Gilles Consulting
Brian K. Gilles
425-822-4994

ABRORICULTURAL ANALYSIS AND REPORT AT THE ELLSWORTH PROJECT SITE At South of 100th Avenue NE at 134th Avenue NE Redmond, WA 98052

November 23, 2011

PREPARED FOR:

Thomas A. Ellsworth
26007 NE 27th Drive
Redmond, WA 98053

PREPARED BY:

GILLES CONSULTING
Brian K. Gilles, Consulting Arborist
ISA Certified Arborist # PN-0260A
ASCA Registered Consulting Arborist # RCA-418
PNW-ISA Certified Tree Risk Assessor #148

fax: 425-822-6314
email: bkgilles@comcast.net
P.O. Box 2366 Kirkland, WA 98083

CONTENTS

EXECUTIVE SUMMARY

A total of 105 trees were evaluated. Their size and condition can be summarized as follows:

Tree Location Summary	
55	Subject Property
21	Morrow Property
23	Church Property
6	Off Property West
105	**Total # of Trees Evaluated**

Morrow & Ellsworth Property Trees	
# of Trees	**STATUS**
26	Non-Significant
43	Significant
10	Landmark
79	**Total Trees on Project**

Tree Condition Summary	
1	Dead
0	Dying
25	Poor
30	Fair
19	Good
2	Very Good
2	Excellent
79	**Total Morrow & Ellsworth Property Trees**

ASSIGNMENT

Thomas A. Ellsworth contracted with Gilles Consulting to evaluate the trees on three parcels of property accessed off NE 100th Street at 134th Avenue. The largest parcel that borders NE 100th Street is from now on called the Ellsworth Property in this report. The center parcel is referred to as the Morrow Property in this report. And the southernmost property is referred to as the Church Property. As I understand it, the proposed project includes the Ellsworth and Morrow properties. The properties are being considered for development and the City of Redmond requires an extensive analysis of the trees as part of the permit process. This report provides the analysis. The information in this report can be utilized to create a Tree Retention & Protection Plan as required by Redmond Code.

METHODOLOGY

To evaluate the trees and to prepare the report, I drew upon my 30+ years of experience in the field of arboriculture and my formal education in natural resources management, dendrology, forest ecology, plant identification, and plant physiology. I also followed the protocol of the International Society of Arboriculture (ISA) for Visual Assessment (VA) that includes looking at the overall health of the trees as well as the site conditions. This

is a scientifically based process to look at the entire site, surrounding land and soil, as well as a complete look at the trees themselves.

In examining each tree, I looked at such factors as: size, vigor, canopy and foliage condition, density of needles, injury, insect activity, root damage and root collar health, crown health, evidence of disease-causing bacteria, fungi or virus, dead wood and hanging limbs.

Tree Tags

The trees were tagged and numbered 1486 through 1590. The tags are made of shiny aluminum approximately one inch by three inches in size and are attached to the tree with staples and a one foot strip of brightly colored survey tape. The tags were placed as high as possible to minimize their removal and were generally placed on the backsides of the trees as inconspicuously as possible. Please refer to *Attachment 1, Site Plan* for an orientation to the site and the approximate location of the trees.

Missing Trees

There were a few trees that were not included on the survey. They were labeled with the next number in the sequence and then their approximate location was indicated on the included site plan. These trees may need to be surveyed to determine their exact location in relation to the proposed site improvements and their retainability.

OBSERVATIONS

The Ellsworth property is roughly a rectangle that is 180 feet wide east to west and 301 feet long north to south that borders NE 100th Street on the south side of the NE 100th Street right-of-way. The Morrow property is a rectangular piece of property that borders the southern edge of the Ellsworth property and the northern edge of the Church property. It is approximately 180 feet wide east to west and 65 feet long north to south. The Church property is approximately 180 feet wide east to west and approximately 90 feet long north to south.

This means that the combined project site of the Morrow & Ellsworth properties is approximately 180 feet wide and 366 feet deep. Of the 105 total number of trees I evaluated, 79 are on the Morrow and Ellsworth properties.

There is a sanitary sewer man-hole just south of the south property line of the Church property. The current proposal is to run a sewer line north from this manhole through the trees of the Church property connecting the Ellsworth and Morrow properties near the southeast corner of the Morrow property.

The Ellsworth property is currently undeveloped with a scattering of trees and open grass and weed species. The Morrow property appears to be an old pasture that has not been

maintained and has a scattering of native trees. The Church property has been developed into a series of demonstration gardens and soft surface pathways lacing through the large shrubs and trees.

Tree Data

In an effort to present the information and conclusions for each tree in a manner that is clear and easy to understand, as well as to save paper, I have included a detailed spreadsheet, *Attachment 2, Tree Inventory/Condition Spreadsheet*. All the same information from the ISA Tree Hazard Form is included in this spreadsheet and the attached glossary. The descriptions on the spreadsheet were left brief in order to include as much pertinent information as possible and to make the report manageable. The attached glossary provides a detailed description of the terms used in the spreadsheet and in this report. It can be found in *Attachment 3, Glossary*. A brief review of these terms and descriptions will enable the reader to rapidly move through the spreadsheet and better understand the information.

Testing

The trees all presented signs and/or symptoms that were readily discernable using the visual tree evaluation system. These signs and/or symptoms indicate extensive internal decay and/or structural defects. Therefore, no additional tests were performed during this site visit.

DISCUSSION AND RECOMMENDATIONS

Right-of-Way Trees

There are no right-of-way trees that will be impacted by this project.

Trees on Adjacent Properties

- Trees east of the project site:
    - Beginning near NE 100th Street, the eastern edge of the property has a significant ravine with many trees. Some of these trees have canopies that overhang the subject property.
    - The current proposal is that the eastern portion of the property will be set aside in Tract C as a Native Growth Protection Easement, (NGPE).
        - Since this portion of the property will be included as the NGPE and no construction will take place on this portion of the property, I made an express decision not to evaluate and document each and every tree since they will not be impacted by construction.

- There are 10 trees south and east of the project site with canopies that overhang the project site property.

- The connection of the sanitary sewer from the property south of the Church property to the Morrow property will have minimal impact those trees. They are #ôs 1491 through 1500.
- This impact can easily be managed to minimize damage to the trees by the *Tree Protection Measures* included in Attachment 4 below.

- There are 3 trees west of the project site:
  - There are several trees on the properties west of the Ellsworth and Morrow Properties with canopies that overhang these properties.
    - They are #ôs 1585 through 1587.
    - The impact of development on these trees can be adequately managed by the *Tree Protection Measures* included in Attachment 4 below.

- There are 23 trees on the Church property that may possibly be impacted by the proposed development. They fall into two areas, those trees near the sanitary sewer extension located in the southwest corner of the Church property; and trees along the northern property line of the Church.
  - The Extension of the Sanitary Sewer:
    - The current proposal is to extend the sewer line from the existing sanitary sewer man-hole south of the Church property between trees # 1446 & 1448, extend the line between trees # 1489 & 1490, and then towards the stump west of # 1494 and west of # 1501.
    - This work can be accomplished with a minimal amount of damage to the adjacent trees if the procedures in *Attachment 4, Tree Protection Measures, Section 5* are followed. Specifically, a qualified arborist should be on site to help control the excavation and to prune the small roots and to determine which roots should be tunneled underneath.
  - The Construction of Houses Next to the Church Property:
    - Proposed lots 6 & 7 are at the south end of the Morrow property adjacent to the Church property.
    - The development of new single family homes here will impact trees 1503 through 1517 on the Church property.
    - Many of these trees are native conifer trees with an advanced case of pathogenic root rot. They are already vulnerable to windthrow as a result of the root rot. The construction activities adjacent to these trees will accelerate their potential for failure.
    - The excavation for house foundations on proposed lots 6 & 7 will be at least 10 feet from the bases of the closest trees. Normally a healthy Douglas Fir or Western Hemlock could tolerate this level of root loss with proper excavation and root pruning techniques. However, since these trees are already vulnerable to windthrow, I

strongly recommend talking with the Church to have these trees removed or reduced for safety.

- I recommend leaving the lower branches in tact, and reducing the trees by approximately 40% and leaving the lower portions for wildlife habitat and aesthetic benefits. Reduced to this level, the trees could stand for several more decades.

Trees on the Combined Project Property

There are 79 trees on the Morrow and Ellsworth properties. They have been evaluated and documented as follows:

- Current Health Ratings:
  - Dead: 1
  - Dying: 0
  - Poor: 25
  - Fair: 30
  - Good: 16
  - Very Good: 2
  - Excellent: 2
    - Total: 79

- Status:
  - Non-significant: 26
  - Significant: 43
  - Landmark: 10
    - Total: 79

Required Tree Retention

The City of Redmond requires that 35% of the *Significant Trees* and 100% of the *Landmark Trees* be retained and protected on the site during development and construction.

