TREE INVENTORY AND RETENTION PLAN REPORT

Proposed Long Plat at 7233 80th Avenue Southeast, Mercer Island, WA

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TREE INVENTORY AND RETENTION PLAN REPORT

PROPOSED LONG PLAT AT 7233 80TH AVENUE SOUTHEAST, MERCER ISLAND, WA

1 INTRODUCTION

This report has been prepared to support the preliminary plat improvement application for the parcel located at 7233 80th Avenue SE in the City of Mercer Island (parcel #2524049111; subject property). The applicant proposes to divide the 2.17-acre parcel to include six single-family residential lots.

The purpose of this report is to summarize proposed removal, retention, and replacement of trees on the subject property necessary to permit the preliminary plat improvements which include grading, a roadway, sewer, water, and storm drainage improvements. This report is based on plans provided by the project engineer, Davido Consulting Group, Inc., on May 31, 2017, and will document how the preliminary plat meets the Mercer Island City Code (MICC) tree ordinance requirements (MICC 19.10 – Trees).

Per Mercer Island's Plat Improvements submittal requirements, preliminary plat improvement will be completed prior to recording of the final plat and prior to the issuance of a building permit. Tree retention on buildable lots (outside of the preliminary plat plans) has been determined; it is addressed in this report and depicted in the associated Tree Retention Plan.

A tree inventory was conducted on the property to quantify and characterize all significant trees prior to site plan development. The study area for the tree inventory (Figures 1 and 2) includes the 2.17-acre subject parcel, the easement to the north that connects to SE 72nd Street, and within 15 feet of the subject parcel and adjacent easement boundaries.

In February 2017, additional tree inventory and analysis occurred in a City of Mercer Island right-of-way (ROW) south of the project area that is described in this report. The findings of that study are presented in the Waterline Assessment Memo (Appendix B), written as an addendum to a previous version of this report, the findings of which are still relevant. Findings presented in the memo have been incorporated to this revised report as appropriate.

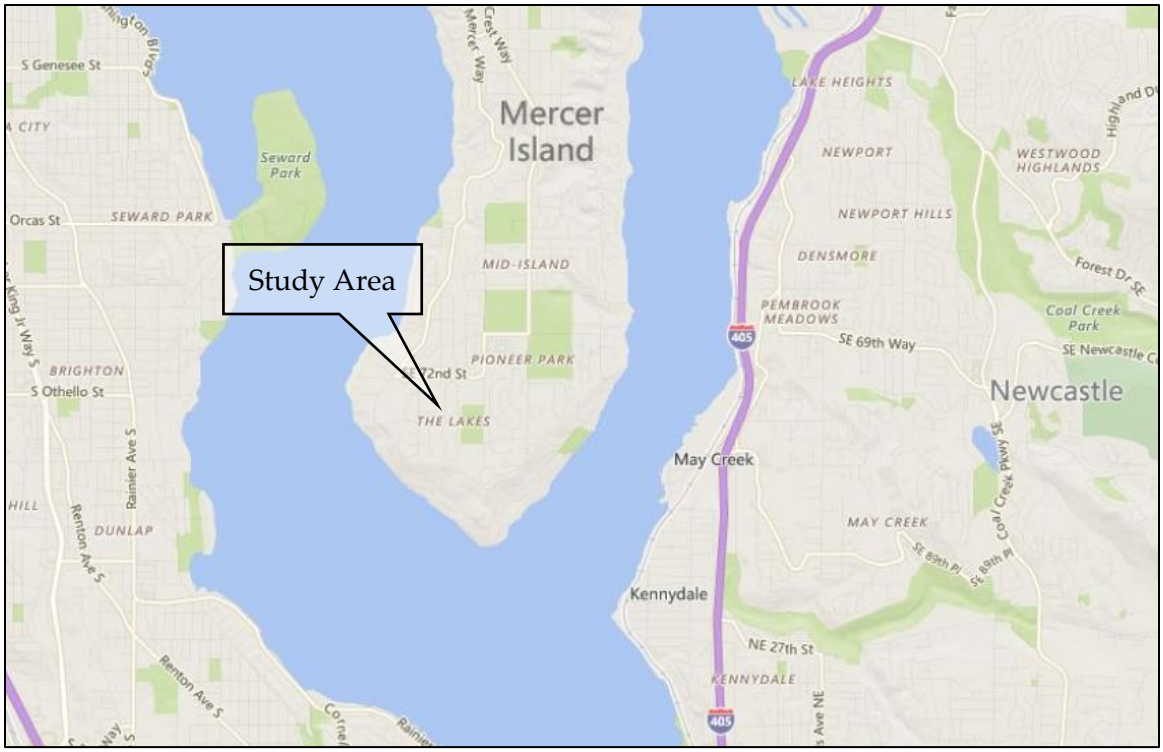


Figure 1. Vicinity map.

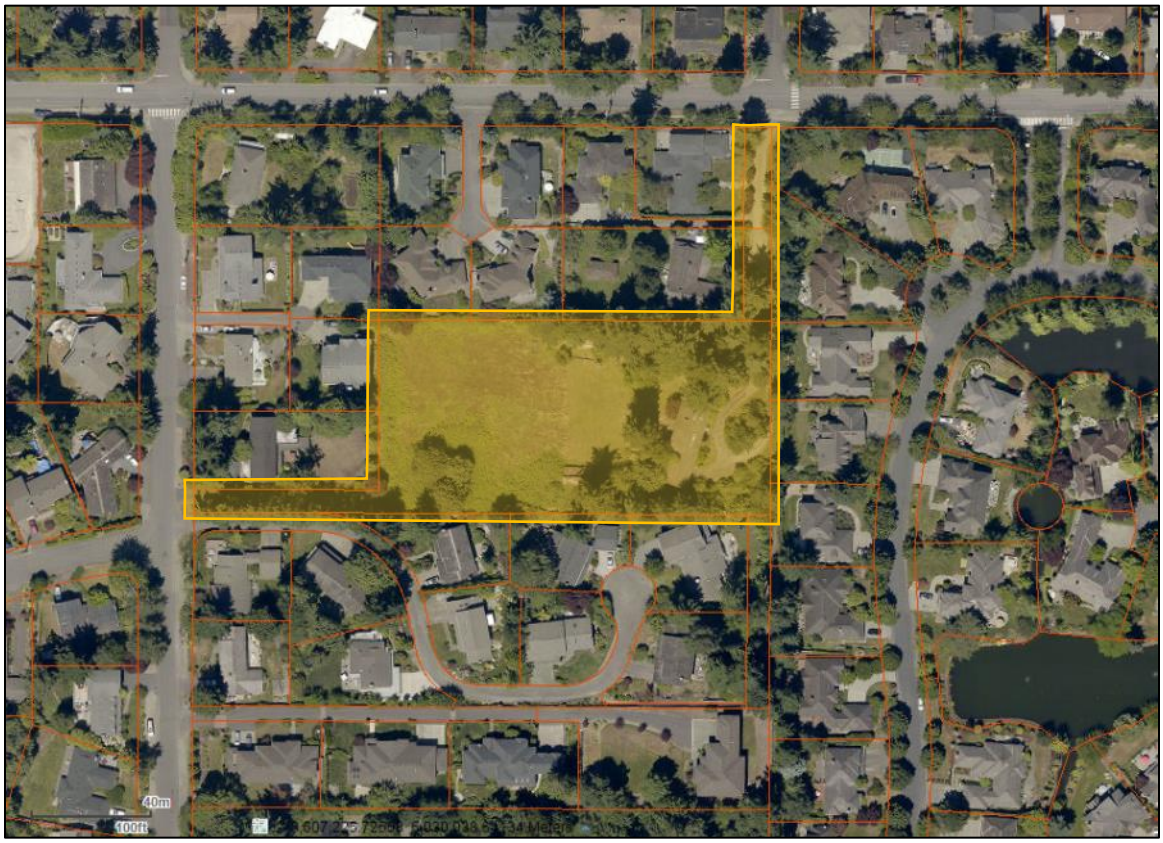


Figure 2. Approximate location of study area (yellow).

2 SITE DESCRIPTION

The subject property is located on the south side of the City of Mercer Island, southeast of the intersection of SE 72nd Street & 78th Avenue SE, in Section 25 of Township 24N, Range 04E of the Public Land Survey System. It is zoned Residential Single Family (R 9.6).

The subject property is currently accessed from the north via 80th Avenue SE. It is 2.17 acres in size and currently contains one single-family residence (built in 1954), attached garage, two detached storage/shed structures, and an associated private, gravel driveway to SE 72nd Street.

The property generally slopes downhill to the west at an estimated eight percent grade.

The site consists of evergreen forest patches concentrated in the east half of the parcel. A grassy field with some herbaceous and invasive shrub vegetation is present on the western half of the property. Dominant plants include Douglas-fir and big leaf maple trees, Himalayan blackberry, and various grasses.

3 INVENTORY METHODOLOGY

The Watershed Company (Watershed) arborists conducted a field-based tree inventory on April 6 and 7, 2016, using the methods detailed below. The methodology was developed to comprehensively identify, describe and map all regulated trees in the study area.

3.1 Trees Included in this Study – Regulated Trees

Per MICC 19.16, regulated trees include any conifer tree that is six feet tall or more or any deciduous tree with a diameter of more than six inches. Trees meeting this definition were included in the tree inventory. A round one-and-one-quarter-inch-wide, numbered aluminum tag was affixed to the trunk of all trees presumed to be located on the subject parcel (beginning with tree tag #4531 and ending at #4618).

3.1.1 Off-Site Trees located near the project area

All visible regulated trees within 15 feet of the subject parcel were included in this inventory. Arborists inventoried these trees from the subject property; they were not tagged but were given unique and sequential identification numbers (beginning with #1 and ending at #94).

3.2 Authority

Online resources were referenced to verify both the scientific and common names of subject plants for reporting purposes. For landscape trees and shrubs (plants not native to Washington State), the Oregon State University Department of Horticulture online landscape plant database (Oregon State University 2016) was referenced. Native trees and shrub names were verified using the University of Washington WTU herbarium website (University of Washington 2016) and the USDA plant database (United States Department of Agriculture 2016).

3.3 Mapping

Lanktree Land Surveying, INC. survey-located the subject trees following Watershed field work. Survey data and preliminary plat plans were provided to Watershed in AutoCAD file format.

3.4 Attribute Data Collection

The attributes collected during the field survey are described in Table 1, below. The database, included with this study as a PDF, contains the data collected for each tree inventoried. General attributes documented for all inventoried trees include the date of assessment, unique identification number of tree, and name of plant species. Physical attributes include number of stems, DBH, height, canopy radius, condition, and assessment notes.

Diameter of all subject trees was measured at four-and-a-half feet above the surface of the ground at the trunk where possible; however, some stems were measured differently due to size or branching structure. For trees with major branching at or below four-and-a-half feet, the smallest portion of the trunk below major branching was measured. Methodology for measuring diameter of trees with major leans, on steep slopes, and with multiple trunks or stems generally followed those outlined in the *Guide for Plant Appraisal* (Gooding, et al. 2000). Visual estimates of trunk diameter were used where direct access to the tree was not allowed.

