

Arborist Report

Tree Protection Plan - 4045 W Mercer Way, Mercer Island



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Introduction

Scott Chancellor contracted Davey Resource Group (DRG) to inspect and provide an arborist report and tree protection plan for 4045 W Mercer Way in Mercer Island, Washington. The client is seeking a building permit for the property. In preparation for construction, a tree inventory was conducted.

A DRG International Society of Arboriculture (ISA) Certified Arborist (PN-10234A) inventoried all the significant trees on the property and those on neighboring properties with overhanging canopies. Each tree was visually assessed, and the required tree data was collected using a GIS database. Following data collection, specific tree preservation plan elements were calculated to identify each tree's Tree Protection Area (TPA). The following details are provided in alignment with the information required by Mercer Island City Code ([MICC 19.10](#))

- A numbering system of all existing significant trees on the subject property
- Tree type, species, and DSH (Diameter at 4.5' above soil level).
- A complete description of each tree's health, condition, and viability.
- Determination of tree-tier status as defined by Mercer Island City Code.
- Determination of the Critical Root Zone (CRZ) and Tree Protection Area (TPA) of all trees to be preserved, and a description of the methods used to establish a TPA.
- A discussion of timing for the installation of tree protection measures.
- Any special instructions for tree care when work may be required within the CRZ.
- Map illustrations of tree locations, identification numbers, and CRZ dimensions.

Limits of the Assignment

Many factors can limit specific and accurate data when performing evaluations of trees, their conditions, and values. The determinations and recommendations presented here are based on current data and conditions that existed at the time of the evaluation and cannot be a predictor of the ultimate outcomes for the trees. A visual inspection was used to develop this report's findings, conclusions, and recommendations. Values were assigned to grade the attributes of the trees, including structure and canopy health, and to obtain an overall condition rating. No physical inspection of the upper canopy, sounding, root crown excavation resistograph, or other technologies were used in the evaluation of the trees.

Due to the substantial groundcover of invasive species and steep slopes, access to some trees was limited to visual observations and measurements.

Methods

Data was collected by an International Society of Arboriculture (ISA) Certified Arborist (PN-10234A) on January 7, 2026. The results were used to determine the Critical Root Zone (CRZ) and any other tree protection measures required during construction. The location and dripline of all trees six inches or greater in diameter at standard height (DSH, 4.5 ft. above grade) were documented.

The following attributes were collected for each site:

Tree Number: A tree ID number was assigned, and a numbered aluminum tag was affixed to the tree. Aluminum tags were only affixed to trees on the client's property. Trees on the client's property were numbered in the 400 series.

Species: Trees were identified by genus and species, cultivar if evident, and by common name.

Diameter at Standard Height (DSH): Trunk diameter was recorded to the nearest inch at 4.5 feet (standard height) above grade except where noted. When limbs or deformities occurred at standard height, measurement was taken below 4.5 ft. The DSH of multi-trunk trees was determined by taking the square root of the sum of the DSH for each individual stem squared.

Height: Tree Height estimated to the nearest <5ft.

Avg. Crown Radius: Average dripline distance was measured.

Condition: Condition ratings were based on but not limited to (1) the condition and environment of the tree's root crown; (2) the condition of the trunk, including decay, injury, callusing, or presence of fungus sporophore; (3) the condition of the limbs, including the strength of crotches, amount of deadwood, hollow areas, and whether they bore excessive weight; (4) the condition and growth rate history of the twigs, including pest damage and diseases; (5) the leaf appearance, including abnormal size and density as well as pest and disease damage.

Using an average of the above factors together with the arborist's best judgment, the general condition of each tree was recorded in one of the following categories, adapted from the rating system established by the International Society of Arboriculture and the 10th Edition of the Council of Tree & Landscape Appraisers (CTLA) *Guide for Plant Appraisal*¹ :

- **Excellent:** High vigor and near-perfect health with little or no twig dieback, discoloration, or defoliation. It is nearly ideal and free of structural defects. It is a nearly ideal form for the species and is generally symmetrical.
- **Good:** Vigor is typical for the species and has no significant damage due to disease or pests. Twig dieback, discoloration, or defoliation is minor. Well-developed structure with minor defects that can be corrected easily. Minor asymmetries/deviations from species norm. Function and aesthetics are not compromised.

¹ Council of Tree and Landscape Appraisers. (2019). *Guide for Plant Appraisal, 10th Edition, Second Printing*. Atlanta, GA: International Society of Arboriculture.

