

## Preliminary Arborist Report

To: James MacKay  
Site: 14012 41st Ave NE, Seattle, WA 98125  
Re: Tree Inventory and Assessment for Development  
Date: January 29, 2021  
Project Arborist: Andrea Starbird,  
ISA Certified Arborist #PN-9084A  
Connor McDermott,  
ISA Certified Arborist #PN-8704A  
ISA Qualified Tree Risk Assessor  
Attached: Table of Trees  
Tree Site Map

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### Summary

Tree Solutions Inc. inventoried and assessed seven significant trees on this lot. Based on city of Seattle Municipal Code (SMC), trees measuring 6-inches or greater in diameter at standard height (DSH) are required to be assessed for development projects. We tagged each tree with an aluminum tree tag. Tree identifier corresponds to the number on each tag.

Of the trees assessed, one tree met the exceptional tree criteria outlined in the Seattle Director's Rule 16-2008.

We estimated tree locations using aerial imagery, and based on our estimates, we found no exceptional tree groves on the site, however, this should be confirmed after the tree locations are surveyed. The City defines an exceptional grove as eight or more trees each with a diameter measuring 12-inches or greater with continuously overlapping canopies; street trees are excluded from determining grove designation.

There were three adjacent trees that required documentation for this property. Trees on neighboring properties were documented if they appeared to be greater than 6-inches diameter and their driplines extended over the property line. All trees on adjacent properties were estimated from the subject site or public property such as the adjacent right-of-way (ROW). We used an alphabetical tree identifier for trees off-site.

### Assignment and Scope of Work

This report documents the visit by Andrea Starbird and Connor McDermott, of Tree Solutions Inc., on January 20, 2021, to the above-referenced site. We were asked to complete a tree inventory and assessment of site trees by James Mackay, the property owner, in preparation for site development.

## Observations & Discussion

### Site

The 8,216 square foot site fronts 41st Ave NE in the Cedar Park neighborhood of Seattle. The Seattle Department of Construction and Inspection (SDCI) GIS map shows a steep slope hazard environmentally critical area (ECA) on site. The site is undeveloped.

The site is densely vegetated with invasive plant species, including: invasive ivy (*Hedera* sp.) Himalayan blackberry (*Rubus bifrons*), invasive clematis (*Clematis* sp.), and English holly (*Ilex aquifolium*). We observed limited native understory plants with a few low Oregon grapes (*Mahonia nervosa*) and sword ferns (*Polystichum munitum*) throughout. There were multiple tree failures and woody debris from these trees throughout the site.

We observed sandy soil with burrows that appeared to be mountain beaver activity.

### Trees

Tree species on-site were bigleaf maple (*Acer macrophyllum*), and red alder (*Alnus rubra*). The trees were in varying health and structural condition from poor to good; however, heavy amounts of invasive ivy obscured the bases and trunks of most trees which limited our assessment.

We recommend removing the ivy from the trunks and around the base of on-site trees and reassessing.

Tree 1840 is a bigleaf maple and the only tree of exceptional size on the site. Due to large ivy stems growing on the trunk, we estimated the DSH. The size and condition of this tree should be confirmed after the ivy is removed.

### Off-site and SDOT ROW Trees

Tree species off-site were bigleaf maple and cherry plum (*Prunus cerasifera*). Like the on-site trees, these trees were obscured by heavy invasive ivy and our assessment was limited.

There may be an exceptional grove on the site; this should be evaluated after the locations of the trees presumed to be in the ROW and off-site are confirmed by the site survey.

We have included an annotated aerial image of the subject parcel with estimated tree locations to serve as the site map and attached a table of trees that has detailed information about each tree.

## Discussion—Construction Impacts

*This report is preliminary as we have not reviewed finalized construction plans for the site. To finalize this report, a full plan set including demolition, civil, utility, architectural, and landscape plans is required.*

Trees planned for retention should be protected utilizing the tree protection specifications provided in Appendix G and in accordance with SMC 25.11.

## Recommendations

- Provide Tree Solutions Inc. with a full plan set, including civil, design, and landscape plans to finalize this report with tree protection, retention, and removal recommendations.