3.5 Data Management

Data were recorded using paper field data sheets. Data was entered into a Microsoft (MS) Excel spreadsheet in the office and subsequently reviewed, corrected, and organized into a searchable database.

Table 1. Attributes recorded for all inventoried vegetation and that are presented in the spreadsheet database.

Attribute	Description of Attribute
DATE OF ASSESSMENT	Date that the Watershed Company field crew tagged and assessed the tree or shrub.
ID NUMBER	Unique number assigned to an assessed tree or polygon. This number corresponds to the tag number in the field or the polygon number on the maps.
SCIENTIFIC NAME	Formal scientific name conforming to the International Code of Nomenclature.
COMMON NAME	Name that is based on normal or common language of the Pacific Northwest.
DECIDUOUS/EVERGREEN	Notes whether a tree is considered deciduous or evergreen.
STEMS	Number of trunks or shoots that contribute significantly to the canopy.
DBH	Diameter at Breast Height; or 4.5 feet from the ground surface. See Section 3.4 for variations.
DBH2	DBH of secondary and other minor stems.
HEIGHT	Approximate distance from the ground surface at the trunk to the highest point of the subject tree as visually estimated.
CANOPY RADIUS	Measurement from the stem to the average drip line, or end of branches.
CONDITION	Health rating of an assessed tree using a 5-tier system as follows: 1 – Excellent: No apparent problems with the tree. Form is exemplary for the species. 2 – Good: Few minor defects such as crossed branches, minor foliage die-back, minor trunk damage, or unbalance canopy. 3 – Fair: Several minor problems exist. 4 – Poor: Major defects visible such as significant trunk decay, codominant leaders with included bark, significant canopy die-back, major cracks in a stem or major limbs, and/or other structural problems. Topped trees are generally considered poor. 5 – Dead or dying: Tree is dead or is in a state of significant decline.

4 LIMITATIONS

Trees presumed to be located outside of subject property were not tagged and were assessed from various distances. For off-site trees, attribute data requiring direct contact (such as trunk diameter) is a visual estimate only and may vary slightly from the conditions at the time of the assessment.

Trees were identified using the vegetative characteristics present at the time of the inventory. Where genus was known, but species was not, the species was indicated with "sp." in the spreadsheet. An unknown cherry tree, for example, was indicated as "*Prunus* sp."

Tree size and condition vary with time. The attributes presented in this study represent a snapshot at the time of the field work and may not necessarily be accurate in the future.

The condition of any remaining tree following the proposed land use action will ultimately be affected by root disturbance, new wind exposure, etc. The health condition ratings indicated the supporting material attached to this report does not represent the condition of the tree following construction. Follow-up monitoring may be required to ensure changing site conditions do not result in hazardous trees or tree components.

5 TREE INVENTORY RESULTS

A total of 106 regulated trees are rooted on the subject property or adjacent easement; 95 are rooted off-site, but within 15 feet of the subject property/easement. A copy of the tree data table, including tree species, size, height and condition, is included in the Tree Retention Plan (Appendix A).

The largest tree on-site is a 50.5-inch-diameter Douglas-fir (#4599). Nine other coniferous trees (Douglas-firs and one coastal redwood) measure over two feet in diameter at 4.5 feet above the ground on the property. One multi-trunk big leaf maple (#4618) also measured over two feet in diameter but is in severely declining health. A pacific madrone with a 23.0-inch trunk (#4559) is located on-property. Several large- (greater than 20-inch) and medium-diameter (16- to 20-inch) Douglas-fir and western red cedar trees and one cherry plum are located just outside of (within 15 feet) the property boundary. Many smaller trees are also included in the inventory and survey. Of all trees inventoried, 166 are evergreen and 35 trees are deciduous. No trees on-site are designated landmark trees.

6 LOCAL REGULATIONS

Regulations regarding the removal, retention, replacement, and protection of trees in the subject property are detailed under Chapter 19.10 (Trees) of the Mercer Island City Code (MICC).

6.1 Regulated Tree – MICC 19.10.020

According to MICC 19.16, large (regulated) trees are defined as any conifer tree that is six feet tall or more or any deciduous tree with a diameter of more than six inches.

6.2 Tree Retention – MICC 19.10.020

Per MICC 19.10.020.B, a permit is required for removal of any large (regulated) tree as a result of construction work. The permit will be granted if it is proven that cutting trees is necessary to enable construction work on the property and the owner has used reasonable best efforts to design and locate any improvements and perform the construction work in a manner that preserves regulated trees (MICC 19.10.040.B.2).

Plan Compliance. Site plans were developed after tree inventory work was conducted. Several preliminary plat layouts have been explored including a seven-lot layout, as opposed to six, as well as an option where proposed lots

were accessed from 78th Avenue SE, as opposed to 80th Avenue SE. An air-spade excavation study was conducted to determine the degree to which trees #4577 and #4599 would be impacted by proposed plans. The findings of that study are documented in the Pratt Air Excavation Memo in May 2017 by The Watershed Company. Current impacts to trees are a result of roadway and utility improvements and general building envelopes, the locations of which have been established based on communication with the City of Mercer Island. A large group of trees will be included for protection in a Native Growth Protection Easement (NGPE) on-site. Impacts to regulated trees have been avoided to the extent possible.

6.3 Tree Protection – MICC 19.10.080

Retained trees must be protected from construction activities (MICC 19.10.080.3.b) with placement of tree protection fencing installed at the regulated tree driplines (City of Mercer Island Development Services Group n.d.).

Plan Compliance. Retained trees will be protected from construction using tree protection fencing as shown in the Tree Retention Plan (Appendix A). Protected trees should not be disturbed during demolition or construction activities.

In some locations, work will occur within the driplines of trees that are recommended for retention. At these locations, mitigation measures should be employed to minimize potential root zone impacts to retained trees. Recommended mitigation measures are described in Section 8 (Tree Retention Plan), below.

6.4 Tree Replacement – MICC 19.10.060

All trees that are to be cut must be replaced on the subject property, according to the MICC. The City Arborist will determine the number of replacement trees required by applying a replacement ratio, which ranges from 0:1 to 4:1.

Replacement trees must meet the criteria outlined in MICC 19.10.060 and are required to be maintained in a healthy condition for a period of two years after planting.

Plan Compliance. All healthy regulated trees to be removed on the subject property will be replaced at an appropriate ratio. Since the subject property does not contain significant slopes and soil conditions appear to be good, replacement ratios were based on removal-tree health and DBH (Table 2). Replacement tree species will be selected to replace characteristics of the removed tree(s). For example, western red cedar and grand fir are suitable species for replacement of Douglas-fir. The following ratios are proposed for removed trees on-site:

Table 2. Replacement ratios proposed by Watershed for removal of healthy trees.

Trunk size (DBH) of healthy* tree to be removed (inches)	Number of required replacement trees
< 8	1
8 to < 16	2
16 to < 24	3
24 +	4

**Trees that were in poor condition or worse will be replaced at a 1:1 ratio, regardless of DBH.*

7 PHOTOS

Figure 3. View from center of property looking downhill to west towards blackberry and off-site trees (Photo taken April 6, 2016).

Figure 4. View from center of property looking uphill to east towards forested areas (Photo taken on April 6, 2016).

Figure 5. Four medium-sized Douglas-fir trees near the south border of the parcel (Photo taken April 6, 2016).

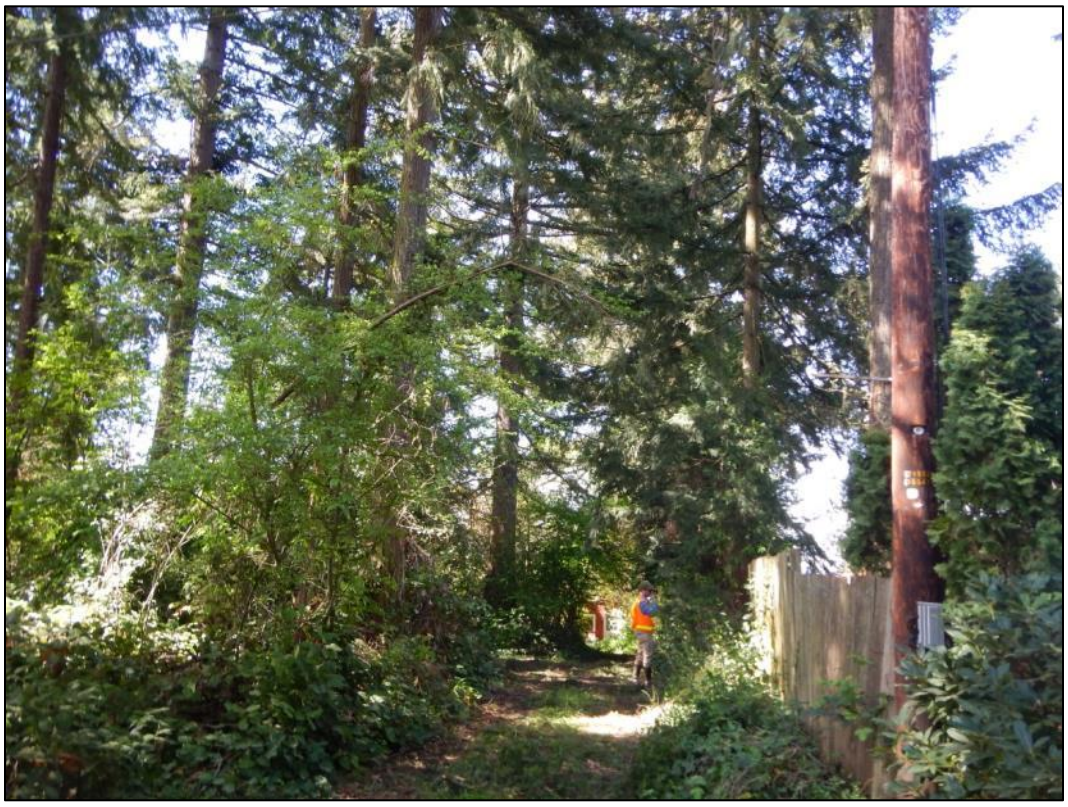


Figure 6. A view along the north parcel line of a group of Douglas-fir trees (Photo taken April 6, 2016).

Figure 7. The small on-site shed surrounded by primarily small to medium deciduous trees (Photo taken April 6, 2016).

Figure 8. Looking toward the southwest corner of the property at a big leaf maple (#4618). The line of Douglas-fir trees visible on the west side of the photo (#40 - #59) would be removed under the plan (Photo taken April 6, 2016).

8 TREE RETENTION PLAN

The applicant is proposing a six-lot subdivision of the subject parcel with access from 80th Avenue SE. An NGPE will protect a group of trees located in the northeast portion of the property. The Tree Retention Plan (Appendix A) is based upon preliminary plat plans provided by Davido Consulting Group, Inc. on May 31, 2017.

8.1 Tree Retention

A total of 144 trees will be retained in the study area. By number, this represents 72 percent of inventoried trees. When considered based upon DBH, 68 percent of the total diameter inches of trees inventoried will be retained. Tree protection fencing will protect retained trees as shown in the Tree Retention Plan figures (Appendix A). Retained trees should not be damaged during demolition of existing structures or construction of new features. Many of the trees to be retained are located in the proposed NGPE, near the subject parcel perimeter, or off-site.

