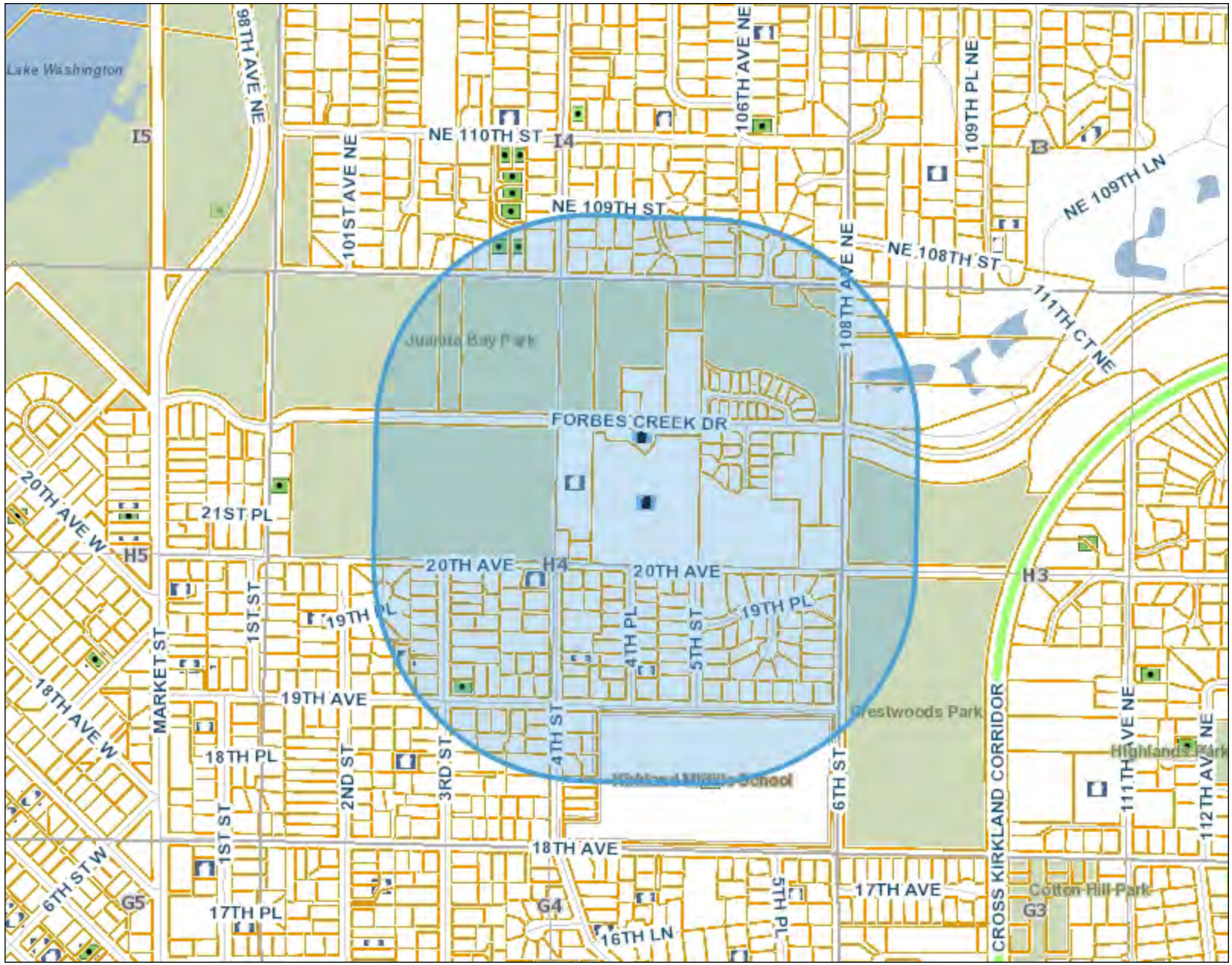
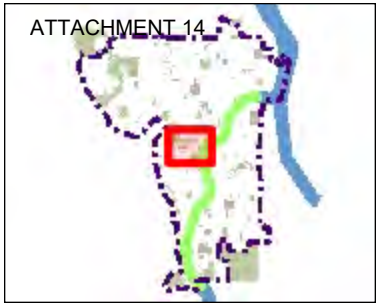
# City of Kirkland GIS




ATTACHMENT 14



## Legend

- City Limits
- Grid
- QQ Grid
- Cross Kirkland Corridor
- Regional Rail Corridor
- Streets
- Parcels
- Lakes
- Parks
- Schools
- Olympic Pipeline Corridor

Zoning

- Rezone
- Variance
- Misc Zoning

Housing

- Accessory Dwelling Unit
- Misc Housing

There are no cottage projects shown within 1,000 feet of the subject property. The permits shown are a short plat

1: 8,074

0.3 0 0.13 0.3 Miles

NAD_1983_StatePlane_Washington_North_FIPS_4601_Feet



Notes

# ORCAS MOON COTTAGES



VIEW 'B'


VIEW 'A'

## CONCEPTUAL RENDERINGS


VIEW 'D'


VIEW 'C'


VIEW 'E'

BLUELINE

CIVIL ENGINEERING • LAND USE PLANNING
LANDSCAPE ARCHITECTURE

SW 1/4, SEC 32, TWP 26N, RGE, 5E W.M.




22x34
May 20, 2019 – 12:03pm – Uber Ballerson
J:\Projects\12-248\Dwg\Layouts\12-248SP.dwg

BLUELINE

25 CENTRAL WAY, SUITE 400,
KIRKLAND, WA 98033
P: 425.216.4051 F: 425.216.4052
WWW.THEBLUELINEGROUP.COM

SCALE:
AS NOTED
PROJECT MANAGER:
TODD OBERG, PE
PROJECT ENGINEER:
TODD OBERG, PE
DESIGNER:
TC COLLERAN, PLA, AICP
ISSUE DATE:
5/20/2019

| NO | DATE | BY | REVISIONS |
|---|---|---|---|

# PRELIMINARY SITE PLAN
# ORCAS MOON COTTAGES

PARCEL #3890100050
CITY OF KIRKLAND WASHINGTON

JOB NUMBER:
12-248
SHEET NAME:
SP-01
SHT 1 OF 1

# Greenforest Incorporated

## Consulting Arborist

July 22, 2016

Robert Londo
Orcas Moon, LLC
PO Box 2710
Redmond WA 98073

RE: Tree Inventory at Forbes Creek, TPN 3890100050 & 3890100055.

Dear:

You contacted me and contracted my services as a consulting arborist. My assignment is to tag and inspect the significant trees at the above referenced site. The purpose of this report is to establish the condition of the significant trees to satisfy City of Kirkland permit submittal requirements.

You provided me a topographic survey from Axis Survey & Mapping dated 5/10/16. I visited the site last week and visually inspected the trees indicated on the survey, which are the subject of this report.

The site has a northern aspect with variable topography. With the exception of 2 weeping willows, the subject trees are all native species, dominated by Bigleaf maple and Red alder. I inventoried 192 surveyed significant trees, plus (I annotated the survey with) an additional 5 significant trees (numbered A-E) not included initially. Three duplicate trees are identified at the end of the inventory.

TREE INSPECTION – Tree Health, Condition and Viability
Each tree was marked with a 1” x 3.5” aluminum tag indicating tree number prior to my inspection. I visually inspected each tree from the ground and rated both tree health and structure.

A tree’s structure is distinct from its health. This inspection identifies what is visible with both. Structure is the way the tree is put together or constructed, and identifying

4547 South Lucile Street, Seattle, WA 98118 Tel. 206-723-0656

obvious defects can be helpful in determining if a tree is predisposed to failure. Tree health assesses disease, insect infestation and old age.

No invasive procedures were performed on any trees. The results of this inspection are based on what is visible at the time of the inspection.

The attached inventory summarizes my inspection results and provides the following information for each tree:

**Tree number** as shown on tag in the field.

**Tree Density Credit** (TDC) is assigned for each tree. The TDC for multiple-stemmed trees is calculated by summing the cross sectional area of each stem (DBH), and then converting to a single diameter.

**DBH** Stem diameter in inches measured 4.5 feet from the ground.

**Tree Species** Common name.

**Dripline** Average branch extension from the trunk as radius in feet.

**Health and Structure rating** ('1' indicates no visible health-related problems or structural defects, '2' indicates minor visible problems or defects that may require attention if the tree is retained, and '3' indicates significant visible problems or defects and tree removal is recommended.

**Visible defects** Obvious structural defects or diseases visible at time of inspection, which includes:

Asymmetric canopy– the tree has an asymmetric canopy from space and light competition from adjacent trees.
Branch dieback - Mature branches in canopy are dying/dead.
Crack – separation of wood fibers and predisposed to failure.
Dead – tree is dead.
Deadwood – Large and/or multiple dead branches throughout canopy.
Decay – process of wood degradation by microorganisms resulting in weak and defective structure.
Diseased – foliage and trunk/stems are diseased.
Dogleg in trunk – trunk with a bow or defective bend (90°) in trunk often half way of further up the trunk.

Double leader – the tree has multiple stem attachments, which may require maintenance or monitoring over time.
Included bark - Bark inclusion at attachment of multiple leaders and is preventing a wood-to-wood attachment
Insect Injury – active insect injury affecting tree health.
Ivy - Dense ivy prevents a thorough inspection, and other defects may be present.
Kretzschmaria fungus indicated internal wood decay.
Multiple leaders - the tree has multiple stem attachments, which may lead to tree failure and require maintenance or monitoring over time.
Previous failure – Tree trunk previously broken and defective.
Sweep in trunk – characterized by a leaning lower trunk and a more upright top.
Thinning Canopy – low foliage density may indicate stress, or early infection/declining health.
Stumpsprout- Tree previously cut at grade with multiple stems and potentially weak attachments.
Suppressed – tree crowded by larger adjacent trees; with defective structure and/or low vigor. Retain tree only as a grove tree, not stand-alone.
Sweep – tree leans away from adjacent trees. Characterized by a leaning lower trunk and a top that is more upright.
Topped – the tree is previously topped and has poor structure and/or stem decay.
Tree leans – Trunk has significant lean from vertical.
Tree suppressed - Tree is suppressed by adjacent tree canopies.
Trunk decay - Wood decay is visible in the trunk.
Wound/decay base of trunk - Open wound with visible decay in trunk.

**Viability** a determination by the arborist whether the tree is viable for retention. Non-viable trees are indicated. Otherwise the tree is viable, but the tree's visible defects should be considered. Depending on the location of a non-viable tree to any site improvements, if the tree is out of range of a target, it might be retained as it can continue to contribute canopy cover and wildlife habitat.

REQUIRED TREE DENSITY & AVAILABLE TREE DENSITY CREDIT

Required tree density is calculated by multiplying the acreage of the lot by 30, which equals 213. (309,061 ÷ 43,560 = 7.1) X 30 = 212.85, or 213 rounded.

| | S. F.[1] | Acres |
|---|---|---|
| Lot A | 143,218 | 3.29 |
| Lot B | 165,843 | 3.81 |
| Total Area | 309,061 | 7.10 |

The required tree density credit for this site = 213. The available tree density credits for specific trees are established in the attached inventory. The total available tree density credit for the surveyed trees equals 1,041.

NOTE: Tree density calculations do not apply to public trees. Trees shown within a ROW are assigned zero TDC.

If the calculated (retained) tree density is below the required minimum, you must indicate the type, size and location of the supplemental trees needed to meet the density requirement on a tree retention plan. Supplemental trees must be at least 6 feet tall if they are conifers or 2-inch caliper if they are deciduous or broadleaf evergreen. City may require more than the minimum TDC on any project.

This project is currently in the design phase. The following information will be provided later under separate scope and cover:

1. Limits of Disturbance.
2. Special instructions for work within critical root zones.
3. The impact of necessary tree removal to the remaining trees.
4. Timing and installation of tree protection measures.
5. Location and type of protection measures for trees.

LIMITATIONS AND USE OF THIS REPORT

This tree report establishes, via the most practical means available, the existing conditions of the trees on the subject property. Ratings for health and structure, as well as any recommendations are valid only through the development and construction

[1] http://gismaps.kingcounty.gov/parcelviewer2/ (Accessed 7/22/2016)

process. This report is based solely on what is readily visible and observable, without any invasive means.

There are several conditions that can affect a tree's condition that may be pre-existing and unable to be ascertained with a visual-only analysis. No attempt was made to determine the presence of hidden or concealed conditions which may contribute to the risk or failure potential of trees on the site. These conditions include root and stem (trunk) rot, internal cracks, structural defects or construction damage to roots, which may be hidden beneath the soil. Additionally, construction and post-construction circumstances can cause a relatively rapid deterioration of a tree's condition.

Thank you for your business.

Sincerely,

GreenForest, Inc.

By Favero Greenforest, M. S.

ISA Certified Arborist # PN -0143A
ASCA Registered Consulting Arborist® #379
ISA Tree Risk Assessment Qualified

Attachments

1. Assumptions and Limiting Conditions
2. Tree Inventory
3. Tree Survey Lot A
4. Tree Survey Lot B

Attachment No. 1 - Assumptions & Limiting Conditions

1. A field examination of the site was made 7/19/2016. My observations and conclusions are as of that date.

2. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/arborist can neither guarantee nor be responsible for the accuracy of information provided by others.

3. I am not a qualified land surveyor. Reasonable care was used to match the trees indicated on the sheets with those growing in the field.