Retention, of course, needs to take into account the location of the trees and the location of the proposed improvements. However, I strongly advocate retaining as many additional trees as possible over the minimum required if development allows. This affords significant flexibility during construction when unforeseen circumstances and events require the removal of trees that were at first planned for retention. If there is a bank of extra *Significant Trees* somewhere else on the property they can be switched out with one or more trees that may need to be removed unexpectedly.

Four of the nine *Landmark* Trees are near the top of the ravine in the northeast corner of the Ellsworth property. They are #ôs 1553, 1554, 1555, & 1556. They appear to be in the NGPE and will not be affected by construction. One *Landmark Tree,* # 1574, is located

near the southeast corner of the Ellsworth property. It appears to be include in the NGPE and will not be impacted by the proposed construction.

Five of the nine *Landmark Trees* are in the northwest corner of the Ellsworth property growing in a cluster of 7 evergreen trees. They appear to be in the southern portion of proposed lot # 1 or the northern portion of proposed lot 2. The City of Redmond has a code requirement to stay 5 feet outside the driplines of these trees. The 5 *Landmark Trees* are all healthy with driplines that range from 18 feet to 23 feet. This means that all construction activities must be 23 to 28 feet from the trunks of the trees.
In the past, the City of Redmond has allowed some encroachment into the driplines of *Landmark Trees if* the project arborist believes that there are measures that can be taken to minimize the damage and to ensure the long-time survival of the trees. These encroachments typically have been in the range of 20% or less encroachment into the driplines.

> One idea is to place the utilities to the houses under the critical root zones of these trees. This can be done with directional boring machines, horizontal drilling machines, or tunneling under the critical root zones. The depth of these utility placements must be below the buttress roots of the trees. Obviously soil conditions in the vicinity of the trees will play a critical role in informing the design team how deep the roots are likely to be. Generally 48 inches is deep enough but 54 inches is considered better to ensure that no damage occurs when the utilities are installed. Please refer to *Attachment 4, Section 6* below for more details.
>
> Another idea is to propose driveway encroachments into the driplines of the *Landmark Trees* with driveway design that provides an aeration system and builds the driveway(s) above the existing grade in a way that does not damage the roots or compact the soil. Using permeable driveway surface materials that allow air and water to penetrate into the soil below may also be functional.

Tree Protection Measures

In order for trees to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. If tree protection is not planned integral with the design and layout of the project, the trees will suffer needlessly and possibly die. With proper preparation, often costing little or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

The minimum Tree Protection Measures in *Attachment 4, Tree Protection Measures* are on three separate sheets that can be copied and introduced into all relevant documents

such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements. These Tree Protection Measures are intended to be generic in nature. They will need to be adjusted to the specific circumstances of your site that takes into account the location of improvements and the locations of the trees.

WAIVER OF LIABILITY

There are many conditions affecting a treeôs health and stability, which may be present and cannot be ascertained, such as, root rot, previous or unexposed construction damage, internal cracks, stem rot and more which may be hidden. Changes in circumstances and conditions can also cause a rapid deterioration of a treeôs health and stability. Adverse weather conditions can dramatically affect the health and safety of a tree in a very short amount of time. While I have used every reasonable means to examine these trees, this evaluation represents my opinion of the tree health at this point in time. These findings do not guarantee future safety nor are they predictions of future events.

The tree evaluation consists of an external visual inspection of an individual treeôs root flare, trunk, and canopy from the ground only unless otherwise specified. The inspection may also consist of taking trunk or root soundings for sound comparisons to aid the evaluator in determining the possible extent of decay within a tree. Soundings are only an aid to the evaluation process and do not replace the use of other more sophisticated diagnostic tools for determining the extent of decay within a tree.

As conditions change, it is the responsibility of the property owners to schedule additional site visits by the necessary professionals to ensure that the long-term success of the project is ensured. It is the responsibility of the property owner to obtain all required permits from city, county, state, or federal agencies. It is the responsibility of the property owner to comply with all applicable laws, regulations, and permit conditions. If there is a homeowners association, it is the responsibility of the property owner to comply with all Codes, Covenants, and Restrictions (CC&Rôs) that apply to tree pruning and tree removal.

This tree evaluation is to be used to inform and guide the client in the management of their trees. This in no way implies that the evaluator is responsible for performing recommended actions or using other methods or tools to further determine the extent of internal tree problems without written authorization from the client. Furthermore, the evaluator in no way holds that the opinions and recommendations are the only actions required to insure that the tree will not fail. A second opinion is recommended. The client shall hold the evaluator harmless for any and all injuries or damages incurred if the evaluatorôs recommendations are not followed or for acts of nature beyond the evaluatorôs reasonable expectations, such as severe winds, excessive rains, heavy snow loads, etc.

This report and all attachments, enclosures, and references, are confidential and are for the use of the client concerned. They may not be reproduced, used in any way, or disseminated in any form without the prior consent of the client concerned and Gilles Consulting.

Thank you for calling Gilles Consulting for your arboricultural needs.

Sincerely,

Brian K. Gilles, Consulting Arborist
ISA Certified Arborist # PN-0260A
ASCA Registered Consulting Arborist # RCA-418
PNW-ISA Certified Tree Risk Assessor #148

ATTACHMENTS

ATTACHMENT 1 - SITE PLAN
Attach here

ATTACHMENT 2 - TREE INVENTORY/CONDITIONS SPREADSHEET

(See attached Excel spreadsheet file.)

ATTACHMENT 2:
TREE INVENTORY/CONDITION SPREADSHEET

SITE: Ellsworth Property
at NE 100th St 134th Ave NE
Redmond, WA 98052

Dates of Inspection: October 21, 23, & 28, 2011

A E ATE LE E SEE L SSA EP T ATTAC ME TS EATE ETA L

#1 *Property:* Whether the tree is on or off the Subject Property, or a Right-of-Way tree.
 # *Tree Location:* Relative placement of the tree on the Subject Property.
 # *Tree #:* The unique tag number of each tree.
 # *Species:*

BCw/Pt	Black Cottonwood, *Populus trichocarpa*
BLM/Am	Big Leaf Maple, *Acer macrophyllum*
DF/Pm	Douglas Fir, *Pseudotsuga menziezii*
RA/Ar	Red Alder, *Alnus rubra*
WRC/Tp	Western Red Cedar, *Thuja plicata*

#5 *DBH:* Trunk diameter @ 4.5' above average ground level.
 # *Drip Line:* The radius, the distance from the trunk to the furthest branch tips.
#7 *Limits of Disturbance:* The boundary between the area of minimum protection around a tree and the allowable site disturbance as determined by a qualified professional.

 # *LCR:* *Live Crown Ratio* - the amount of live canopy expressed as a % of the entire tree height
#9 *Symmetry:* General shape of canopy and weight distribution of the tree around the trunk.
#10 *Foliage:* General description of foliage density that indicates tree health and vigor.
#11 *Crown Condition:* The most important external indication of tree health and vigor.
#1 *Trunk:* Description of trunk condition or abnormalities if any.
#1 *Root Collar:* The base of the tree where the trunk flares into the roots--deformities or problems are noted here.
#1 *Roots:* Root problems are noted here.
#15 *Comments:* Additional observations about the tree's condition.
#1 *Significance:* A "significant" tree is at least 6" in diameter measured at 4.5' above the average ground level.
#17 *Current Health Rating:* A description of general health ranging from dead, dying, hazard, poor, suppressed, fair, good, very good, to excellent.
#1 *Viability* : A significant tree that is in good health with a low risk of failure due to structural defects, is relatively wind firm if isolated or remains as part of a grove, and is a species that is suitable for its location.
#19 *Recommendation:* This is an estimate of whether or not the tree is of sufficient health, vigor, and structure to consider retaining.

