ARBORICULTURAL REPORT
RE-EVALUATION OF TREES
AT

THE TOTEM LAKE APARTMENTS SITE
At NE 115th Street & 124th Avenue NE
KIRKLAND, WA 98033

February 10, 2011

PREPARED FOR:

MSPT IV LLC
Aaron Hollingbery
9720 NE 120th Place
Kirkland, WA 98034

PREPARED BY:

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

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EXECUTIVE SUMMARY

Tree Locations:			**Evaluation of Subject Property Trees:**				
1	Right-of-Way Tree						
11	Off Property Trees		**Significance:**			**Viability:**	
119	Subject Property Trees		115	Significant		68	Viable
131	**Total # of Trees**		4	Non-Significant		51	Non-Viable
			119	**Total # of Trees**		119	**Total # of Trees**

ASSIGNMENT

Kim Faust of CamWest Development, LLC contacted Gilles Consulting to discuss doing a re-evaluation of the trees at the Totem Lake Apartments site property at the intersection of NE 116th Street, 124th Avenue NE, and Slater Road. Gilles Consulting had performed a report for the trees on the property in March of 2006. Ms. Faust requested that Gilles Consulting provide a proposal for Totem Lake Apartments site Properties – MSPT IV, LLC, to return to the site and re-evaluate the trees based upon the last 4.5 years of growth and the new Kirkland tree ordinance governing trees and development. The request was to produce this report. The information from this report can be used to develop the *Tree Plan II* as required by the City of Kirkland.

METHODOLOGY

To evaluate the trees and to prepare the report, I drew upon my 25+ 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 changes in the Kirkland Code required a substantial increase in the amount of field work. In 2001 the Code allowed for the dismissal of Red Alder, Black Cottonwood, and Bitter Cherry trees from the development discussion. The new ordinance changed the definition of *Significant Tree* to any tree greater than 6 inches. The old ordinance rated *Significant Trees* as conifer trees over 8 inches and deciduous trees over 12 inches. These changes meant many more trees on the property required evaluation and documentation.

To keep the trees straight they were tagged and numbered 821 through 951, and 1375, and, 1378 through 1385. The tags are made of shiny aluminum approximately one inch by three inches in size and are attached to the tree with staples. The tags were placed as high as possible to minimize their removal. The tags were randomly placed on the trunks on the side most accessible given the density of Himalayan Blackberries. Please refer to *Attachment 1, Site Plan* for an orientation to the site and the approximate location of the trees.

Additional Testing

The trees presented symptoms or signs that were readily discernable and easy to interpret. Therefore, no additional tests were performed during this site visit.

OBSERVATIONS

The property is located in the corner of inside NE 116th Avenue, 124th Avenue NE, and NE 115th at Slater Road in Kirkland, Washington. The property is bisected by the old Slater Road. The area between Slater Road and 124th Avenue NE is relatively flat. There is a sharp drop in elevation from the vacated Slater Road to the west where the 76 gas station/store are located on flat ground. There is a retaining wall along the west property line.

The property appears to be typical of forests that were once developed or logged and then allowed to grow naturally back to forest. The composition of species is typical of lowland Puget Sound forests. Species include:

- Trees:
  - Big Leaf Maple
  - Western Red Cedar
  - Douglas Fir
  - Black Cottonwood
  - Red Alder
  - Bitter Cherry
  - Cascara

- Shrubs:
  - Oregon Grape
  - Salal
  - Sword fern
  - Indian Plum
  - Red Elderberry
  - Thimbleberry

- Invasive species include
  - Himalayan Blackberries
  - English Ivy
  - Plantains
  - Dandelions
  - Clover
  - Honeysuckle

Photo # 1: Looking west from NE 115th

In an effort to present the information and conclusions for each tree in a manner that is clear and easy to understand, I have included a detailed spreadsheet, *Attachment 2, Tree Inventory/Condition Spreadsheet*. The descriptions on the spreadsheet were left brief in order to include as much pertinent information as possible and to make the report manageable. A detailed description of the terms used in the spreadsheet and in this report

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.

Photo # 2: Looking northwest from NE 115th Street onto the Vacated Slater Road

DISCUSSION

Many of the native deciduous trees are in very poor condition and are not candidates for retention due to poor health, poor structure, lack of wind firmness, or a combination of these factors. They will continue to decline and die if left on their own. Construction will accelerate the decline process. They should be removed for safety.

Right-of-Way Trees

There is only one right-of-way tree. It is # 938. It is located on the Slater Avenue shoulder near the south end of the property next to the driveway to the old 2-story wood house that was torn down several years ago.

The tree is in Fair condition now but is in rapid decline. The tree was growing for decades in a harsh roadside environment. The construction of the new office building just south of the tree and demolition of the old 2-story house has stressed the tree. The outward symptoms of the lower trunk indicate that the tree could be suffering from root rot and base rot. Before any effort is made to retain this tree I recommend that the tree be tested with a Resistograph to determine the extent of internal decay.

Trees on Adjacent Properties

There are 11 trees on the adjacent property to the west. They are growing in a root-bound planter strip between the base of a retaining wall along the west property line and the curb of the driving/access roadway on the adjacent property. They are all in Fair to Good condition. They can all be retained with minimal impact from construction with the Tree Protection Measures outlined below.

Trees on the Subject Property

There are 119 trees on the subject property; 115 of them are *Significant* due to their size. However, 51 of them are *Non-Viable* due to poor health, poor structure, lack of wind firmness, or a combination of these factors.

Om more importance is the species composition. Bitter Cherry, Black Cottonwood, Big Leaf Maple, and Red Alder make up 80% of the species on the subject property. These trees are known as primary cultivator species with relatively short life spans, poor immune systems, and an inability to tolerate construction stress. They are not good candidates for retention.

A Note About Black Cottonwood Trees

There are 13 Black Cottonwood trees on the property. Many are both *Significant* and *Viable*. However, this species is known to have a short life span and often breaks apart when it gets large. The results can be devastating. This species is known as a "primary cultivator" by forest ecologists. They fill the ecological niche of colonizing moist areas after disturbance such as forest fire, logging, or construction. The Black Cottonwood's natural history is to grow fast and large, reproduce profusely; then to die rapidly. They have a short lifespan compared to other trees—sixty to eighty years is considered an average lifespan for Black Cottonwood trees. Also, because so much energy is placed into rapid growth and reproduction, these trees tend to be more brittle and have inadequate immune response systems.

This results in Black Cottonwood trees being prone to failure in adverse weather conditions, being susceptible to several kinds of root disease, and even losing large limbs on hot summer days when little or no wind is present. Once disturbed, Black Cottonwood trees are highly susceptible to root disease and insect infestations. It is common for Black Cottonwood trees to rapidly become hazards after construction activity.