- Include tree protection specifications located in Appendix G on all design and construction plans. Include these specifications with all bid and permit plan sets relating to tree protection.
- Create a tree layer to be used as a common tree base across all plan sets. The tree layer must include the following:
  - Tree number and letter identifiers for trees on- and off-site.
  - Accurate dripline measurements, which are provided in the attached tree table.
  - Tree protection area and location of tree protection fencing for all retained trees both on- and off-site.
- Manage invasive plant species on-site, particularly ivy, and have Tree Solutions Inc. reassess trees planned for retention for health and structural condition.
- Site planning around exceptional trees must follow the guidelines outlined in SMC 25.11.050.<sup>1</sup>
- Site planning around trees in critical areas must follow the guidelines outlined in SMC 25.09.070.<sup>2</sup>
- All pruning should be conducted by an ISA certified arborist and following current ANSI A300 specifications.<sup>3</sup>

Respectfully submitted,

Andrea Starbird and Connor McDermott,  
Consulting Arborists

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<sup>1</sup> Seattle Municipal Code 25.11.050. General Provisions for Exceptional Trees

<sup>2</sup> Seattle Municipal Code 25.09.070 Standards for Trees and Vegetation in Critical Areas

<sup>3</sup> 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.

## Appendix A Glossary

**ANSI A300:** American National Standards Institute (ANSI) standards for tree care

**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)

**ISA:** International Society of Arboriculture

**Regulated Tree:** A tree required by municipal code to be identified in an arborist report.

**Visual Tree Assessment (VTA):** method of evaluating structural defects and stability in trees by noting the pattern of growth. Developed by Claus Mattheck (Harris, *et al* 1999)

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## Appendix B References

Accredited Standards Committee A300 (ASC 300). ANSI A300 (Part 1) Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Londonderry: Tree Care Industry Association, 2017.

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

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

Seattle Municipal Code 25.09.070. Standards for Trees and Vegetation in Critical Areas.

Seattle Municipal Code 25.11.050. General Provisions for Exceptional Trees.