1				5		7 L M TS		STU A CE			9	10	11	1	1	1	15	1	17	1	19
P PE T	T EE L CAT	T EE #	SPEC ES		P L E	orth	South	East	est	LC	S MMET	L A E	C C T	T U	T C LLA	TS	C MME TS	S CA CE	CU E T EALT AT	A L T	EC MME A T
Off property S	Church Property	1486	BLM/Am	21.0" & 13.7"	12'	3'	3'	4'	n/a	Epicormic Growth Only	Gen. sym.	Sparse	Broken Out	Center rot	Base rot	Root rot	Fungal fruiting bodies on S trunk, completely dead. Hypoxylon @ base	Non-Significant	Dying	Non-viable	Habitat tree @ 12'
Off property S	Church Property	1487	BLM/Am	29.6"	16'	16'	To Subject Property Line	16'	14'	80%	Gen. sym.	Dense	Healthy	Fork @ base	NAD	NAD	Dead branches in canopy.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1488	BLM/Am	25.3", 19.2", 25.6"	12'	12'	To Subject Property Line	5'	12'	75%	Min. Asym.	Dense	Healthy	Fork @ 8'	NAD	NAD	Dead branches in canopy, hangers.	Significant	Fair	Viable	Remove dead wood, hangers. Potential to retain with Tree Protection Measures.
Off property S	Church Property	1489	WRC/Tp	24.7"	14'	14'	14'	14'	10'	95%	Gen. sym.	Dense	Healthy	Straight	Bowed @ base	NAD		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1490	BLM/Am	13.4", 10.7", 13.9"	12'	N/A	N/A	N/A	N/A	Epicormic Growth Only	Min. Asym.	Sparse	Dying	Fork @ base	Base rot	Root rot, surface	Dead branches in canopy.	Non-Significant	Poor	Non-viable	Consider Habitat tree @ 20'
Off property S	Church Property	1491	BLM/Am	est. 15"	12'	12'	12'	To East property line	N/A	35%	Min. Asym.	Average	Average	Typical	Bowed @ base	NAD	Tag tied to East property line fence with survey ribbon	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1492	WRC/Tp	est. 24"	14'	14'	14'	N/A	To E property line fence	98%	Gen. sym.	Average	Average	Straight	NAD	NAD		Significant	Very Good	Viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1493	BLM/Am	ext. 6", 9", 9", 14"	16'	16'	16'	N/A	To E property line fence	35%	Min. Asym.	Average	Weak	Fork @ base, center rot	Base rot	Root rot	Dead branches in canopy	Non-Significant	Dying	Non-viable	Allow to fall on its own
Off property S	Church Property	1494	WRC/Tp	est. 17"	12'	N/A	N/A	N/A	To E property line fence	98%	Gen. sym.	Average	Healthy	Straight	NAD	NAD	Canopy does not overhang subject property	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Morrow Property	East of Morrow E property line	1495	BLM/Am	est. 16", 18", 14", 15", 12.5"	18'	18'	18'	N/A	5'	45%	Min. Asym.	Average	Average	Fork @ base, typical	NAD	NAD		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
Morrow Property	East of Morrow E property line	1496	WRC/Tp	est. 6.5"	10'	10'	10'	N/A	10'	98%	Gen. sym.	Average	Healthy	Straight	NAD	NAD		Significant	Good	Viable	Potential to retain with Tree Protection Measures
Morrow Property	East of Morrow E property line	1497	WRC/Tp	est. 9.5"	14'	14'	14'	N/A	14'	98%	Gen. sym.	Average	Healthy	Straight	NAD	NAD		Significant	Good	Viable	Potential to retain with Tree Protection Measures

ATTACHMENT 2:
TREE INVENTORY/CONDITION SPREADSHEET

SITE: Ellsworth Property
at NE 100th St 134th Ave NE
Redmond, WA 98052

Dates of Inspection: October 21, 23, & 28, 2011

1				5		7 LIMITS					9	10	11	1	1	1	15	1	17	1	19
PET	TREE CAT	TREE #	SPECIES		PLE	North	South	East	West	LOC	SYMMET	LATE	CCT	TRU	TCLLA	TS	COMMENTS	SCALE	CULTIVAT	ALT	MEASURE T
Morrow Property	East of Morrow E property line	1498	BLM/Am	Est. 16" & 18"	24'	24'	24'	N/A	To E property line	30%	Gen. sym.	Average	Average	Typical	NAD	NAD	Contact neighbors	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Morrow Property	East of Morrow E property line	1499	DF/Pm	Est. 22"	18'	18'	18'	N/A	To E property line	20%	Gen. sym.	Average	Average	Slight Lean SE, bowed	Probable base rot	Probable root rot	Contact neighbors	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Morrow Property	East of Morrow E property line	1500	DF/Pm	Est. 24"	18'	18'	18'	N/A	To E property line	20%	Gen. sym.	Average	Average	Probable center rot	Probable base rot	Probable root rot	Contact neighbors	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1501	BLM/Am	21.5"	16'	5' N of N property line fence	N/A	16'	16'	45%	Min. Asym.	Average	Average	Typical	NAD	NAD	Calloused wound East side base up 16"--appears well compartmentalized. Base is approximately 3' south of south property line fence	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1502	BLM/Am	15.1"	18'	N/A	N/A	N/A	N/A	35%	Maj. Asym.	Average	Average	Center rot	Exposed, base rot	Probable root rot	Base is approximately 1' south of south property line fence. Contact neighbor for consideration of removal or shortening to habitat tree. 95% of canopy hangs over middle property. Open wound on NW side base up 12' with advanced decay and carpenter ant infestation.	Non-Significant	Poor	Non-viable	Habitat tree @ 16'
Off property S	Church Property	1503	DF/Pm	12.2"	10'	To N property line	N/A	10'	10'	15%	Gen. sym.	Sparse	Suppressed	Center rot	Base rot	Probable root rot		Significant	Suppressed	Non-viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1504	WRC/Tp	21.4"	14'	5' N of N property line	N/A	14'	14'	98%	Gen. sym.	Average	Average	Center rot, straight	Base rot	Probable root rot	Open wound N side base up 12' with decay	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1505	WRC/Tp	11.8"	12'	5' N of N property line	N/A	12'	12'	88%	Gen. sym.	Average	Average	Straight	NAD	NAD		Significant	Good	Viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1506	DF/Pm	24.4"	18'	5' N of N property line	N/A	18'	18'	40%	Min. Asym.	Average	Average	Straight	NAD	Probable root rot	Within a few feet of a large Phenols sweinitzii fungal fruiting body. Deformed bark, early bark beetle infestation. Lower trunk & base sound solid.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1507	DF/Pm	13.2"	12'	N/A	N/A	N/A	N/A	30%	Min. Asym.	Thin	Suppressed	Bowed, center rot	Base rot	Probable root rot	Trunk leans into trunk of #1506.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1508	DF/Pm	31.2"	22'	5' N of N property line	N/A	22'	22'	40%	Gen. sym.	Dense	Average	Straight	Unknown	Probable root rot		Landmark	Fair	Viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1509	WRC/Tp	8.2" & 14.1"	14'	5' N of N property line	N/A	14'	14'	96%	Gen. sym.	Average	Average	Fork @ 3' with included bark down to base, straight	NAD	Probable root rot	Within a few feet of a large Phaeolus sweinitzii fungal fruiting body.	Non-Significant	Poor	Non-viable	Potential to retain with Tree Protection Measures
Off property S	Church Property	1510	DF/Pm	23.4"	18'	5' N of N property line	N/A	18'	18'	35%	Gen. sym.	Epicormic Growth, average	Average	Probable center rot	Probable base rot	Probable root rot	Large Phaeolus sweinitzii fungal fruiting body on buttress root within 3' of base. Trunk leans NW.	Non-Significant	Poor	Non-viable	Contact neighbor for consideration of removal or shortening to habitat tree
Off property S	Church Property	1511	BLM/Am	12.2", 10.6", 9.7", 7.4"	18'	5' N of N property line	N/A	18'	18'	75%	Maj. Asym.	Average	Healthy	Fork @ 2' & 3.0', center rot	Base rot	Probable root rot	Base is approximately 6' S of N property line fence	Non-Significant	Poor	Non-viable	Contact neighbor for consideration of removal or shortening to habitat tree
Off property S	Church Property	1512	DF/Pm	33.3"	22'	17'	N/A	27'	27'	40%	Gen. sym.	Average	Average	Straight	Probable base rot	Probable root rot	Within 25" of Phaeolus sweinitzii fungal fruiting body, popping bark, base is approximately 10' S of N property line.	Non-Significant	Poor	Non-viable	Contact neighbor for consideration of removal or shortening to habitat tree