Although I have included "Limits of Disturbance" recommendations in this report for them, it is my strong recommendation that all of the large Black Cottonwood trees be removed during the site development work. They are not good candidates for retention due to their massive growth potential and their propensity to fail.

CONCLUSIONS

- Right-of –Way Trees:
  - # 938 is the only right-of-way tree.
  - It is in rapid decline. It has symptoms that may indicate center rot, base rot, and root rot.
  - Before any effort is made to retain this tree I strongly recommend it be tested with a Resistograph to determine if internal decay exists; and if it does, to what extent it exists. If the decay is in an advanced stage it will change the health rating of the tree from Fair to Poor and the recommendation will change from retention to removal.
- Trees on Adjacent Properties:
  - There are 11 trees just west of the west property line.
  - They all are in Fair to Good condition.
  - They all should be easily retained with the *Tree Protection Measures* outlined below.
- Trees on the Subject Property:
  - There are 119 trees on the subject property.
  - Significance:
    - 115 are *Significant*
    - 4 are *Non-Significant*
  - Viability:
    - 68 are *Viable*
    - 51 are *Non-Viable.*

<u>Tree Protection Measures</u>

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 tree's 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 tree's 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 tree's 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&R's) 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 evaluator's recommendations are not followed or for acts of nature beyond the evaluator's 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.

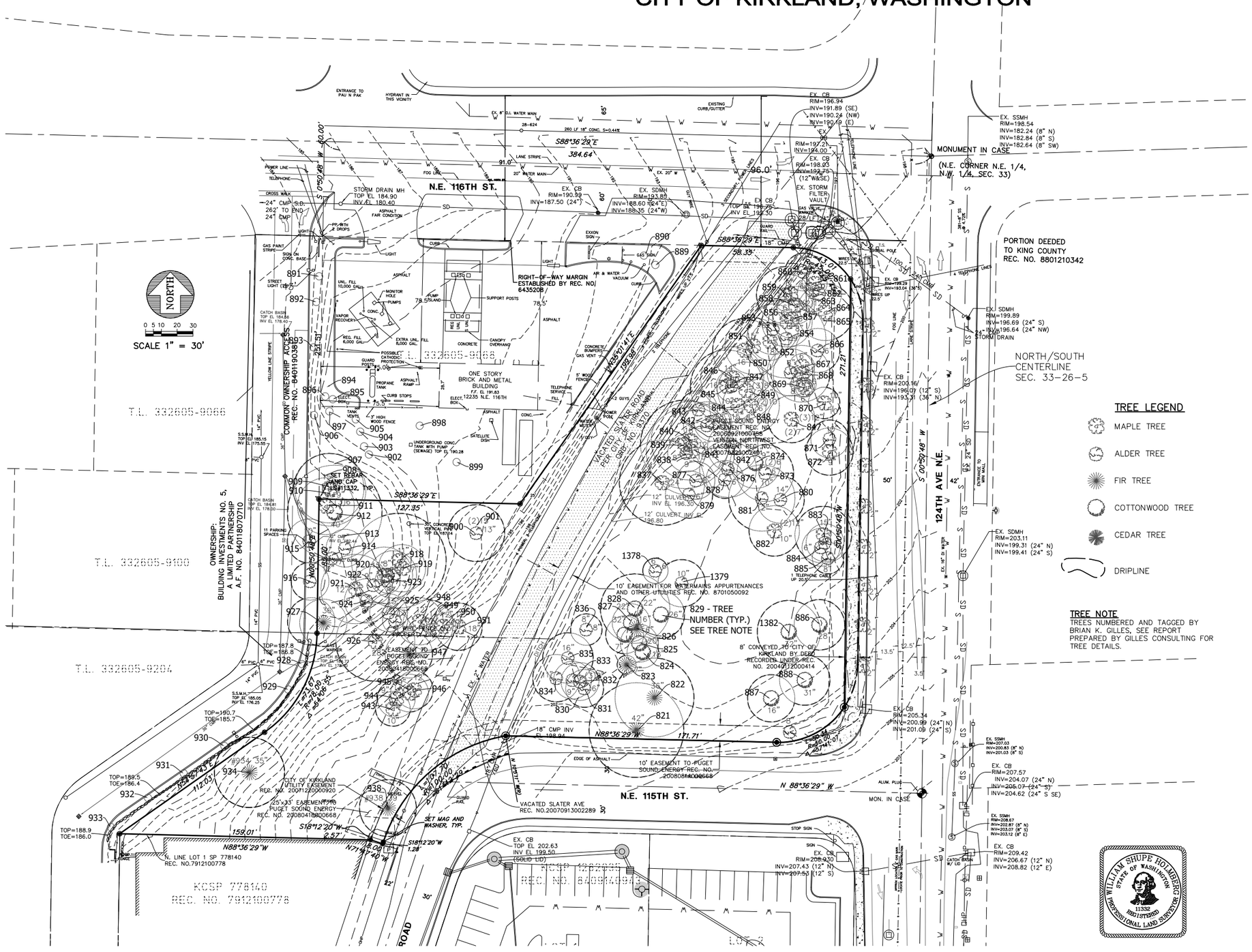
Thank you for calling Gilles Consulting for your arboricultural needs.

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

PORTION OF THE N.E. 1/4 OF THE N.W. 1/4, OF SEC. 33 TWN. 26 N., RNG 5 E., WM
CITY OF KIRKLAND, WASHINGTON



LEGAL DESCRIPTION

LOTS 2 AND 3, CITY OF KIRKLAND ALTERATION OF LOT LINE NO. LL-98-83, RECORDED UNDER RECORDING NUMBER 9811249010; BEING A PORTION OF THE NORTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 33, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M., IN KING COUNTY, WASHINGTON;

EXCEPT THE EAST 8 FEET CONVEYED TO THE CITY OF KIRKLAND BY DEED RECORDED UNDER RECORDING NUMBER 20040115000414;