4. Construction activities can significantly affect the condition of retained trees. All retained trees should be inspected after construction is completed, and then inspected regularly as part of routine maintenance.

5. Unless stated other wise: 1) information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of inspection; and 2) the inspection is limited to visual examination of the subject trees without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the subject tree may not arise in the future.

6. All trees possess the risk of failure. Trees can fail at any time, with or without obvious defects, and with or without applied stress. A complete evaluation of the potential for this (a) tree to fail requires excavation and examination of the base of the subject tree. Permission of the current property owner must be obtained before this work can be undertaken and the hazard evaluation completed.

7. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made.

8. This report and any values/opinions expressed herein represent the opinion of the consultant/appraiser, and the consultant's/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

Attachment No. 2 – Significant Tree Inventory

| TREE No. | Tree Density Credit | DBH | Tree Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|
| 20235 | 2 | 12" | Red alder | 16’ | 1 | 2 | Decline | |
| 20236 | 14 | 36" | Weeping willow | 35’ | 2 | 2 | Diseased, ivy | |
| 20237 | 2 | 12" | Red alder | 18’ | 1 | 3 | Upper trunk decay | NO |
| 20238 | 1 | 10" | Red alder | 12’ | 1 | 3 | Trunk failure | NO |
| 20239 | 1 | 10" | Red alder | 14’ | 1 | 2 | Asymmetric | |
| 20240 | 1 | 8" | Red alder | 0’ | 3 | 3 | Covered in vines | NO |
| 20241 | 1 | 10" | Red alder | 14’ | 1 | 2 | Asymmetric, vines | |
| 20243 | 1 | 8" | Red alder | 12’ | 1 | 2 | Asymmetric | |
| 20244 | 1 | 6" | Red alder | 0’ | 3 | 3 | Covered in vines | NO |
| 20246 | 1 | 8" | Red alder | 6’ | 1 | 3 | Adjacent tree fell into it | NO |
| 20247 | 1 | 10" | Red alder | 14’ | 1 | 2 | Asymmetric | |
| 20249 | 1 | 6" | Red alder | 6’ | 1 | 2 | Suppressed | |
| 20250 | 4 | 16" | Weeping willow | 12’ | 1 | 3 | Previous trunk failure | NO |
| 20251 | 1 | 8" | Red alder | 14’ | 1 | 2 | Asymmetric | |
| 20254 | 1 | 6" | Red alder | 10’ | 1 | 2 | Suppressed | |
| 20256 | 1 | 8" | Red alder | 10’ | 1 | 2 | Asymmetric | |
| 20257 | 1 | 8" | Red alder | 14’ | 1 | 3 | Asymmetric, trunk injury | NO |
| 20258 | 1 | 8" | Red alder | 14’ | 1 | 2 | Lean, asymmetric | |
| 20259 | 1 | 8" | Red alder | 12’ | 1 | 2 | Asymmetric, lean | |
| 20260 | 1 | 10" | Red alder | 16’ | 1 | 2 | Asymmetric | |

| TREE No. | Tree Density Credit | DBH | Tree Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|
| 20261 | 1 | 6" | Red alder | 12’ | 1 | 2 | Suppressed | |
| 20262 | 1 | 6" | Red alder | 8’ | 1 | 2 | Asymmetric | |
| 20263 | 1 | 10" | Red alder | 16’ | 1 | 2 | Asymmetric | |
| 20264 | 1 | 8" | Red alder | 12’ | 1 | 1 | | |
| 20265 | 1 | 8" | Red alder | 14’ | 1 | 2 | Asymmetric | |
| 20266 | 1 | 6" | Red alder | 6’ | 1 | 2 | Suppressed | |
| 20267 | 1 | 6" | Red alder | 8’ | 1 | 2 | Asymmetric | |
| 20268 | 1 | 8" | Red alder | 14’ | 1 | 2 | Lean | |
| 20269 | 1 | 6" | Red alder | 8’ | 1 | 2 | Suppressed | |
| 20270 | 1 | 8" | Red alder | 10’ | 1 | 1 | | |
| 20271 | 1 | 10" | Red alder | 14’ | 1 | 1 | | |
| 20272 | 1 | 8" | Western red-cedar | 10’ | 1 | 1 | | |
| 20273 | 1 | 8" | Red alder | 14’ | 1 | 2 | Asymmetric | |
| 20274 | 1 | 8" | Red alder | 12’ | 1 | 2 | Asymmetric | |
| 20275 | 1 | 8" | Red alder | 12’ | 1 | 2 | Lean | |
| 20276 | 1 | 8" | Red alder | 14’ | 1 | 2 | Suppressed | |
| 20277 | 1 | 8" | Red alder | 14’ | 1 | 2 | Sweep | |
| 20278 | 10 | 28" | Red alder | 12’ | 2 | 3 | Decline, decay | NO |
| 20279 | 1 | 8" | Red alder | 10’ | 1 | 1 | | |
| 20280 | 1 | 6" | Red alder | 10’ | 1 | 2 | Lean | |
| 20281 | 1 | 8" | Red alder | 12’ | 1 | 1 | | |
| 20283 | 2 | 12" | Red alder | 12’ | 1 | 2 | Asymmetric | |

| TREE No. | Tree Density Credit | DBH | Tree Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|
| 20286 | 1 | 6" | Red alder | 8’ | 1 | 1 | | |
| 20288 | 1 | 6" | Red alder | 8’ | 2 | 1 | Stem canker | |
| 20292 | 5 | 18" | Bitter cherry | 16’ | 1 | 2 | Asymmetric | |
| 20293 | 1 | 6" | Red alder | 8’ | 1 | 3 | Root failure | NO |
| 20294 | 2 | 12" | Red alder | 10’ | 3 | 3 | Decline, vine, dying-nearly dead | NO |
| 20296 | 18 | 22,40" | Bigleaf maple | 35’ | 1 | 2 | Soil heave | |
| 20297 | 5 | 18" | Douglas-fir | 16’ | 1 | 1 | | |
| 20307 | 1 | 6" | Douglas-fir | 8’ | 1 | 2 | Suppressed | |
| 20309 | 15 | 38" | Bigleaf maple | 30’ | 1 | 3 | Decay, *Kretzschmaria* | NO |
| 20319 | 1 | 6" | Douglas-fir | 6’ | 1 | 2 | Suppressed | |
| 20321 | 1 | 6" | Red alder | 8’ | 1 | 1 | | |
| 20324 | 2 | 12" | Douglas-fir | 14’ | 1 | 1 | | |
| 20349 | 11 | 22,20" | Bigleaf maple | 30’ | 1 | 2 | Double leader | |
| 20350 | 12 | 10",18",18",16" | Bigleaf maple | 20’ | 2 | 3 | Decline, stumpsprout, *Kretzschmaria* | NO |
| 20351 | 0 | 20" | Bigleaf maple | 20’ | 1 | 1 | | |
| 20352 | 7 | 14,12,22" | Bigleaf maple | 18’ | 1 | 2 | Multiple leaders | |
| 20353 | 12 | 14",16",18",18" | Bigleaf maple | 25’ | 2 | 2 | Decay, multiple leaders, chain embedded in trunk | |
| 20354 | 5 | 18" | Bigleaf maple | 16’ | 2 | 3 | Decline, trunk decay, *Kretzschmaria* | NO |
| 20355 | 7 | 10,14,14"" | Bigleaf maple | 16’ | 2 | 3 | Decline, trunk decay, *Kretzschmaria* | NO |
| 20356 | 8 | 24" | Bigleaf maple | 18’ | 2 | 3 | Decline, Kretzschmaria | NO |
| 20357 | 3 | 14" | Douglas-fir | 12’ | 1 | 2 | Ivy | |

| TREE No. | Tree Density Credit | DBH | Tree Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|
| 20358 | 5 | 18" | Bitter cherry | 12’ | 2 | 3 | Decline, stem failure | NO |
| 20359 | 1 | 6" | Douglas-fir | 6’ | 1 | 2 | Suppressed | |
| 20360 | 7 | 22" | Red alder | 16’ | 2 | 2 | Decline, double leader | |
| 20361 | 15 | 24",22",18",10" | Bigleaf maple | 30’ | 1 | 2 | Multiple leaders | |
| 20362 | 7 | 10,14,14" | Western red-cedar | 12’ | 1 | 1 | | |
| 20363 | 13 | 24,24" | Bigleaf maple | 25’ | 1 | 2 | Double leader | |
| 20364 | 8 | 24" | Bigleaf maple | 30’ | 1 | 1 | | |
| 20366 | 21 | 38,40" | Black cottonwood | 25’ | 1 | 2 | Double leader | |
| 20367 | 3 | 14" | Red alder | 10’ | 1 | 3 | Lean, ivy | NO |
| 20368 | 1 | 10" | Red alder | 12’ | 2 | 2 | Decline, nearly dead | |
| 20412 | 2 | 12" | Red alder | 16’ | 1 | 1 | | |
| 20413 | 1 | 8" | Red alder | 14’ | 1 | 2 | Asymmetric | |
| 20414 | 1 | 8" | Red alder | 14’ | 1 | 2 | Asymmetric | |
| 20415 | 1 | 10" | Red alder | 14’ | 1 | 1 | | |
| 20416 | 1 | 6,8" | Red alder | 14’ | 1 | 2 | Asymmetric, double leader, included bark | |
| 20417 | 1 | 7" | Red alder | 4’ | 1 | 1 | | |
| 20418 | 1 | 10" | Red alder | 14’ | 1 | 1 | | |
| 20419 | 1 | 8" | Red alder | 10’ | 1 | 2 | Asymmetric | |
| 20420 | 1 | 8" | Red alder | 10’ | 1 | 2 | Asymmetric | |
| 20421 | 1 | 8" | Red alder | 10’ | 1 | 2 | Asymmetric | |
| 20427 | 4 | 16" | Red alder | 14’ | 2 | 3 | Decline, deadwood | NO |

| TREE No. | Tree Density Credit | DBH | Tree Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|
| 20428 | 2 | 12" | Bigleaf maple | 16’ | 1 | 2 | Asymmetric | |
| 20429 | 5 | 18" | Bigleaf maple | 20’ | 2 | 1 | Stunted upper foliage | |
| 20447 | 20 | 18,20,24,28" | Bigleaf maple | 25’ | 1 | 2 | Multiple leaders | |
| 20448 | 21 | 36,38" | Bigleaf maple | 20’ | 1 | 2 | Double leader | |
| 20449 | 4 | 16" | Bigleaf maple | 18’ | 1 | 1 | | |
| 20450 | 21 | 52" | Black cottonwood | 25’ | 1 | 2 | Asymmetric, sweep | |
| 20451 | 21 | 65" | Black cottonwood | 25’ | 1 | 2 | Asymmetric, sweep | |
| 20452 | 18 | 44" | Black cottonwood | 25’ | 1 | 2 | Asymmetric, sweep | |
| 20453 | 21 | 10,18,20, 20,26,30" | Bigleaf maple | 30’ | 1 | 3 | Previous failure, multiple leaders, stumpsprout | NO |
| 20454 | 11 | 30" | Black cottonwood | 25’ | 1 | 2 | Asymmetric, sweet | |
| 20456 | 9 | 26" | Black cottonwood | 25’ | 1 | 2 | Asymmetric, sweet | |
| 20460 | 21 | 6,24,30,34" | Bigleaf maple | 25’ | 1 | 2 | Multiple leaders | |
| 20470 | 4 | 16" | Bigleaf maple | 14’ | 1 | 2 | Trunk wound, deadwood | |
| 20495 | 4 | 16" | Bigleaf maple | 16’ | 1 | 1 | | |
| 20528 | 4 | 16" | Bigleaf maple | 18’ | 1 | 2 | Asymmetric | |
| 20530 | 1 | 8" | Douglas-fir | 6’ | 1 | 2 | Suppressed | |
| 20532 | 5 | 18" | Bigleaf maple | 18’ | 1 | 2 | Deadwood, asymmetric | |
| 20536 | 21 | 50" | Black cottonwood | 30’ | 1 | 1 | | |
| 20540 | 11 | 30" | Bigleaf maple | 20’ | 1 | 2 | Asymmetric | |
| 20543 | 6 | 20" | Western red-cedar | 14’ | 1 | 1 | | |
| 20544 | 21 | 54" | Black cottonwood | 20’ | 1 | 2 | Sweep in trunk | |