ATTACHMENT 2:
TREE INVENTORY/CONDITION SPREADSHEET

SITE: Ellsworth Property
at NE 100th St 134th Ave NE
Redmond, WA 98052

Dates of Inspection: October 21, 23, & 28, 2011

1				5		7 LIMITS					9	10	11	1	1	1	15	1	17	1	19
PE T	TEE LCAT	TEE #	SPECES		PLE	orth	South	East	est	LC	SMMET	LAE	CCT	TU	TCLLA	TS	CMME TS	SCACE	CUETEALAT	ALT	ECMMEAT
Off property S	Church Property	1513	DF/Pm	10.5"	16'	5' N of N property line	N/A	16'	16'	35%	Min. Asym.	Thin	Suppressed	Slight bow	Probable base rot	Probable root rot	Dead branches in canopy, base is approximately 10' S of N property line, popping bark, calloused wound 12'-20' with decay.	Non-Significant	Poor	Non-viable	Contact neighbor for consideration of removal or shortening to habitat tree
Off property S	Church Property	1514	WH/Th	11.0"	10'	5' N of N property line	N/A	10'	10'	45%	Min. Asym.	Thin	Suppressed	Straight	Partially exposed	Surface	Growing out of nurse stump	Significant	Good	Viable	Contact neighbor for consideration of removal or shortening to habitat tree
Morrow Property	Morrow Property	1515	BCw/Pt	29.7"	20'	18'	N/A	18'	18'	45%	Gen. sym.	Dense	Healthy	Typical	Base rot	Root rot	Base is approximately 10' S of soil test pit. Unusual butt swell, dead trunk on W side @ base - completely decayed, decay extends into base, carpenter ant infestation.	Non-Significant	Poor	Non-viable	Remove
Morrow Property	Morrow Property	1516	BCw/Pt	16.4"	16'	N/A	N/A	N/A	N/A	35%	Min. Asym.	Average	Average	Bowed, leans NW, typical	Partially exposed	Surface	Main trunk broken off @ 55'	Non-Significant	Poor	Non-viable	Remove
Morrow Property	Morrow Property	1517	BCw/Pt	24.9"	16'	N/A	N/A	N/A	N/A	35%	Gen. sym.	Average	Average	Bowed, leans S over subject property, typical	Internal structural weakness	NAD	Trunk is forked @ 5.5' with included bark to base, evidence of recent trunk movement, popping bark & sap flow on N side.	Non-Significant	Poor	Non-viable	Remove
Morrow Property	Morrow Property	1518	BCw/Pt	25.7"	20'	18'	To S property line	20'	20'	55%	Gen. sym.	Average	Average	Bowed, leans S over subject property, typical	Partially exposed	Surface		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Morrow Property	Morrow Property	1519	BCw/Pt	27.9"	16'	N/A	N/A	N/A	N/A	20%	Maj. Asym.	Average	Broken Out	Bowed @ 36', typical	Base rot	Root rot	Woodpecker activity, decay in fracture wound @ 30-34'.	Non-Significant	Poor	Non-viable	Remove
Morrow Property	Morrow Property	1520	DF/Pm	17.6"	14'	N/A	N/A	N/A	N/A	20%	Gen. sym.	Dense	Broken Out	Center rot, straight	Base rot	Root rot	Deformed bark, fungal fruiting body on E side 3' down to base, Unusual butt swell.	Non-Significant	Poor	Non-viable	Remove
Morrow Property	Morrow Property	1521	RA/Ar	6.7"	12'	12'	12'	12'	12'	85%	Gen. sym.	Average	Healthy	Straight	NAD	NAD		Significant	Good	Viable	Potential to retain with Tree Protection Measures
Morrow Property	Morrow Property	1522	DF/Pm	24.4"	18'	18'	18'	18'	18'	80%	Gen. sym.	Dense	Healthy	Bowed	Failed decades ago	Historic Partial failure		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Morrow Property	Morrow Property	1523	WRC/Tp	26.2"	16'	16'	16'	16'	16'	98%	Gen. sym.	Dense	Healthy	Straight	Base rot	-	Open wound W side base up 6.5' with advanced decay and carpenter ant infestation	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Morrow Property	Morrow Property	1524	DF/Pm	17.6"	14'	14'	To S property line	14'	14'	60%	Gen. sym.	Epicormic Growth, average	Regenerating Average	Straight	Partially exposed	NAD	Base is approximately 3' N of S property line fence	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Morrow Property	Morrow Property	1525	WRC/Tp	24.7"	16'	16'	To S property line	16'	16'	90%	Gen. sym.	Average	Average	Center rot	Base rot	NAD	Open wound W side base up 4.5' with decay and carpenter ant infestation	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Morrow Property	Morrow Property	1526	BLM/Am	22.0", 16.8:, 22.6", 14.7"	24'	24'	To S property line	To East property line	24'	45%	Gen. sym.	Dense	Healthy	Fork @ 2' with included bark, Center rot	Base rot	Root rot	Dead branches in canopy, near SE property line	Non-Significant	Poor	Non-viable	Remove
Morrow Property	Morrow Property	1527	DF/Pm	10.6"	11'	11'	11'	To East property line	11'	85%	Gen. sym.	Average	Average	Straight	NAD	NAD	Base is approximately 11' W of east property line fence	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Morrow Property	Morrow Property	1528	BLM/Am	22.9"	20'	20'	20'	To East property line	20'	60%	Maj. Asym.	Dense	Healthy	Typical	NAD	NAD	Base is approximately 10' W of east property line fence & 18' S of N property line fence	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Morrow Property	NE property corner	1529	DF/Pm	22.3"	14'	14'	14'	14'	14'	30%	Gen. sym.	Dense	Healthy	Slight Bow	Bowed @ base	NAD	Base is approximately 16' S or North property line fence, unusual butt swell	Significant	Fair	Viable	Potential to retain with Tree Protection Measures

ATTACHMENT 2:
TREE INVENTORY/CONDITION SPREADSHEET

SITE: Ellsworth Property
at NE 100th St 134th Ave NE
Redmond, WA 98052

Dates of Inspection: October 21, 23, & 28, 2011

1				5		7 LIMITS STUDY AREA					9	10	11	1	1	1	15	1	17	1	19
PLANT	TREE CAT	TREE #	SPECIES		PLE	orth	South	East	est	LC	SIMMET	LATE	CT	TU	TCLLA	TS	COMMENTS	SCANCE	CUETEALAT	ALT	ECMMENDAT
Subject Property	SW corner	1530	BLM/Am	6.8", 15.6", 7.9", 15.8", 16.7"	18'	N/A	N/A	N/A	N/A	25%	Maj. Asym.	Average	Weak	Fork @ 3' with included bark down to base, Center rot	Base rot	Root rot	Dead branches in canopy, woodpecker activity, advanced carpenter ant infestation	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1531	BLM/Am	Est. 17.0", 12.0", 20.5"	20'	N/A	N/A	N/A	N/A	45%	Gen. sym.	Average	Average	Fork @ 3' & 5' with included bark down to base	Base rot	Root rot	Center rot, carpenter ant infestation, dead branches in canopy	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1532	BLM/Am	8.8", 10.8", 9.7"	18'	N/A	N/A	N/A	N/A	40%	Min. Asym.	Average	Weak	Stump sprouts, center rot	Base rot	Root rot	Dead branches in canopy	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1533	BLM/Am	13.9"	16'	N/A	N/A	N/A	N/A	80%	Gen. sym.	Average	Average	Center rot	Base rot	Root rot	Open wound NW side base to 12' with advanced decay & carpenter ant infestation, woodpecker activity	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1534	BLM/Am	13.0"	12'	N/A	N/A	N/A	N/A	30%	Min. Asym.	Average	Weak	Center rot	Base rot	Root rot	Calloused crack with inroll SE side base up 10' with advanced decay. Open wound S side base up 16', advanced carpenter ant activity, woodpecker activity.	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1535	BLM/Am	14.6", 13.7"	20'	N/A	N/A	N/A	N/A	40%	Min. Asym.	Average	Weak	Fork @ base, Stump sprouts, Center rot	Base rot	Root rot	Extensive dead branches in canopy	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1536	BLM/Am	10.3", 15.8", 7.7", 11.6", 12.7"	22'	N/A	N/A	N/A	N/A	40%	Min. Asym.	Average	Average	Fork @ base, Stump sprouts, Center rot	Base rot	Root rot	Armillaria mycelium in open wounds @ base, advanced carpenter ant activity	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1537	BLM/Am	15.5"	18'	N/A	N/A	N/A	N/A	30%	Min. Asym.	thin	Weak	Center rot	Base rot	Root rot	Calloused wound S side 3.5' to 7' with decay and carpenter ant infestation. Bark sloughing, center rot extends up at least 24'.	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1538	BLM/Am	9.3", 12.1", 10.6", 10.5"	18'	N/A	N/A	N/A	N/A	45%	Maj. Asym.	Average	Weak	Fork @ base, stump sprouts	Base rot	Root rot	Advanced carpenter ant infestation, woodpecker activity	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1539	BLM/Am	21.7"	22'	N/A	N/A	N/A	N/A	40%	Gen. sym.	Average	Average	Center rot	Exposed, base rot	Root rot	Advanced carpenter ant infestation, woodpecker activity, Hypoxylon, probable lightning strike with advanced decay high in trunk	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1540	BLM/Am	Est. 10.0", 10.0", 4.5"	12'	N/A	N/A	N/A	N/A	30%	Maj. Asym.	Average	Regenerating Average	Fork @ 8' with included bark to base, center rot	Internal structural weakness, base rot	Root rot	Woodpecker activity, carpenter ant infestation, 2 main trunks broken out @ approximately 24'	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1541	BLM/Am	17.0"	16'	N/A	N/A	N/A	N/A	70%	Maj. Asym.	Average	Weak	Leans NE	Base rot	Root rot	Dead branches in canopy	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1542	BLM/Am	33.2"	20'	N/A	N/A	N/A	N/A	80%	Min. Asym.	Average	Average	Fork @ 5' with included bark to base center rot	Exposed, base rot	Root rot	Hypoxylon, deformed bark, extensive decay in lower trunk	Non-Significant	Poor	Non-viable	Remove
Subject Property	SW corner	1543	BLM/Am	12.8", 23.2", 8.1", 8.1"	24'	N/A	N/A	N/A	N/A	80%	Min. Asym.	Average	Average	Stump sprouts	Base rot	Root rot	2 smaller trunks are dead & broken out @ approximately 14'	Non-Significant	Poor	Non-viable	Remove
Subject Property	Center of property	1544	WRC/Tp	17.2"	12'	N/A	N/A	N/A	N/A	96%	Gen. sym.	Dense	Healthy	Straight	NAD	NAD		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
Subject Property	NW Evergreen cluster	1545	WRC/Tp	36.2"	18'	23'	23'	23'	To W property line	96%	Min. Asym.	Dense	Healthy	Center rot	Base rot	NAD	Open wound S side base to 8' with decay and carpenter ant infestation	Landmark	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	NW Evergreen cluster	1546	DF/Pm	19.5"	12'	12'	12'	12'	To W property line	90%	Maj. Asym.	Dense	Average	Leans SE	Partially exposed	NAD	Growing out of nurse stump	Significant	Good	Viable	Potential to retain with Tree Protection Measures