TOGETHER WITH THAT PORTION OF THE NORTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 33, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M., IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTH QUARTER CORNER OF SAID SECTION 33;
THENCE NORTH 88°36'29" WEST ALONG THE NORTH LINE THEREOF, 384.64 FEET;
THENCE SOUTH 00°51'09" WEST PARALLEL WITH THE NORTH-SOUTH CENTERLINE OF SAID SECTION 33, 311.51 FEET, MORE OR LESS, TO THE SOUTH LINE OF THE NORTH 311.5 FEET OF SAID SUBDIVISION AND THE BEGINNING OF A TANGENT CURVE TO THE RIGHT HAVING A RADIUS OF 78.00 FEET AND THE TRUE POINT OF BEGINNING;
THENCE SOUTHWESTERLY ALONG SAID CURVE AN ARC DISTANCE OF 73.67 FEET THROUGH A CENTRAL ANGLE OF 54°06'55" TO A POINT OF TANGENCY;
THENCE SOUTH 54°58'04" WEST 112.00 FEET, MORE OR LESS, TO THE NORTH LINE OF LOT 1 IN SHORT PLAT NUMBER 778140, ACCORDING TO SHORT PLAT RECORDED UNDER KING COUNTY RECORDING NUMBER 7912100778;
THENCE SOUTH 88°36'29" EAST ALONG SAID NORTH LINE, 159.02 FEET TO THE WESTERLY LINE OF SLATER AVENUE NORTHEAST;
THENCE NORTHEASTERLY ALONG SAID WESTERLY MARGIN, 138.48 FEET, MORE OR LESS, TO THE SOUTH LINE OF THE NORTH 311.5 FEET OF SAID SUBDIVISION;
THENCE NORTH 88°36'29" WEST ALONG SAID SOUTH LINE, 84.70 FEET TO THE TRUE POINT OF BEGINNING;

(ALSO KNOWN AS LOT 2 OF UNRECORDED KING COUNTY LOT LINE ADJUSTMENT NUMBER 982059);

TOGETHER WITH THAT PORTION OF VACATED SLATER AVENUE, BY CITY OF KIRKLAND ORDINANCE NUMBER 4094, RECORDED UNDER RECORDING NUMBER 20070913002289;

(ALSO KNOWN AS "NEW LOT 1 ", CITY OF KIRKLAND ALTERATION OF LOT LINE NO. LL-00-68, AS RECORDED UNDER RECORDING NUMBER 20020314002030);

AND TOGETHER WITH EASEMENTS AS PROVIDED FOR IN DOCUMENT RECORDED JANUARY 19, 1984 UNDER RECORDING NUMBER 8401190381;

SITUATE IN THE CITY OF KIRKLAND, COUNTY OF KING, STATE OF WASHINGTON.

REFERENCES

R1 – ALTERATION OF LOT LINE NO. LL-00-68 REC. NO. 20020314002030.

DATUM

NAVD 88

BENCHMARK

CITY OF KIRKLAND POINT ID# 43 (COK-1)
3" BRASS CAP WITH "+" SET IN 4" SQUARE CONCRETE IN CASE, 1.05' BELOW SURFACE. ELEVATION=228.805
(N.E. CORNER SEC. 32-26-05)

WILLIAM SHUPE HOLMBERG
STATE OF WASHINGTON
11332
REGISTERED
PROFESSIONAL LAND SURVEYOR

REVISIONS	BY	DATE

BOUNDARY/TOPOGRAPHY/
TREE SURVEY

CAM WEST
11411 SLATER AVENUE N.E.
KIRKLAND, WA 98033

Encompass
ENGINEERING & SURVEYING
165 NE Juniper Street, Suite 201 • Issaquah, WA 98027 • Phone: (425) 392-0250 • Fax: (425) 391-3055
Western Washington Division
108 East 2nd Street • Cle Elum, WA 98922 • Phone: (509) 674-7433 • Fax: (509) 674-7419
Eastern Washington Division

JOB NO.	10650
DATE	12/3/10
SCALE	1"=30'
DESIGNED	WSH
DRAWN	JEF
CHECKED	WSH
APPROVED	WSH

SHEET 1 OF 1

ATTACHMENT 2:
TREE INVENTORY/CONDITION SPREADSHEET

SITE: Totem Lake Apartments Site
NE 115th St, 124th Ave, Slater, NE 116th St
Kirkland, WA 98033

Date of Inspection: 6/26--29/06
2/1 2/11

ABBREVIATED LEGEND--SEE GLOSSARY IN REPORT ATTACHMENTS FOR GREATER DETAIL

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

BCh/Pe	Bitter Cherry, *Prunus emarginata*
BCw/Pt	Black Cottonwood, *Populus trichocarpa*
BLM/Am	Big Leaf Maple, *Acer macrophyllum*
Ch/Psp.	Cherry, *Prunus sp.*
DF/Pm	Douglas Fir, *Pseudotsuga menziezii*
PDW/Cn	Pacific Dog Wood, *Cornus nuttallii*

#4 ***2011 DBH:*** Trunk diameter at 4.5' above the average ground level.
#5 ***2006 DBH:*** Trunk diameter @ 4.5' above average ground level.
#6 ***Tree Credit:*** This is based upon Table 95.35.1, Page 12, Chapter 95 of the Kirkland Municipal Code.
#7 ***Drip Line:*** The radius, the distance from the trunk to the furthest branch tips.
#8 ***Limits of Disturbance:*** The boundary between the area of minimum protection around a tree and the allowable site disturbance.
#9 ***LCR:*** *Live Crown Ratio* - the amount of live canopy expressed as a % of the entire tree height
#10 ***Symmetry:*** General shape of canopy and weight distribution of the tree around the trunk.
#11 ***Foliage:*** General description of foliage density that indicates tree health and vigor.
#12 ***Crown Condition:*** The most important external indication of tree health and vigor.
#13 ***Trunk:*** Description of trunk condition or abnormalities if any.
#14 ***Root Collar:*** The base of the tree where the trunk flares into the roots--deformities or problems are noted here.
#15 ***Roots:*** Root problems are noted here.
#16 ***Comments:*** Additional observations about the tree's condition.
#17 ***Significance:*** A "significant" tree is at least 6" in diameter measured at 4.5' above the average ground level.
#18 ***Current Health Rating:*** A description of general health ranging from dead, dying, hazard, poor, suppressed, fair, good, very good, to excellent.
#19 ***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.
#20 ***Recommendation:*** This is an estimate of whether or not the tree is of sufficient health, vigor, and structure to consider retaining.