| TREE No. | Tree Density Credit | DBH | Tree Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|
| 20545 | 11 | 18,16,16" | Bigleaf maple | 20’ | 2 | 3 | Stunted, trunk failure, stumpsprout | NO |
| 20546 | 1 | 6" | Western red-cedar | 8’ | 1 | 2 | Suppressed | |
| 20547 | 10 | 28" | Bigleaf maple | 25’ | 1 | 2 | Branch failure, asymmetric | |
| 20548 | 3 | 14" | Western red-cedar | 12’ | 1 | 2 | Suppressed | |
| 20549 | 2 | 12" | Western red-cedar | 14’ | 1 | 2 | Suppressed | |
| 20550 | 8 | 24" | Bigleaf maple | 18’ | 1 | 2 | Asymmetric | |
| 20551 | 5 | 18" | Bigleaf maple | 16’ | 1 | 2 | Seam in trunk | |
| 20562 | 17 | 42" | Douglas-fir | 20’ | 1 | 1 | | |
| 20666 | 16 | 40" | Bigleaf maple | 25’ | 1 | 2 | Spiral cracks in trunk | |
| 20667 | 4 | 16" | Western hemlock | 16’ | 1 | 1 | | |
| 20668 | 1 | 8" | Bigleaf maple | 14’ | 1 | 3 | Asymmetric, suppressed | NO |
| 20674 | 16 | 32,22,10" | Bigleaf maple | 30’ | 1 | 2 | Multiple leaders | |
| 20675 | 11 | 24,18" | Bigleaf maple | 25’ | 2 | 2 | Stunted foliage, stump sprout | |
| 20678 | 21 | 2-20",18", 2-12",10", 26",34",16" | Bigleaf maple | 25’ | 2 | 2 | Stunted foliage, multiple leader, deadwood | |
| 20679 | 1 | 10" | Douglas-fir | 12’ | 1 | 2 | Suppressed | |
| 20682 | 8 | 24" | Douglas-fir | 18’ | 1 | 1 | | |
| 20683 | 7 | 22" | Bigleaf maple | 18’ | 1 | 2 | Asymmetric | |
| 20684 | 8 | 24" | Western red-cedar | 18’ | 1 | 2 | Double leader | |
| 20688 | 3 | 14" | Douglas-fir | 16’ | 1 | 2 | Dogleg, double leader | |
| 20689 | 9 | 26" | Western red-cedar | 16’ | 1 | 1 | | |

| TREE No. | Tree Density Credit | DBH | Tree Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|
| 20690 | 5 | 18" | Western red-cedar | 16’ | 1 | 1 | | |
| 20691 | 1 | 8" | Western red-cedar | 8’ | 1 | 2 | Asymmetric | |
| 20693 | 1 | 10" | Red alder | 14’ | 1 | 3 | Lean | NO |
| 20694 | 5 | 18" | Western red-cedar | 12’ | 1 | 2 | Sweep in trunk | |
| 20695 | 4 | 16" | Western hemlock | 14’ | 1 | 1 | | |
| 20696 | 3 | 14" | Western red-cedar | 12’ | 1 | 1 | | |
| 20697 | 4 | 16" | Red alder | 12’ | 1 | 3 | Top of tree is dead | NO |
| 20699 | 13 | 34" | Bigleaf maple | 25’ | 1 | 2 | Asymmetric | |
| 20700 | 6 | 20" | Western red-cedar | 14’ | 1 | 1 | | |
| 20702 | 4 | 16" | Bigleaf maple | 14’ | 1 | 1 | | |
| 20703 | 1 | 8" | Western hemlock | 10’ | 1 | 2 | Suppressed | |
| 20704 | 5 | 18" | Bigleaf maple | 18’ | 1 | 2 | Deadwood | |
| 20709 | 8 | 24" | Bigleaf maple | 16’ | 1 | 1 | | |
| 20714 | 3 | 14" | Bigleaf maple | 16’ | 1 | 3 | Asymmetric, trunk decay | NO |
| 20715 | 4 | 16" | Bigleaf maple | 16’ | 1 | 2 | Asymmetric | |
| 20716 | 10 | 28" | Bigleaf maple | 20’ | 1 | 1 | | |
| 20717 | 2 | 12" | Western hemlock | 14’ | 1 | 2 | Suppressed | |
| 20718 | 6 | 20" | Bigleaf maple | 18’ | 1 | 1 | | |
| 20719 | 7 | 22" | Bigleaf maple | 18’ | 1 | 2 | Asymmetric | |
| 20720 | 1 | 6" | Douglas-fir | 8’ | 1 | 2 | Suppressed | |
| 20721 | 6 | 20" | Bigleaf maple | 18’ | 1 | 3 | Trunk decay | NO |
| 20722 | 8 | 24" | Bigleaf maple | 20’ | 1 | 2 | Asymmetric | |

| TREE No. | Tree Density Credit | DBH | Tree Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|
| 20724 | 11 | 18,24" | Bigleaf maple | 20’ | 1 | 3 | Stumpsprout | NO |
| 20726 | 4 | 16" | Bigleaf maple | 18’ | 1 | 3 | Dog leg, stumpsprout | NO |
| 20727 | 2 | 12" | Bigleaf maple | 16’ | 1 | 3 | Asymmetric, lean | NO |
| 20730 | 1 | 10" | Western red-cedar | 12’ | 1 | 1 | | |
| 20731 | 6 | 20" | Western red-cedar | 16’ | 1 | 1 | | |
| 20732 | 21 | 28,30,30,24" | Bigleaf maple | 35’ | 1 | 2 | Deadwood, failure, stumpsprout | |
| 20733 | 3 | 8,12" | Bigleaf maple | 16’ | 1 | 2 | Asymmetric, stumpsprout | |
| 20734 | 16 | 32,26" | Bigleaf maple | 25’ | 1 | 3 | Trunk decay, stumpsprout, Kretzschmaria | NO |
| 20735 | 7 | 22" | Bigleaf maple | 18’ | 1 | 2 | Deadwood, asymmetric | |
| 20736 | 4 | 16" | Bigleaf maple | 18’ | 1 | 2 | Asymmetric, stumpsprout | |
| 20737 | 4 | 16" | Bigleaf maple | 16’ | 1 | 3 | Leaning in adjacent tree | NO |
| 20738 | 3 | 6,14" | Bigleaf maple | 18’ | 1 | 2 | Stump sprout | |
| 20739 | 6 | 20" | Bigleaf maple | 20’ | 1 | 3 | Stump sprout | NO |
| 20740 | 5 | 18" | Bigleaf maple | 16’ | 1 | 3 | Dog leg, branch failure, stumpsprout | NO |
| 20741 | 5 | 18" | Western red-cedar | 16’ | 1 | 1 | | |
| 20742 | 7 | 22" | Western red-cedar | 16’ | 1 | 1 | | |
| 20743 | 4 | 16" | Western red-cedar | 14’ | 1 | 2 | Growing against maple | |
| 20744 | 4 | 16" | Bigleaf maple | 16’ | 1 | 2 | Previous branch failure, sweep in trunk | |
| 20748 | 3 | 14" | Bigleaf maple | 16’ | 1 | 2 | Asymmetric | |
| 20749 | 1 | 6" | Bigleaf maple | 12’ | 1 | 3 | Dog leg, trunk injury, stumpsprout | NO |
| 20751 | 11 | 6,6,8,18,24" | Bigleaf maple | 25’ | 2 | 3 | Decline, decay, stumpsprout | NO |

| TREE No. | Tree Density Credit | DBH | Tree Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|
| 20780 | 4 | 16" | Bigleaf maple | 18’ | 1 | 2 | Dog leg in trunk | |
| 20793 | 1 | 6" | Pacific dogwood | 8’ | 1 | 2 | Deadwood | |
| 20807 | 3 | 14" | Western red-cedar | 10’ | 1 | 2 | Sweep in trunk | |
| 20862 | 2 | 12" | Red alder | 8’ | 2 | 3 | Decline | NO |
| 20864 | 4 | 16" | Red alder | 14’ | 1 | 1 | | |
| 20870 | 7 | 8,12,18" | Bigleaf maple | 18’ | 1 | 3 | Asymmetric, stumpsprout | NO |
| 20934 | 0 | 6" | Red alder | 8’ | 1 | 1 | | |
| 20978 | 5 | 12,14" | Red alder | 12’ | 2 | 3 | Top failure | NO |
| 20979 | 1 | 10" | Red alder | 8’ | 2 | 3 | Top of tree is dead | NO |
| 20982 | 13 | 22,26" | Bigleaf maple | 18’ | 1 | 2 | Trunk decay | |
| 20989 | 6 | 14,16" | Bigleaf maple | 14’ | 1 | 2 | Dogleg, asymmetric | |
| 20990 | 5 | 18" | Scouler's willow | 14’ | 1 | 3 | Leaning trunk | NO |
| 21020 | 1 | 10" | Red alder | 14’ | 1 | 3 | Trunk wound/decay | NO |
| 21021 | 0 | 18" | Douglas-fir | 16’ | 1 | 2 | Topped for power lines | |
| 21022 | 0 | 16" | Douglas-fir | 16’ | 1 | 2 | Topped for power lines | |
| 21024 | 1 | 7" | Red alder | 8’ | 2 | 3 | Decline, decay | NO |
| 21025 | 1 | 7" | Red alder | 8’ | 2 | 3 | Decline, decay | NO |
| 21026 | 6 | 20" | Western red-cedar | 14’ | 1 | 1 | | |
| 21027 | 1 | 7" | Red alder | 10’ | 2 | 2 | Decline, decay | |
| 21028 | 1 | 10" | Red alder | 10’ | 1 | 1 | | |
| 21029 | 0 | 6",12",14",16", 10",18",8" | Western red-cedar | 16’ | 1 | 2 | Stump sprout | |

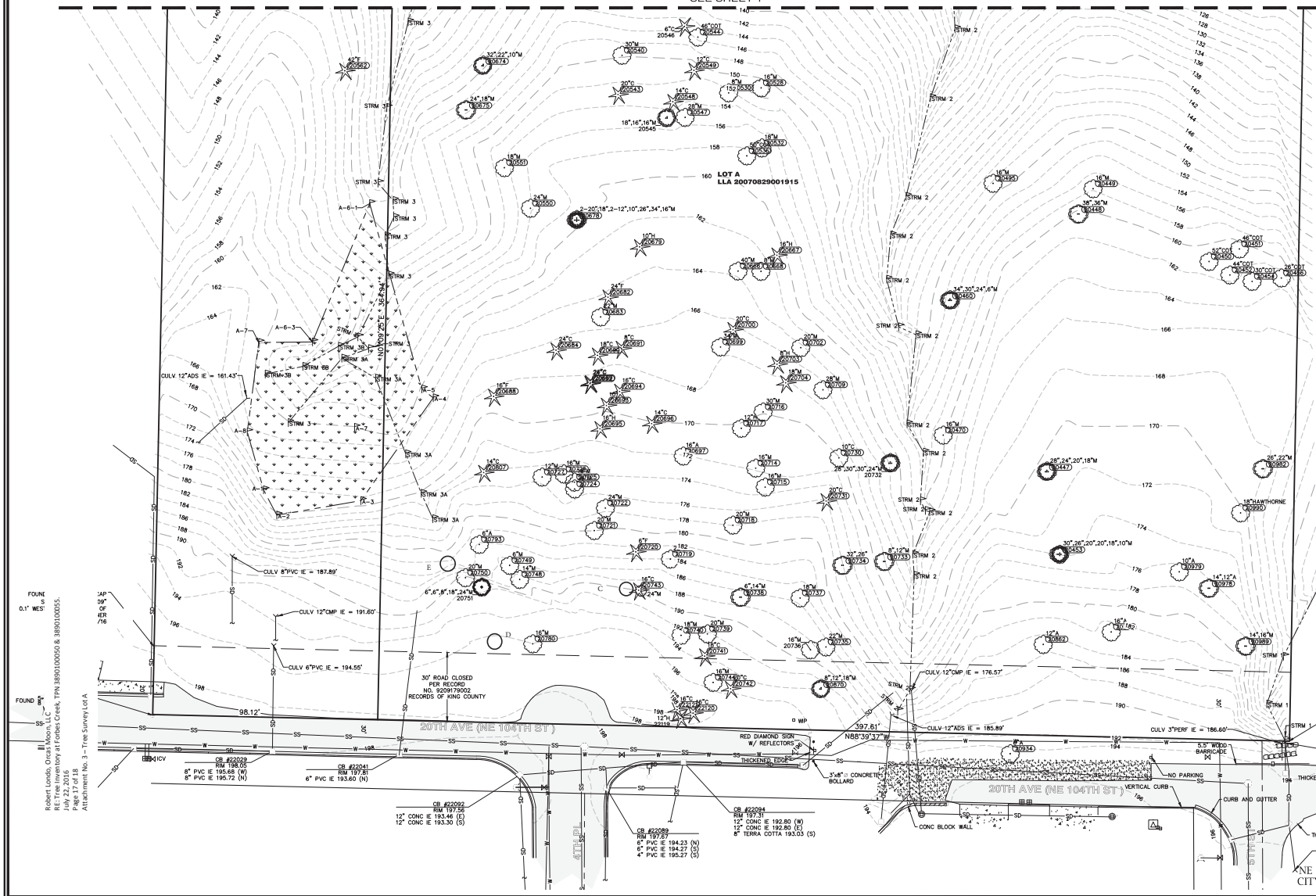
| TREE No. | Tree Density Credit | DBH | Tree Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|
| 22119 | 3 | 14" | Western hemlock | 10’ | 1 | 3 | Branch decline, spiral cracks in trunk | NO |
| 22120 | 5 | 18" | Western red-cedar | 14’ | 1 | 2 | Asymmetric | |
| 22121 | 5 | 18" | Western red-cedar | 14’ | 1 | 2 | Asymmetric | |
| A | 1 | 8" | Douglas-fir | 6’ | 1 | 1 | | |
| B | 1 | 8" | Western red-cedar | 6’ | 1 | 2 | Sweep | |
| C | 8 | 24" | Bigleaf maple | 16’ | 1 | 3 | Trunk decay | NO |
| D | 20 | 48" | Black cottonwood | 25’ | 1 | 1 | | |
| E | 4 | 16" | Bigleaf maple | 18’ | 1 | 3 | Asymmetric, stumpsprout | NO |
| | 1041 | | | | | | | |

The following trees are duplicates and not included in the above inventory.

| | | |
|---|---|---|
| 20725 | 18"M | Duplicate of 20724 |
| 20692 | 24"C | Surveyed twice, same as 20689 |
| 20750 | 20"M | Duplicate of 20751 |

# BOUNDARY & TOPOGRAPHIC SURVEY

SEE SHEET 1




Robert Londo, Orcas Moon, LLC
RE: Tree Inventory at Forbes Creek, TPN 3890100050 & 3890100055.
July 22, 2016
Page 17 of 18
Attachment No. 3 – Tree Survey Lot A

GRAPHIC SCALE

20 10 0 20 40

1" = 20'

2' CONTOUR INTERVAL

## BASIS OF BEARINGS

HELD A BEARING OF NORTH 88°37'33" WEST BETWEEN THE FOUND MONUMENTS ALONG THE CENTERLINE OF FORBES CREEK DR. (NE 106TH ST).