- **Fair:** Reduced vigor. Damage due to insects or diseases may be significant and associated with defoliation, but is not likely to be fatal. Twig dieback, defoliation, discoloration, and/or dead branches may comprise up to 50% of the canopy, a single structural defect of a significant nature or multiple moderate defects; structural defects are impractical to correct or require multiple treatments over several years, or major asymmetries/deviations from species norm. Function and aesthetics are compromised.
- **Poor:** Unhealthy and declining in appearance. Poor vigor, low foliage density, and poor foliage color are present. Potentially fatal pest infestation. Extensive twig or branch dieback. A single serious structural defect or multiple significant defects. Observed structural problems cannot be corrected. The tree is often a largely asymmetrical or abnormal form. The form detracts from the aesthetics or intended use to a significant degree.
- **Very Poor:** Poor vigor and appears to be dying. Little live foliage. Single or multiple severe structural defects. It is visually unappealing and offers little to no functionality in the landscape.
- **Dead**

Tree Preservation Priority: To capture the priority for preserving an individual tree as it relates to planning for development projects, DRG utilized a rating scale of one to four, with one being the highest priority for protection and four being the least concern. The condition rating of an individual tree is an important component of the priority rating, but several other variables are factored in: species desirability, species longevity, species sensitivity to root loss and construction impacts, uniqueness, and aesthetics of the tree itself and its relation to the site. It is important to note that these are qualitative ratings based solely on the site, individual tree, and existing conditions at the time of the inventory. Proposed development and construction plans are not considered when assigning ratings. The following criteria constituted the basis of tree placement in a particular category of priority:

- **Priority 1:** Highest priority for protection (i.e., particularly good condition, unique tree, and/or should be protected at all reasonable cost).
- **Priority 2:** Good or fair condition tree well worth protecting, though not uniquely valuable.
- **Priority 3:** Poor condition average tree that will not be missed if it were gone, not worth any special protection measures.
- **Priority 4:** Trees that should be removed under most or any circumstances (i.e., invasive or undesirable species, poor condition or critical trees, particularly high-risk situations, etc.).

Observations

The client's property was located at 4045 W Mercer Way, Mercer Island (Parcel #3623500395). A total of **nineteen (19)** trees were inventoried on the client's parcel. The client's property was bordered by neighboring properties on all sides except the southwest, which was bordered by Lake Washington. There was a paved road to the northwest of the client's parcel. The northeast side of the parcel had a 35-degree slope with a southwest aspect that gradually declined toward the water. There was a remnant concrete foundation in the center of the parcel and an old concrete wall northeast of the foundation. The parcel had 90% invasive plant ground-cover, primarily consisting of Himalayan blackberry (*Rubus armeniacus*) and English ivy (*Hedera helix*).

Of the trees on the client's parcel recorded in the inventory, **fifteen (15)** were small trees with Diameter at Standard Height (DSH) less than 10 inches. There were **two (2)** regulated (large) trees with DSH of 10 inches or greater, and **two (2)** dead trees. None of the inventoried trees fit the exceptional tree criteria designated by the City of Mercer Island.

Most of the inventoried trees were in fair condition (*Table 1*). Three (3) trees, Tree ID#s 468, 482, and 484, were in poor condition. Two of the trees in poor condition were regulated trees. Tree ID# 468 had a large fungal fruiting body at the base of its trunk and an old pruning wound from a large (approximately 9-inch diameter) branch removal. Two (2) trees were dead and were therefore not considered significant to the City of Mercer Island despite having DSH greater than 10 inches. All other inventoried trees were in fair condition.

Table 1 - Trees by Condition

Condition	Regulated Trees	Small Trees	Dead Trees	Total
Good	0	0	0	0
Fair	0	14	0	14
Poor	2	1	0	3
Dead	0	0	2	2
Total	2	15	2	19

Analysis & Recommendations

This report satisfies the conditions of the critical first step in the preservation process: a tree inventory, assessment, and analysis conducted by a qualified professional. There was little recommended tree maintenance activity for this property due to the limited number of regulated trees and the client's intention to clear the property in preparation for construction.

- Two (2) trees, Tree ID#s 481 and 483 are dead and recommended for removal. Tree ID# 483 is considered a higher priority removal due to its larger height and DSH than Tree ID# 481.
- One (1) tree, Tree ID# 468, is recommended for monitoring. This tree is in poor condition and has a large fungal fruiting body at the base of the trunk. If this tree shows a decline in crown vigor, it should be re-evaluated.
- One (1) tree, Tree ID# 482 was a regulated tree that is not recommended for maintenance activity. The fifteen (15) other trees identified in this inventory were small trees that are not recommended for maintenance activity.