1	2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
PROPERTY	TREE #	SPECIES	DBH 2011	DBH 2006	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE 2011	CURRENT HEALTH RATING 2011	VIABILITY 2011	RECOMMENDATION
Subject Property	821	DF/Pm	48.1"	43.8"	20.0	48.0'	22.0'	22.0'	22.0'	22.0'	90%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted	Early Bark Beetle Infestation, 15' North of edge of asphalt road. Survey tag # 1024	Significant	Very Good	Viable	Potential to retain with tree protection measures
Subject Property	822	DF/Pm	36.7"	34.5"	14.0	46.0'	20.0'	to prop line	20.0'	20.0'	80%	Min. Asym.	Dense	Healthy	Kinked @ 36'	NAD	-	Hangars, Early bark beetle infestation. Survey tag # 1025	Significant	Very Good	Viable	Potential to retain with tree protection measures
Subject Property	823	DF/Pm	9.1"	7.1"	1.0	18.0'	8.0'	8.0'	8.0'	8.0'	85%	Gen. Sym.	Average	Average	Straight	Partially Exposed	Surface North		Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	824	BCw/Pt	21.4"	18.4"	6.0	30.0'	14.0'	14.0'	14.0'	14.0'	85%	Maj. Asym.	Dense	Healthy	Leans NE	Partially Exposed	-	Old cinder block retaining wall on North side.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	825	BCw/Pt	21.2"	19.6"	6.0	30.0'	14.0'	14.0'	14.0'	14.0'	70%	Min. Asym.	Dense	Healthy	Slight Bow South	Partially Exposed	Surface South		Significant	Good	Viable	Potential to retain with tree protection measures
Subject Property	826	DF/Pm	9.0"	6.9"	1.0	20.0'	10.0'	10.0'	10.0'	10.0'	75%	Min. Asym.	Average	Average	Slight Bow SE	Exposed	surface	Early bark beetle infestation	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	827	BCw/Pt	18.8"	16.9"	5.0	22.0'	8.0'	8.0'	8.0'	8.0'	65%	Min. Asym.	Dense	Healthy	Slightly Serpentine, Leans West	Partially Exposed	Surface all sides		Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	828	BCw/Pt	40.0"	34.0"	15.0	42.0'	18.0'	18.0'	18.0'	18.0'	70%	Maj. Asym.	Dense	Healthy	Leans West, Forked @ 4.5', Included Bark to base	Internal Structural Weakness	-	Sap flow from fork.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	829	BCw/Pt	28.9"	26.7"	10.0	46.0'	20.0'	20.0'	20.0'	20.0'	85%	Gen. Sym.	Dense	Healthy	Leans North	Partially Exposed	-		Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	830	BCh/Pe	n/a	6.3" & 5.2"	0.0	N/A	N/A	N/A	N/A	N/A	60%	Maj. Asym.	Average	Average	Leans SW, Center Rot	Partially failed, Base rot	Partially Failed	Open wound on NE side @ 5' with rot column to base, Gummosis. Armillaria mycelium.	Significant	Poor	Non-viable	Remove
Subject Property	831	BCh/Pe	6.5"	6.1"	0.0	N/A	N/A	N/A	N/A	N/A	15%	Maj. Asym.	Thin	Dying	Center Rot	Base Rot	-	Kinked @ 8', Open wounds on north side @ 3', 5', & 8'	Significant	Poor	Non-viable	Remove
Subject Property	832	BCh/Pe	13.0"	16.0"	2.0	34.0'	14.0'	14.0'	14.0'	14.0'	30%	Min. Asym.	Average	Average	Forked @ 6", Included bark down to base	Partially failed	-	Leans NW, Center trunk is dead, 2006 trunk diameters = 8.2", 8.0:, & 6.1 ". 2011 trunk diameters are 8.4, 7.1, & 6.9 inches = single trunk of 13.0 inches.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	833	BCh/Pe	10.4"	9.1"	1.0	22.0'	10.0'	10.0'	10.0'	10.0'	30%	Min. Asym.	Average	Healthy	Leans West	NAD	-	Dead branches in lower canopy	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	834	BCh/Pe	11.7"	10.8"	1.0	28.0'	12.0'	12.0'	12.0'	12.0'	80%	Min. Asym.	Average	Average	Leans West	NAD	-	Dead branches in lower canopy	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	835	BCh/Pe	12.6"	16.0"	2.0	30.0'	12.0'	12.0'	12.0'	12.0'	75%	Min. Asym.	Average	Average	Forked @ 3', Included bark down 12"	Partially Exposed	-	Leans West, trunk diameters are 11.6" & 7.6" = tree of 16"	Significant	Fair	Viable	Potential to retain with tree protection measures

ATTACHMENT 2:
TREE INVENTORY/CONDITION SPREADSHEET

SITE: Totem Lake Apartments Site
NE 115th St, 124th Ave, Slater, NE 116th St
Kirkland, WA 98033