## DATUM

HORIZONTAL DATUM:
NAD '83/'11 GPS 2011 SMARTNET NORTH AMERICA

VERTICAL DATUM: NAVD '88 PER CITY OF KIRKLAND CONTROL POINT #33. FOUND PUNCH ON 1½" BRASS DISK IN 4"x4" CONCRETE MONUMENT IN CASE, DOWN 0.25' AT THE INTERSECTION OF 18TH AVE AND 6TH ST.

ELEVATION: 229.93'

TEMPORARY BENCHMARK:

TBM 'A'
SET CHISELED "□" AT THE WEST END OF THE CONC WALK.
ELEV = 69.45'

TBM 'B'

SET CHISELED "□" AT THE SOUTHWEST CORNER OF THE POWER VAULT.
ELEV = 72.93'

## EQUIPMENT NOTES

PRIMARY CONTROL POINTS AND ACCESSIBLE MONUMENT POSITIONS WERE FIELD MEASURED UTILIZING GLOBAL POSITIONING SYSTEM (GPS) SURVEY TECHNIQUES USING LEICA GS14 GPS/GNSS EQUIPMENT EQUIPMENT. MONUMENT POSITIONS THAT WERE NOT DIRECTLY OBSERVED USING GPS SURVEY TECHNIQUES WERE TIED INTO THE CONTROL POINTS UTILIZING LEICA ELECTRONIC 1201 TOTAL STATIONS FOR THE MEASUREMENT OF BOTH ANGLES AND DISTANCES. THIS SURVEY MEETS OR EXCEEDS THE STANDARDS SET BY WAC§ 332-130-080/090.

## SURVEY NOTES

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY MADE ON MAY 2016 AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

UNDERGROUND UTILITIES WERE LOCATED BASED ON THE SURFACE EVIDENCE OF UTILITIES (PAINT MARKS, SAW CUTS IN PAVEMENT, COVERS, LIDS, ETC.) AND AS-BUILT INFORMATION PROVIDED BY THE UTILITY PURVEYORS. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION, ELEVATION AND SIZE OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.

THIS SURVEY DISCLOSES FACTORS OF RECORD AND ON THE GROUND AFFECTING THE SUBJECT PROPERTY BOUNDARY, BUT IT DOES NOT PURPORT TO LEGALLY RESOLVE RELATED PROPERTY LINE DISPUTES. WHERE AMBIGUITIES ARE NOTED, AXIS RECOMMENDS THAT THE OWNER CONSULT WITH LEGAL COUNSEL TO DETERMINE HOW BEST TO INTERPRET THEIR PROPERTY RIGHTS AND ADDRESS ANY POTENTIAL PROPERTY LINE DISPUTES.

WETLAND DELINEATION PROVIDED BY TALASAEA CONSULTANTS, INC. AS SHOWN ON MAP DATED APRIL 21, 2016 NUMBER TAL 518.

## LEGAL DESCRIPTION

EASEMENTS AND LEGAL DESCRIPTION ARE BASED ON THE SUBDIVISION GUARANTEE BY TITLE RESOURCES GUARANTY COMPANY, FILE NO. 40167319-800-T35, DATED MARCH 29, 2016, AT 8:00 A.M.

LOTS A AND B CITY OF KIRKLAND BOUNDARY LINE ADJUSTMENT NUMBER LLA-06-00026, RECORDED AUGUST 29, 2007, UNDER AUDITOR'S NUMBER

NE 1/4, SW 1/4, SEC. 32, TWP. 26N., RGE. 5E., W.M.
CITY OF KIRKLAND, KING COUNTY, WASHINGTON

| REV# | DESCRIPTION OF REVISION | DATE | BY |
|---|---|---|---|
| #1 | | | |
| #2 | | | |
| #3 | | | |
| #4 | | | |
| #5 | | | |
| #6 | | | |
| #7 | | | |

**SURVEY**
FOR
**LOTS A & B, LLA06-0026**

ROBERT P LONDO
ORCAS MOON, LLC

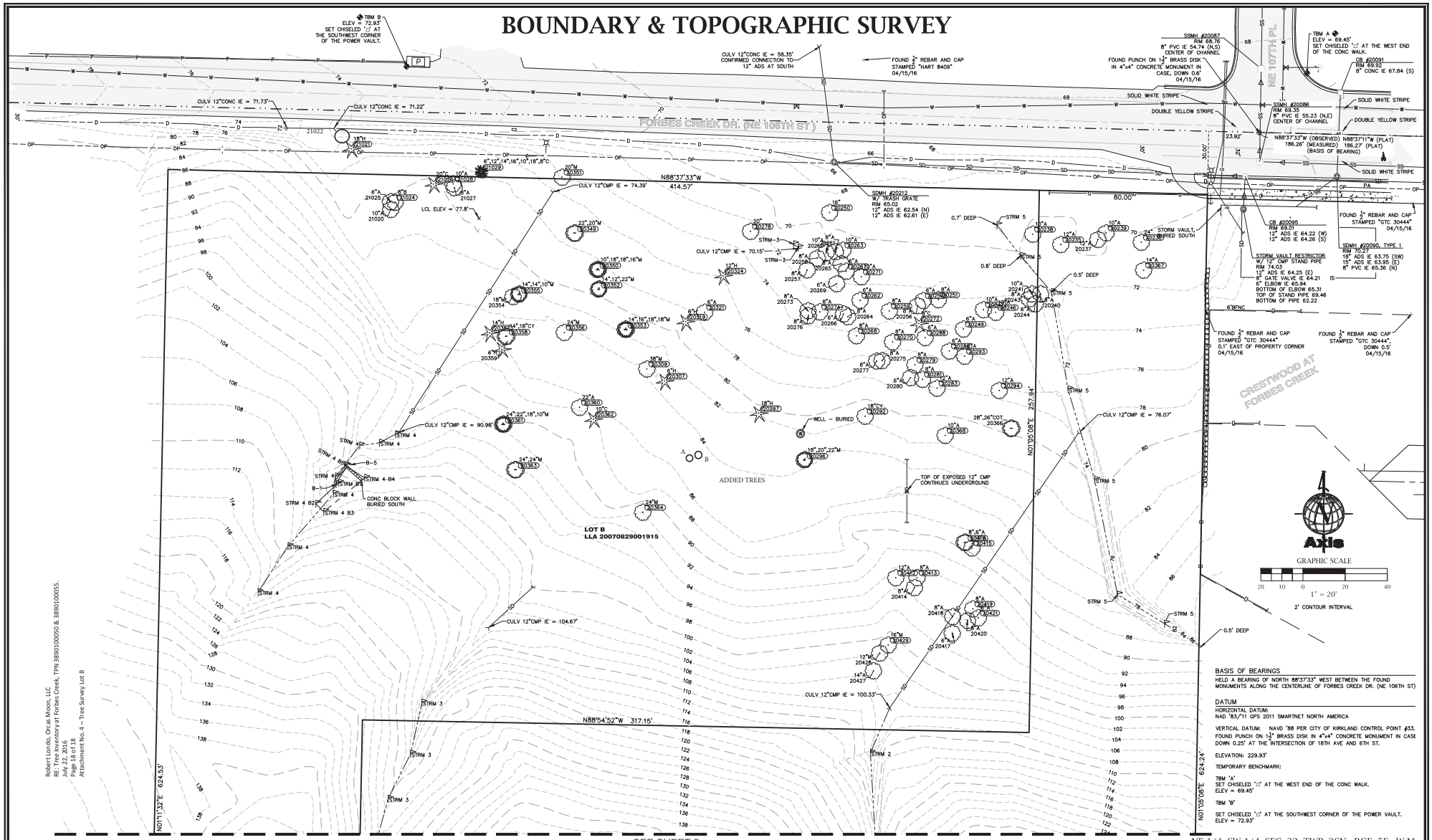
KIRKLAND, WA 98034

Axis
Land Surveying & Mapping
13241 NE 90TH ST
REDMOND, WA 98052
TEL 425.823-5700
FAX 425.823-6700

www.axismap.com

| JOB NO. | DATE |
|---|---|
| 16-067 | 05/10/16 |
| DRAWN BY | CHECKED BY |
| DMB/TJO | MTSE |
| SCALE | SHEET |
| 1" = 20' | 2 OF 2 |

# BOUNDARY & TOPOGRAPHIC SURVEY




Robert Londo, Orcas Moon, LLC
RE: Tree Inventory at Forbes Creek, TPN 3890100050 & 3890100055.
July 22, 2016
Page 18 of 18
Attachment No. 4 – Tree Survey Lot B

BASIS OF BEARINGS

HELD A BEARING OF NORTH 88°37'33" WEST BETWEEN THE FOUND MONUMENTS ALONG THE CENTERLINE OF FORBES CREEK DR. (NE 106TH ST)

DATUM

HORIZONTAL DATUM:
NAD '83/'11 GPS 2011 SMARTNET NORTH AMERICA

VERTICAL DATUM: NAVD '88 PER CITY OF KIRKLAND CONTROL POINT #33. FOUND PUNCH ON 1½" BRASS DISK IN 4"x4" CONCRETE MONUMENT IN CASE DOWN 0.25' AT THE INTERSECTION OF 18TH AVE AND 6TH ST.

ELEVATION: 229.93'

TEMPORARY BENCHMARK:

TBM 'A'
SET CHISELED '□' AT THE WEST END OF THE CONC WALK.
ELEV = 69.45'

TBM 'B'
SET CHISELED '□' AT THE SOUTHWEST CORNER OF THE POWER VAULT.
ELEV = 72.93'

NE 1/4, SW 1/4, SEC. 32, TWP. 26N., RGE. 5E., W.M.
CITY OF KIRKLAND, KING COUNTY, WASHINGTON

| REV# | DESCRIPTION OF REVISION | DATE | BY |
|---|---|---|---|
| #1 | | | |
| #2 | | | |
| #3 | | | |
| #4 | | | |
| #5 | | | |
| #6 | | | |
| #7 | | | |

SURVEY
FOR
LOTS A & B, LLA06-0026

ROBERT P LONDO
ORCAS MOON, LLC
KIRKLAND, WA 98034

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15241 NE 90TH ST
REDMOND, WA 98052
TEL 425.823-5700
FAX 425.823-6700

www.axismap.com

| JOB NO. | DATE |
|---|---|
| 16-067 | 05/10/16 |
| DRAWN BY | CHECKED BY |
| DMB/TJO | MTSE |
| SCALE | SHEET |
| 1" = 20' | 1 OF 2 |

# Greenforest Incorporated

## Consulting Arborist

TO: Robert Londo
Orcas Moon, LLC
PO Box 2710
Redmond WA 98073

REFERENCE: Arborist Report

SITE ADDRESS: Forbes Creek, TPN 3890100050 & 3890100055.

DATE: November 20, 2017

PREPARED BY: Favero Greenforest, ISA Certified Arborist # PN -0143A
ISA Tree Risk Assessment Qualified
ASCA Registered Consulting Arborist® #379

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This *arborist report* establishes the condition of the significant trees at the referenced site, and is to be used to satisfy City of Kirkland permit submittal requirements (Kirkland Zoning Code §95.30.4.c).

Last year you contracted my services to prepare a *significant tree inventory* of the regulated trees on the site as per KZC §95.30.4.a, which is incorporated into this report.

You provided me a topographic survey from Axis Survey & Mapping dated 5/10/16. I visited the site 7/19/16 and visually inspected the trees indicated on the survey, which are the subject of this report.

The site has a northern aspect with variable topography. With the exception of 2 weeping willows, the subject trees are all native species, dominated by Bigleaf maple and Red alder. I inventoried 192 surveyed significant trees, plus (I annotated the survey with) an additional 5 significant trees (numbered A-E) not included initially. Three duplicate trees are identified at the end of the inventory.

LIMITATIONS AND USE OF THIS REPORT

This tree report establishes, via the most practical means available, the existing conditions of the trees on the subject property. Ratings for health and structure, as well as any recommendations are valid only through the development and construction process. This report is based solely on what is readily visible and observable, without any invasive means.

There are several conditions that can affect a tree's condition that may be pre-existing and unable to be ascertained with a visual-only analysis. No attempt was made to determine the presence of hidden or concealed conditions which may contribute to the risk or failure potential of trees on the site. These conditions include root and stem (trunk) rot, internal cracks, structural defects or construction damage to roots, which may be hidden beneath the soil. Additionally, construction and post-construction circumstances can cause a relatively rapid deterioration of a tree's condition.

TREE INSPECTION – Tree Health, Condition and Viability

Each tree was marked with a 1" x 3.5" aluminum tag indicating tree number prior to my inspection. I visually inspected each tree from the ground and rated both tree health and structure.