Table 2 - Tree Maintenance Recommendations

Maintenance Recommendation	Count
Priority 2 removal	1
Priority 3 removal	1
None	16
Monitor	1
Total	19

In terms of considering trees for preservation, most of the trees on the client's property are preservation priority 3 (Table 4). Both of the living regulated trees were considered preservation priority 3 due to their poor health condition.

Table 3 - Tree Preservation Priority

Preservation Priority	Count (Regulated Trees)	Count (Small Trees)	Count (Dead Trees)	Total
Priority 1	0	0	0	0
Priority 2	0	0	0	0
Priority 3	2	15	0	17
Priority 4	0	0	2	2
Total	2	15	2	19

Site Considerations

Development on the property is required to maintain a minimum of 30% of regulated trees - trees with a diameter of ten inches or greater, or considered an exceptional tree. These trees shall be retained over a rolling five-year period. All site improvements or construction proposals shall be designed to minimize tree removal. The client intends to develop the unmaintained natural area, and the following trees shall be prioritized for retention:

- Exceptional Trees
- Trees with a diameter of more than 24 inches
- Trees that have a greater likelihood of longevity
- Trees that are part of a healthy grove

Small trees, trees less than 10 inches in DSH and not considered exceptional trees, are exempt from the permitting requirements for removing regulated trees ([MICC 19.10.030](#)).

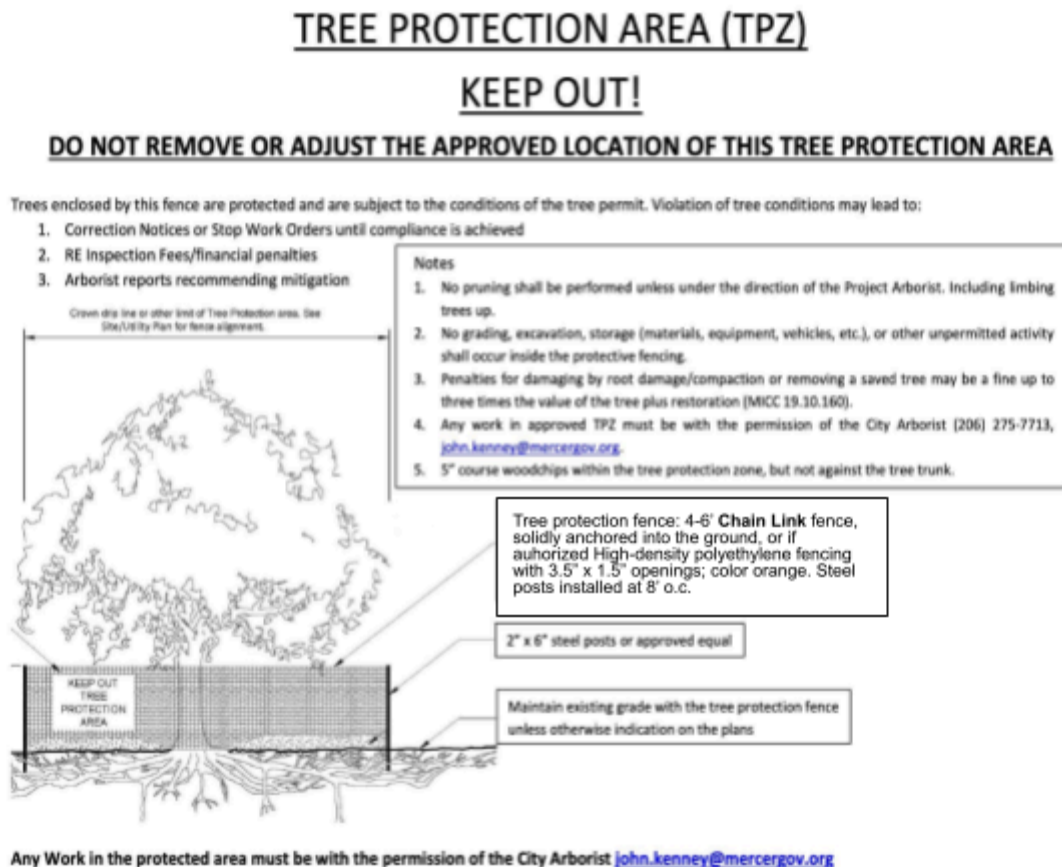
Limits of Disturbance & Timing

Construction activities shall comply with the following minimum required tree protection through established Limits of Disturbance (LOD) for those trees determined to remain on the site. Establishing an LOD will ensure the long-term viability of trees and groves identified for protection.