Date of Inspection: 6/26--29/06
2/1 2/11

1	2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
PROPERTY	TREE #	SPECIES	DBH 2011	DBH 2006	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE 2011	CURRENT HEALTH RATING 2011	VIABILITY 2011	RECOMMENDATION
Subject Property	836	BCh/Pe	10.1"	10.0"	1.0	22.0'	N/A	N/A	N/A	N/A	80%	Min. Asym.	Average	Average	Forked @ 5', Center rot	Base Rot	-	Included Bark down 18" below fork, Honeysuckle up 100%, trunk diameters are 6.5" & 6.2" = tree of 10". Clematis up 90%.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	837	BLM/Am	23.9"	21.2"	7.0	52.0'	24.0'	24.0'	24.0'	22.0'	70%	Min. Asym.	Dense	Healthy	Forked @ 6' & 16', Leans South	NAD	Surface	12' East of old ditch. Survey tag # 1047. Dead branches in canopy. 2011 trunk diameters = 22.9 & 6.9 inches = single trunk of 23.9 inches.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	838	BCh/Pe	11.0"	8.1" & 7.4"	1.0	N/A	N/A	N/A	N/A	N/A	35%	Maj. Asym.	Dense	Healthy	Forked @ 12", Included bark down to base, Leans South	Base Rot	-	Trunk fused 2.5' above fork, Open wound on north side @ 4' with rot column to base. 2011 trunk diameters are 8.2 & 7.4 inches = single trunk of 11.0 inches.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	839	BLM/Am	28.5"	38.0"	10.0	56.0'	25.0'	25.0'	25.0'	25.0'	65%	Gen. Sym.	Dense	Healthy	Forked @ 1' & 3', Included Bark down to base	NAD	Surface North	2006 DBH: 14.0", 14.3", 14.0", & 11.3" = 38" diameter tree. Survey tag # 1048. 2011 trunk diameters are 14.9, 15.1, 12.0, & 14.7 inches = single trunk of 28.5 inches.	Significant	Good	Viable	Potential to retain with tree protection measures
Subject Property	840	BLM/Am	15.6"	14.4"	3.0	32.0'	14.0'	14.0'	14.0'	14.0'	85%	Maj. Asym.	Dense	Healthy	Forked @ 7', Leans West	NAD	-		Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	841	BLM/Am	18.7"	17.8"	5.0	43.0'	18.0'	18.0'	18.0'	18.0'	60%	Maj. Asym.	Dense	Healthy	Slight Lean North, Serpentine	NAD	-	Dead branches in canopy.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	842	BLM/Am	n/a	9.8" & 7.8"	0.0	N/A	N/A	N/A	N/A	N/A	40%	Min. Asym.	Average	Average	Forked @ 18", Rot column to base	Base Rot	-	Center rot. Center rot. Base rot.	Significant	Dying	Non-viable	Remove
Subject Property	843	Ch/Psp.	7.3"	6.6"	1.0	20.0'	10.0'	10.0'	10.0'	10.0'	80%	Maj. Asym.	Average	Suppressed	Leans West	Partially Exposed	Surface		Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	844	BLM/Am	17.5"	13.6" & 9.4"	4.0	N/A	N/A	N/A	N/A	N/A	50%	Min. Asym.	Average	Average	Center Rot	Exposed, Base rot	Surface NW	Forked @ 3.5' with included bark down to base, Dead branches in canopy. Survey tag # 1052. 2011 trunk diameters are 9.7 & 14.6 inches = single trunk of 17.5 inches.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	845	BLM/Am	13.5"	14.0"	2.0	28.0'	12.0'	12.0'	12.0'	12.0'	60%	Maj. Asym.	Dense	Healthy	Leans West	NAD	-	Calloused wound on north side from base up 2'	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	846	BLM/Am	18.8"	17.5"	5.0	36.0'	16.0'	16.0'	16.0'	16.0'	80%	Maj. Asym.	Dense	Healthy	Slight Lean North	NAD	-	Base of Tree #847 is 12" away	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	847	BLM/Am	11.0"	6.8" & 7.5"	0.0	N/A	N/A	N/A	N/A	N/A	50%	Min. Asym.	Average	Average	Serpentine	Partially Exposed	Surface East	Forked @ base, Base is 12" from Tree #846, 7" fork has center rot & carpenter ant infestation. 2011 trunk diameters are 7.7 & 7.8 inches = single trunk of 11.0 inches.	Significant	Poor	Non-viable	Remove
Subject Property	848	BLM/Am		clump of 6	0.0	N/A	N/A	N/A	N/A	N/A	20%	Maj. Asym.	Thin	Weak	Serpentine	Base Rot	-	Stump sprouts, Hypoxia, Carpenter ant infestation, Dead branches in canopy, DBH: 6.6", 7.2", 6.4", 8.4", 8.4", & 8.6". Forked at base. Stump sprouts. Hypoxylon.	Significant	Poor	Non-viable	Remove
Subject Property	849	BLM/Am		clump of 5	0.0	N/A	N/A	N/A	N/A	N/A	20%	Maj. Asym.	Average	Weak	Center Rot	Base Rot	Surface	Stump sprouts, Hypoxia, Carpenter ant infestation, Dead branches in canopy, DBH: 9.8", 7.7", 6.3", 9.5", & 3.5". Center rot. Base rot.	Significant	Poor	Non-viable	Remove
Subject Property	850	BLM/Am		13.9"	0.0	N/A	N/A	N/A	N/A	N/A	40%	Min. Asym.	Dense	Healthy	Bowed West	Partially failed, Base rot	-	Calloused wound on East side from base up 3'. Center rot. Base rot.	Significant	Poor	Non-viable	Remove
Subject Property	851	BLM/Am		13.4"	0.0	N/A	N/A	N/A	N/A	N/A	45%	Min. Asym.	Dense	Healthy	Leans NW	Suspended	-	Rotten scaffold branch with Hypoxia @ 4', Rot column to base	Significant	Poor	Non-viable	Remove
Subject Property	852	BLM/Am	9.5"	7.6" & 4.5"	1.0	30	N/A	N/A	N/A	N/A	50%	Min. Asym.	Average	Average		Exposed	-	Harp tree, not wind firm	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	853	BCh/Pe	5.8"	5.5"	0.5	N/A	N/A	N/A	N/A	N/A	80%	Min. Asym.	Average	Average	Leans NW	Exposed	Surface South	not wind firm	Not Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	854	BCh/Pe	9.4"	8.4" & 5.0"	1.0	N/A	N/A	N/A	N/A	N/A	75%	Min. Asym.	Average	Average	Center Rot	Base Rot	-	Forked @ base	Significant	Fair	Viable	Potential to retain with tree protection measures

ATTACHMENT 2:
TREE INVENTORY/CONDITION SPREADSHEET

SITE: Totem Lake Apartments Site
NE 115th St, 124th Ave, Slater, NE 116th St
Kirkland, WA 98033