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SITE: Ellsworth Property
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Redmond, WA 98052

Dates of Inspection: October 21, 23, & 28, 2011

1				5		7 L M TS STU A CE					9	10	11	1	1	1	15	1	17	1	19
P PE T	T EE L CAT	T EE #	SPEC ES		P L E	orth	South	East	est	LC	S MMET	L A E	C C T	T U	T C LLA	TS	C MME TS	S CA CE	CU E T EALT AT	A L T	EC MME A T
Subject Property	NW Evergreen cluster	1547	WRC/Tp	18.3"	14'	14'	14'	14'	To W property line	65%	Maj. Asym.	Average	Weak	Straight	NAD	NAD	Base is against 1548	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	NW Evergreen cluster	1548	WRC/Tp	47.3"	23'	28'	28'	28'	To W property line	98%	Gen. sym.	Average	Healthy	Straight	Base rot	NAD	Base is against 1547	Landmark	Very Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	NW Evergreen cluster	1549	DF/Pm	28.7"	16'	16'	16'	16'	16'	45%	Maj. Asym.	Epicormic Growth, dense	Average	Leans E, bowed	NAD	NAD	Calloused wound NW side base up 2' and W side for 6-10' -- appears compartmentalized.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	NW Evergreen cluster	1550	WRC/Tp	32.6"	18'	23'	23'	23'	23'	98%	Gen. sym.	Average	Healthy	Straight	NAD	NAD		Landmark	Very Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	NW Evergreen cluster	1551	WRC/Tp	47.0"	21'	26'	26'	26'	26'	96%	Gen. sym.	Thin	Average	Leans SE	Base rot	NAD	Open wound W side base up 5' with inrolls. Open wound N side, E side, & S side base up 5' with calloused inroll.	Landmark	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	NW Evergreen cluster	1552	WRC/Tp	32.4"	16'	21'	21'	21'	21'	98%	Min. Asym.	Thin	Average	Straight	Base rot	NAD	Open wound W side base up 18"	Landmark	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	NE Corner	1553	DF/Pm	34.2"	24'	29'	29'	29'	29'	95%	Gen. sym.	Short shoot elongation, Dense	Regenerating Healthy	Straight	Bowed @ base	NAD	Early bark beetle infestation	Landmark	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	NE Corner	1554	WRC/Tp	37.2"	23'	To N property line	28'	To East property line	28'	98%	Gen. sym.	Dense	Healthy	Fork @ 9', straight	Bowed @ base, base rot, exposed	Root rot	Growing out of nurse stump	Landmark	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	NE Corner	1555	WRC/Tp	30.6"	25'	30'	30'	30'	30'	98%	Min. Asym.	Average	Average	Straight	NAD	NAD	Base is approximately 10' W of east property line fence near where stream goes under the chain link fence	Landmark	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	Between chain link fence & E property line	1556	WRC/Tp	Ext. 32.0"	22'	27'	27'	To East property line	27'	85%	Gen. sym.	Average	Average	Straight	NAD	NAD	Tag on chain link fence. Tree is between chain link fence & E property line	Landmark	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	Between chain link fence & E property line	1557	WRC/Tp	Est. 11.5"	14'	14'	14'	To East property line	14'	85%	Maj. Asym.	Average	Average	Center rot	Base rot	NAD	Open wound W side base up 5' with decay, carpenter ant infestation. Tree is between chain link fence and E property line.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	East property line	1558	BLM/Am	Clump of 9 trees	30'	30'	30'	To East property line	30'	75%	Maj. Asym.	Average	Average	Fork @ 2'	NAD	NAD	Tree is between property line fence & east property line	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	East property line	1559	BLM/Am	9.2"	16'	N/A	N/A	N/A	N/A	30%	Maj. Asym.	Average	Weak	Typical	Base rot	Probable root rot	Tree is between chain link fence & east property line. Armillaria mycelium @ base in open wound where trunk failed.	Non-Significant	Poor	Non-viable	Remove
Subject Property	East property line	1560	BLM/Am	Est. 10.5"	14'	14'	14'	To East property line	14'	20%	Maj. Asym.	Average	Poor	Leans W	NAD	NAD	Tree is between chain link fence & east property line. Tag is on chain link fence.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	East property line	1561	BLM/Am	Est. 12.0", 6.5", 14", 13", 17"	23'	23'	23'	To East property line	23'	55%	Min. Asym.	Average	Average	Fork @ 2' & 6' with included bark	NAD	NAD	Tree is between chain link fence & east property line. Dead branches in canopy.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	East property line	1562	BLM/Am	11.8", 18.5", 12.6"	18'	18'	18'	To East property line	18'	60%	Min. Asym.	Average	Average	Fork @ base, & 3', & 6'	Base rot	NAD	Growing in cluster on both sides of east property line fence.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	East property line	1563	WRC/Tp	11.3"	10'	10'	10'	To East property line	10'	95%	Maj. Asym.	Average	Average	Straight, center rot	Base rot	Probable root rot	Growing in cluster on both sides of east property line fence.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures

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1				5		7	LM TS	STU	A CE		9	10	11	1	1	1	15	1	17	1	19
P PE T	T EE L CAT	T EE #	SPEC ES		P L E	orth	South	East	est	LC	S MMET	L A E	C C T	T U	T C LLA	TS	C MME TS	S CA CE	CU E T EALT AT	A L T	EC MME A T
Subject Property	East property line	1564	WRC/Tp	12.5"	8'	8'	8'	To East property line	8'	90%	Maj. Asym.	Average	Average	Center rot	Base rot	NAD	Tree is between chain link fence & east property line.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	East property line	1565	BLM/Am	13.6"	16'	16'	16'	To East property line	16'	40%	Min. Asym.	Average	Healthy	Typical	NAD	NAD	Tree is between chain link fence & east property line.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	East property line	1566	BLM/Am	Est. 24"	24'	24'	24'	To East property line	24'	25%	Min. Asym.	Average	Average	Fork @ 16', typical	NAD	NAD	Tree is between chain link fence & east property line. Base is against tree #1567.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	East property line	1567	WRC/Tp	Est. 9" & 3"	9'	9'	9'	To East property line	9'	85%	Maj. Asym.	Thin	Suppressed	Fork & kink @ 3'	NAD	NAD	Tree is between chain link fence & east property line. Base is against tree # 1566.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	East property line	1568	BLM/Am	13.3", 16.8", 14.1", 16.2" 16.3"	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Average	Fork @ base	NAD	NAD	Tree is between chain link fence & east property line.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	East property line	1569	BLM/Am	13.9"	14'	14'	14'	14'	14'	20%	Maj. Asym.	Average	Average	Typical	Exposed	NAD	Tree is between chain link fence & east property line.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	SE corner	1570	BLM/Am	9.9" & 18.4"	16'	16'	16'	16'	16'	20%	Min. Asym.	Average	Average	Leans SE over stream, base rot	Base rot	Probable root rot	Growing in cluster on both sides of east property line fence. Armillaria mycelium present @ base in open wounds. N trunk totally dead, bark sloughing & broken off @ 16', woodpecker activity.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	SE corner	1571	WRC/Tp	7.8"	none	N/A	N/A	N/A	N/A	none	N/A	None	Dead	Leans S into canopy of tree #1572	Failed	Failed	Growing in cluster on both sides of east property line fence.	Non-Significant	Dead	Non-viable	Allow to fall on its own
Subject Property	SE corner	1572	WRC/Tp	18.5"	12'	12'	12'	12'	12'	95%	Min. Asym.	Average	Average	Straight	NAD	NAD	Growing in cluster on both sides of east property line fence.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	SE corner	1573	WRC/Tp	10.6"	10'	10'	10'	10'	10'	90%	Maj. Asym.	Average	Average	Center rot	Base rot	Probable root rot	Growing in cluster on both sides of east property line fence. Open wound N side base up 8'.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	SE corner	1574	BLM/Am	47.4"	30'	30'	30'	To East property line	30'	45%	Min. Asym.	Dense	Average	Center rot	Base rot	Root rot	Base is approximately 8' W of chain link fence, dead branches in canopy. Tree can remain if NGPE is large enough for tree to fall without any targets.	Landmark	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	SE corner	1575	BLM/Am	18.8" & 25.7"	24'	24'	24'	To East property line	24'	60%	Min. Asym.	Dense	Healthy	Center rot	Base rot	NAD	Base is approximately 10' W of chain link fence.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	S Central	1576	BLM/Am	17.9"	24'	24'	24'	24'	24'	40%	Min. Asym.	Average	Average	Fork @ 7', included bark down 4', typical	NAD	NAD	Dead branches in canopy	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	S Central	1577	BLM/Am	21.8"	28'	28'	28'	28'	28'	60%	Min. Asym.	Average	Healthy	Fork @ 14', included bark down 2'	NAD	NAD		Significant	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	S Central	1578	BLM/Am	7.6", 14.7", 14.5", 8.0"	N/A	N/A	N/A	N/A	N/A	15%	Maj. Asym.	Average	Average	Stump sprouts, center rot	Base rot	Probable root rot	One trunk broken out @ 24', 2 trunks dead & rotten. Rot pockets in branch collar wounds, fungal fruiting bodies, Armillaria mycelium @ base, dead branches in canopy.	Non-Significant	Poor	Non-viable	Remove
Subject Property	S Central	1579	BLM/Am	Clump of 10 trees	N/A	N/A	N/A	N/A	N/A	80%	Gen. sym.	Average	Average	Stump sprouts, center rot	Base rot	Root rot	Trunk diameters range from estimated 6" - 14".	Non-Significant	Poor	Non-viable	Remove
Subject Property	S Central	1580	BLM/Am	18.3"	20'	20'	20'	20'	20'	35%	Gen. sym.	Average	Average	Typical	NAD	NAD	Dead branches in canopy.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures

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1				5		7 LIMITS					9	10	11	1	1	1	15	1	17	1	19
PE T	TEE LCAT	TEE #	SPECES		PLE	orth	South	East	est	LC	SMMET	LAE	CCT	TU	TCLLA	TS	CMME TS	SCACE	CUETEALAT	ALT	ECMMEAT
Subject Property	S Central	1581	BLM/Am	19.7" & 12.0"	N/A	N/A	N/A	N/A	N/A	40%	Gen. sym.	Average	Average	Stump sprouts, center rot	Base rot	Root rot	Dead branches in canopy, rot pockets in branch collar wounds that coalesce into rot columns.	Non-Significant	Poor	Non-viable	Remove
Subject Property	SE corner	1582	BLM/Am	9.5" & 13.1"	21'	21'	21'	21'	21'	30%	Maj. Asym.	Average	Average	Stump sprouts	NAD	NAD	Dead branches in canopy	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	SE corner	1583	BLM/Am	8.1"	14'	14'	14'	14'	14'	30%	Maj. Asym.	Average	Average	Typical	NAD	NAD		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	SE corner	1584	BLM/Am	33.4"	N/A	N/A	N/A	N/A	N/A	40%	Maj. Asym.	Average	Average	Slight Lean SW, center rot	Base rot	Root rot	Hypoxylon, barbed wire embedded in lower trunk	Non-Significant	Poor	Non-viable	Remove
Off property W	E of east property line near SE property line	1585	RA/Ar	Est. 18"	18'	18'	18'	18'	18'	65%	Gen. sym.	Average	Broken Out	Center rot	Base rot	Root rot	Advanced carpenter ant infestation & woodpecker activity, Canopy overhangs subject property by 9'.	Non-Significant	Dying	Non-viable	Contact neighbor for consideration of removal or shortening to habitat tree
Off property W	E of east property line near SE property line	1586	DF/Pm	Est. 24"	14'	14'	14'	14'	14'	90%	Min. Asym.	Average	Average	Slight Lean NE	Himalayan Blackberries	Himalayan Blackberries	Canopy overhangs subject property by 2'	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Off property W	E of East property line	1587	BLM/Am	Est. 26" & 18"	25'	25'	25'	25'	25'	75%	Gen. sym.	Average	Healthy	Fork @ 6' with included bark down 4', typical	Himalayan Blackberries	Himalayan Blackberries	Canopy overhangs subject property by 16'	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Subject Property	Near NW property corner	1588	BCw/Pt	Est. 26" & 18"	26'	26'	26'	East of W property line 5'	N/A	65%	Gen. sym.	Dense	Healthy	Slight bow SW, typical	NAD	NAD	Base is 10' West of #1543, canopy overhangs subject property by 12'.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	Near NW property corner	1589	BCw/Pt	19.2" & 17.6"	22'	22'	22'	22'	To W property line	95%	Gen. sym.	Dense	Healthy	Fork @ 1'	NAD	NAD		Significant	Good	Viable	Potential to retain with Tree Protection Measures
Subject Property	Near NW property corner	1590	BCw/Pt	18.4"	22'	22'	22'	22'	To W property line	95%	Gen. sym.	Dense	Average	Typical	NAD	NAD		Significant	Good	Viable	Potential to retain with Tree Protection Measures

Tree Location Summary	
55	Subject Property
21	Morrow Property
23	Church Property
6	Off Property West
105	**Total # of Trees Evaluated**

Morrow & Ellsworth Property Trees	
# of Trees	**STATUS**
26	Non-Significant
43	Significant
10	Landmark
79	**Total Trees on Project**

Tree Condition Summary	
1	Dead
0	Dying
25	Poor
30	Fair
19	Good
2	Very Good
2	Excellent
79	**Total Project Property Trees**

ATTACHMENT 3 - GLOSSARY

Terms Used in This Report, on the Tree Condition / Inventory Spreadsheet, and Their Significance

In an effort to clearly present the information for each tree in a manner that facilitates the readerôs ability to understand the conclusions I have drawn for each tree, I have collected the information in a spreadsheet format. This spreadsheet was developed by Gilles Consulting based upon the *Tree Risk Assessment in Urban Areas and the Urban/Rural Interface* course manual and the *Tree Risk Assessment Form*, both sponsored by the Pacific Northwest Chapter of the International Society of Arboriculture, and the *Hazard Tree Evaluation Form* from the book, *The Evaluation of Hazard Trees in Urban Areas*, by Matheny and Clarke. The descriptions were left brief on the spreadsheet in an effort to include as much pertinent information as possible, to make the report manageable, and to avoid boring the reader with infinite levels of detail. However, a review of these terms and descriptions will allow the reader to rapidly move through the report and understand the information.

1) **PROPERTY**ð Whether the tree is on or off the Subject Property, or a Right-of-Way tree.
2) **TREE LOCATION**ð Relative placement of the tree.
3) **TREE #**ð the unique tag number of each tree.
4) **SPECIES**ð this describes the species of each tree with both most readily accepted common name and the officially accepted scientific name.
5) **DBH**ð Diameter Breast Height. This is the standard measurement of trees taken at 4.5 feet above the average ground level of the tree base.
    i) Occasionally it is not practical to measure a tree at 4.5 feet above the ground. The most representative area of the trunk near 4.5 feet is then measured and noted on the spreadsheet. For instance, a tree that forks at 4.5 feet can have an unusually large swelling at that point. The measurement is taken below the swelling and noted, e.g. ó28.4ò at 36òô
    ii) Trees with multiple stems are listed as a ñclump of x,ò with x being the number of trunks in the clump. Measurements may be given as an average of all the trunks, or individual measurements for each trunk may be listed.
        (1) Every effort is made to distinguish between a single tree with multiple stems and several trees growing close together at the bases.
    iii) Because Significant Tree and Landmark Tree status have such a significant impact on decision making in the City of Redmond, when the DBH measurements placed a tree close to Significant or Landmark status, the measurements are double-checked to make sure that the measurement is at 4.5 feet above the average ground level and that the diameters do cross the 6-inch and 30-inch thresholds.
6) **DRIP LINE**ð the radius, the distance from the trunk to the furthest branch tips.