A tree's structure is distinct from its health. This inspection identifies what is visible with both. Structure is the way the tree is put together or constructed, and identifying obvious defects can be helpful in determining if a tree is predisposed to failure. Tree health assesses disease, insect infestation and old age.

No invasive procedures were performed on any trees. The results of this inspection are based on what is visible at the time of the inspection.

The attached inventory summarizes my inspection results and provides the following information for each tree:

**Parcel** indicated general location of tree.

**Proposed action** identifies trees to be removed, saved, impacted and those that are non-viable.

**Tree Density Credit** (TDC) is assigned for each tree from table KZC 95.33.1 The TDC for multiple-stemmed trees is calculated using quadratic mean diameter.

**Retained TDC** tallies credits for retained trees. Native conifers are assigned 1.5 times credit.

**Tree number** as shown on tag in the field.

**DBH** Stem diameter in inches measured 4.5 feet from the ground.

**Tree Species** Common name.

**Dripline** Average branch extension from the trunk as radius in feet.

**Health and Structure rating** '1' indicates no visible health-related problems or structural defects, '2' indicates minor visible problems or defects that may require attention if the tree is retained, and '3' indicates significant visible problems or defects and tree removal is recommended.

**Visible defects** Obvious structural defects or diseases visible at time of inspection, which includes:

Asymmetric canopy– the tree has an asymmetric canopy from space and light competition from adjacent trees.
Branch dieback - mature branches in canopy are dying/dead.
Crack – separation of wood fibers and predisposed to failure.
Dead – tree is dead.
Deadwood – large and/or multiple dead branches throughout canopy.
Decay – process of wood degradation by microorganisms resulting in weak and defective structure.
Diseased – foliage and trunk/stems are diseased.
Dogleg in trunk – trunk with a bow or defective bend (90°) in trunk often half way of further up the trunk.
Double leader – the tree has multiple stem attachments, which may require maintenance or monitoring over time.
Included bark - bark inclusion at attachment of multiple leaders and is preventing a wood-to-wood attachment
Insect Injury – active insect injury affecting tree health.
Ivy - dense ivy prevents a thorough inspection, and other defects may be present.
Kretzschmaria fungus indicated internal wood decay.
Multiple leaders - the tree has multiple stem attachments, which may lead to tree failure and require maintenance or monitoring over time.
Previous failure – tree trunk previously broken and defective.
Sweep in trunk – characterized by a leaning lower trunk and a more upright top.
Thinning Canopy – low foliage density may indicate stress, or early infection/declining health.

Stumpsprout- tree previously cut at grade with multiple stems and potentially weak attachments.
Suppressed – tree crowded by larger adjacent trees; with defective structure and/or low vigor. Retain tree only as a grove tree, not stand-alone.
Sweep – tree leans away from adjacent trees. Characterized by a leaning lower trunk and a top that is more upright.
Topped – the tree is previously topped and has poor structure and/or stem decay.
Tree leans – trunk has significant lean from vertical.
Tree suppressed -tree is suppressed by adjacent tree canopies.
Trunk decay - wood decay is visible in the trunk.
Wound/decay base of trunk - open wound with visible decay in trunk.

**Viable Tree** a determination by the arborist whether the tree is viable for retention.

Non-viable trees are indicated.

REQUIRED TREE DENSITY & AVAILABLE TREE DENSITY CREDIT

Required tree density is calculated by multiplying the acreage of the lot by 30, which equals 194. (6.44 X 30 = 193.2 or 194 rounded) The required minimum tree density credit for this site = 194. The total tree density credits for retained trees is 222.5. (See attachment 3). The calculated (retained) tree density is above the required minimum and no supplemental trees are needed.

LIMITS OF DISTURBANCE

Limits of Disturbance (LOD) are calculated for all the retained *significant* and *impacted* trees. They are listed below as radii in feet from the trunk. They are determined using rootplate [1] and trunk diameter,[2,3] and ISA Best Management Practices.[4] These are the minimum distances from the trees for any soil disturbance, and represent the area to be protected during construction.

<u>These LOD also assume disturbance on multiple sides of a tree, and they are malleable, particularly where disturbance is proposed on only a single side of the tree, and may be adjusted during the construction process.</u>

[1] Coder, Kim D. 2005. *Tree Biomechanics Series*. University of Georgia School of Forest Resources.
[2] Smiley, E. Thomas, Ph. D. *Assessing the Failure Potential of Tree Roots, Shade Tree Technical Report*. Bartlett Tree Research Laboratories.
[3] Fite, Kelby and E. Thomas Smiley. 2009. *Managing Trees During construction; Part Two*. Arborist News. ISA.
[4] Companion publication to the ANSI A300 Series, Part 5: Managing Trees During Construction. 2008. ISA.

The following table establishes the limits of disturbance of each tree.

| Proposed Action | TREE NO. | DBH | Species | DL | LOD |
|---|---|---|---|---|---|
| SAVE | 20235 | 12” | Red alder | 16’ | 6’ |
| SAVE | 20240 | 8” | Red alder | 0’ | 6’ |
| SAVE | 20241 | 10” | Red alder | 14’ | 6’ |
| SAVE | 20243 | 8” | Red alder | 12’ | 5.5’ |
| SAVE | 20244 | 6” | Red alder | 0’ | 6’ |
| SAVE | 20247 | 10” | Red alder | 14’ | 6’ |
| SAVE | 20249 | 6” | Red alder | 6’ | 5’ |
| SAVE | 20251 | 8” | Red alder | 14’ | 5.5’ |
| SAVE | 20254 | 6” | Red alder | 10’ | 5’ |
| SAVE | 20256 | 8” | Red alder | 10’ | 5.5’ |
| SAVE | 20259 | 8” | Red alder | 12’ | 5.5’ |
| SAVE | 20260 | 10” | Red alder | 16’ | 6’ |
| SAVE | 20261 | 6” | Red alder | 12’ | 5’ |
| SAVE | 20262 | 6” | Red alder | 8’ | 5’ |
| SAVE | 20263 | 10” | Red alder | 16’ | 6’ |
| SAVE | 20264 | 8” | Red alder | 12’ | 5.5’ |
| SAVE | 20265 | 8” | Red alder | 14’ | 5.5’ |
| SAVE | 20266 | 6” | Red alder | 6’ | 5’ |
| SAVE | 20267 | 6” | Red alder | 8’ | 5’ |
| SAVE | 20268 | 8” | Red alder | 14’ | 5.5’ |
| SAVE | 20269 | 6” | Red alder | 8’ | 5’ |
| SAVE | 20270 | 8” | Red alder | 10’ | 5.5’ |
| SAVE | 20271 | 10” | Red alder | 14’ | 6’ |
| SAVE | 20272 | 8” | Western red-cedar | 10’ | 5.5’ |
| SAVE | 20273 | 8” | Red alder | 14’ | 5.5’ |
| SAVE | 20274 | 8” | Red alder | 12’ | 5.5’ |
| SAVE | 20275 | 8” | Red alder | 12’ | 5.5’ |
| SAVE | 20276 | 8” | Red alder | 14’ | 5.5’ |
| SAVE | 20277 | 8” | Red alder | 14’ | 5.5’ |
| SAVE | 20279 | 8” | Red alder | 10’ | 5.5’ |
| IMPACTED | 20280 | 6” | Red alder | 10’ | 6’ |
| IMPACTED | 20281 | 8” | Red alder | 12’ | 6’ |
| SAVE | 20286 | 6” | Red alder | 8’ | 5’ |
| SAVE | 20288 | 6” | Red alder | 8’ | 5’ |

| Proposed Action | TREE NO. | DBH | Species | DL | LOD |
|---|---|---|---|---|---|
| SAVE | 20349 | 22,20” | Bigleaf maple | 30’ | 13’ |
| SAVE | 20361 | 24",22",18",10” | Bigleaf maple | 30’ | 17’ |
| SAVE | 20363 | 24,24” | Bigleaf maple | 25’ | 15’ |
| SAVE | 20364 | 24” | Bigleaf maple | 30 | 12’ |
| SAVE | 20366 | 38,40” | Black cottonwood | 25’ | 18’ |
| SAVE | 20412 | 12” | Red alder | 16’ | 6’ |
| SAVE | 20413 | 8” | Red alder | 14’ | 5.5’ |
| SAVE | 20414 | 8” | Red alder | 14’ | 5.5’ |
| SAVE | 20415 | 10” | Red alder | 14’ | 6’ |
| SAVE | 20416 | 6,8” | Red alder | 14’ | 6’ |
| SAVE | 20417 | 7” | Red alder | 4’ | 5’ |
| SAVE | 20418 | 10” | Red alder | 14’ | 6’ |
| SAVE | 20419 | 8” | Red alder | 10’ | 5.5' |
| SAVE | 20420 | 8” | Red alder | 10’ | 5.5’ |
| SAVE | 20421 | 8” | Red alder | 10’ | 5.5’ |
| SAVE | 20427 | 16” | Red alder | 14’ | 8’ |
| SAVE | 20429 | 18” | Bigleaf maple | 20’ | 8’ |
| SAVE | 20460 | 6,24,30,34” | Bigleaf maple | 25’ | 20’ |
| SAVE | 20470 | 16” | Bigleaf maple | 14’ | 8’ |
| IMPACTED | 20495 | 16” | Bigleaf maple | 16’ | 8’ |
| SAVE | 20562 | 42” | Douglas-fir | 20’ | 19’ |
| IMPACTED | 20674 | 32,22,10” | Bigleaf maple | 30’ | 15’ |
| IMPACTED | 20675 | 24,18” | Bigleaf maple | 25’ | 11’ |
| SAVE | 20688 | 14” | Douglas-fir | 16’ | 7’ |
| IMPACTED | 20702 | 16” | Bigleaf maple | 14’ | 8’ |
| SAVE | 20709 | 24” | Bigleaf maple | 16’ | 12’ |
| SAVE | 20730 | 10” | Western red-cedar | 12’ | 6’ |
| IMPACTED | 20731 | 20” | Western red-cedar | 16’ | 8’ |
| SAVE | 20732 | 28,30,30,24” | Bigleaf maple | 35’ | 21’ |
| SAVE | 20733 | 8,12” | Bigleaf maple | 16’ | 8’ |
| SAVE | 20735 | 22” | Bigleaf maple | 18’ | 11’ |
| SAVE | 20793 | 6” | Pacific dogwood | 8’ | 5’ |
| SAVE | 20807 | 14” | Western red-cedar | 10’ | 7’ |
| SAVE | 20989 | 14,16” | Bigleaf maple | 14’ | 11’ |

No work is proposed within the critical root zone of a retained tree.

LOCATION AND TYPE OF PROTECTION MEASURES FOR TREES.
Minimum six (6) foot temporary chain-link fence shall be installed at the driplines of all retained trees, or at the limits of disturbance when construction or access is required or proposed within the dripline. Fence shall completely encircle the retained trees and shall be installed prior to site clearing. Install fence posts using pier block only. A City planner must approve any modifications to the fencing material and location.

No stockpiling of materials, vehicular or pedestrian traffic, material storage or use of equipment or machinery shall be allowed within the protective fencing. Fencing shall not be moved or removed unless approved by a City planner. Any work, activity or soil disturbance within the protection fencing, or critical root zone, shall be reviewed, approved and monitored by the project arborist.

Instructions and specifications for pruning roots or branches shall be addressed individually for specific trees based on the proposed encroachment.

Fencing signage as detailed (see attached) must be posted every fifteen (15) feet along the fencing.

Attachments
1. Assumptions and Limiting Conditions
2. Certification of Performance
3. Regulated Tree Inventory
4. Tree Retention Plan
5. Tree Protection Detail

Attachment No. 1 - Assumptions & Limiting Conditions

1. A field examination of the site was made 7/19/2016. My observations and conclusions are as of that date.

2. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/arborist can neither guarantee nor be responsible for the accuracy of information provided by others.

3. I am not a qualified land surveyor. Reasonable care was used to match the trees indicated on the sheets with those growing in the field.

4. Construction activities can significantly affect the condition of retained trees. All retained trees should be inspected after construction is completed, and then inspected regularly as part of routine maintenance.

5. Unless stated other wise: 1) information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of inspection; and 2) the inspection is limited to visual examination of the subject trees without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the subject tree may not arise in the future.

6. All trees possess the risk of failure. Trees can fail at any time, with or without obvious defects, and with or without applied stress. A complete evaluation of the potential for this (a) tree to fail requires excavation and examination of the base of the subject tree. Permission of the current property owner must be obtained before this work can be undertaken and the hazard evaluation completed.

7. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made.

Attachment No. 2 – Certification of Performance

I, Favero Greenforest, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately.
- I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinion, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client of any other party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of International Society of Arboriculture (ISA), and the ISA PNW Chapter, I am an ISA Certified Arborist (#PN-0143A) and am Tree Risk Assessment Qualified, and am a Registered Consulting Arborist® (#379) with American Society of Consulting Arborists. I have worked as an independent consulting arborist since 1989.

Signed:

Favero Greenforest

GREENFOREST, Inc.
By Favero Greenforest, M. S.