Date of Inspection: 6/26--29/06
2/1 2/11

1	2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
PROPERTY	TREE #	SPECIES	DBH 2011	DBH 2006	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE 2011	CURRENT HEALTH RATING 2011	VIABILITY 2011	RECOMMENDATION
Subject Property	855	BLM/Am	10.4"	8.7" & 4.3"	1.0	N/A	N/A	N/A	N/A	N/A	50%	Maj. Asym.	Thin	Weak	Center Rot	Base Rot	-	Forked @ 3.5' with included bark down 18", Open wound on North side at 2.5' with rot column down to base, Carpenter ant infestation. 2011 trunk diameters are 9.4 & 4.4 inches single trunk of 10.4 inches.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	856	BLM/Am	6.9"	clump of 4	0.0	28	N/A	N/A	N/A	N/A	40%	Min. Asym.	Average	Average	Center Rot	Base Rot	-	Forked @ base, Calloused crack from base up 4.5', Dead branches in canopy, DBH: 6.4", 5.7", 4.2", & 6.8". Center rot. Base rot. Sheer plane fracture from base up 4 feet.	Significant	Poor	Non-viable	Remove
Subject Property	857	BLM/Am		clump of 6	0.0	N/A	N/A	N/A	N/A	N/A	50%	Maj. Asym.	Average	Average	Center Rot	Base Rot	-	2 small trunks dead, Advanced carpenter ant infestation, DBH: 10.4", 4.7", 8.9", 10.9", 9.4", & 5.7". Center rot. Base rot.	Significant	Poor	Non-viable	Remove
Subject Property	858	BLM/Am	13.1"	11.7"	2.0	40.0'	18.0'	18.0'	18.0'	18.0'	70%	Maj. Asym.	Dense	Healthy	Leans NW	Partially Exposed	-		Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	859	BLM/Am		7.0", 4.7" & 6.6"	0.0	18	N/A	N/A	N/A	N/A	10%	Maj. Asym.	Sparse	Dying	Center Rot	Base Rot	-	Carpenter Ant Infestation. Hypoxylon. Bark sloughing.	Significant	Dying	Non-viable	Remove
Subject Property	860	Ch/Psp.	5.5"	5.4"	0.5	22.0'	10.0'	10.0'	10.0'	10.0'	65%	Min. Asym.	Thin	Average	NAD	Partially Exposed	-	4' East of ditch	Not Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	861	PDW/Cn	9.4"	11.0"	1.0	20.0'	10.0'	10.0'	10.0'	10.0'	70%	Min. Asym.	Thin	Average	Leans North, Serpentine	NAD	-	Forked @ 12" with included bark down to base, Open Wound on South side from base up 2.5', trunk diameters are 5.5", 4.7". 2011 trunk diameters are 6.1, 5.0 & 5.1 inches = single trunk tree of 9.4 inches.	Significant	Very Good	Viable	Potential to retain with tree protection measures
Subject Property	862	Ch/Psp.	7.5"	7.4"	1.0	18	N/A	N/A	N/A	N/A	10%	Maj. Asym.	Sparse	Weak	Leans NE	NAD	-		Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	863	BLM/Am		6.9", 6.5", & 5.0"	0.0	20	N/A	N/A	N/A	N/A	50%	Maj. Asym.	Sparse	Dying	Slightly Serpentine		-	Center trunk is dead, Forked @ 18" with included bark down to base. Center rot. Base rot. Carpenter ant infestation.	Significant	Dying	Non-viable	Remove
Subject Property	864	BCh/Pe		5.2" & 3.0"	0.0	N/A	N/A	N/A	N/A	N/A	70%	Maj. Asym.	Sparse	Weak	Leans North, Center rot	Partially failed, Base rot	-	Forked @ 3', Gummosis on bark and trunk	Significant	Poor	Non-viable	Remove
Subject Property	865	BLM/Am		10.4", 10.3", & 10.2"	0.0	N/A	N/A	N/A	N/A	N/A	60%	Min. Asym.	Average	Average	Center Rot	Base Rot	-	Stump sprouts	Significant	Poor	Non-viable	Remove
Subject Property	866	BLM/Am		6.9", 6.3", & 5.6"	0.0	N/A	N/A	N/A	N/A	N/A	35%	Min. Asym.	Average	Healthy	Leans South	Base Rot	-	Carpenter ant infestation, Forked @ base	Significant	Poor	Non-viable	Remove
Subject Property	867	BLM/Am		5.5", 4.2", & 3.5"	0.0	N/A	N/A	N/A	N/A	N/A	40%	Min. Asym.	Average	Average	Center Rot	Base Rot	-	Carpenter ant infestation, Forked @ base	Significant	Poor	Non-viable	Remove
Subject Property	868	BLM/Am		10.0" & 9.6"	0.0	N/A	N/A	N/A	N/A	N/A	35%	Maj. Asym.	Thin	Weak	Center Rot	Base Rot	-	Forked @ 3.5', Dead branches in canopy	Significant	Poor	Non-viable	Remove
Subject Property	869	BCh/Pe		9.8"	0.0	16	N/A	N/A	N/A	N/A	15%	Min. Asym.	Thin	Weak	Leans West	Partially Exposed	-	Dead Branches in Canopy	Significant	Poor	Non-viable	Remove
Subject Property	870	BLM/Am		8.2"	0.0	20	N/A	N/A	N/A	N/A	30%	Maj. Asym.	Average	Weak	Serpentine	Possible base rot	-	Forked @ 16', Dead branches in canopy, Kinked @1' & 5'	Significant	Poor	Non-viable	Remove
Subject Property	871	BLM/Am		clump of 5	0.0	30	N/A	N/A	N/A	N/A	35%	Min. Asym.	Average	Average	Typical, Center rot	Base Rot	-	Stump sprouts, Dead branches in canopy, DBH: 11.3", 11.2", 5.5", 11.2", 7.6"	Significant	Poor	Non-viable	Remove
Subject Property	872	BCh/Pe		10.1" & 7.2"	0.0	30	N/A	N/A	N/A	N/A	50%	Min. Asym.	Thin	Weak	Leans East, Center rot	Base Rot	-	Forked @ base. Survey tag # 1070.	Significant	Poor	Non-viable	Remove
Subject Property	873	BCh/Pe		5.4"	0.0	N/A	N/A	N/A	N/A	N/A	15%	Maj. Asym.	Thin	Suppressed	Serpentine	NAD	-		Significant	Poor	Non-viable	Remove
Subject Property	874	BLM/Am		13.3", 9.6", 6.2", & 5.5"	0.0	N/A	N/A	N/A	N/A	N/A	20%	Maj. Asym.	Thin	Weak	Leans West, Center rot	Base Rot	-	Advanced carpenter ant infestation, Stump sprouts	Significant	Poor	Non-viable	Remove
Subject Property	875	BLM/Am		13.1"	0.0	35.0'	16.0'	16.0'	16.0'	16.0'	30%	Min. Asym.	Average	Average	Leans South	Partially Exposed	-	Dead Branches in Canopy	Significant	Poor	Non-viable	Remove
Subject Property	876	Ch/Psp.		7.5"	0.0	N/A	N/A	N/A	N/A	N/A	40%	Maj. Asym.	Average	Average	Leans South	Partially failed	-	not wind firm	Significant	Poor	Non-viable	Remove
Subject Property	877	BCh/Pe		4.5", 4.6", & 5.6"	0.0	N/A	N/A	N/A	N/A	N/A	50%	Maj. Asym.	Average	Average	Leans SW, Serpentine	NAD	-	Forked @ base, Dead branches in canopy, not wind firm	Significant	Poor	Non-viable	Remove
Subject Property	878	Ch/Psp.		10.0"	0.0	18.0'	N/A	N/A	N/A	N/A	60%	Maj. Asym.	Average	Average	Leans SW, Serpentine	Partially failed	-	Forked @ base, not wind firm	Significant	Poor	Non-viable	Remove
Subject Property	879	BCh/Pe		6.6"	0.0	16.0'	N/A	N/A	N/A	N/A	40%	Min. Asym.	Average	Regenerating Average	Serpentine	Partially failed	-	Forked @ kink @ 3', not wind firm	Significant	Poor	Non-viable	Remove
Subject Property	880	BCh/Pe		12.3"	0.0	N/A	N/A	N/A	N/A	N/A	50%	Min. Asym.	Thin	Dying	Straight	NAD	-	Open wound on West side from base up 3' with Fungal Mycelium, Dead branches in canopy, Carpenter ant infestation. Survey tag # 1013.	Significant	Poor	Non-viable	Remove

