraded and rebuilt. See Photo

#2 and #3 below. An exploratory trench was excavated parallel to the driveway slab and up against the slab. See Photo #4 below. The soil here is highly compacted. One large (4”-5”) was discovered though it was difficult to assess whether it was one root or two roots co-joined.

Tree #225 and #226 are Douglas fir trees, 13.4” and 11.8”, that were assessed as Fair to Fair/Poor condition. Their dripline only extends 5’ north, which will be set as the LOD for these two trees. While the dripline is the indicator for tree protection, it is likely that these two trees will have roots that will be impacted. Because these two trees are already in less than Good condition, any significant root impacts might tip the retain/remove scale toward removal. Protection measures are detailed below, which includes close monitoring of all excavation activity on-site by a certified arborist or tree professional.

Tree #227 is a 21.0 Douglas fir in Good condition that will be retained. An exploratory trench was dug at the proposed LOD for this tree. Photo #5 and #6 below show the open trench with roots larger that 1” shown. Two roots, each 1.5” in diameter were located north of the existing fence. Two additional roots of equal size were located south of the fence. I believe this tree will tolerate the severing of these roots, provided the mitigation measure detailed below are adopted and implemented.

Tree #228 through #231 are all outside of the proposed disturbance zone and will be protected by fencing, as detailed below. Tree #232 is offsite and will have no impacts.

Tree #233 is a 33.6” Douglas Fir tree of Exceptional size, assessed as being in Good condition. The plan is to retain this tree. The proposed limits of disturbance are located under an existing concrete patio. There is existing ornamental landscaping right at the proposed LOD which kept us from excavating without significant removal. It may be possible to retain this tree, depending on the extent and location of roots that are discovered during excavation, as detailed below.

Tree #234 is a 23.3” DBH White pine that will be removed.

Tree #235 and #236 will have no impacts. Tree #237 is a very large Sequoia that is located off site, with no apparent potential impacts.

Considerations

Of primary concern is protection of the trees that could very likely have root system impacts from the proposed excavation associated with the new residential construction on the subject property. On-site monitoring of the root system impacts should be in-place during any excavation. Tree protection fencing should be in place before any heavy equipment is delivered to the site. If roots of these trees are exposed during excavation, and it’s necessary to remove certain roots in order to proceed with construction, the subject tree should be assessed for the risk of failure due to root loss. If any tree is deemed of ‘’High” risk of failure and needs to be removed, additional trees will need to be planted as mitigation for the tree removal.

The following mitigation measures should be adopted and implemented prior to any clearing or grading activities. The following bulleted items should be included on the Tree Retention & Replanting plan sheet and/or other plan set pages that detail clearing and grading standards.

- Tree Protection Measures (TPM) should be 4' tall orange poly fencing, or equivalent, staked into place at the Limits of Disturbance (LOD), except that TPM for the trees located along the ROW shall be 6' tall chain-link panels secured in place.
- Signage shall be provided every 20' along the sections of TPM stating the fence provides a "Tree Protection Zone" – "No Soils, Building Materials or Equipment Allowed in Protection Zone". These signs should be 8.5" by 11.0"and made to be weather resistant.
- Site clearing, grading and excavation should be monitored by a professional tree person. Any roots encountered should be cleanly cut as-if it were a root from a tree scheduled for retention. Any stump removal should be considered for its potential impact to nearby protected trees.
- The removal of the existing shed will need to be accomplished with equipment tha tis out-side of the tree protection for nearby trees. This work should be monitored by an arborist ortree professional.
- Root pruning, as needed, should be undertaken with care. Additional pruning standards are detailed in *ANSI Standard A300 (Part8)-2013 Root Management.*
- All exposed roots should be covered with moist native soil or a commercial compost or mulch product, sufficient to cover the freshly cut roots as soon as is reasonable.
- All bare soils around the retained trees should be covered with 3" of arborist wood chips or a commercial mulch material.
- If limb removal is needed in order to provide building clearance, such pruning should be undertaken by a tree professional and should be done with proper pruning equipment.
- The trees would benefit from additional summer-time hydration, as may be possible.

City of Mercer Island code provides for re-planting trees to mitigate for trees removed. I have completed a City of Mercer Island 'Tree Inventory & Replacement Submittal Information' work-sheet. 72% of the existing on-site tree, greater than 10" in diameter, will be retained, as planned.

You will be required to re-plant ten (10) trees as mitigation for the trees removed. At least 50% of the replacement trees need to be a species native to the Puget Sound region. Evergreen trees must be a minimum of 6' tall and deciduous trees must be a minimum of 2" caliper. Caliper is an industry standard of measuring nursery trees, typically 6" above grade. As noted above, if additional trees need to be removed due to an increase in assessed risk as a result of the site development, additional trees will need to be planted as mitigation for the tree removal, or off-site mitigation might work.

I have reviewed your replanting plan for the species selection as well as placement. The selection represents at least 50% native trees. The native trees will include Shore Pine, Western red cedar, and Vine maple. Non-native trees will include Japanese maple, Stewartia,

and Dogwood. The species selection and spacing are appropriate for the site conditions, and are per Mercer Island code.

Conclusions

Sufficient trees will be retained (72%) to meet the City of Mercer Island code regarding the minimum retention percentage of 30%. Even if an additional tree(s) needs to be removed due to unforeseen root system impacts, there are sufficient number of trees to provide assurance that the retention level will remain high.

It is critical that any and all excavation be monitored by a tree professional. Tree and stump removal should be monitored, as well.

Special attention should be given to the removal of the existing shed so as to minimize root system impacts. It should be possible to lift the structure out of its present location while observing the tree protection zone that will surround the shed.

This report was prepared by Thomas Quigley, ISA certified arborist PN0655A. Tree Risk Assessment Qualified (TRAQ) by the International Society of Arboriculture (ISA).

Photo 1 A . Trench near Tree #214. 8’ long, 22” deep. Very few roots

Photo 1 B. Tree #214 - Close-up of calipers 1.75” and 2.5”.


Photo 3. Big leaf maple, tree #223. Roots exposed and damaged. Compacted soil.


Photo 4. Tree #222. Girdling roots.


Photo 5. Along south edge of driveway.
Large root at top of photo

Photo 5. Tree #227, south of fence.

Photo 6. Tree #227 trench looking south

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