Sugimura, D.W. “DPD Director’s Rule 16-2008”. Seattle, WA, 2009

## Appendix C Site Map

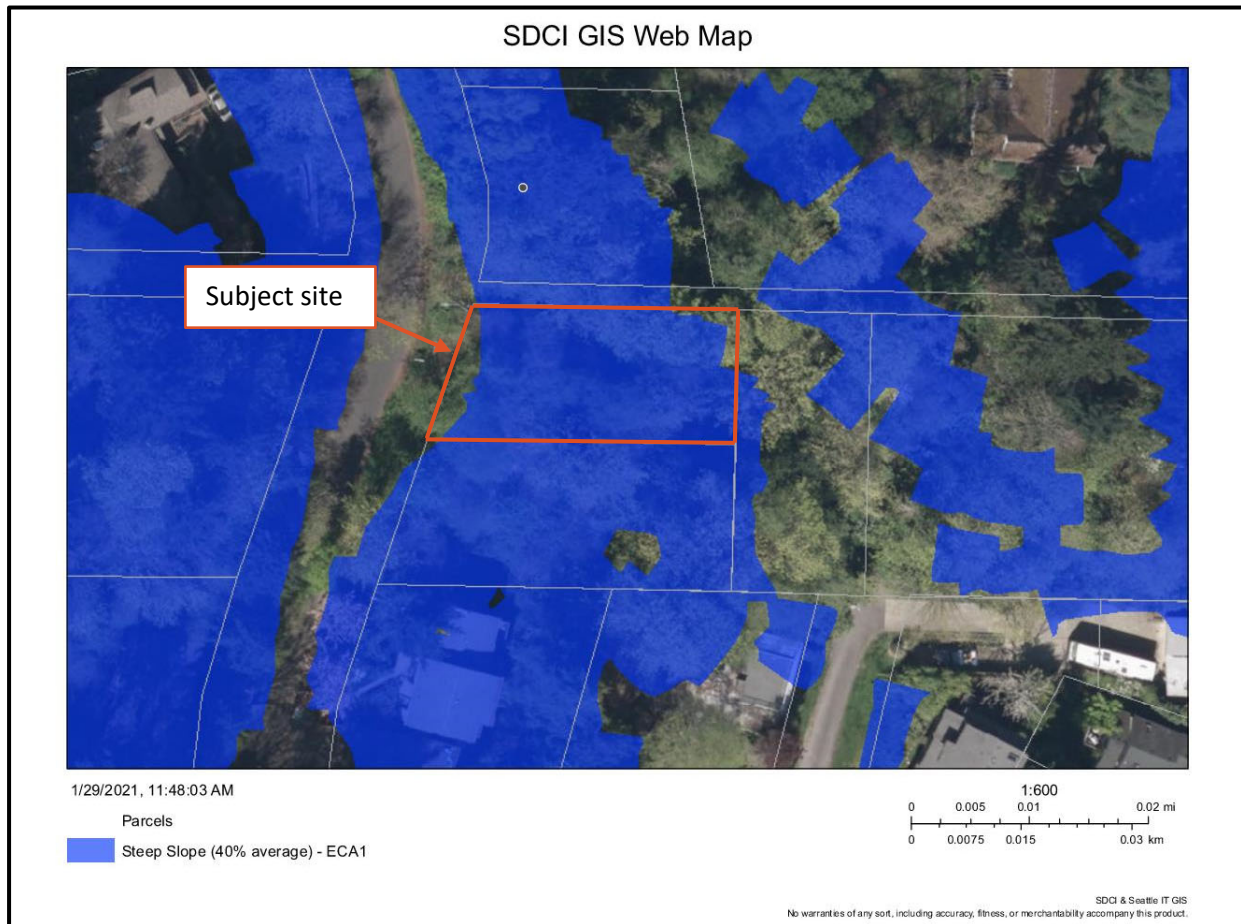


Figure 1. Aerial image from SDCI GIS map with Steep Slope (40% average) – ECA1 shown in blue.  
(Accessed 1/29/2021).



## Appendix D Photographs



Photo 1. Site is heavily covered in invasive plant species; pictured here are invasive ivy and blackberry. Several failed trees with scattered woody debris are on site.



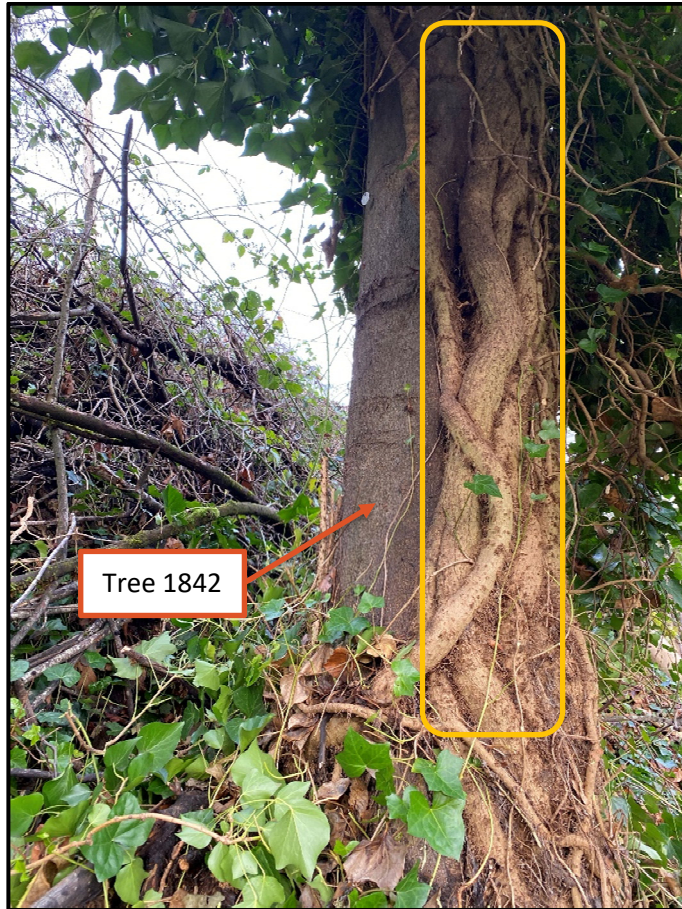


Photo 2. Tree 1842 with extensive ivy stems, outlined in yellow, that limited accurate DSH measurements. Ivy should be removed from trees and reassessed by Tree Solutions.