The largest stand of native forest on-site is located in the northeast corner and dominated by Douglas-fir. This stand will remain largely intact under this tree retention plan with the exception of the removal of seven trees (#4558-#4563 and #4577) located on the eastern edge to be removed for development of the roadway. Future site development will retain this stand in an NGPE.

Some trees located on- and off-site that are proposed for retention will sustain drip-line impacts based the proposed plans. Care should be taken to prevent damage to trees when driplines are located in construction work areas. For trees #29 and #67, a second-round of air-spade excavation will occur in coordination with construction activities in order to assess roadway construction impacts.

In order to minimize drip-line impacts, mitigation measures should be employed when feasible while conducting work within the driplines of all retained trees. Recommended mitigation measures include the following:

- **Reduce compaction:** Where root removal will not be required, temporarily apply 6 to12 inches of coarse mulch in retained tree driplines located outside of tree protection fencing to prevent compaction of soil by heavy equipment.
- **Alternatives to trenching for utility installation:** Use an air-spade to air-excavate or hand-dig around tree roots to prevent significant damage or loss when installing utilities. Horizontal drilling, tunneling, or boring would also reduce impacts to roots and allow for installation of utilities.

- **Minimize injury:** When tree roots must be removed, cut roots cleanly using a sharp saw or pruners. Do not rip or cut tree roots with heavy equipment.
- **Construction oversight:** An ISA-certified arborist should be present on-site during construction activities within the driplines of retained trees to monitor tree protection, assist with changes in the field, and document construction impacts.
- **Monitor:** An ISA-certified arborist should monitor retained trees after construction activities to identify changes in the health and structural conditions. Despite best efforts, retained trees may die as a result of construction and may require removal.

8.2 Tree Removal

The proposed preliminary plat design directly or significantly impacts 57 regulated trees in the study area. These trees should be removed prior to construction activities (Table 3). Ten (10) trees that are recommended for removal are located on the easement located north of the property connecting to SE 72nd Street (#65, #66, and #68-#75).

Thirteen (13) of the trees to be removed are Douglas-firs located on the western portion of the site known as the "panhandle" that connects the property to 78th Avenue SE. These trees appear to have been planted in a row at the property boundary. They are spaced approximately 10 to 15 feet apart and located immediately north of SE 73rd Place, a paved access road to nearby residential homes. These trees are recommended for removal based upon projected utility construction impacts in the area and the species' relatively poor suitability to the growing location given the apparent intended function as a hedge / view-break and their existing proximity to pavement. Installation of utilities will require significant damage to the critical root zone of these trees, which are located within close proximity to the neighboring house.

In the southeast corner, 9 trees (#4353, #4532, #4564, #4565, and #21-#25) are recommended for removal in order to install a water line as required by the City. These trees are shown in Table 3 below and generally consist of non-native species or small native trees in fair or poor condition. In contrast, larger and healthier Douglas-fir and bigleaf maple trees adjacent should be retained.

The remaining 25 trees to be removed are located throughout the property. Based on the proposed road location (as directed by the city) and anticipated lot development, retention of these trees is not feasible.

Table 3. Trees to be removed in the study area based on the preliminary plat improvements and proposed building pads.

Tree ID	Common Name	Scientific Name	DBH* (in.)	Condition	Replacement Ratio (X:1)
21	Leyland cypress	*Cupressus × leylandii*	4.0	3 - Fair	1
22	Leyland cypress	*Cupressus × leylandii*	9.0	3 - Fair	2
23	Western red cedar	*Thuja plicata*	6.0	3 - Fair	1
24	Western red cedar	*Thuja plicata*	6.0	2 - Good	1
25	Western red cedar	*Thuja plicata*	4.0	3 - Fair	1
47	Douglas-fir	*Pseudotsuga menziesii*	16.0	3 - Fair	3
48	Douglas-fir	*Pseudotsuga menziesii*	14.0	3 - Fair	2
49	Douglas-fir	*Pseudotsuga menziesii*	17.0	3 - Fair	3
50	Douglas-fir	*Pseudotsuga menziesii*	16.0	3 - Fair	3
51	Douglas-fir	*Pseudotsuga menziesii*	16.0	3 - Fair	3
52	Douglas-fir	*Pseudotsuga menziesii*	16.0	3 - Fair	3
53	Douglas-fir	*Pseudotsuga menziesii*	16.0	3 - Fair	3
54	Douglas-fir	*Pseudotsuga menziesii*	17.0	3 - Fair	3
55	Douglas-fir	*Pseudotsuga menziesii*	15.0	3 - Fair	2
56	Douglas-fir	*Pseudotsuga menziesii*	18.0	3 - Fair	3
57	Douglas-fir	*Pseudotsuga menziesii*	22.0	3 - Fair	3
58	Douglas-fir	*Pseudotsuga menziesii*	15.0	3 - Fair	2
59	Douglas-fir	*Pseudotsuga menziesii*	21.0	3 - Fair	3
65	Douglas-fir	*Pseudotsuga menziesii*	18.0	2 - Good	3
66	Douglas-fir	*Pseudotsuga menziesii*	24.0	2 - Good	4
68	Cherry plum	*Prunus cerasifera 'Thundercloud'*	9.5	3 - Fair	2
69	Cherry plum	*Prunus cerasifera 'Thundercloud'*	7.0	3 - Fair	1
70	Cherry plum	*Prunus cerasifera 'Thundercloud'*	9.5	3 - Fair	2
71	Cherry plum	*Prunus cerasifera 'Thundercloud'*	7.0	3 - Fair	1
72	Douglas-fir	*Pseudotsuga menziesii*	24.0	4 - Poor	1
73	Douglas-fir	*Pseudotsuga menziesii*	24.0	3 - Fair	4
74	Douglas-fir	*Pseudotsuga menziesii*	12.0	3 - Fair	2
75	Douglas-fir	*Pseudotsuga menziesii*	1.0	2 - Good	1
4353	Excelsa western redcedar	*Thuja plicata var. Excelsa*	2.0	3 - Fair	1
4532	Hedge Maple	*Acer campestre*	6.5	3 - Fair	1
4550	Apple	*Malus sp.*	11.6	3 - Fair	2
4551	Douglas-fir	*Pseudotsuga menziesii*	39.5	3 - Fair	4
4552	Hedge Maple	*Acer campestre*	10.3	3 - Fair	2
4553	Hedge Maple	*Acer campestre*	8.0	3 - Fair	2
4554	Bigleaf maple	*Acer macrophyllum*	10.2	2 - Good	2
4555	Pacific madrone	*Arbutus menziesii*	14.0	2 - Good	2

Tree ID	Common Name	Scientific Name	DBH* (in.)	Condition	Replacement Ratio (X:1)
4556	Pacific madrone	*Arbutus menziesii*	10.5	2 - Good	2
4557	Douglas-fir	*Pseudotsuga menziesii*	39.4	2 - Good	4
4558	Douglas-fir	*Pseudotsuga menziesii*	27.7	2 - Good	4
4559	Pacific madrone	*Arbutus menziesii*	23.0	3 - Fair	3
4560	Bigleaf maple	*Acer macrophyllum*	10.4	3 - Fair	2
4561	Douglas-fir	*Pseudotsuga menziesii*	23.5	2 - Good	3
4562	Austrian pine	*Pinus nigra*	21.1	2 - Good	3
4563	Norway spruce	*Picea abies*	8.4	3 - Fair	2
4564	Pacific dogwood	*Cornus nuttallii*	9.6	4 - Poor	1
4565	Bigleaf maple	*Acer macrophyllum*	6.2	4 - Poor	1
4577	Douglas-fir	*Pseudotsuga menziesii*	31.9	2 - Good	4
4589	Common plum	*Prunus domestica*	9.3	3 - Fair	2
4590	Hedge Maple	*Acer campestre*	6.7	3 - Fair	1
4592	Douglas-fir	*Pseudotsuga menziesii*	2.0	3 - Fair	1
4593	Pacific dogwood	*Cornus nuttallii*	6.1	3 - Fair	1
4602	Deodar cedar	*Cedrus deodara*	10.0	2 - Good	2
4603	Colorado spruce	*Picea pungens*	5.5	1 - Excellent	1
4615	Bigleaf maple	*Acer macrophyllum*	23.5	4 - Poor	1
4616	Bigleaf maple	*Acer macrophyllum*	6.2	4 - Poor	1
4617	Bigleaf maple	*Acer macrophyllum*	13.0	4 - Poor	1
4618	Bigleaf maple	*Acer macrophyllum*	24.2	5 - Dead/Dying	1
				Replacement Total:	120

*Only largest DBH is shown in this table if there are multiple stems present.

8.3 Tree Replacement / Conceptual Planting Plan

Based on the proposed tree replacement ratios, 120 trees should be planted on the property to compensate for impacts resulting from site development (Table 3). Replacement trees should be installed at a 4:1 evergreen/deciduous ratio to match that of the removed trees. Large native coniferous trees (such as Douglas-fir, western red cedar, grand fir, and western white pine) should be used where practicable to preserve the character of the neighborhood.

Additional impacts to trees are not anticipated as specific lot plans develop. If additional impacts occur as a result of demolition or construction activities, tree replacement will be required to compensate for any impacts not presented in this report. Tree replacement should occur after on-site construction and individual lot improvements are complete.

9 REFERENCES

Allen, E. A., D. J. Morrison, and G. W. Wallis. 1996. *Common Tree Diseases of British Columbia.* Victoria, British Columbia: Natural Resources Canada, Canadian Forest Service.

City of Mercer Island Development Services Group. n.d. "Tree Permits." *Tree Protection and Submittal Requirements.* Accessed June 20, 2016. http://www.mercergov.org/files/TreeProtectandPlanSubCombined.pdf.

City of Seattle. 2016. *Seattle, Washington - Municipal Code.* March 22. https://www.municode.com/library/WA/seattle/codes/municipal_code.

Dunster, Julian A., E. Thomas Smiley, Nelda Matheny, and Sharon Lilly. 2013. *Tree Risk Assessment.* Champaign, IL: International Society of Arboriculture.

Gooding, Richard F., James B. Ingram, James R. Urban, Lewis B. Bloch, William M. Steigerwaldt, Richard W. Harris, and Ellis N. Allen. 2000. *Guide for Plant Appraisal.* 9th. Edited by Peggy Currid. Champaign, IL: International Society of Arboriculture.

Jacobson, Arthur Lee. 2006. *Trees of Seattle, Second Edition.* Seattle: Arthur Lee Jacobson.

Matheny, Nelda P., and James R. Clark. 1994. *A Photographic Guide to the Evaluation of Hazard Tress in Urban Areas.* Pleasanton: HortScience, Inc.

Mercer Island. n.d. *TREES and CONSTRUCTION.* Mercer Island.

MICC. 2016. *City of Mercer Island City Code.* January 4. http://www.codepublishing.com/WA/MercerIsland/.

Oregon State University. 2016. *Landscape Plants: Images, Identification, and Information.* Edited by Patrick Breen. March 22. Accessed 2015. http://oregonstate.edu/dept/ldplants/.

United States Department of Agriculture. 2016. *Natural Resources Conservation Service.* March 22. http://plants.usda.gov/java/.