Date: November 20, 2017

Attachment No. 3 – Regulated Tree Inventory

| Parcel | Proposed Action | Density Credits | Retained TDC | TREE NO. | DBH | Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | SAVE | 2 | 2 | 20235 | 12 | Red alder | 16 | 1 | 2 | Decline | |
| A | OFFSITE | 0 | 0 | 20236 | 36 | Weeping willow | 35 | 2 | 2 | Diseased, ivy | |
| A | NON-VIABLE | 0 | 0 | 20237 | 12 | Red alder | 18 | 1 | 3 | Upper trunk decay | NO |
| A | NON-VIABLE | 0 | 0 | 20238 | 10 | Red alder | 12 | 1 | 3 | Trunk failure | NO |
| A | OFFSITE | 0 | 0 | 20239 | 10 | Red alder | 14 | 1 | 2 | Asymmetric canopy | |
| B | SAVE | 0 | 0 | 20240 | 8 | Red alder | 0 | 3 | 3 | Covered in vines | NO |
| B | SAVE | 1 | 1 | 20241 | 10 | Red alder | 14 | 1 | 2 | Asymmetric, vines | |
| B | SAVE | 1 | 1 | 20243 | 8 | Red alder | 12 | 1 | 2 | Asymmetric | |
| B | SAVE | 0 | 0 | 20244 | 6 | Red alder | 0 | 3 | 3 | Covered in vines | NO |
| B | NON-VIABLE | 0 | 0 | 20246 | 8 | Red alder | 6 | 1 | 3 | Adjacent tree fell into it | NO |
| B | SAVE | 1 | 1 | 20247 | 10 | Red alder | 14 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20249 | 6 | Red alder | 6 | 1 | 2 | Suppressed | |
| A | NON-VIABLE | 0 | 0 | 20250 | 16 | Weeping willow | 12 | 1 | 3 | Previous trunk failure | NO |
| B | SAVE | 1 | 1 | 20251 | 8 | Red alder | 14 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20254 | 6 | Red alder | 10 | 1 | 2 | Suppressed | |
| B | SAVE | 1 | 1 | 20256 | 8 | Red alder | 10 | 1 | 2 | Asymmetric | |
| B | NON-VIABLE | 0 | 0 | 20257 | 8 | Red alder | 14 | 1 | 3 | Asymmetric, trunk injury | NO |
| B | NON-VIABLE | 0 | 0 | 20258 | 8 | Red alder | 14 | 1 | 2 | Lean, asymmetric | |
| B | SAVE | 1 | 1 | 20259 | 8 | Red alder | 12 | 1 | 2 | Asymmetric, lean | |
| B | SAVE | 1 | 1 | 20260 | 10 | Red alder | 16 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20261 | 6 | Red alder | 12 | 1 | 2 | Suppressed | |
| B | SAVE | 1 | 1 | 20262 | 6 | Red alder | 8 | 1 | 2 | Asymmetric | |

| Parcel | Proposed Action | Density Credits | Retained TDC | TREE NO. | DBH | Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | SAVE | 1 | 1 | 20263 | 10 | Red alder | 16 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20264 | 8 | Red alder | 12 | 1 | 1 | | |
| B | SAVE | 1 | 1 | 20265 | 8 | Red alder | 14 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20266 | 6 | Red alder | 6 | 1 | 2 | Suppressed | |
| B | SAVE | 1 | 1 | 20267 | 6 | Red alder | 8 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20268 | 8 | Red alder | 14 | 1 | 2 | Lean | |
| B | SAVE | 1 | 1 | 20269 | 6 | Red alder | 8 | 1 | 2 | Suppressed | |
| B | SAVE | 1 | 1 | 20270 | 8 | Red alder | 10 | 1 | 1 | | |
| B | SAVE | 1 | 1 | 20271 | 10 | Red alder | 14 | 1 | 1 | | |
| B | SAVE | 1 | 1.5 | 20272 | 8 | Western red-cedar | 10 | 1 | 1 | | |
| B | SAVE | 1 | 1 | 20273 | 8 | Red alder | 14 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20274 | 8 | Red alder | 12 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20275 | 8 | Red alder | 12 | 1 | 2 | Lean | |
| B | SAVE | 1 | 1 | 20276 | 8 | Red alder | 14 | 1 | 2 | Suppressed | |
| B | SAVE | 1 | 1 | 20277 | 8 | Red alder | 14 | 1 | 2 | Sweep | |
| A | NON-VIABLE | 0 | 0 | 20278 | 28 | Red alder | 12 | 2 | 3 | Decline, decay | NO |
| B | SAVE | 1 | 1 | 20279 | 8 | Red alder | 10 | 1 | 1 | | |
| B | IMPACTED | 0 | 0 | 20280 | 6 | Red alder | 10 | 1 | 2 | Lean | |
| B | IMPACTED | 0 | 0 | 20281 | 8 | Red alder | 12 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20283 | 12 | Red alder | 12 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20286 | 6 | Red alder | 8 | 1 | 1 | | |
| B | SAVE | 1 | 1 | 20288 | 6 | Red alder | 8 | 2 | 1 | Stem canker | |

| Parcel | Proposed Action | Density Credits | Retained TDC | TREE NO. | DBH | Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | REMOVE | 0 | 0 | 20292 | 18 | Bitter cherry | 16 | 1 | 2 | Asymmetric | |
| B | NON-VIABLE | 0 | 0 | 20293 | 6 | Red alder | 8 | 1 | 3 | Root failure | NO |
| B | NON-VIABLE | 0 | 0 | 20294 | 12 | Red alder | 10 | 3 | 3 | Decline, vine, dying-nearly dead | NO |
| B | REMOVE | 0 | 0 | 20296 | 22,40 | Bigleaf maple | 35 | 1 | 2 | Soil heave | |
| A | NON-VIABLE | 0 | 0 | 20297 | 18 | Douglas-fir | 16 | 1 | 1 | | |
| A | OFFSITE | 0 | 0 | 20307 | 6 | Douglas-fir | 8 | 1 | 2 | Suppressed | |
| A | NON-VIABLE | 0 | 0 | 20309 | 38 | Bigleaf maple | 30 | 1 | 3 | Decay, Kretzschmaria | NO |
| A | OFFSITE | 0 | 0 | 20319 | 6 | Douglas-fir | 6 | 1 | 2 | Suppressed | |
| A | OFFSITE | 0 | 0 | 20321 | 6 | Red alder | 8 | 1 | 1 | | |
| A | OFFSITE | 0 | 0 | 20324 | 12 | Douglas-fir | 14 | 1 | 1 | | |
| B | SAVE | 11 | 11 | 20349 | 22,20 | Bigleaf maple | 30 | 1 | 2 | Double leader | |
| A | NON-VIABLE | 0 | 0 | 20350 | 10",18", 18",16 | Bigleaf maple | 20 | 2 | 3 | Decline, stumpsprout, Kretzschmaria | NO |
| A | OFFSITE | 0 | 0 | 20351 | 20 | Bigleaf maple | 20 | 1 | 1 | | |
| A | OFFSITE | 0 | 0 | 20352 | 14,12,22 | Bigleaf maple | 18 | 1 | 2 | Multiple leaders | |
| A | OFFSITE | 0 | 0 | 20353 | 14",16", 18",18 | Bigleaf maple | 25 | 2 | 2 | Decay, multiple leaders, chain embedded in trunk | |
| B | NON-VIABLE | 0 | 0 | 20354 | 18 | Bigleaf maple | 16 | 2 | 3 | Decline, trunk decay, Kretzschmaria | NO |
| B | NON-VIABLE | 0 | 0 | 20355 | 10,14,14" | Bigleaf maple | 16 | 2 | 3 | Decline, trunk decay, Kretzschmaria | NO |
| B | NON-VIABLE | 0 | 0 | 20356 | 24 | Bigleaf maple | 18 | 2 | 3 | Decline, Kretzschmaria | NO |
| B | REMOVE | 0 | 0 | 20357 | 14 | Douglas-fir | 12 | 1 | 2 | Ivy | |

| Parcel | Proposed Action | Density Credits | Retained TDC | TREE NO. | DBH | Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | NON-VIABLE | 0 | 0 | 20358 | 18 | Bitter cherry | 12 | 2 | 3 | Decline, stem failure | NO |
| B | REMOVE | 0 | 0 | 20359 | 6 | Douglas-fir | 6 | 1 | 2 | Suppressed | |
| A | REMOVE | 0 | 0 | 20360 | 22 | Red alder | 16 | 2 | 2 | Decline, double leader | |
| B | SAVE | 15 | 15 | 20361 | 24",22", 18",10 | Bigleaf maple | 30 | 1 | 2 | Multiple leaders | |
| A | REMOVE | 0 | 0 | 20362 | 10,14,14" | Western red-cedar | 12 | 1 | 1 | | |
| B | SAVE | 13 | 13 | 20363 | 24,24 | Bigleaf maple | 25 | 1 | 2 | Double leader | |
| B | SAVE | 8 | 8 | 20364 | 24 | Bigleaf maple | 30 | 1 | 1 | | |
| B | SAVE | 21 | 21 | 20366 | 38,40 | Black cottonwood | 25 | 1 | 2 | Double leader | |
| B | NON-VIABLE | 0 | 0 | 20367 | 14 | Red alder | 10 | 1 | 3 | Lean, ivy | NO |
| B | REMOVE | 0 | 0 | 20368 | 10 | Red alder | 12 | 2 | 2 | Decline, nearly dead | |
| B | SAVE | 2 | 2 | 20412 | 12 | Red alder | 16 | 1 | 1 | | |
| B | SAVE | 1 | 1 | 20413 | 8 | Red alder | 14 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20414 | 8 | Red alder | 14 | 1 | 2 | asymmetric | |
| B | SAVE | 1 | 1 | 20415 | 10 | Red alder | 14 | 1 | 1 | | |
| B | SAVE | 1 | 1 | 20416 | 6,8 | Red alder | 14 | 1 | 2 | Asymmetric, double leader, included bark | |
| B | SAVE | 1 | 1 | 20417 | 7 | Red alder | 4 | 1 | 1 | | |
| B | SAVE | 1 | 1 | 20418 | 10 | Red alder | 14 | 1 | 1 | | |
| B | SAVE | 1 | 1 | 20419 | 8 | Red alder | 10 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20420 | 8 | Red alder | 10 | 1 | 2 | Asymmetric | |
| B | SAVE | 1 | 1 | 20421 | 8 | Red alder | 10 | 1 | 2 | Asymmetric | |
| B | SAVE | 0 | 0 | 20427 | 16 | Red alder | 14 | 2 | 3 | Decline, deadwood | NO |

| Parcel | Proposed Action | Density Credits | Retained TDC | TREE NO. | DBH | Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | NON-VIABLE | 0 | 0 | 20428 | 12 | Bigleaf maple | 16 | 1 | 2 | Asymmetric | |
| B | SAVE | 5 | 5 | 20429 | 18 | Bigleaf maple | 20 | 2 | 1 | Stunted upper foliage | |
| B | REMOVE | 0 | 0 | 20447 | 18,20,24,28 | Bigleaf maple | 25 | 1 | 2 | Multiple leaders | |
| B | REMOVE | 0 | 0 | 20448 | 36,38 | Bigleaf maple | 20 | 1 | 2 | Double leader | |
| B | REMOVE | 0 | 0 | 20449 | 16 | Bigleaf maple | 18 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20450 | 52 | Black cottonwood | 25 | 1 | 2 | Asymmetric, sweep | |
| B | REMOVE | 0 | 0 | 20451 | 65 | Black cottonwood | 25 | 1 | 2 | Asymmetric, sweep | |
| B | REMOVE | 0 | 0 | 20452 | 44 | Black cottonwood | 25 | 1 | 2 | Asymmetric, sweep | |
| B | NON-VIABLE | 0 | 0 | 20453 | 10,18,20, 20,26,30 | Bigleaf maple | 30 | 1 | 3 | Previous failure, multiple leaders, stumpsprout | NO |
| B | REMOVE | 0 | 0 | 20454 | 30 | Black cottonwood | 25 | 1 | 2 | Asymmetric, sweet | |
| B | REMOVE | 0 | 0 | 20456 | 26 | Black cottonwood | 25 | 1 | 2 | Asymmetric, sweet | |
| B | SAVE | 21 | 21 | 20460 | 6,24,30,34 | Bigleaf maple | 25 | 1 | 2 | Multiple leaders | |
| B | SAVE | 4 | 4 | 20470 | 16 | Bigleaf maple | 14 | 1 | 2 | Trunk wound, deadwood | |
| B | IMPACTED | 0 | 0 | 20495 | 16 | Bigleaf maple | 16 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20528 | 16 | Bigleaf maple | 18 | 1 | 2 | Asymmetric | |
| B | REMOVE | 0 | 0 | 20530 | 8 | Douglas-fir | 6 | 1 | 2 | Suppressed | |
| B | REMOVE | 0 | 0 | 20532 | 18 | Bigleaf maple | 18 | 1 | 2 | Deadwood, asymmetric | |
| B | REMOVE | 0 | 0 | 20536 | 50 | Black cottonwood | 30 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20540 | 30 | Bigleaf maple | 20 | 1 | 2 | Asymmetric | |
| B | REMOVE | 0 | 0 | 20543 | 20 | Western red-cedar | 14 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20544 | 54 | Black cottonwood | 20 | 1 | 2 | Sweep in trunk | |
| B | NON-VIABLE | 0 | 0 | 20545 | 18,16,16 | Bigleaf maple | 20 | 2 | 3 | Stunted, trunk failure, | NO |