- **LOD fencing will be installed outside the dripline, at a minimum, of all retained trees.** It is recommended that LOD fencing be installed to encompass as much of the tree's root zone as is allowable by design plans.
- Preventative measures are recommended in addition to the installation of tree protection barriers for retained trees, including mulching over the drip line, supplemental fertilization for stressed trees, supplemental irrigation as necessary, soil amendments and soil aeration, and pruning to remove deadwood or create clearance on trees to be protected.
- Mulch the root zones of all significant trees to be retained during construction with 3" of organic mulch or arborist wood chips to help maintain moisture, avoid soil compaction, and avoid runoff.
- Install tree protection fencing for all remaining significant trees on the site and all those trees with canopies that extend onto the subject property.
- LOD fencing will follow the edge of building/road/paved paths where necessary and is not required to extend to the dripline where impervious surfaces are determined to be the limiting factor for root development (fence following existing curb does not trigger 'impact' status). Tree protection fencing may be installed at the edge of the impermeable or paved surfaces for those trees whose driplines extend over the edge.
- LOD fencing shall be a minimum of 4 feet high, constructed of chain link or polyethylene laminar safety fencing or similar material.

- “Tree Protection Area - Keep Out” or similar signs are required to accompany the LOD fencing at regular intervals and include the contact information of the consulting arborist or entity responsible for enforcing tree protection standards.
- LODs shall be constructed in such a fashion as to not be easily moved or dismantled.
- LODs shall remain in place for the entirety of the project and only be removed, temporarily or otherwise, with authorization by an ISA-certified arborist after submission and approval of intent.
- Any entry or work within the LOD of retained trees is prohibited. This includes but is not limited to the storage of materials, parking, or contaminating soil by washing out equipment.
- Retain a site arborist for the duration of the project that may conduct periodic site visits to investigate tree protection compliance and any changes to tree condition.

Image 3. An example of the required tree protection barrier signage.



Critical Root Zone

As with most tree preservation planning, a critical element is minimizing root disturbance. When evaluating tree root disturbance during construction, two key considerations arise: removing absorption roots and anchoring roots. Removal or compaction in the area of the absorption roots can cause immediate water stress and a significant decline in tree health. The ability of a tree to survive the loss of absorption roots depends on its tolerance of drought, tree health, and the ability to form new roots quickly. Removal of the larger anchoring roots can lead to structural instability. Trees that suffer substantial root loss or damage are seldom good candidates for preservation.

The Critical Root Zone (CRZ) is considered the ideal preservation area of the root zone of a tree and was determined according to one (1) foot radius from the center point of the tree for each one (1) inch of tree trunk diameter measured at the diameter at standard height (DSH). The inner critical root zone (ICRZ) was determined to be the area of the inner half of the critical root zone diameter. No disturbance of retained trees is allowed within the ICRZ.

CRZ measurements are estimated and may not accurately represent the actual dimensions of the root zone of the trees in the field. Many factors can limit root growth and expansion, such as the degree of slope, hardscape or heavily compacted areas, and/or tree health. Final selections for tree preservation are largely determined by the percentage of the Outer Critical Root Zone impacted.

Pre-Development Tree Care

Successful tree preservation efforts begin in the planning and design phase. To select the appropriate trees for preservation and incorporate them into future development plans, site managers and designers require detailed information on the health and status of the existing trees. This report satisfies the conditions of the critical first step in the preservation process: a tree inventory, assessment, and analysis conducted by a qualified professional. The resulting findings guide the beginning stages of the preservation process.

Condition ratings help nominate potential candidates for preservation. Development plans should ensure that no impact or root damage occurs within the inner root zone and plans should take into consideration the significant reduction in the likelihood of tree survival when the root zone is impacted. After individual trees are selected for preservation, the following action steps are recommended and/or required before development activities:

- **Prune** trees, as necessary, to remove existing deadwood and stubs. This strategy controls potential future vectors of decay. Clean cuts made at branch collars allow the tree to undergo its natural process of compartmentalizing wounds, preventing the spread of decay. During the pruning process, remove as minimal amount of live foliage as possible and remove no more than 25% of it in any one season while allowing for the safe and unimpeded operation of construction activities.