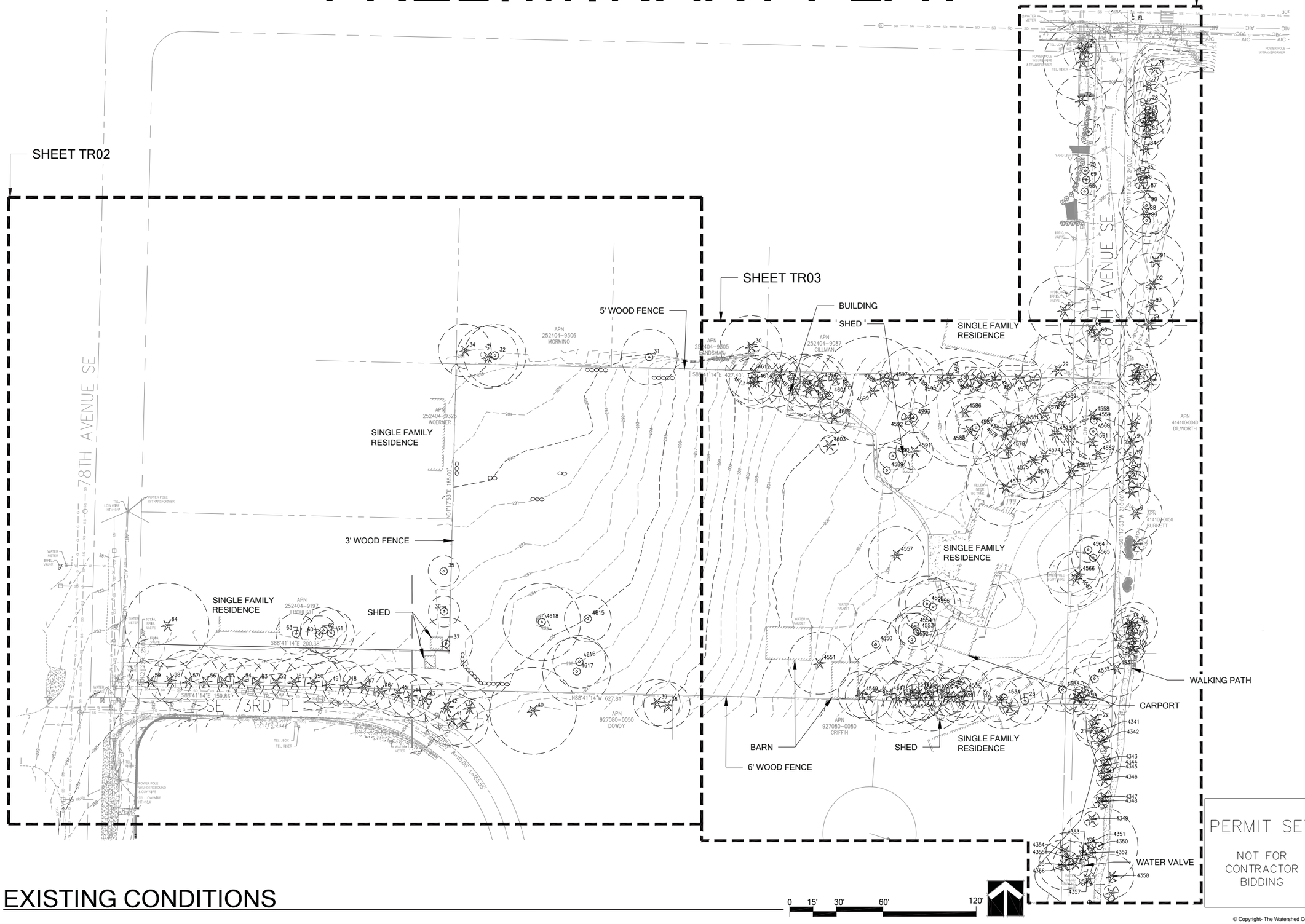
University of Washington. 2016. *WTU Image Collection: Plants of Washington.* March 22. Accessed 2015-2016. http://biology.burke.washington.edu/herbarium/imagecollection.php.

Washington Department of Fish and Wildlife. n.d. *Priorty Habitats and Species (PHS).* Accessed April 8, 2016. http://wdfw.wa.gov/mapping/phs/.

APPENDIX A

Tree Retention Plan

PRELIMINARY PLAT



EXISTING CONDITIONS

PERMIT SET

NOT FOR CONTRACTOR BIDDING

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Science & Design

PRELIMINARY PLAT
TREE RETENTION PLAN
BELLEVUE PACIFIC PROPERTIES GROUP, LLC.
3029 92ND AVENUE NE
CLYDE HILL, WA 98004
SITE ADDRESS: 7233 80TH AVE S.E. MERCER ISLAND, WA 98040

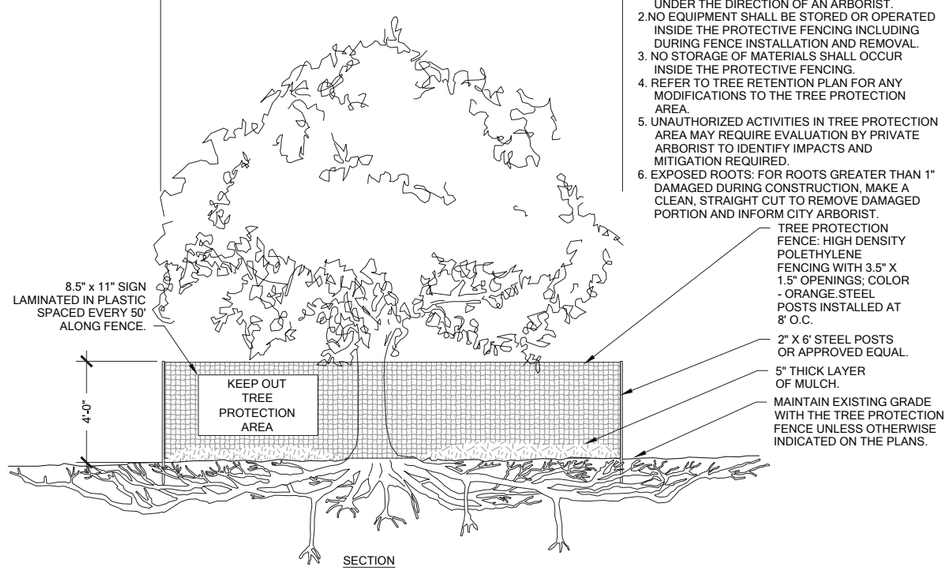
SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	2/15/17	PRELIM. PLAT REVISIONS PER CITY COMMENTS	LV
2	5/31/17	PRELIM. PLAT REVISIONS PER CITY COMMENTS	LV

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

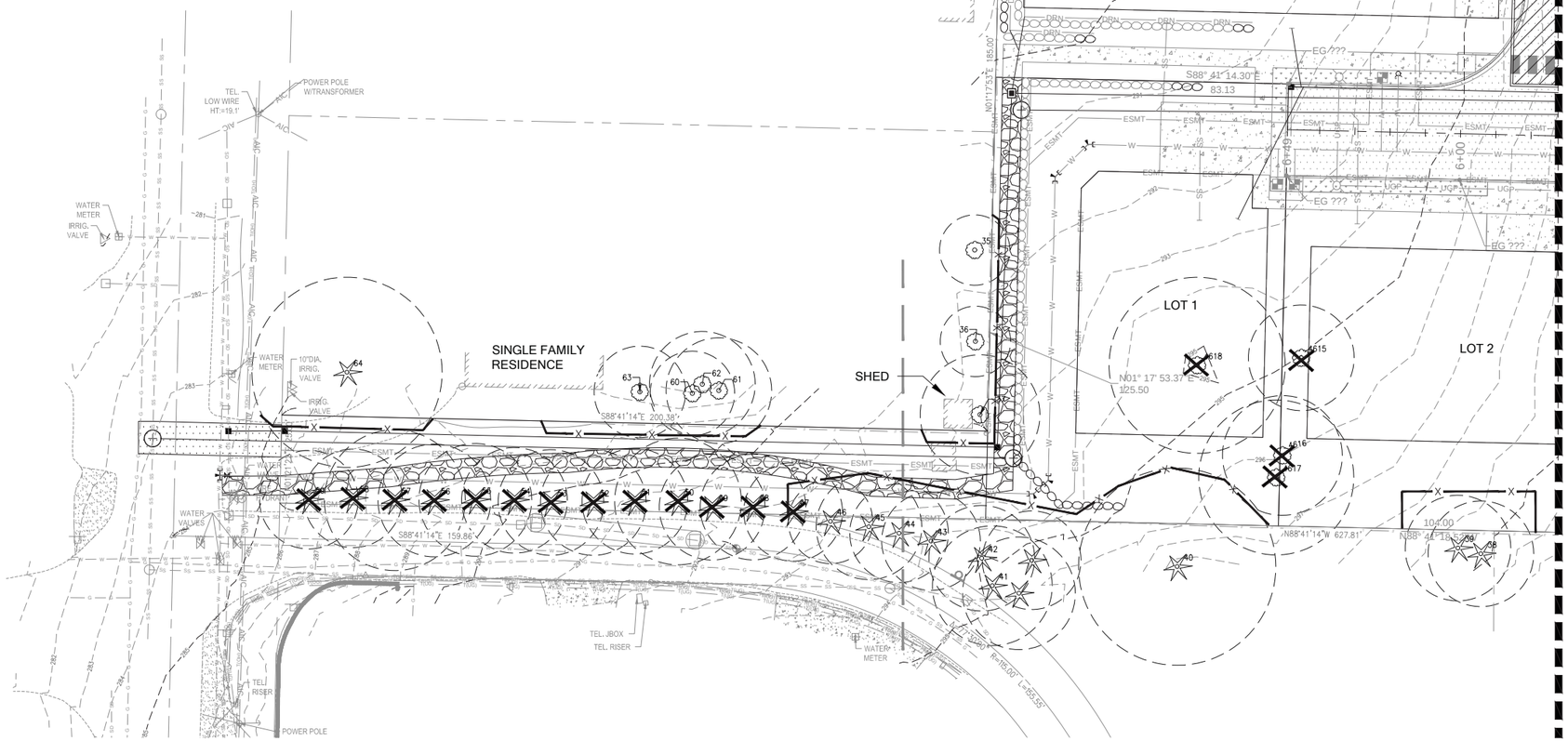
PROJECT MANAGER: KB
DESIGNED: LV
DRAFTED: LV
CHECKED: AM, KC
JOB NUMBER: 160309
SHEET NUMBER: TR01 OF 14

DATE 5/31/2017 | PRINTED BY MARINA FRENCH | FILENAME 160309_MERCER ISLAND PRATT_2017-06-31.DWG



1 TREE PROTECTION FENCING

Scale: NTS



TREE RETENTION PLAN (1 OF 2)

0 10' 20' 40' 80'

TREE RETENTION LEGEND AND NOTES*

SYMBOL		QTY
	SIGNIFICANT TREES TO REMAIN	144
	SIGNIFICANT TREES TO BE REMOVED	57
x	TREE PROTECTION FENCING (1 / TR02)	1,750 LF.