7) **LIMITS OF DISTURBANCE**– the boundary between the area of minimum protection around a tree and the allowable site disturbance as determined by a qualified professional. From the Redmond Zoning Code, disturbance must be 5 feet outside the dripline unless otherwise authorized by the City with concurrence of the project arborist.
8) **% LCR**– Percentage of Live Crown Ratio. The relative proportion of green crown to overall tree height. This is an important indication of a tree's health. If a tree has a high percentage of Live Crown Ratio, it is likely producing enough photosynthetic activity to support the tree. If a tree has less than 30% to 40% LCR, it can create a shortage of needed energy and can indicate poor health and vigor.
9) **SYMMETRY**– is the description of the form of the canopy, i.e., the balance or overall shape of the canopy and crown. This is the place I list any major defects in the canopy shape, e.g. does the tree have all its foliage on one side or in one unusual area? Symmetry can be important if there are additional defects in the tree such as rot pockets, cracks, loose roots, weak crown, etc. Symmetry is generally categorized as Generally Symmetrical, Minor Asymmetry or Major Asymmetry:
    i) Gen. Sym.– Generally Symmetrical. The canopy/foliage is generally even on all sides with spacing of scaffold branches typical for the species, both vertically and radially.
    ii) Min. Asym.– Minor Asymmetry. The canopy/foliage has a slightly irregular shape with more weight on one side, but appears to be no problem for the tree.
    iii) Maj. Asym.– Major Asymmetry. The canopy/foliage has a highly irregular shape for the species with the majority of the weight on one side of the tree. This can have a significant impact on the tree's stability, health and hazard potential– especially if other defects are noted such as cracks, rot, or root defects.
10) **FOLIAGE/BRANCH**– describes the foliage of the tree in relation to a perfect specimen of that particular species. First the branch growth and foliage density is described, and then any signs or symptoms of stress and/or disease are noted. The condition of the foliage, or the branches and buds for deciduous trees in the dormant season, are important indications of a tree's health and vigor.
    i) For Deciduous trees in the dormant season:
        (1) The structure of the deciduous tree is visible.
        (2) The quantity and quality of buds indicates health, and is described as good bud set, average bud set, or poor bud set. These are abbreviated in the spreadsheet as: gbs, abs, or pbs.
        (3) The amount of annual shoot elongation is visible and is another major indication of tree health and vigor. This is described as:
            a) Excellent, Good, Average, or Short Shoot Elongation. These are abbreviated in the spreadsheet as ESE, GSE, ASE, or SSE.
    ii) For evergreen trees year round and deciduous trees in leaf, the color and density of the foliage indicates if the tree is healthy or stressed, or if an insect

infestation, a bacterial, fungal, or viral infection is present. Foliage is categorized on a scale from:

(1) Denseð extremely thick foliage, an indication of healthy vigorous growth,
(2) Goodð thick foliage, thicker than average for the species,
(3) Normal/Averageð thick foliage, average for the species, an indication of healthy growth,
(4) Thin or Thinningð needles and leaves becoming less dense so that sunlight readily passes through; an indication that the tree is under serious stress that could impact the long-term survivability and safety of the tree,
(5) Sparseð few leaves or needles on the twigs, an indication that the tree is under extreme stress and could indicate the future death of the tree,
(6) Necrosisð the presence of dead twigs and branchlets. This is another significant indication of tree health. A few dead twigs and branches are reasonably typical in most trees of size. However, if there are dead twigs and branchlets all over a certain portion of the tree, or all over the tree, these are indications of stress or attack that can have an impact on the treeôs long-term health.
(7) Hangersð a term to describe a large branch or limb that has broken off but is still hanging up in the tree. These can be particularly dangerous in adverse weather conditions.

11) **CROWN CONDITION**ð the crown is uppermost portion of the tree, generally considered the top 10 to 20% of the canopy or that part of the canopy above the main trunk in deciduous trees and above the secondary bark in evergreen trees.

i) The condition of the treeôs crown is a reflection of the overall health and vigor of the entire tree. The crown is one of the first places a tree will demonstrate stress and pathogenic attack such as root rot.
ii) If the **Crown Condition** is healthy and strong, this is a good sign. If the crown condition is weak, broken out, or shows other signs of decline, it is an indication that the tree is under stress. It is such an important indication of health and vigor that this is the first place a trained forester or arborist looks to begin the evaluation of a tree. Current research reveals that, by the time trees with root rot show significant signs of decline in the crown, fully 50% or more of the roots have already rotted away. **Crown Condition** can be described as:
    (1) Healthy Crownð exceptional growth for the species.
    (2) Average Crownð typical for the species.
    (3) Weak Crownð thin spindly growth with thin or sparse needles.
    (4) Flagging Crownð describes a tree crown that is weak and unable to grow straight up.
    (5) Dying Crownð describes obvious decline that is nearing death.

(6) Dead Crownð the crown has died due to pathological or physical injury. The tree is considered to have significant stress and/or weakness if the crown is dead.
(7) Broken outð a formerly weak crown condition that has been broken off by adverse weather conditions or other mechanical means.
(8) Regenerated or Regeneratingð formerly broken out crowns that are now growing back. Regenerating crowns may appear healthy, average, or weak and indicate current health of the tree.
(9) Suppressedð a term used to describe poor condition of an entire tree or just the crown. Suppressed crowns are those that are entirely below the general level of the canopy of surrounding trees which receive no direct sunlight. They are generally in poor health and vigor. Suppressed trees are generally trees that are smaller and growing in the shade of larger trees around them. They generally have thin or sparse needles, weak or missing crowns, and are prone to insect attack as well as bacterial and fungal infections.

12) **TRUNK**ð this is the area to note any defects that can have an impact on the treeôs stability or hazard potential. Typical things noted are:
i) FORKEDð bifurcation of branches or trunks that often occur at a narrow angle.
ii) INCLUDED BARKð a pattern of development at branch or trunk junctions where bark is turned inward rather than pushed out. This can be a serious structural defect in a tree that can and often does lead to failure of one or more of the branches or trunks, especially during severe, adverse weather conditions.
iii) EPICORMIC GROWTHð this is generally seen as dense thick growth near the trunk of a tree. Although this looks like a healthy condition, it is, in fact the opposite. Trees with Epicormic Growth have used their reserve stores of energy in a last ditch effort to produce enough additional photosynthetic surface area to produce more sugars, starches and carbohydrates to support the continued growth of the tree. Generally speaking, when conifers in the Pacific Northwest exhibit heavy amounts of Epicormic Growth, they are not producing enough food to support their current mass and are already in serious decline.
iv) INTERNAL STRUCTURAL WEAKNESSð a physical characteristic of the tree trunk, such as a **kink, crack, rot pocket, or rot column** that predisposes the tree trunk to failure at the point of greatest weakness.
v) BOWEDð a gradual curve of the trunk. This can indicate an Internal Structural Weakness or an overall weak tree. It can also indicate slow movement of soils or historic damage of the tree that has been corrected by the curved growth.
vi) KINKEDð a sharp angle in the tree trunk that indicates that the normal growth pattern is disrupted. Generally this means that the internal fibers and

annual rings are weaker than straight trunks and prone to failure, especially in adverse weather conditions.

vii) GROUND FLOWERð an area of deformed bark near the base of a tree trunk that indicates long-term root rot.

13) **ROOT COLLAR**ð this is the area where the trunk enters the soil and the buttress roots flare out away from the trunk into the soil. It is here that signs of rot, decay, insect infestation, or fungal or bacterial infection are noted. **NAD** stands for **N**o **A**pparent **D**efects.
14) **ROOTS**ð any abnormalities such as girdling roots, roots that wrap around the tree itself that strangle the cambium layer and kill the tree, are noted here.
15) **COMMENTS**ð this is the area to note any additional information that would not fit in the previous boxes or attributes about the tree that have bearing on the health and structure of the tree.
16) **SIGNIFICANCE—**this is the rating of whether the tree is *Significant, Non-Significant,* or *Landmark* based upon the criteria set out in the City of Redmond Code. These criteria include the following:
    i) Non-significant Trees:
        (1) Those trees that are less than 6.0 inches in diameter measured at 4.5 feet above the average ground level, or larger trees that are dead, dying, in poor condition, or have structural defects that render them as potentially hazardous.
    ii) Significant Trees:
        (1) Trees that are in good health and structure, are relatively wind firm, and measure between 6.0 and 29.9 inches in diameter measured at 4.5 feet above the average ground level.
    iii) Landmark Trees:
        (1) Trees that are in good health and structure, are relatively wind firm, and measure greater than 30 inches in diameter measured at 4.5 feet above the average ground level.
    iv) Please note that many trees may be listed as ñNon-Significantò due to poor health, poor structure, or the tree may be below the size threshold for a ñSignificant Tree.ò However, it is worth examining the Non-Significant Trees to determine if any or all of them can be left on the property. They can add significant benefit to the landscape and contribute to wildlife habitat
17) **CURRENT HEALTH RATING**ð A description of the treeôs general health ranging from dead, dying, poor, senescent, suppressed, fair, good, very good, to excellent.
18) **VIABILITY—** viable trees are those in Fair, Good, Very Good, or Excellent Condition for both health and structure. These trees can be expected to survive the stresses of construction.
19) **RECOMMENDATION**ð this is an estimate of whether or not the tree is of sufficient health, vigor, and structure that it is worth retaining. Specific recommendations for each tree are included in this column. They may include anything from pruning dead wood, mulching, aerating, injecting tree-based fertilizer

into the root system, shortening into a habitat tree or wildlife snag, or to completely removing the tree.