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NE 115th St, 124th Ave, Slater, NE 116th St
Kirkland, WA 98033

Date of Inspection: 6/26--29/06
2/1 2/11

1	2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
PROPERTY	TREE #	SPECIES	DBH 2011	DBH 2006	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE 2011	CURRENT HEALTH RATING 2011	VIABILITY 2011	RECOMMENDATION
Subject Property	881	BCh/Pe		11.8"	0.0	N/A	N/A	N/A	N/A	N/A	50%	Maj. Asym.	Thin	Dying	Leans SW, Serpentine	Partially failed	-	Dead branches in canopy	Significant	Poor	Non-viable	Remove
Subject Property	882	BLM/Am	20.0"	11.6" , 11.1", & 9.6"	5.0	42	N/A	N/A	N/A	N/A	65%	Gen. Sym.	Dense	Healthy	Straight	NAD	-	Partially failed at base--3 trunks, Not Wind Firm. Survey tag # 1-14.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	883	BCh/Pe		6.9"	0.0	N/A	N/A	N/A	N/A	N/A	40%	Maj. Asym.	Average	Average	Leans SW, Serpentine	NAD	fill on 30% of CRZ	dead branches in canopy, not wind firm	Significant	Poor	Non-viable	Remove
Subject Property	884	BCh/Pe		6.6"	0.0	N/A	N/A	N/A	N/A	N/A	40%	Maj. Asym.	Average	Average	leans west	partial failure	Fill on 35% of root zone	dead branches on canopy, not wind firm	Significant	Poor	Non-viable	Remove
Subject Property	885	BCw/Pt		30.1"	0.0	50.0'	N/A	N/A	N/A	N/A	90%	Min. Asym.	Average	Average	Straight	exposed	Fill on 35% of root zone	dead branches in canopy, not wind firm	Significant	Poor	Non-viable	Remove
Subject Property	886	BCw/Pt	31.6"	30.5"	11.0	50.0'	20.0'	20.0'	20.0'	20.0'	85%	Gen. Sym.	Average	Average	Straight	exposed	Fill on 35% of root zone	sap sucker activity	Significant	Good	Viable	Potential to retain with tree protection measures
Subject Property	887	BCw/Pt	31.8"	30.8"	11.0	56	N/A	N/A	N/A	N/A	80%	Gen. Sym.	Dense	Healthy	Straight	Partially Exposed	-		Significant	Good	Viable	Potential to retain with tree protection measures
Subject Property	888	BCw/Pt	17.4"	14.7"	4.0	40.0'	18.0'	18.0'	18.0'	18.0'	80%	Min. Asym.	Dense	Healthy	slight lean south	NAD	-		Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	889	JRP/Pd	12.4"	12.1"	2.0	20.0'	13.5'	6.0'	8.0'	12.0'	60%	Min. Asym.	Dense	Regenerating - Healthy	leans west	NAD	surface, restricted	growing in planter bed, curb is 6' to the south, 8' to the east, and 13.5' to the north, sap sucker activity, Off Property	Significant	Good	Viable	Potential to retain with tree protection measures
Subject Property	890	VM/Ac	Clump of 7	12.0"	1.0	20.0'	12.0'	6.0'	12.0'	12.0'	85%	Min. Asym.	Dense	Healthy	Typical	fork at base	Restricted	growing in planter bed next to 889--curb is 6' to the south, 8' to the east, and 13.5' to the north Clump of 10 trunks from 2.6 to 4.7" in diameter, Off Property	Significant	Fair	Viable	Potential to retain with tree protection measures
Off Property West	891	RM/Ar	15.7"	12.8"	3.0	26.0'	N/A	N/A	N/A	N/A	75%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted	OFF PROPERTY, curb is 2' west of base, fork at 7 feet, 9 feet east to light pole and 14 feet to curb, Off Property	Significant	Good	Viable	Potential to retain with tree protection measures
Off Property West	892	PB/Bp	6.6"	2.6" & 3.3"	1.0	N/A	N/A	N/A	N/A	N/A	60%	Maj. Asym.	Average	Average	Forked @ base	NAD	Restricted	Not wind firm. 2011 two trunks of 4.7 and 4.6 inches = single trunk of 6.6".	Significant	Fair	Viable	Potential to retain with tree protection measures
Off Property West	893	RM/Ar	12.5"	10.9"	2.0	26.0'	N/A	N/A	N/A	N/A	50%	Gen. Sym.	Average	Average		NAD	Restricted	OFF PROPERTY, fork at 7 feet, northwest trunk removed, 9 feet east to light pole and 14 feet east to curb, Off Property	Significant	Good	Viable	Potential to retain with tree protection measures
Subject Property	894	PM/Am	12.4"	12	2.0	22.0'	N/A	N/A	N/A	N/A	85%	Maj. Asym.	Dense	Healthy	L-N, Forked @ base	NAD	Restricted	Diameters in 2011 are 9.0 & 9.6 inches = single trunk of 12.4 inches. Some Fusarium in canopy, 3.5 feet east to curb and 12 feet west to retaining wall, base is adjacent to # 985, Off Property	Significant	Good	Viable	Potential to retain with tree protection measures
Subject Property	895	SP/Ps	10.6"	10.0"	1.0	24.0'	N/A	N/A	N/A	N/A	50%	Min. Asym.	Average	Average	Serpentine, L-S	NAD	Restricted	trunk is fused with # 987 at 25 feet, base is adjacent to 894, callused wound east side base up 4 feet, Off Property	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	896	SP/Ps	15.9"	12.6"	3.0	26.0'	N/A	N/A	N/A	N/A	75%	Min. Asym.	Average	Average	Serpentine, L-S	NAD	Restricted	early Bark Beetle infestation, sap sucker activity, curb is 9 feet to the northeast, rock retaining wall is 10 west, Off Property	Significant	Good	Viable	Potential to retain with tree protection measures
Subject Property	897	SP/Ps	11.8"	11.5"	1.0	22.0'	N/A	N/A	N/A	N/A	60%	Maj. Asym.	Thin	Weak	Serpentine, L-W	NAD	Restricted	callused wound south side at 6 to 10 feet, of fused trunk to 985 at 25 feet, curb is 5 feet north and the retaining wall is 14 feet to the west., Off Property	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	898	BLM/Am	0.0"		0.0													Tree was apparently removed as part of the propane tank and gravel parking expansion.		n/a	Non-viable	
Subject Property	899	BLM/Am	0.0"		0.0													Tree was apparently removed as part of the propane tank and gravel parking expansion.		n/a	Non-viable	
Subject Property	900	FrCh/Psp	22.6"	14.5"	7.0	22.0'	N/A	N/A	N/A	N/A	65%	Min. Asym.	Average	Weak	Serpentine	NAD	-	dead branches in canopy, root collar is 6 inches from # 901, Off Property. Survey tag # 1046.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	901	FrCh/Psp	16.1"	20.3"	4.0	28.0'	N/A	N/A	N/A	N/A	80%	Maj. Asym.	Average	Average	Leans-E	NAD	-	dead branches in canopy root collar is 6 inches from # 900, fork at 6 feet	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	902	BLM/Am	n/a	13.8"	0.0	N/A	N/A	N/A	N/A	N/A	70%	Maj. Asym.	Average	Broken Out	Center Rot	Base Rot	-	rot pocket in trunk	Significant	Poor	Non-viable	Remove