NOTES:

1. QUANTITIES OF TREES TO BE REMOVED IN THE TREE RETENTION LEGEND REFLECT TOTAL TREES THAT WILL REQUIRE REMOVAL AS PART OF THE SITE DEVELOPMENT.
2. QUANTITIES OF TREES TO REMAIN IN THE TREE RETENTION LEGEND INCLUDES ALL TREES WITHIN STUDY AREA.
3. PER MICC 19.16.010, A SIGNIFICANT TREE IS ANY CONIFER THAT IS MORE THAN SIX FEET TALL OR ANY DECIDUOUS TREE WITH A DIAMETER OF SIX INCHES OR MORE.
4. TREES DESIGNATED FOR REMOVAL WITHIN TREE PROTECTION FENCE SHOULD BE SNAGGED OR FLUSH CUT TO MINIMIZE ROOT DAMAGE TO REMAINING TREES. DO NOT REMOVE TREES DESIGNATED FOR REMOVAL WITHIN TREE PROTECTION FENCING AREA BY PUSHING OVER WITH MACHINERY.
5. TRAIL CONSTRUCTION WITHIN TREE PROTECTION FENCING SHALL BE COMPLETED BY HAND, MAINTAINING EXISTING GRADE UNLESS OTHERWISE INDICATED ON THE CIVIL PLANS. 5" OF MULCH IS RECOMMENDED ON TRAILS.
6. EXISTING TREES TO REMAIN SHALL NOT BE DISTURBED DURING DEMOLITION OF EXISTING STRUCTURES OR CONSTRUCTION OF PROPOSED FEATURES. THIS INCLUDES DAMAGES TO TREE TRUNK, ROOTS, AND LIMBS. IF TREE LIMBS RESTRICT VERTICAL LIMITS OF DEMOLITION MACHINERY, A CERTIFIED ARBORIST MAY LIFT CANOPY BY PRUNING LIMBS UP TRUNK.

PERMIT SET

NOT FOR CONTRACTOR BIDDING

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland WA 98033
p 425.822.5242
www.watershedco.com
Science & Design

PRELIMINARY PLAT
TREE RETENTION PLAN
BELLEVUE PACIFIC PROPERTIES GROUP, LLC.
3029 92ND AVENUE NE
CLYDE HILL, WA 98004
SITE ADDRESS: 7233 80TH AVE S.E. MERCER ISLAND, WA 98040

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	2/15/17	PRELIM. PLAT REVISIONS PER CITY COMMENTS	LV
2	5/31/17	PRELIM. PLAT REVISIONS PER CITY COMMENTS	LV

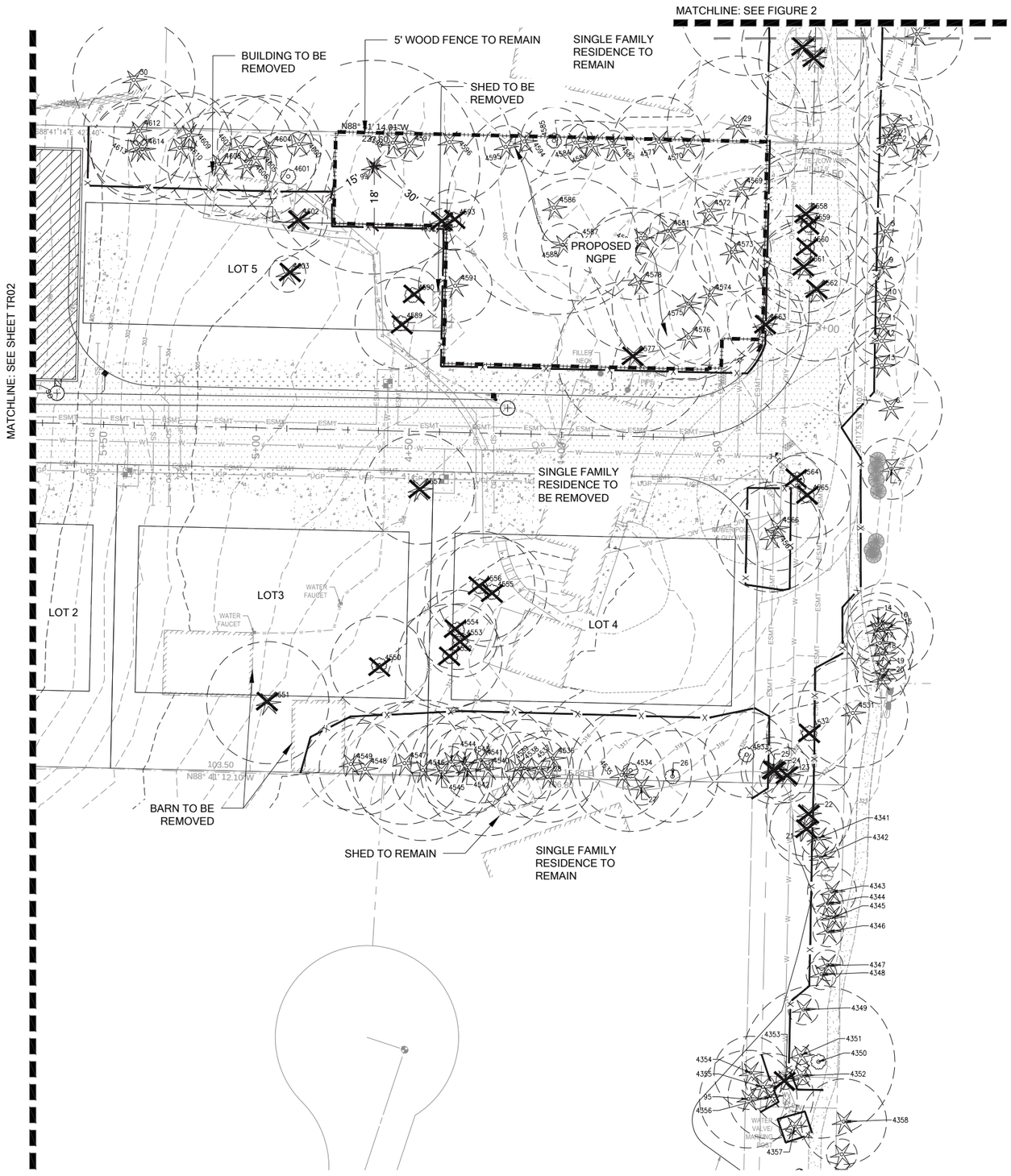
SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: LV
DRAFTED: LV
CHECKED: AM, KC

JOB NUMBER:
160309

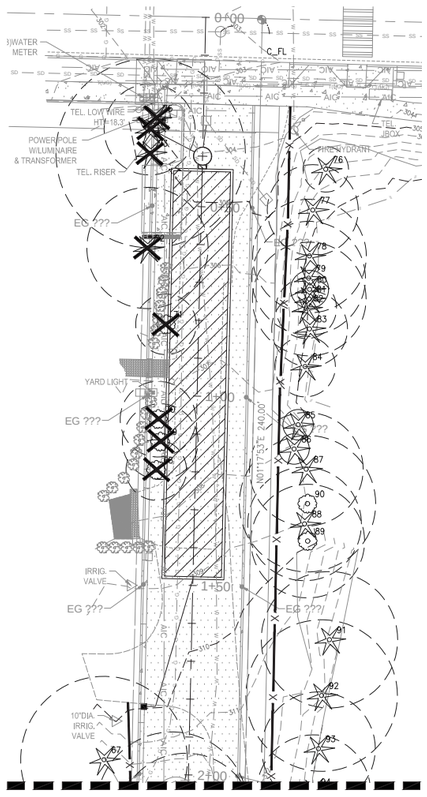
SHEET NUMBER:
TR02 OF 14

DATE 5/31/2017 | PRINTED BY MARINA FRENCH | FILENAME 160309_MERCER ISLAND PRATT_2017-05-31.DWG



1 FIGURE 1

Scale: NTS



2 FIGURE 2

Scale: NTS

0 10' 20' 40' 80'

TREE RETENTION PLAN (2 OF 2)

TREE RETENTION LEGEND AND NOTES*

SYMBOL		QTY
	SIGNIFICANT TREES TO REMAIN	162
	SIGNIFICANT TREES TO BE REMOVED	39
	TREE PROTECTION FENCING (1 / TR02)	2,275 LF.

NOTES:

1. QUANTITIES OF TREES TO BE REMOVED IN THE TREE RETENTION LEGEND REFLECT TOTAL TREES THAT WILL REQUIRE REMOVAL AS PART OF THE SITE DEVELOPMENT.
2. QUANTITIES OF TREES TO REMAIN IN THE TREE RETENTION LEGEND INCLUDES ALL TREES WITHIN STUDY AREA.
3. PER MICC 19.16.010, A SIGNIFICANT TREE IS ANY CONIFER THAT IS MORE THAN SIX FEET TALL OR ANY DECIDUOUS TREE WITH A DIAMETER OF SIX INCHES OR MORE.
4. TREES DESIGNATED FOR REMOVAL WITHIN TREE PROTECTION FENCE SHOULD BE SNAGGED OR FLUSH CUT TO MINIMIZE ROOT DAMAGE TO REMAINING TREES. DO NOT REMOVE TREES DESIGNATED FOR REMOVAL WITHIN TREE PROTECTION FENCING AREA BY PUSHING OVER WITH MACHINERY.
5. TRAIL CONSTRUCTION WITHIN TREE PROTECTION FENCING SHALL BE COMPLETED BY HAND, MAINTAINING EXISTING GRADE UNLESS OTHERWISE INDICATED ON THE CIVIL PLANS. 5" OF MULCH IS RECOMMENDED ON TRAILS.
6. EXISTING TREES TO REMAIN SHALL NOT BE DISTURBED DURING DEMOLITION OF EXISTING STRUCTURES OR CONSTRUCTION OF PROPOSED FEATURES. THIS INCLUDES DAMAGES TO TREE TRUNK, ROOTS, AND LIMBS. IF TREE LIMBS RESTRICT VERTICAL LIMITS OF DEMOLITION MACHINERY, A CERTIFIED ARBORIST MAY LIFT CANOPY BY PRUNING LIMBS UP TRUNK.