i) **Monitor: "**Monitorò is a specific recommendation that the tree be re-evaluated on a routine basis to determine if there are any significant changes in health or structural stability. ñMonitor annuallyò (or bi-annually, tri-annually, etc.)ò means the tree should be looked at once every year (or every 2 or 3 years, etc.) This yearly monitoring can be a quick look at the trees to see if there are any significant changes. Significant changes such as storm damage, loss of crown, partial failure of one or more roots, etc. require that a full evaluation be done of the tree at that time.

ii) **Potential to retain with tree protection measures:** means that the tree appears to have the internal resources, the health and vigor, structural stability, and the wind firmness to be able to withstand the stresses of construction if development requirements and construction requirements allow.

iii) **Habitat or Remove:** means that the tree has a high potential to fail and cause either personal injury or property damageð in other words the tree has been declared a hazard tree and should be dealt with prior to the next large storm. If it is at all possible the recommendation is to leave some of the trunk standing for wildlife habitat and some of the trunk on the ground as a nurse log. The height of the standing habitat tree depends upon the size of the tree, the condition of the tree, and the distance to a probable target. It should be short enough so that when it does fail years in the future it will not cause personal injury or property damage. Nurse logs can be laid horizontally across the slope to aid with erosion control and to provide microenvironments for new plantings. The nurse logs meaning to be steak to prevent their movement and potential harm to people. If for some reason this is not possible that should be removed for safety.

NOTE: TREES WITH THE SAME DESCRIPTION AND DIFFERENT RATINGS: Two trees may have the same descriptions in the matrix boxes, one may be marked ñSignificant,ò while another may be marked ñNon-Significant.ò The difference is in the degree of the description, i.e., ñearly necrosisò versus ñadvanced necrosisò for instance. Another example is ñcenter rotò or ñbase rotò. In a Western Red Cedar tree, the presence of low or even moderate rot is not significant and does not diminish the strength of the tree. However, low levels of rot in the base of a Douglas Fir tree, in an area known to have virulent pathogens present, is highly significant and predisposes that tree to windthrow.

ATTACHMENT 4 - TREE PROTECTION MEASURES

In order for trees to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. If tree protection is not planned integral with the design and layout of the project, the trees will suffer needlessly and will possibly die. With proper preparation, often costing little, or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

The following minimum Tree Protection Measures are included on three separate sheets so that they can be copied and introduced into all relevant documents such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements. These Tree Protection Measures are intended to be generic in nature. They will need to be adjusted to the specific circumstances of your site that takes into account the location of improvements and the locations of the trees.

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 the attached drawing at a distance of not less than 5 feet outside the dripline of the tree or group of trees to be saved.
    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 Fencesð 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 FENCE
DO NOT ENTER THIS AREA
DO NOT PARK OR STORE MATERIALS
WITHIN THE PROTECTION AREA

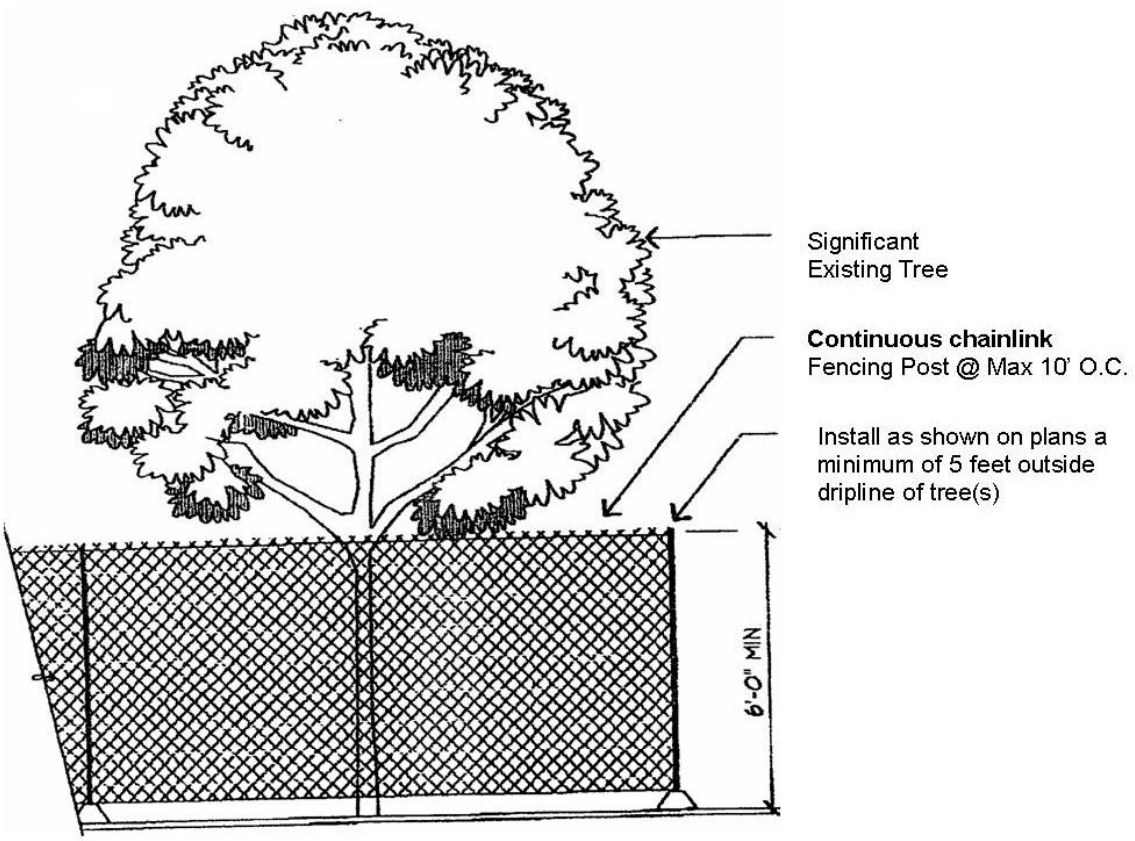
Any questions, call Brian K. Gilles at Gilles Consulting
@ 425-417-0850”

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 operators.
        i. The Certified Arborist should be outfitted with a shovel, hand pruners, a pair of loppers, a handsaw, and a power saw (a ñsawsallò is recommended).
    b. The hoe must be placed to ñcombò 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.



Six-foot high temporary chainlink fence shall be placed as shown on plans. Fence shall completely encircle tree(s). Install fence posts using pier blocks only. Avoid driving posts or stakes into major roots.

Make a clean straight cut to remove damaged portion of root for all roots over 1" in diameter damaged during construction. ***All*** exposed roots shall be temporarily covered with damp burlap and covered with soils the same day, if possible, to prevent drying. If not possible, burlap must be kept moist at all times.

Work with the protection fencing shall be done manually. No stockpiling of materials, soil, debris, vehicle traffic, or storage of equipment or machinery shall be allowed within the limit of the fencing.

Cement trucks must not be allowed to deposit waste or wash out materials from their trucks within the Tree Protection Fences.

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.

ATTACHMENT 5 - REFERENCES

1. Eric Allen, et al. *Common Tree Diseases of British Columbia*. Victoria: Canadian Forest Service, 1996.

2. Harris, Richard W. et al. *Arboriculture, Integrated Management of Landscape Trees, Shrubs, and Vines*. 4th ed. Upper Saddle River: Prentice Hall, 2004.

3. Matheny, Nelda P. and Clark, James R. *Evaluation of Hazard Trees*. 2nd ed. Savoy: The International Society of Arboriculture Press, 1994.

4. Matheny, Nelda P. and Clark, James R. *Trees & Development, A Technical Guide to Preservation of Trees During Land Development*. Savoy: The International Society of Arboriculture Press, 1998.

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

6. Pojar, Jim and MacKinnon, Andy. *Plants of the Pacific Northwest Coast*. Redmond, Washington: Lone Pine Publishing, 1994.

7. Pacific Northwest Chapter-ISA. *Tree Risk Assessment in Urban Areas and the Urban/Rural Interface.* Course Manual. Release 1.5. PNW-ISA: Silverton, Oregon, 2011.