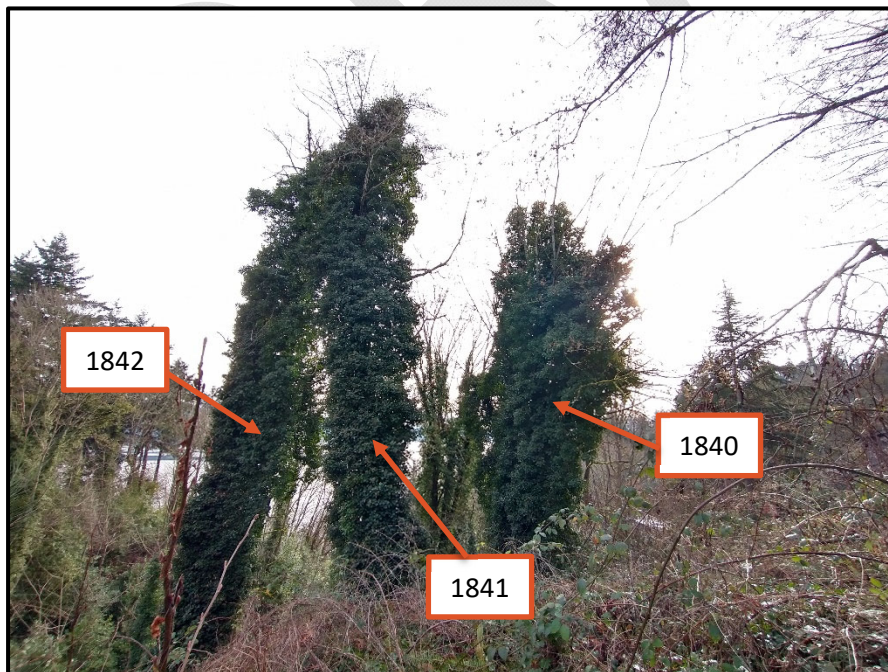


Photo 3. Trees 1840, 1841, and 1842.





Photo 4. Tree C, outlined in red, within right of way of 141<sup>st</sup> Avenue NE below powerlines.

## Appendix E 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 F Methods

### **Measuring**

We measured the diameter of each tree at 54 inches above grade, diameter at standard height (DSH). If a tree had multiple stems, we measured each stem individually at standard height and determined a single-stem equivalent diameter by using the method outlined in the city of Seattle Director's Rule 16-2008 or the [Guide for Plant Appraisal, 10<sup>th</sup> 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 trees in our data set may have diameters smaller than 6 inches. These trees are included in the tree table for informational purposes only and not factored into tree totals discussed in this report.

### **Tagging**

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

### **Evaluating**

We 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, we took into consideration crown indicators such as foliar density, size, color, stem and shoot extensions. When rating tree structure, we 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 G 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 Area (TPA):** TPA is the area within the dripline of all retained trees. The TPA for non-exceptional trees may be reduced to within the dripline based on the recommendation of the project arborist. The TPA for exceptional trees may be reduced to within the dripline based on the recommendation of the project arborist and approval by the City of Seattle.
3. **Tree Protection Fencing:** Tree protection fencing shall consist of 6-foot-tall chain-link fencing installed at the edge of the TPA 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 group.
  - b. Per arborist approval, TPA fencing may be placed at the edge of existing hardscape within the TPA to allow for staging and traffic.
  - c. Where work is planned within the TPA, install fencing at edge of TPA and move to limits of disturbance at the time that the work within the TPA is planned to occur. This ensures that work within the TPA 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:** In areas where work such as installation of utilities is required within the TPA, a locking gate will be installed in the fencing to facilitate access. 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 must include all information in the PDF located here: <http://www.seattle.gov/Documents/Departments/SDCI/Codes/TreeProtectionAreaSign.pdf> in addition to 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 TPA 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 TPA.
8. **Soil Protection:** Retain existing paved surfaces within or at the edge of the TPA for as long as possible. No parking, foot traffic, materials storage, or dumping (including excavated soils) are allowed within the TPA. Heavy machinery shall remain outside of the TPA. 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 placing 3/4-inch plywood over 4 to 6 inches of wood chip mulch or use of AlturMATs® (or equivalent product approved by the project arborist). Compaction of soils within the TPA must not occur.
9. **Soil Remediation:** Soil compacted within the TPA 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 TPA, 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 TPA to prevent compaction and evaporation. TPA 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 within the TPA 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 TPA.
13. **Fill:** Limit fill to 1 foot of uncompacted well-draining soil, within the TPA 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. **Tree Removal:** All trees to be removed that are located within the TPA of retained trees shall not be ripped, pulled, or pushed over. The tree should be cut to the base and the stump either left 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.
17. **Irrigation:** Retained trees with soil disturbance within the TPA 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.
18. **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.
19. **Plan Updates:** All plan updates or field modification that result in impacts within the TPA or change the retained status of trees shall be reviewed by the senior project manager and project arborist prior to conducting the work.
20. **Materials:** Contractor shall have the following materials on-site and available for use during work in the TPA:
  - 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 Director's Rule 16-2008.