PERMIT SET

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PRELIMINARY PLAT

TREE RETENTION PLAN

BELLEVUE PACIFIC PROPERTIES GROUP, LLC.
3029 92ND AVENUE NE
CLYDE HILL, WA 98004

SITE ADDRESS: 7233 80TH AVE S.E. MERCER ISLAND, WA 98040

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	2/15/17	PRELIM. PLAT REVISIONS PER CITY COMMENTS	LV
2	5/31/17	PRELIM. PLAT REVISIONS PER CITY COMMENTS	LV

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: LV
DRAFTED: LV
CHECKED: AM, KC

JOB NUMBER:
160309

SHEET NUMBER:
TR03 OF 14

DATE: 5/31/2017
PRINTED BY: MARINA FRENCH
FILENAME: 160309_MERCER ISLAND PRATT_2017-05-31.DWG

DATE OF ASSESS-MENT	TREE TAG NUM-BER	COMMON NAME	SCIENTIFIC NAME	EV-ER GRN (E) DECID (D)	NO. OF STEMS	DBH 1 (IN)	DBH 2 (IN)	DBH 3 (IN)	HEIGHT (FT)	CAN-OPY RAD. (FT)	COND-ITION	REM-OVAL
4/6/2016	1	Douglas-fir	*Pseudotsuga menziesii*	E	1	8.2			40	7	2 - Good	
4/6/2016	2	Douglas-fir	*Pseudotsuga menziesii*	E	1	4.8			16	10	4 - Poor	
4/6/2016	3	Douglas-fir	*Pseudotsuga menziesii*	E	1	1.9			40	13	2 - Good	
4/6/2016	4	Douglas-fir	*Pseudotsuga menziesii*	E	1	10.8			48	7	4 - Poor	
4/6/2016	5	Douglas-fir	*Pseudotsuga menziesii*	E	1	15.0			40	12	3 - Fair	
4/6/2016	6	Douglas-fir	*Pseudotsuga menziesii*	E	1	27.6			70	17	2 - Good	
4/6/2016	7	Western red cedar	*Thuja plicata*	E	1	23.2			40	10	2 - Good	
4/6/2016	8	Leyland cypress	*Cupressus × leylandii*	E	1	6.0			15	7	3 - Fair	
4/6/2016	9	Leyland cypress	*Cupressus × leylandii*	E	1	5.0			15	7	3 - Fair	
4/6/2016	10	Leyland cypress	*Cupressus × leylandii*	E	1	6.5			15	6	3 - Fair	
4/6/2016	11	Leyland cypress	*Cupressus × leylandii*	E	1	9.5			15	10	3 - Fair	
4/6/2016	12	Leyland cypress	*Cupressus × leylandii*	E	1	10.5			15	9	4 - Poor	
4/6/2016	13	Leyland cypress	*Cupressus × leylandii*	E	2	12.0	8.0		15	12	3 - Fair	
4/6/2016	14	Leyland cypress	*Cupressus × leylandii*	E	1	7.0			15	10	3 - Fair	
4/6/2016	15	Douglas-fir	*Pseudotsuga menziesii*	E	1	22.0			60	15	2 - Good	
4/6/2016	16	Leyland cypress	*Cupressus × leylandii*	E	1	5.0			15	10	3 - Fair	
4/6/2016	17	Leyland cypress	*Cupressus × leylandii*	E	1	7.0			15	11	3 - Fair	
4/6/2016	18	Leyland cypress	*Cupressus × leylandii*	E	1	6.0			15	10	3 - Fair	
4/6/2016	19	Leyland cypress	*Cupressus × leylandii*	E	1	6.0			15	9	3 - Fair	
4/6/2016	20	Leyland cypress	*Cupressus × leylandii*	E	1	7.0			15	8	3 - Fair	
4/6/2016	21	Leyland cypress	*Cupressus × leylandii*	E	2	4.0	4.0		25	12	3 - Fair	X
4/6/2016	22	Leyland cypress	*Cupressus × leylandii*	E	1	9.0			25	14	3 - Fair	X
4/6/2016	23	Western red cedar	*Thuja plicata*	E	1	6.0			25	9	3 - Fair	X
4/6/2016	24	Western red cedar	*Thuja plicata*	E	1	6.0			25	11	2 - Good	X
4/6/2016	25	Western red cedar	*Thuja plicata*	E	2	4.0	4.0		20	9	3 - Fair	X
4/6/2016	26	Bigleaf maple	*Acer macrophyllum*	D	1	7.0			30	15	3 - Fair	
4/6/2016	27	Western red cedar	*Thuja plicata*	E	1	3.0			15	6	1 - Excellent	
4/6/2016	28	Douglas-fir	*Pseudotsuga menziesii*	E	1	14.2			50	15	2 - Good	
4/6/2016	29	Douglas-fir	*Pseudotsuga menziesii*	E	1	24.0			80	23	2 - Good	
4/6/2016	30	Deodar cedar	*Cedrus deodara*	E	1	10.0			45	20	3 - Fair	
4/6/2016	31	Japanese maple	*Acer palmatum*	D	6	6.0			25	18	3 - Fair	
4/6/2016	32	Cherry plum	*Prunus cerasifera*	D	3	18.5	7.0	7.0	20	20	3 - Fair	
4/6/2016	33	Austrian pine	*Pinus nigra*	E	1	20.0			55	20	3 - Fair	
4/6/2016	34	Austrian pine	*Pinus nigra*	E	1	15.0			45	17	2 - Good	
4/6/2016	35	Katsuratree	*Cercidiphyllum japonicum*	D	1	8.0			25	10	2 - Good	
4/6/2016	36	Katsuratree	*Cercidiphyllum japonicum*	D	1	7.0			20	10	2 - Good	
4/6/2016	37	Cherry plum	*Prunus cerasifera*	D	2	7.0	6.0		35	17	3 - Fair	
4/6/2016	38	Austrian pine	*Pinus nigra*	E	1	11.0			50	15	2 - Good	
4/6/2016	39	Austrian pine	*Pinus nigra*	E	1	15.0			50	15	2 - Good	
4/6/2016	40	Douglas-fir	*Pseudotsuga menziesii*	E	1	25.0			75	28	2 - Good	
4/6/2016	41	Douglas-fir	*Pseudotsuga menziesii*	E	1	16.0			60	17	3 - Fair	
4/6/2016	42	Douglas-fir	*Pseudotsuga menziesii*	E	1	9.0			50	15	3 - Fair	
4/6/2016	43	Douglas-fir	*Pseudotsuga menziesii*	E	1	16.0			60	14	3 - Fair	
4/6/2016	44	Douglas-fir	*Pseudotsuga menziesii*	E	1	12.0			60	14	3 - Fair	
4/6/2016	45	Douglas-fir	*Pseudotsuga menziesii*	E	1	12.0			60	15	3 - Fair	
4/6/2016	46	Douglas-fir	*Pseudotsuga menziesii*	E	1	12.0			60	12	3 - Fair	
4/6/2016	47	Douglas-fir	*Pseudotsuga menziesii*	E	1	16.0			60	14	3 - Fair	X
4/6/2016	48	Douglas-fir	*Pseudotsuga menziesii*	E	1	14.0			60	15	3 - Fair	X
4/6/2016	49	Douglas-fir	*Pseudotsuga menziesii*	E	1	17.0			60	15	3 - Fair	X
4/6/2016	50	Douglas-fir	*Pseudotsuga menziesii*	E	1	16.0			60	18	3 - Fair	X
4/6/2016	51	Douglas-fir	*Pseudotsuga menziesii*	E	1	16.0			60	15	3 - Fair	X
4/6/2016	52	Douglas-fir	*Pseudotsuga menziesii*	E	1	16.0			60	15	3 - Fair	X
4/6/2016	53	Douglas-fir	*Pseudotsuga menziesii*	E	1	16.0			60	15	3 - Fair	X
4/6/2016	54	Douglas-fir	*Pseudotsuga menziesii*	E	1	17.0			60	15	3 - Fair	X
4/6/2016	55	Douglas-fir	*Pseudotsuga menziesii*	E	1	15.0			60	16	3 - Fair	X
4/6/2016	56	Douglas-fir	*Pseudotsuga menziesii*	E	1	18.0			60	16	3 - Fair	X
4/6/2016	57	Douglas-fir	*Pseudotsuga menziesii*	E	1	22.0			60	20	3 - Fair	X
4/6/2016	58	Douglas-fir	*Pseudotsuga menziesii*	E	1	15.0			60	14	3 - Fair	X
4/6/2016	59	Douglas-fir	*Pseudotsuga menziesii*	E	1	21.0			60	14	3 - Fair	X
4/6/2016	60	European white birch	*Betula pendula*	D	1	12.0			60	15	3 - Fair	
4/6/2016	61	European white birch	*Betula pendula*	D	1	12.0			55	15	3 - Fair	
4/6/2016	62	European white birch	*Betula pendula*	D	1	10.0			40	12	3 - Fair	
4/6/2016	63	Apple	*Malus sp.*	D	1	10.0			12	14	3 - Fair	
4/6/2016	64	Douglas-fir	*Pseudotsuga menziesii*	E	1	28.0			55	27	3 - Fair	
4/11/2016	65	Douglas-fir	*Pseudotsuga menziesii*	E	1	18.0			60	18	2 - Good	X
4/11/2016	66	Douglas-fir	*Pseudotsuga menziesii*	E	1	24.0			70	20	2 - Good	X
4/11/2016	67	Douglas-fir	*Pseudotsuga menziesii*	E	1	20.0			60	22	3 - Fair	
4/11/2016	68	Cherry plum	*Prunus cerasifera 'Thundercloud'*	D	1	9.5			20	8	3 - Fair	X
4/11/2016	69	Cherry plum	*Prunus cerasifera 'Thundercloud'*	D	1	7.0			25	10	3 - Fair	X
4/11/2016	70	Cherry plum	*Prunus cerasifera 'Thundercloud'*	D	1	9.5			25	10	3 - Fair	X
4/11/2016	71	Cherry plum	*Prunus cerasifera 'Thundercloud'*	D	1	7.0			25	8	3 - Fair	X
4/11/2016	72	Douglas-fir	*Pseudotsuga menziesii*	E	1	24.0			60	16	4 - Poor	X
4/11/2016	73	Douglas-fir	*Pseudotsuga menziesii*	E	1	24.0			60	25	3 - Fair	X
4/11/2016	74	Douglas-fir	*Pseudotsuga menziesii*	E	1	12.0			50	12	3 - Fair	X
4/11/2016	75	Douglas-fir	*Pseudotsuga menziesii*	E	1	1.0			10	4	2 - Good	X
4/11/2016	76	Western redcedar	*Thuja plicata*	E	1	3.0			15	6	4 - Poor	
4/11/2016	77	Deodar cedar	*Cedrus deodara*	E	1	8.0			25	12	2 - Good	
4/11/2016	78	Douglas-fir	*Pseudotsuga menziesii*	E	1	8.0			40	15	3 - Fair	
4/11/2016	79	Douglas-fir	*Pseudotsuga menziesii*	E	1	10.0			45	15	3 - Fair	
4/11/2016	80	Douglas-fir	*Pseudotsuga menziesii*	E	1	4.0			30	5	3 - Fair	
4/11/2016	81	Douglas-fir	*Pseudotsuga menziesii*	E	1	7.0			40	15	3 - Fair	
4/11/2016	82	Shore pine	*Pinus contorta*	E	1	4.0			20	8	4 - Poor	
4/11/2016	83	Douglas-fir	*Pseudotsuga menziesii*	E	1	5.0			25	10	3 - Fair	
4/11/2016	84	Douglas-fir	*Pseudotsuga menziesii*	E	1	5.0			25	8	4 - Poor	
4/11/2016	85	Douglas-fir	*Pseudotsuga menziesii*	E	1	1.0			12	4	3 - Fair	
4/11/2016	86	Douglas-fir	*Pseudotsuga menziesii*	E	1	1.5			15	4	3 - Fair	
4/11/2016	87	Douglas-fir	*Pseudotsuga menziesii*	E	1	14.0			50	15	3 - Fair	
4/11/2016	88	Douglas-fir	*Pseudotsuga menziesii*	E	1	10.0			45	15	3 - Fair	
4/11/2016	89	Scouler's willow	*Salix scouleriana*	D	1	8.0			40	15	3 - Fair	
4/11/2016	90	Scouler's willow	*Salix scouleriana*	D	3	8.0	7.0	6.0	40	18	3 - Fair	
4/11/2016	91	Douglas-fir	*Pseudotsuga menziesii*	E	1	14.0			55	18	3 - Fair	
4/11/2016	92	Douglas-fir	*Pseudotsuga menziesii*	E	1	20.0			70	20	3 - Fair	
4/11/2016	93	Douglas-fir	*Pseudotsuga menziesii*	E	1	15.0			65	15	3 - Fair	
4/11/2016	94	Douglas-fir	*Pseudotsuga menziesii*	E	1	17.0			65	15	3 - Fair	
2/14/2017	95	Mountain hemlock	*Tsuga mertensiana*	E	1	12.0			45	10	3 - Fair	
2/14/2017	4341	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	2	4.0	3.0		20	10	3 - Fair	
2/14/2017	4342	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	3	3.0	4.0	5.0	20	10	3 - Fair	