- If the soil within the TPA is compacted, **aerate it** using a pneumatic air tool to alleviate compaction and promote oxygen and water flow to the roots.
- Where possible, **add a 12-inch layer of wood chips** over any parts of a root zone not protected by the TPA. This will reduce the impact of soil compaction from heavy equipment during the upcoming construction activities.

Tree Care During Development

Once development begins, several measures are necessary to help ensure optimal outcomes for all trees selected for preservation:

- **Retain a Certified Arborist** on-site to monitor activities and assess impacts on trees. The arborist can make as-needed recommendations to improve tree preservation activities throughout development. This is particularly important to respond in a timely manner when a preserved tree is accidentally damaged or otherwise impacted during development.
- **Signage** instructing site workers not to enter Tree Protection Areas throughout the job site is recommended. Signage should be posted in English, Spanish, and any other language deemed necessary by site managers.
- **Discuss tree protection** regularly at required staff meetings. Reiterate the importance of respecting the Tree Protection Area as critical to the safety of on-site staff and the success of tree preservation efforts.
- Strictly **enforce** the Tree Protection Areas as “No-Go” zones. No activity, human or machinery, should breach the established TPA.
- **Root prune** where any grading or trenching occurs within the critical root zone.
- Ensure the area within the TPA receives **weekly watering** equivalent to the average natural rainfall for the specific development site. When the natural rainfall received is less than the historical average, manual watering methods should be employed. The on-site Certified Arborist can determine when additional manual watering is necessary.
- **Do not raise or lower the soil grade near the TPA.** A tree relies upon small, non-woody roots called feeder roots to absorb water and nutrients. These roots predominantly reside in the upper several inches of soil, just below grade. Lowering the soil grade, even just a few inches, will sever these feeder roots and compromise tree health. Raising the soil above the existing grade, such as by adding fill soil, buries feeder roots too deep and restricts feeder root access to water and oxygen.

Post-Development

A successful tree preservation effort continues well past the conclusion of development activities:

- The preserved trees should be **re-inspected** for signs of impact that may have gone undetected during construction, and mitigation measures assigned accordingly.
- The preserved trees should be placed on a **two-year seasonal care plan** that includes monitoring and routine soil inoculation treatments designed to stimulate new root growth.
- Annual monitoring should continue for several years, as the effects of construction may take anywhere from 3 to 7 years to become visibly apparent.

Concluding Remarks

This report and the tree inventory are the first steps in preserving the health, function, and value of the trees on the site during and after development. Trees and green spaces offer numerous benefits and enhance the value of residential properties. Tree preservation starts with a basic understanding of the health and structure of the trees on the site. With proper care and protection, these trees can continue to thrive. Tree protection guidelines and strategies should be shared with contractors and employers before any disturbance at the site.

The suitability of a tree for preservation is a qualitative process based on the interaction of various influencing factors. A tree inventory and arborist report provide a snapshot of each tree assessed across many of the most important observable factors relative to preservation. Healthy, vigorous trees are better able to tolerate impacts from construction and more readily adapt to the new site conditions that exist after development is completed. Additionally, tolerance to impact from construction activities varies across species and sites.

Most of the trees on this property were in fair health and appear to have established naturally instead of being intentionally planted. The majority of the trees were small trees that do not require permitting for removal. Two dead trees are recommended for removal **prior** to construction activity to improve site safety. Although Tree ID# 468 is in poor health, it is still a regulated tree that is located close to the shoreline. This tree should be protected during clearing activity using Limits of Disturbance (LOD) fencing. This will be feasible due to its location on the border of the client's property. Clearing this property will also result in the removal of invasive ground-cover, but it is considered best practice to replant desirable ground-cover species to prevent the invasive plants from reestablishing. Since this property has a steep slope, it is strongly recommended to replant trees to improve slope stability.

Successful tree preservation requires a team effort to find the right balance and select the appropriate trees. Using this report's findings as a guiding foundation, planners are equipped to design, prepare, and implement a tree preservation plan tailored to achieving the optimal outcome.