| Parcel | Proposed Action | Density Credits | Retained TDC | TREE NO. | DBH | Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | stumpsprout | |
| B | REMOVE | 0 | 0 | 20546 | 6 | Western red-cedar | 8 | 1 | 2 | Suppressed | |
| B | REMOVE | 0 | 0 | 20547 | 28 | Bigleaf maple | 25 | 1 | 2 | Branch failure, asymmetric | |
| B | REMOVE | 0 | 0 | 20548 | 14 | Western red-cedar | 12 | 1 | 2 | Suppressed | |
| B | REMOVE | 0 | 0 | 20549 | 12 | Western red-cedar | 14 | 1 | 2 | Suppressed | |
| B | REMOVE | 0 | 0 | 20550 | 24 | Bigleaf maple | 18 | 1 | 2 | Asymmetric | |
| B | REMOVE | 0 | 0 | 20551 | 18 | Bigleaf maple | 16 | 1 | 2 | Seam in trunk | |
| B | SAVE | 17 | 25.5 | 20562 | 42 | Douglas-fir | 20 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20666 | 40 | Bigleaf maple | 25 | 1 | 2 | Spiral cracks in trunk | |
| B | REMOVE | 0 | 0 | 20667 | 16 | Western hemlock | 16 | 1 | 1 | | |
| B | NON-VIABLE | 0 | 0 | 20668 | 8 | Bigleaf maple | 14 | 1 | 3 | Asymmetric, suppressed | NO |
| B | IMPACTED | 0 | 0 | 20674 | 32,22,10 | Bigleaf maple | 30 | 1 | 2 | Multiple leaders | |
| B | IMPACTED | 0 | 0 | 20675 | 24,18 | Bigleaf maple | 25 | 2 | 2 | Stunted foliage, stump sprout | |
| B | REMOVE | 0 | 0 | 20678 | 2-20",18", 2-12",10", 26",34",16 | Bigleaf maple | 25 | 2 | 2 | Stunted foliage, multiple leader, deadwood | |
| B | REMOVE | 0 | 0 | 20679 | 10 | Douglas-fir | 12 | 1 | 2 | Suppressed | |
| B | REMOVE | 0 | 0 | 20682 | 24 | Douglas-fir | 18 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20683 | 22 | Bigleaf maple | 18 | 1 | 2 | Asymmetric | |
| B | REMOVE | 0 | 0 | 20684 | 24 | Western red-cedar | 18 | 1 | 2 | Double leader | |
| B | SAVE | 3 | 4.5 | 20688 | 14 | Douglas-fir | 16 | 1 | 2 | Dogleg, double leader | |
| B | REMOVE | 0 | 0 | 20689 | 26 | Western red-cedar | 16 | 1 | 1 | | |

| Parcel | Proposed Action | Density Credits | Retained TDC | TREE NO. | DBH | Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | REMOVE | 0 | 0 | 20690 | 18 | Western red-cedar | 16 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20691 | 8 | Western red-cedar | 8 | 1 | 2 | Asymmetric | |
| B | NON-VIABLE | 0 | 0 | 20693 | 10 | Red alder | 14 | 1 | 3 | Lean | NO |
| B | REMOVE | 0 | 0 | 20694 | 18 | Western red-cedar | 12 | 1 | 2 | Sweep in trunk | |
| B | REMOVE | 0 | 0 | 20695 | 16 | Western hemlock | 14 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20696 | 14 | Western red-cedar | 12 | 1 | 1 | | |
| B | NON-VIABLE | 0 | 0 | 20697 | 16 | Red alder | 12 | 1 | 3 | Top of tree is dead | NO |
| B | REMOVE | 0 | 0 | 20699 | 34 | Bigleaf maple | 25 | 1 | 2 | Asymmetric | |
| B | REMOVE | 0 | 0 | 20700 | 20 | Western red-cedar | 14 | 1 | 1 | | |
| B | IMPACTED | 0 | 0 | 20702 | 16 | Bigleaf maple | 14 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20703 | 8 | Western hemlock | 10 | 1 | 2 | Suppressed | |
| B | REMOVE | 0 | 0 | 20704 | 18 | Bigleaf maple | 18 | 1 | 2 | Deadwood | |
| B | SAVE | 8 | 8 | 20709 | 24 | Bigleaf maple | 16 | 1 | 1 | | |
| B | NON-VIABLE | 0 | 0 | 20714 | 14 | Bigleaf maple | 16 | 1 | 3 | Asymmetric, trunk decay | NO |
| B | REMOVE | 0 | 0 | 20715 | 16 | Bigleaf maple | 16 | 1 | 2 | Asymmetric | |
| B | REMOVE | 0 | 0 | 20716 | 28 | Bigleaf maple | 20 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20717 | 12 | Western hemlock | 14 | 1 | 2 | Suppressed | |
| B | REMOVE | 0 | 0 | 20718 | 20 | Bigleaf maple | 18 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20719 | 22 | Bigleaf maple | 18 | 1 | 2 | Asymmetric | |
| B | REMOVE | 0 | 0 | 20720 | 6 | Douglas-fir | 8 | 1 | 2 | Suppressed | |
| B | NON-VIABLE | 0 | 0 | 20721 | 20 | Bigleaf maple | 18 | 1 | 3 | Trunk decay | NO |
| B | REMOVE | 0 | 0 | 20722 | 24 | Bigleaf maple | 20 | 1 | 2 | Asymmetric | |

| Parcel | Proposed Action | Density Credits | Retained TDC | TREE NO. | DBH | Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | REMOVE | 0 | 0 | 20724 | 18,24 | Bigleaf maple | 20 | 1 | 3 | Stumpsprout | NO |
| B | NON-VIABLE | 0 | 0 | 20726 | 16 | Bigleaf maple | 18 | 1 | 3 | Dog leg, stumpsprout | NO |
| B | NON-VIABLE | 0 | 0 | 20727 | 12 | Bigleaf maple | 16 | 1 | 3 | Asymmetric, lean | NO |
| B | SAVE | 1 | 1.5 | 20730 | 10 | Western red-cedar | 12 | 1 | 1 | | |
| B | IMPACTED | 0 | 0 | 20731 | 20 | Western red-cedar | 16 | 1 | 1 | | |
| B | SAVE | 21 | 21 | 20732 | 28,30,30,24 | Bigleaf maple | 35 | 1 | 2 | Deadwood, failure, stumpsprout | |
| B | SAVE | 3 | 3 | 20733 | 8,12 | Bigleaf maple | 16 | 1 | 2 | Asymmetric, stumpsprout | |
| B | NON-VIABLE | 0 | 0 | 20734 | 32,26 | Bigleaf maple | 25 | 1 | 3 | Trunk decay, stumpsprout, Kretzschmaria | NO |
| B | SAVE | 7 | 7 | 20735 | 22 | Bigleaf maple | 18 | 1 | 2 | Deadwood, asymmetric | |
| B | REMOVE | 0 | 0 | 20736 | 16 | Bigleaf maple | 18 | 1 | 2 | Asymmetric, stumpsprout | |
| B | NON-VIABLE | 0 | 0 | 20737 | 16 | Bigleaf maple | 16 | 1 | 3 | Leaning in adjacent tree | NO |
| B | REMOVE | 0 | 0 | 20738 | 6,14 | Bigleaf maple | 18 | 1 | 2 | Stump sprout | |
| B | NON-VIABLE | 0 | 0 | 20739 | 20 | Bigleaf maple | 20 | 1 | 3 | Stump sprout | NO |
| B | NON-VIABLE | 0 | 0 | 20740 | 18 | Bigleaf maple | 16 | 1 | 3 | Dog leg, branch failure, stumpsprout | NO |
| B | REMOVE | 0 | 0 | 20741 | 18 | Western red-cedar | 16 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20742 | 22 | Western red-cedar | 16 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | 20743 | 16 | Western red-cedar | 14 | 1 | 2 | Growing against maple | |
| B | REMOVE | 0 | 0 | 20744 | 16 | Bigleaf maple | 16 | 1 | 2 | Previous branch failure, sweep in trunk | |
| B | REMOVE | 0 | 0 | 20748 | 14 | Bigleaf maple | 16 | 1 | 2 | Asymmetric | |

| Parcel | Proposed Action | Density Credits | Retained TDC | TREE NO. | DBH | Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | NON-VIABLE | 0 | 0 | 20749 | 6 | Bigleaf maple | 12 | 1 | 3 | Dog leg, trunk injury, stumpsprout | NO |
| B | NON-VIABLE | 0 | 0 | 20751 | 6,6,8,18,24 | Bigleaf maple | 25 | 2 | 3 | Decline, decay, stumpsprout | NO |
| B | REMOVE | 0 | 0 | 20780 | 16 | Bigleaf maple | 18 | 1 | 2 | Dog leg in trunk | |
| B | SAVE | 1 | 1 | 20793 | 6 | Pacific dogwood | 8 | 1 | 2 | deadwood | |
| B | SAVE | 3 | 4.5 | 20807 | 14 | Western red-cedar | 10 | 1 | 2 | Sweep in trunk | |
| B | NON-VIABLE | 0 | 0 | 20862 | 12 | Red alder | 8 | 2 | 3 | Decline | NO |
| B | REMOVE | 0 | 0 | 20864 | 16 | Red alder | 14 | 1 | 1 | | |
| B | NON-VIABLE | 0 | 0 | 20870 | 8,12,18 | Bigleaf maple | 18 | 1 | 3 | Asymmetric, stumpsprout | NO |
| B | REMOVE | 0 | 0 | 20934 | 6 | Red alder | 8 | 1 | 1 | | |
| B | NON-VIABLE | 0 | 0 | 20978 | 12,14 | Red alder | 12 | 2 | 3 | Top failure | NO |
| B | NON-VIABLE | 0 | 0 | 20979 | 10 | Red alder | 8 | 2 | 3 | Top of tree is dead | NO |
| B | REMOVE | 0 | 0 | 20982 | 22,26 | Bigleaf maple | 18 | 1 | 2 | Trunk decay | |
| B | SAVE | 6 | 6 | 20989 | 14,16 | Bigleaf maple | 14 | 1 | 2 | dogleg, asymmetric | |
| B | NON-VIABLE | 0 | 0 | 20990 | 18 | Scouler's willow | 14 | 1 | 3 | leaning trunk | NO |
| A | NON-VIABLE | 0 | 0 | 21020 | 10 | Red alder | 14 | 1 | 3 | Trunk wound/decay | NO |
| A | OFFSITE | 0 | 0 | 21021 | 18 | Douglas-fir | 16 | 1 | 2 | Topped for power lines | |
| B | REMOVE | 0 | 0 | 21022 | 16 | Douglas-fir | 16 | 1 | 2 | Topped for power lines | |
| A | NON-VIABLE | 0 | 0 | 21024 | 7 | Red alder | 8 | 2 | 3 | Decline, decay | NO |
| A | NON-VIABLE | 0 | 0 | 21025 | 7 | Red alder | 8 | 2 | 3 | Decline, decay | NO |
| A | OFFSITE | 0 | 0 | 21026 | 20 | Western red-cedar | 14 | 1 | 1 | | |
| A | OFFSITE | 0 | 0 | 21027 | 7 | Red alder | 10 | 2 | 2 | Decline, decay | |

| Parcel | Proposed Action | Density Credits | Retained TDC | TREE NO. | DBH | Species | Dripline | Health | Structure | Visible Defects | Viable Tree? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | OFFSITE | 0 | 0 | 21028 | 10 | Red alder | 10 | 1 | 1 | | |
| A | OFFSITE | 0 | 0 | 21029 | 6",12",14",16", 10",18",8" | Western red-cedar | 16 | 1 | 2 | Stump sprout | |
| B | NON-VIABLE | 0 | 0 | 22119 | 14 | Western hemlock | 10 | 1 | 3 | Branch decline, spiral cracks in trunk | NO |
| B | REMOVE | 0 | 0 | 22120 | 18 | Western red-cedar | 14 | 1 | 2 | Asymmetric | |
| B | REMOVE | 0 | 0 | 22121 | 18 | Western red-cedar | 14 | 1 | 2 | Asymmetric | |
| B | REMOVE | 0 | 0 | A | 8 | Douglas-fir | 6 | 1 | 1 | | |
| B | REMOVE | 0 | 0 | B | 8 | Western red-cedar | 6 | 1 | 2 | Sweep | |
| B | NON-VIABLE | 0 | 0 | C | 24 | Bigleaf maple | 16 | 1 | 3 | Trunk decay | NO |
| B | REMOVE | 0 | 0 | D | 48 | Black cottonwood | 25 | 1 | 1 | | |
| B | NON-VIABLE | 0 | 0 | E | 16 | Bigleaf maple | 18 | 1 | 3 | Asymmetric, stumpsprout | NO |
| **Tree Credits** | | 210 | 222.5 | Retained TDC of 222.5 includes 1.5x for retained native conifers.<br>DBH – trunk diameter in inches 4.5' from grade.<br>Dripline as radius in feet from the trunk. | | | | | | | |