2/14/2017	4343	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	1	7.0			25	9	3 - Fair	
2/14/2017	4344	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	1	6.5			25	8	3 - Fair	
2/14/2017	4345	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	1	4.0			20	8	3 - Fair	
2/14/2017	4346	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	2	3.0	5.0		25	8	3 - Fair	
2/14/2017	4347	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	1	5.0			15	8	3 - Fair	
2/14/2017	4348	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	2	4.0			25	8	3 - Fair	
2/14/2017	4349	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	1	5.5			25	8	3 - Fair	
2/14/2017	4350	Black cottonwood	*Populus trichocarpa*	D	1	29.0			75	20	3 - Fair	
2/14/2017	4351	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	1	2.0			10	3	3 - Fair	
2/14/2017	4352	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	1	2.0			10	4	3 - Fair	
2/14/2017	4353	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	1	2.0			10	3	3 - Fair	X
2/14/2017	4354	Austrian pine	*Pinus nigra*	E	1	11.8			50	11	3 - Fair	
2/14/2017	4355	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	1	2.0			15	5	3 - Fair	
2/14/2017	4356	Douglas-fir	*Pseudotsuga menziesii*	E	1	17.7			65	13	3 - Fair	
2/14/2017	4357	Excelsa western redcedar	*Thuja plicata var. Excelsa*	E	1	4.0			18	8	3 - Fair	
2/14/2017	4358	Portugal laurel	*Prunus lusitanica*	E	3	5.0	5.0	5.0	15	13	3 - Fair	
4/6/2016	4531	Douglas-fir	*Pseudotsuga menziesii*	E	1	28.6			75	18	2 - Good	
4/6/2016	4532	Hedge Maple	*Acer campestre*	D	1	6.5			20	14	3 - Fair	X
4/6/2016	4533	Bigleaf maple	*Acer macrophyllum*	D	1	7.5			25	14	3 - Fair	
4/6/2016	4534	Bigleaf maple	*Acer macrophyllum*	D	1	14.0			40	20	3 - Fair	
4/6/2016	4535	Douglas-fir	*Pseudotsuga menziesii*	E	1	8.0			40	14	3 - Fair	
4/6/2016	4536	Douglas-fir	*Pseudotsuga menziesii*	E	1	20.0			80	17	2 - Good	
4/6/2016	4537	Douglas-fir	*Pseudotsuga menziesii*	E	1	5.5			30	10	3 - Fair	
4/6/2016	4538	Douglas-fir	*Pseudotsuga menziesii*	E	1	11.5			65	16	3 - Fair	
4/6/2016	4539	Douglas-fir	*Pseudotsuga menziesii*	E	1	7.5			30	12	3 - Fair	
4/6/2016	4540	Douglas-fir	*Pseudotsuga menziesii*	E	1	16.5			65	22	2 - Good	
4/6/2016	4541	Douglas-fir	*Pseudotsuga menziesii*	E	1	11.5			65	14	2 - Good	
4/6/2016	4542	Douglas-fir	*Pseudotsuga menziesii*	E	1	8.0			35	14	3 - Fair	
4/6/2016	4543	Douglas-fir	*Pseudotsuga menziesii*	E	1	11.0			55	17	2 - Good	
4/6/2016	4544	Douglas-fir	*Pseudotsuga menziesii*	E	1	3.0			15	5	3 - Fair	
4/6/2016	4545	Scots pine	*Pinus sylvestris*	E	1	18.5			60	16	2 - Good	
4/6/2016	4546	Scots pine	*Pinus sylvestris*	E	1	20.0			60	23	2 - Good	
4/6/2016	4547	Coast Redwood	*Sequoia sempervirens*	E	1	28.5			85	20	2 - Good	
4/6/2016	4548	Scots pine	*Pinus sylvestris*	E	1	20.5			60	15	3 - Fair	
4/6/2016	4549	Douglas-fir	*Pseudotsuga menziesii*	E	1	11.3			55	15	2 - Good	
4/6/2016	4550	Apple	*Malus sp.*	D	2	7.8	11.6		25	16	3 - Fair	X
4/6/2016	4551	Douglas-fir	*Pseudotsuga menziesii*	E	1	39.5			100	20	3 - Fair	X
4/6/2016	4552	Hedge Maple	*Acer campestre*	D	1	10.3			30	17	3 - Fair	X
4/6/2016	4553	Hedge Maple	*Acer campestre*	D	1	8.0			35	12	3 - Fair	X
4/6/2016	4554	Bigleaf maple	*Acer macrophyllum*	D	1	10.2			40	13	2 - Good	X
4/6/2016	4555	Pacific madrone	*Arbutus menziesii*	E	1	14.0			45	18	2 - Good	X
4/6/2016	4556	Pacific madrone	*Arbutus menziesii*	E	1	10.5			35	18	2 - Good	X
4/6/2016	4557	Douglas-fir	*Pseudotsuga menziesii*	E	1	39.4			100	20	2 - Good	X
4/6/2016	4558	Douglas-fir	*Pseudotsuga menziesii*	E	1	27.7			100	20	2 - Good	X
4/6/2016	4559	Pacific madrone	*Arbutus menziesii*	E	1	23.0			55	25	3 - Fair	X
4/6/2016	4560	Bigleaf maple	*Acer macrophyllum*	D	1	10.4			35	25	3 - Fair	X
4/6/2016	4561	Douglas-fir	*Pseudotsuga menziesii*	E	1	23.5			75	15	2 - Good	X
4/6/2016	4562	Austrian pine	*Pinus nigra*	E	1	21.1			60	23	2 - Good	X
4/6/2016	4563	Norway spruce	*Picea abies*	E	1	8.4			30	12	3 - Fair	X
4/6/2016	4564	Pacific dogwood	*Cornus nuttallii*	D	5	9.6	6.2	4.0	35	8	4 - Poor	X
4/6/2016	4565	Bigleaf maple	*Acer macrophyllum*	D	3	6.2	5.6	5.2	25	14	4 - Poor	X
4/6/2016	4566	Douglas-fir	*Pseudotsuga menziesii*	E	1	12.0			45	14	2 - Good	
4/6/2016	4567	Douglas-fir	*Pseudotsuga menziesii*	E	1	15.0			45	18	2 - Good	
4/6/2016	4568	Subalpine fir	*Abies lasiocarpa*	E	1	4.0			20	3	4 - Poor	
4/6/2016	4569	Douglas-fir	*Pseudotsuga menziesii*	E	1	20.0			70	15	2 - Good	
4/6/2016	4570	Incense cedar	*Calocedrus decurrens*	E	1	3.2			20	5	2 - Good	
4/6/2016	4571	Douglas-fir	*Pseudotsuga menziesii*	E	1	18.5			70	15	2 - Good	
4/6/2016	4572	Douglas-fir	*Pseudotsuga menziesii*	E	1	17.7			60	16	2 - Good	
4/6/2016	4573	Douglas-fir	*Pseudotsuga menziesii*	E	1	11.8			55	13	2 - Good	
4/6/2016	4574	Douglas-fir	*Pseudotsuga menziesii*	E	1	21.5			70	23	3 - Fair	
4/6/2016	4575	Douglas-fir	*Pseudotsuga menziesii*	E	1	37.8			70	25	2 - Good	
4/6/2016	4576	Douglas-fir	*Pseudotsuga menziesii*	E	1	6.0			25	10	2 - Good	
4/6/2016	4577	Douglas-fir	*Pseudotsuga menziesii*	E	1	31.9			70	25	2 - Good	X
4/6/2016	4578	Douglas-fir	*Pseudotsuga menziesii*	E	1	33.4			75	23	2 - Good	
4/6/2016	4579	Douglas-fir	*Pseudotsuga menziesii*	E	1	9.3			35	15	4 - Poor	
4/6/2016	4580	Incense cedar	*Calocedrus decurrens*	E	1	1.0			7	2	2 - Good	
4/6/2016	4581	Douglas-fir	*Pseudotsuga menziesii*	E	1	2.0			10	6	3 - Fair	
4/6/2016	4582	Incense cedar	*Calocedrus decurrens*	E	1	5.1			25	5	2 - Good	
4/6/2016	4583	Mountain hemlock	*Tsuga mertensiana*	E	1	4.4			20	8	3 - Fair	
4/6/2016	4584	Incense cedar	*Calocedrus decurrens*	E	1	6.3			25	6	3 - Fair	
4/6/2016	4585	Portuguese laurel	*Prunus lusitanica*	E	1	8.3			20	11	2 - Good	
4/6/2016	4586	Douglas-fir	*Pseudotsuga menziesii*	E	1	42.6			100	35	1 - Excellent	
4/6/2016	4587	Pacific madrone	*Arbutus menziesii*	E	1	11.0			35	20	3 - Fair	
4/6/2016	4588	Douglas-fir	*Pseudotsuga menziesii*	E	1	3.2			18	7	3 - Fair	
4/6/2016	4589	Common plum	*Prunus domestica*	D	1	9.3			30	15	3 - Fair	X
4/6/2016	4590	Hedge Maple	*Acer campestre*	D	1	6.7			30	9	3 - Fair	X
4/6/2016	4591	Douglas-fir	*Pseudotsuga menziesii*	E	1	13.7			45	12	3 - Fair	
4/6/2016	4592	Douglas-fir	*Pseudotsuga menziesii*	E	1	2.0			15	4	3 - Fair	X
4/6/2016	4593	Pacific dogwood	*Cornus nuttallii*	D	1	6.1			30	10	3 - Fair	X
4/6/2016	4594	Douglas-fir	*Pseudotsuga menziesii*	E	1	2.0			12	3	3 - Fair	
4/6/2016	4595	Douglas-fir	*Pseudotsuga menziesii*	E	1	4.0			12	7	4 - Poor	
4/6/2016	4596	Douglas-fir	*Pseudotsuga menziesii*	E	1	22.4			65	20	3 - Fair	
4/6/2016	4597	Incense cedar	*Calocedrus decurrens*	E	1	4.6			20	5	3 - Fair	
4/6/2016	4598	Incense cedar	*Calocedrus decurrens*	E	1	5.0			20	5	3 - Fair	
4/6/2016	4599	Douglas-fir	*Pseudotsuga menziesii*	E	1	50.5			100	35	2 - Good	
4/6/2016	4600	Incense cedar	*Calocedrus decurrens*	E	1	4.0			20	4	3 - Fair	
4/6/2016	4601	Hedge Maple	*Acer campestre*	D	1	8.8			30	15	3 - Fair	
4/6/2016	4602	Deodar cedar	*Cedrus deodara*	E	1	10.0			35	10	2 - Good	X
4/6/2016	4603	Colorado spruce	*Picea pungens*	E	1	5.5			15	6	1 - Exceller	X
4/6/2016	4604	Douglas-fir	*Pseudotsuga menziesii*	E	1	15.5			55	17	4 - Poor	
4/6/2016	4605	Douglas-fir	*Pseudotsuga menziesii*	E	1	16.0			55	20	2 - Good	
4/6/2016	4606	Douglas-fir	*Pseudotsuga menziesii*	E	1	4.5			25	10	3 - Fair	
4/6/2016	4607	Douglas-fir	*Pseudotsuga menziesii*	E	1	18.2			65	17	4 - Poor	
4/6/2016	4608	Douglas-fir	*Pseudotsuga menziesii*	E	1	16.8			60	17	2 - Good	
4/6/2016	4609	Douglas-fir	*Pseudotsuga menziesii*	E	1	15.4			60	14	2 - Good	
4/6/2016	4610	Douglas-fir	*Pseudotsuga menziesii*	E	1	17.4			60	17	2 - Good	
4/6/2016	4611	Douglas-fir	*Pseudotsuga menziesii*	E	1	4.0			15	17	4 - Poor	
4/6/2016	4612	Douglas-fir	*Pseudotsuga menziesii*	E	1	17.3			60	18	3 - Fair	
4/6/2016	4613	Austrian pine	*Pinus nigra*	E	1	17.7			55	15	2 - Good	
4/6/2016	4614	Douglas-fir	*Pseudotsuga menziesii*	E	1	16.5			20	17	3 - Fair	
4/6/2016	4615	Bigleaf maple	*Acer macrophyllum*	D	1	23.5			45	15	4 - Poor	X
4/6/2016	4616	Bigleaf maple	*Acer macrophyllum*	D	1	6.2			30	17	4 - Poor	X
4/6/2016	4617	Bigleaf maple	*Acer macrophyllum*	D	6	13.0	13.0	10.0	55	22	4 - Poor	X
4/6/2016	4618	Bigleaf maple	*Acer macrophyllum*	D	2	24.2	22.2		60	25	5 - Dead/D	X