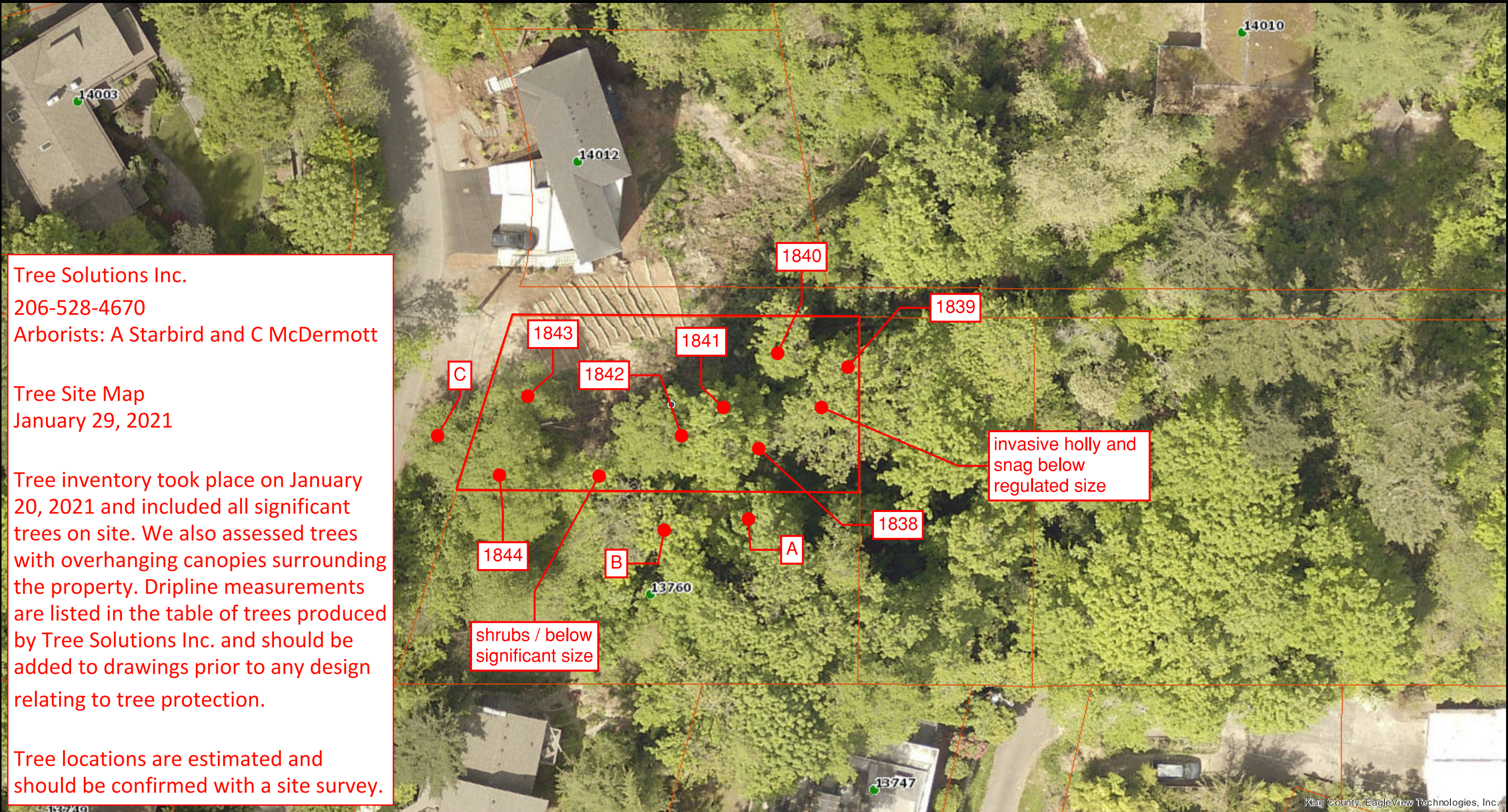
Letters are used to identify trees on neighboring properties with overhanging canopies.