Robert Londo, Orcas Moon, LLC
RE: Tree Inventory at Forbes Creek, TPN 3890100050 & 3890100055.
November 20, 2017
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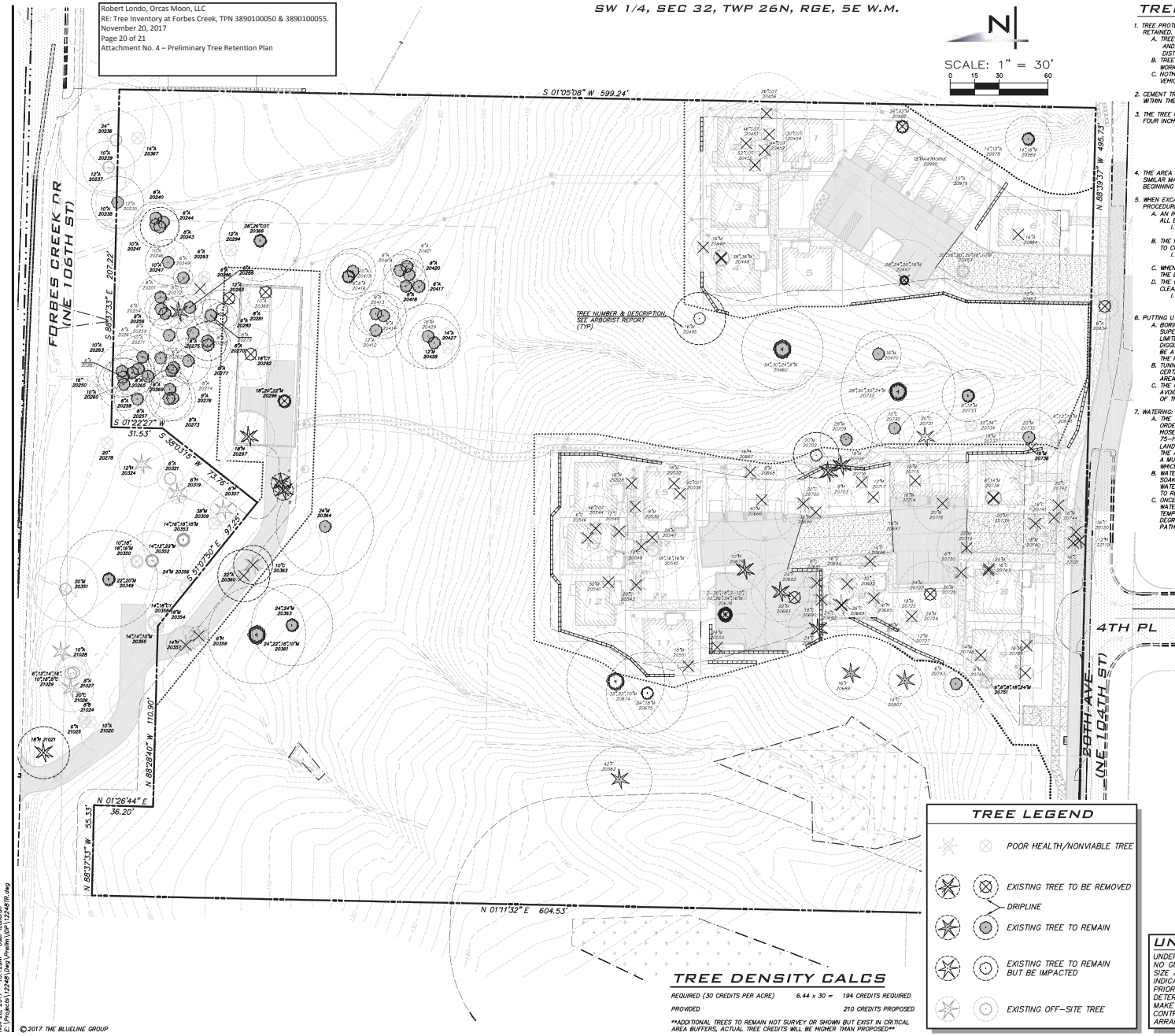
Attachment No. 4 – Preliminary Tree Retention Plan

SW 1/4, SEC 32, TWP 26N, RGE, 5E W.M.

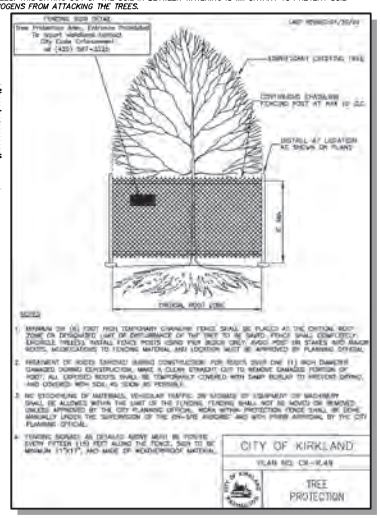



## TREE PROTECTION MEASURES

1. TREE PROTECTION FENCES WILL NEED TO BE PLACED AROUND EACH TREE OR GROUP OF TREES TO BE RETAINED.
   A. TREE PROTECTION FENCES ARE TO BE PLACED ACCORDING TO CITY STANDARD PLAN NO. CK-R.49 AND AS NOTED IN THE TREE INVENTORY/CONDITIONS SPREADSHEET, COLUMN 6 – LIMITS OF DISTURBANCE (SEE ARBORIST REPORT DATED 6/14/22).
   B. TREE PROTECTION FENCES MUST BE INSPECTED PRIOR TO THE BEGINNING OF ANY CONSTRUCTION WORK/ACTIVITIES.
   C. NOTHING MUST BE PARKED OR STORED WITHIN THE TREE PROTECTION FENCES--NO EQUIPMENT, VEHICLES, SOIL, DEBRIS, OR CONSTRUCTION SUPPLIES OF ANY SORTS.
2. CEMENT TRUCKS MUST NOT BE ALLOWED TO DEPOSIT WASTE OR WASH OUT MATERIALS FROM THEIR TRUCKS WITHIN THE TREE PROTECTION FENCES.
3. THE TREE PROTECTION FENCES NEED TO BE CLEARLY MARKED WITH THE FOLLOWING OR SIMILAR TEXT IN FOUR INCH OR LARGER LETTERS:

   TREE PROTECTION AREA, ENTRANCE PROHIBITED
   TO REPORT VIOLATIONS CONTACT
   CITY CODE ENFORCEMENT AT
   425-587-3225

4. THE AREA WITHIN THE TREE PROTECTION FENCING MUST BE COVERED WITH WOOD CHIPS, HOG FUEL, OR SIMILAR MATERIALS TO A DEPTH OF 8 TO 10 INCHES. THE MATERIALS SHOULD BE PLACED PRIOR TO BEGINNING CONSTRUCTION AND REMAIN UNTIL THE TREE PROTECTION FENCING IS TAKEN DOWN.
5. WHEN EXCAVATION OCCURS NEAR TREES THAT ARE SCHEDULED FOR RETENTION, THE FOLLOWING PROCEDURE MUST BE FOLLOWED TO PROTECT THE LONG TERM SURVIVABILITY OF THE TREE:
   A. AN INTERNATIONAL SOCIETY OF ARBORICULTURE, (ISA) CERTIFIED ARBORIST MUST BE WORKING WITH ALL EQUIPMENT OPERATOR.
      i. THE CERTIFIED ARBORIST SHOULD BE OUTFITTED WITH A SHOVEL, HAND PRUNERS, A PAIR OF LOPPERS, A HANDSAW, AND A POWER SAW (A "SAWSALL" IS RECOMMENDED).
   B. THE HOE MUST BE PLACED TO "COMB" THE MATERIAL DIRECTLY AWAY FROM THE TRUNK AS OPPOSED TO CUTTING ACROSS THE ROOTS.
      i. COMBING IS THE GRADUAL EXCAVATION OF THE GROUND COVER PLANTS AND SOIL IN DEPTHS THAT ONLY EXTEND AS DEEP AS THE TINES OF THE HOE.
   C. WHEN ANY ROOTS OF ONE INCH DIAMETER OR GREATER, OF THE TREE TO BE RETAINED, IS STRUCK BY THE EQUIPMENT, THE CERTIFIED ARBORIST SHOULD STOP THE EQUIPMENT OPERATOR.
   D. THE CERTIFIED ARBORIST SHOULD THEN EXCAVATE AROUND THE TREE ROOT BY HAND/SHOVEL AND CLEANLY CUT THE TREE ROOT.
      i. THE CERTIFIED ARBORIST SHOULD THEN INSTRUCT THE EQUIPMENT OPERATOR TO CONTINUE.
6. PUTTING UTILITIES UNDER THE ROOT ZONE:
   A. BORING UNDER THE ROOT SYSTEMS OF TREES (AND OTHER VEGETATION) SHALL BE DONE UNDER THE SUPERVISION OF AN ISA CERTIFIED ARBORIST. THIS IS TO BE ACCOMPLISHED BY EXCAVATING A LIMITED TRENCH OR PIT ON EACH SIDE OF THE CRITICAL ROOT ZONE OF THE TREE AND THEN HAND DIGGING OR PUSHING THE PIPE THROUGH THE SOIL UNDER THE TREE. THE CLOSEST PIT WALLS SHALL BE A MINIMUM OF 7 FEET FROM THE CENTER OF THE TREE AND SHALL BE SUFFICIENT DEPTH TO LAY THE PIPE AT THE GRADE AS SHOWN ON THE PLAN AND PROFILE.
   B. TUNNELING UNDER THE ROOTS OF TREES SHALL BE DONE UNDER THE SUPERVISION OF AN ISA CERTIFIED ARBORIST IN AN OPEN TRENCH BY CAREFULLY EXCAVATING AND HAND DIGGING AROUND AREAS WHERE LARGE ROOTS ARE EXPOSED. NO ROOTS 1 INCH IN DIAMETER OR LARGER SHALL BE CUT.
   C. THE CONTRACTOR SHALL VERIFY THE VERTICAL AND HORIZONTAL LOCATION OF EXISTING UTILITIES TO AVOID CONFLICTS AND MAINTAIN MINIMUM CLEARANCES. ADJUSTMENT SHALL BE MADE TO THE GRADE OF THE NEW UTILITY AS REQUIRED.
7. WATERING:
   A. THE TREES WILL REQUIRE SIGNIFICANT WATERING THROUGHOUT THE SUMMER AND EARLY FALL IN ORDER TO SURVIVE LONG-TERM. AN EASY AND ECONOMICAL WATERING CAN BE DONE USING SOAKER HOSES PLACED THREE FEET FROM THE TRUNK OF THE TREE AND SPIRALED AROUND THE TREE. ONE 75-FOOT SOAKER HOSE PER TREE IS ADEQUATE. IT IS BEST TO PLACE THE SOAKERS USING LANDSCAPE STAPLES, (AVAILABLE FROM HD FOWLER IN BELLEVUE FOR PENNIES APIECE) THEN COVER THE AREA WITH TWO TO THREE INCHES COMPOSTED MATERIALS. THE COMPOSTED MATERIAL WILL ACT AS A MULCH TO MINIMIZE EVAPORATION AND WILL ALSO STIMULATE THE MICROBIAL ACTIVITY OF THE SOIL WHICH IS ANOTHER BENEFIT TO THE HEALTH OF THE TREE.
   B. WATER THE TREE TO A DEPTH OF 18 TO 20 INCHES. I RECOMMENDED LEAVING THE WATER ON THE SOAKER HOSES FOR SIX TO EIGHT HOURS AND THEN DIGGING DOWN TO DETERMINE HOW DEEP YOUR WATER IS PENETRATING. THEN ADJUST ACCORDINGLY. IT MAY TAKE A GOOD TWO DAYS OF WATERING TO REACH THE PROPER DEPTH.
   C. ONCE THE WATER REACHES THE PROPER DEPTH, TURN OFF THE HOSES FOR FOUR WEEKS AND THEN WATER AGAIN. WATER MORE OFTEN WHEN TEMPERATURES INCREASE--EVERY THREE WEEKS WHEN TEMPERATURES EXCEED 80 DEGREES AND EVERY TWO WEEKS WHEN TEMPERATURES EXCEED 90 DEGREES. THIS DRYING OUT OF THE SOIL IN BETWEEN WATERING IS IMPORTANT TO PREVENT SOIL PATHOGENS FROM ATTACKING THE TREES.




## TREE LEGEND

- POOR HEALTH/NONVIABLE TREE
- EXISTING TREE TO BE REMOVED
- DRIPLINE
- EXISTING TREE TO REMAIN
- EXISTING TREE TO REMAIN BUT BE IMPACTED
- EXISTING OFF-SITE TREE

## TREE DENSITY CALCS

| | | |
|---|---|---|
| REQUIRED (30 CREDITS PER ACRE) | 6.44 x 30 = | 194 CREDITS REQUIRED |
| PROVIDED | | 210 CREDITS PROPOSED |

**ADDITIONAL TREES TO REMAIN NOT SURVEY OR SHOWN BUT EXIST IN CRITICAL AREA BUFFERS, ACTUAL TREE CREDITS WILL BE HIGHER THAN PROPOSED**

## UNDERGROUND UTILITY NOTE

UNDERGROUND UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (WASHINGTON811.COM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.

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SCALE: AS NOTED
PROJECT MANAGER: TODD A. OBERG, PE
PROJECT ENGINEER: TODD A. OBERG, PE
DESIGNER: SAM TURMAN
ISSUE DATE: 11/20/2017

| NO | DATE | BY | REVISIONS |
|---|---|---|---|

PRELIMINARY TREE RETENTION PLAN & DETAILS
ORCAS MOON COTTAGES
PRELIMINARY PLAT / IDP
PARCEL #3890100050
CITY OF KIRKLAND WASHINGTON

JOB NUMBER: 12-248
SHEET NAME: TR-01
SHT 5 OF 10

22x34
Nov 20, 2017 - 10:12am -- User: tsullivan
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Attachment No. 5 – Tree Protection Detail