TREE INVENTORY TABLE

PERMIT SET

NOT FOR CONTRACTOR BIDDING

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland WA 98033
p 425.822.5242
www.watershedco.com
Science & Design

PRELIMINARY PLAT
TREE RETENTION PLAN
BELLEVUE PACIFIC PROPERTIES GROUP, LLC.
3029 92ND AVENUE NE
CLYDE HILL, WA 98004
SITE ADDRESS: 7233 80TH AVE S.E. MERCER ISLAND, WA 98040

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	2/15/17	PRELIM. PLAT REVISIONS PER CITY COMMENTS	LV
2	5/31/17	PRELIM. PLAT REVISIONS PER CITY COMMENTS	LV

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: LV
DRAFTED: LV
CHECKED: AM, KC
JOB NUMBER: 160309
SHEET NUMBER: TR04 OF 14

FILENAME: 160309_MERCER ISLAND PRATT_2017-05-31.DWG
PRINTED BY: MARINA FRENCH
DATE: 5/31/2017

APPENDIX B

Waterline Assessment Memo

TECHNICAL MEMORANDUM

THE WATERSHED COMPANY

Date: February 16, 2017
To: Tim Gabelein, Davido Consulting Group, Inc.
From: Mike Foster, The Watershed Company
Project Number: 160309
Project Name: Mercer Island Pratt

Subject: Addendum to the Tree Report: Tree Retention Analysis for the South Waterline Addition – SUB16-007 – Pratt Long Subdivision

This memo is a brief summarization of the tree inventory and impact assessment for the South Waterline portion of the Pratt Long Subdivision proposal. This memo is intended to be an addendum to The Watershed Company's *Revised Tree Inventory and Retention Plan Report* (Tree Report) dated August 17, 2016. Since this submittal, the applicant has been required to incorporate into the project design a section of water line through an adjacent City of Mercer Island right-of-way (ROW) south of the project area. The waterline would connect to an existing water main located at the south end of that ROW. There are several significant trees located in the area that may be affected by the work. An update to the tree retention plan will accompany this memo.

Figure 1 shows the location of the ROW relative to the project area.

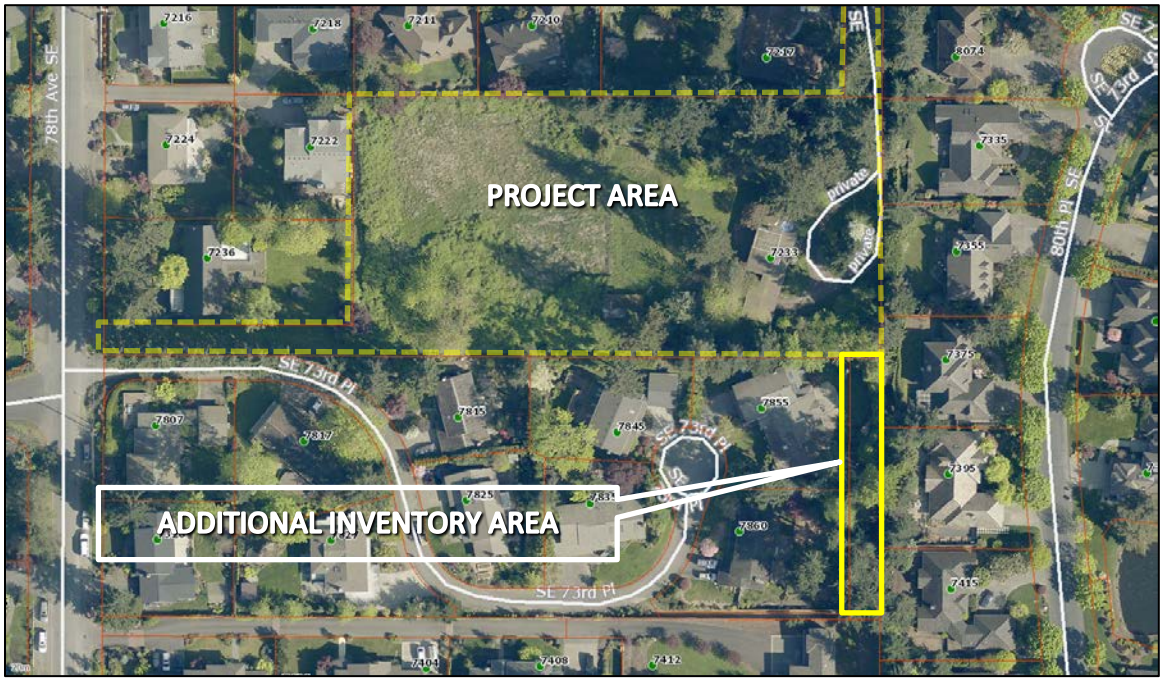

Figure 1 – Additional ROW Study Area. (Image courtesy of King County iMap, 2017)

750 Sixth Street South | Kirkland, WA 98033
p 425.822.5242 | f 425.827.8136 | watershedco.com

Findings

Inventory

A total of 19 additional significant trees were assessed in the ROW and are shown on the updated site plans. An updated tree data table, including tree species, size, height and condition, is included in the revised tree retention sheet set. Fourteen of the inventoried trees in this area are a western red cedar variety called 'Excelsa'. This cultivated variety exhibits a "tidier" appearance and is slightly narrower than its native counterpart. It is commonly used in landscapes where visual screening function is important. These western red cedars are all relatively young, with trunk diameters ranging in DBH from 2.0 to 5.5 inches and a maximum observed height of 25 feet. The largest tree in the area is a 29.0-inch DBH black cottonwood (#4350), with the next largest, a Douglas-fir, measuring 17.7 inches in diameter and 65 feet tall (#4356). An 11.8-inch-DBH Austrian pine (#4354), 12.0-inch-DBH mountain hemlock (#95) and a multi-stemmed Portuguese laurel (#4358) round out the other trees in the ROW.

Proposed Action

The applicant will construct an underground waterline that connects from an existing main at the south end of the subject ROW to the project area to the north. The water line will be eight inches in diameter and be buried approximately 36 inches below the surface of the soil. An open trench will be cut using an excavator or similar piece of equipment and backfilled once the line is installed and inspected.

Impact Assessment

Trenching will result in compaction and root cutting in the critical root zone of a few of the subject trees. However, of the 19 additional trees inventoried in the ROW, only one tree, an 'Excelsa' western red cedar (#4353), will be removed. The tree is small enough that it would be reasonable to transplant to another location in the project area.

The waterline design was revised specifically to reduce impact to trees. The proposed "tie in" location to the existing water line was moved to the southeast to reduce root damage to the 17.7-inch Douglas-fir. At least two bends were added and the line shifted to avoid impacting the row of 'Excelsa' western red cedar trees described above.

Tree Retention Plan Update

A total of 18 of the 19 trees in the City ROW (95 percent) will be retained under this proposal. The total number of trees removed as a result of this long subdivision proposal (the entire project) would be a total 39, up from the original proposed number of 38. One additional tree would need to be planted in place of the removed tree in the ROW; although transplanting is an option for the sapling. Total number of trees to be planted project-wide would be revised from 87 to 88 trees if the tree cannot be transplanted.

Tree protection measures are proposed on the site plan (see sheet TR03 of 9), including tree protection fencing. Some of the proposed work will be located within the dripline of tree #4356 (the 17.7-inch Douglas-fir). The following protective measures are modified from the Tree Report and may be utilized during waterline construction to minimize the impact to the fir.

- **Hand dig:** If any large (greater than two inches in diameter) roots from the Douglas-fir are detected when excavating around the existing line, consider retaining the root and hand digging around the root.
- **Minimize injury:** When tree roots must be removed, cut roots cleanly using a sharp saw or pruners. Do not rip or cut tree roots with heavy equipment.
- **Construction oversight:** An ISA-certified arborist should be present on-site during construction activities within the driplines of retained trees to monitor tree protection, assist with changes in the field, and document construction impacts.
- **Monitor:** An ISA-certified arborist should monitor retained trees after construction activities to identify changes in the health and structural conditions. Despite best efforts, retained trees may die as a result of construction and may require removal.

Limitations

Trees presumed to be located outside of subject property were not tagged and were assessed from various distances. For off-site trees, attribute data requiring direct contact (such as trunk diameter) is a visual estimate only and may vary slightly from the conditions at the time of the assessment.

The attributes presented in this study represent a snapshot at the time of the field work and may not necessarily be accurate in the future.

The condition of any remaining tree following the proposed land use action will ultimately be affected by root disturbance, new wind exposure, etc. The health condition ratings indicated the supporting material attached to this report does not represent the condition of the tree following construction. Follow-up monitoring may be required to ensure changing site conditions do not result in hazardous trees or tree components.