Appendix A: Inventory Site Map

Map A1: Overview of Site



TREE INVENTORY

4045 W Mercer Way
Mercer Island, WA



Appendix B: Tree Inventory Table

Table B1 - Tree Data

TREE ID	Species	DSH (in)	DSH 2,3,4...	Regulated Tree Y/N	HEIGHT (ft)	AVG. DRIPLINE RADIUS	CRZ (ft)	CONDITION	PRIMARY CONDITION OF CONCERN	CONDITION NOTES	PRESERVATION PRIORITY	PRIORITY MAINTENANCE	MAINTENANCE DETAIL	NOTES
466	Apple species (<i>Malus</i> spp.)	8	3, 2, 2, 2, 3, 3, 2, 4, 3	N	30	12	8	Fair	Poor structure	Water sprouts, ivy	3	None	None	-
467	Apple species (<i>Malus</i> spp.)	5	3, 2, 2, 2, 2, 2	N	30	12	5	Fair	Poor structure	Water sprouts	3	None	None	-
468	Apple species (<i>Malus</i> spp.)	19	-	Y	35	15	19	Poor	Decay	Fungal fruiting body at base of trunk, large pruned lead, poor structure, ivy	3	None	None	-
469	Red osier dogwood (<i>Cornus sericea</i>)	6	2, 2, 2, 2, 2, 2, 2, 1, 1, 1, 1	N	25	5	6	Fair	Poor structure	-	3	None	None	-
470	Red osier dogwood (<i>Cornus sericea</i>)	5	2, 2, 2, 2, 2, 2, 1, 1, 1, 1	N	25	5	5	Fair	Poor structure	Growing around old stump on edge of 3 ft cliff	3	None	None	-
471	Red osier dogwood (<i>Cornus sericea</i>)	7	3, 3, 3, 2, 2, 2, 2, 2, 2	N	30	5	7	Fair	Poor structure	-	3	None	None	Inaccessible, no tag
472	Red osier dogwood (<i>Cornus sericea</i>)	5	2, 2, 2, 2, 2, 1, 1, 1	N	20	5	5	Fair	Poor structure	-	3	None	None	-
473	Red osier dogwood (<i>Cornus sericea</i>)	8	3, 3, 3, 3, 2, 2, 2, 2, 2, 1, 1	N	25	8	8	Fair	Poor structure	-	3	None	None	Inaccessible, no tag

TREE ID	Species	DSH (in)	DSH 2,3,4...	Regulated Tree Y/N	HEIGHT (ft)	AVG. DRIPLINE RADIUS	CRZ (ft)	CONDITION	PRIMARY CONDITION OF CONCERN	CONDITION NOTES	PRESERVATION PRIORITY	PRIORITY MAINTENANCE	MAINTENANCE DETAIL	NOTES
474	European white birch (<i>Betula pendula</i>)	2	-	N	25	5	2	Fair	None	-	3	None	None	Inaccessible, no tag
475	European white birch (<i>Betula pendula</i>)	2	2, 1	N	20	5	2	Fair	Poor structure	-	3	None	None	-
476	European white birch (<i>Betula pendula</i>)	2	2, 1	N	15	5	2	Fair	Poor structure	-	3	None	None	-
477	Red osier dogwood (<i>Cornus sericea</i>)	5	2, 2, 2, 2, 2, 1, 1, 1, 1	N	15	5	5	Fair	Poor structure	-	3	None	None	-
478	Red osier dogwood (<i>Cornus sericea</i>)	4	2, 2, 2, 2, 1, 1, 1	N	15	5	4	Fair	Poor structure	-	3	None	None	Inaccessible, no tag
479	Red osier dogwood (<i>Cornus sericea</i>)	2	1, 1, 1, 1, 1, 1	N	15	5	2	Fair	Poor structure	-	3	None	None	Inaccessible, no tag
480	Red osier dogwood (<i>Cornus sericea</i>)	3	2, 1, 1, 1, 1	N	10	5	3	Fair	Poor structure	-	3	None	None	Inaccessible, no tag
481	Unknown species	10	-	N	10	0	10	Dead	Dead	-	4	Priority 3 Removal	Remove	-
482	Apple species (<i>Malus</i> spp.)	12	10, 6	Y	20	5	12	Poor	Poor structure	Previously topped	3	None	None	Inaccessible, no tag
483	Unknown species	33	26, 20	N	15	0	33	Dead	Dead	-	4	Priority 2 Removal	Remove	-
484	Apple species (<i>Malus</i> spp.)	4	2, 2, 2, 2, 1, 1, 1, 1	N	20	5	4	Poor	Poor structure, ivy	-	3	None	None	Inaccessible, no tag