Dripline is measured from the center of the tree to the outermost extent of the canopy.

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	Dripline Radius (feet)				Exceptional Threshold	Exceptional by Size	Notes
							N	E	S	W			
1838	<i>Acer macrophyllum</i>	Bigleaf maple	8.5		Fair	Fair	16.4	16.4	16.4	16.4	30.0	-	Heavy ivy stems; old tearout wound west; cavity at 1 foot with good response growth; decay observed; not many buds present in canopy
1839	<i>Acer macrophyllum</i>	Bigleaf maple	6.0		Fair	Fair	5.3	11.3	10.3	8.3	30.0	-	large diameter ivy stem on trunk; some deadwood in canopy; potentially off-site tree
1840	<i>Acer macrophyllum</i>	Bigleaf maple	32.0		Fair	Fair to Poor	6.3	27.3	19.3	36.3	30.0	Exceptional	Diameter at standard height (DSH) estimated due to large diameter ivy stems; asymmetric canopy. Size should be confirmed after ivy is removed.
1841	<i>Alnus rubra</i>	Red alder	20.0		Fair	Fair	8.8	20.8	15.8	18.8	Not Exceptional unless in grove	-	Limited assessment due to heavy ivy; DSH estimated due to ivy stems; logs at base
1842	<i>Acer macrophyllum</i>	Bigleaf maple	28.9	14.5,25	Fair	Fair	13.2	23.2	21.2	31.2	30.0	-	Codominant at base; base obscured; heavy ivy; DSH estimated; swept base
1843	<i>Alnus rubra</i>	Red alder	9.0		Fair	Poor	15.4	15.4	15.4	15.4	Not Exceptional unless in grove	-	Swept base; clematis in canopy and at base
1844	<i>Alnus rubra</i>	Red alder	23.4	18,15	Fair	Poor	23.0	25.0	31.0	26.0	Not Exceptional unless in grove	-	Limited assessment of structure; obscured by ivy; blackberry and clematis at base; previously pruned for power lines; codominant at 1 foot; tear out on western stem; southern stem cracked with saprophytic fungi
A	<i>Alnus rubra</i>	Red alder	15.5		Good	Good	22.6	-	-	-	Not Exceptional unless in grove	-	Obscured by ivy; asymmetrical canopy
B	<i>Acer macrophyllum</i>	Bigleaf maple	40.2	32,13,15,14	Fair	Fair	36.7	-	-	-	30.0	Exceptional	Limited assessment; 4 stems; heavy ivy; obscured at base. Size should be confirmed after ivy is removed.
C	<i>Prunus cerasifera</i>	Cherry plum	16.0		Fair	Poor	18.7	16.7	10.7	16.7	21.0	-	ID should be confirmed when in leaf; phototropic lean to east; heavy ivy; previously topped for utilities; heavy sprouting and regrowth; large trunk wound on south side



# King County iMap



Tree Solutions Inc.  
206-528-4670  
Arborists: A Starbird and C McDermott

Tree Site Map  
January 29, 2021

Tree inventory took place on January 20, 2021 and included all significant trees on site. We also assessed trees with overhanging canopies surrounding the property. Dripline measurements are listed in the table of trees produced by Tree Solutions Inc. and should be added to drawings prior to any design relating to tree protection.

Tree locations are estimated and should be confirmed with a site survey.