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Date of Inspection: 6/26--29/06
2/1 2/11

1	2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
PROPERTY	TREE #	SPECIES	DBH 2011	DBH 2006	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE 2011	CURRENT HEALTH RATING 2011	VIABILITY 2011	RECOMMENDATION
Subject Property	903	BLM/Am	17.0"	16.4"	4.0	N/A	N/A	N/A	N/A	N/A	50%	Min. Asym.	Average	Broken Out	Center Rot	Base Rot	-	fork at 16 feet with vertical crack 3.5 feet below the fork with sap flow	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	904	FrCh/Psp	n/a	7.4"	0.0	N/A	N/A	N/A	N/A	N/A	10%	Maj. Asym.	Thin	Dying	Leans-NE	NAD	-		Significant	Poor	Non-viable	Remove
Subject Property	905	BLM/Am	13.5"	12.5", 11.8	2.0	N/A	N/A	N/A	N/A	N/A	10%	Min. Asym.		Dying, Dense	Serpentine	NAD	-	southwest trunk is dead and rotten with Carpenter Ant infestation, north trunk has base rot	Significant	Fair	Viable	Potential to retain with tree protection measures
Off Property West	906	RM/Ar	7.1"	6.4"	1.0	N/A	N/A	N/A	N/A	N/A		Min. Asym.	Average	Pruned, Regenerating - Fair	Center Rot	NAD	-	open wound base up 5 feet, center rot Carpenter Ant Infestation	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	907	BLM/Am	14.1"	Clump of 4	3.0	N/A	N/A	N/A	N/A	N/A	50%	Min. Asym.	Average, Dense	Average, Dense	Center Rot	Partially exposed	-	2006 trunk diameters are: 10.1, 6.6, 9.2, 4.3,. Base rot. Fork at 1 foot. 2011 trunk diameters are 10.5, 4.5, 5.2, & 6.5 inches = single trunk of 14.1 inches.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	908	BLM/Am	17.4"	16.1"	4.0	28.0'	N/A	N/A	N/A	N/A	75%	Maj. Asym.	Dense	Healthy	Serpentine	NAD	-	fork at 16 feet with included bark down 2 feet, 10 feet west to retaining wall., Off Property	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	909	BLM/Am	n/a	Clump of 6	0.0	N/A	N/A	N/A	N/A	N/A	40%	Min. Asym.	Dense	Healthy	Center Rot	Base Rot	Restricted	crown raised 25 feet on west side, sucker sprouts at 2 feet, 12 feet east of parking lot curb	Significant	Poor	Non-viable	
Subject Property	910	BLM/Am	12.0"	9.5", 4.6	1.0	N/A	N/A	to property line	N/A	N/A	50%	Maj. Asym.	Average	Average	Forked @ 12", Leans East, Center rot	Base Rot	Restricted	2011 trunk diameters are 1.7 & 5.4 = single trunk of 12.0 inches.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	911	BLM/Am	13.9"	16.0"	2.0	N/A	N/A	N/A	N/A	N/A	45%	Maj. Asym.	Thin	Average	Forked @ 18", Included bark down bark	Base Rot	Restricted	center rot, open wound east side from fork to base, 2006 trunk diameters are: 6.8", 4.6", 6.1", & 6.2" = a tree of 16", 2011 trunk diameters are 7.3, 5.6, 7.1, & 7.6 inches = single trunk of 13.9 inches.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	912	BCw/Pt	43.2"	40.0"	17.0	56.0'	24.0'	24.0'	24.0'	20.0'	45%	Gen. Sym.	Dense	Healthy	Typical	NAD	Restricted	20 feet east of parking lot curb	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	913	BCh/Pe	7.1"	6.7"	1.0	22.0'	10.0'	10.0'	10.0'	10.0'	35%	Min. Asym.	Average	Average	Typical, Kinked @ 6', Serpentine	NAD	-	bacterial infections in branch collars, 3 feet of brush and fill and trash over root collar	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	914	RA/Ar	18.7"	20.0"	5.0	34.0'	12.0'	12.0'	12.0'	12.0'	70%	Min. Asym.	Average	Average	Forked @ Base, slight lean to SW	NAD	-	2006 trunk diameters are 10.2", 6.2", & 11.0". 2011 trunk diameters are 12.1, 6.8, & 12.5 inches = single trunk of 18.7 inches.	Significant	Fair	Viable	Potential to retain with tree protection measures
Off Property West	915	RM/Ar	12.1"	9.5"	2.0	22.0'	10.0'	10.0'	10.0'	to curb	60%	Maj. Asym.	Average	Average	Typical	NAD	Restricted	3 feet east of parking lot curb	Significant	Fair	Viable	Potential to retain with tree protection measures
Off Property West	916	RM/Ar	10.3"	9.4"	1.0	16.0'	10.0'	10.0'	10.0'	to curb	55%	Maj. Asym.	Average	Average	Typical	NAD	Restricted	3 feet east of parking lot curb	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	917	BLM/Am	17.7"	11.9", 9.0", 6.4	4.0	N/A	N/A	N/A	N/A	N/A	60%	Gen. Sym.	Average	Average	Center Rot	Goons, Base Rot	Restricted	Ivy up 30 feet. 2011 trunk diameters are 12.5, 10.4, & 7.1 inches = single trunk of 17.7 inches.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	918	BLM/Am	9.9"	11.2"	0.0	26.0'	12.0'	12.0'	12.0'	12.0'	60%	Maj. Asym.	Average	Average	Leans W	NAD	Fill on 50% of root zone	dead branches in canopy	Significant	Poor	Non-viable	Remove
Subject Property	919	BLM/Am	n/a	7.8"	0.0	N/A	N/A	N/A	N/A	N/A	70%	Min. Asym.	Average	Average	Forked @ 16' with rot column, Serpentine	Possible base rot	Fill on 50% of root zone	center rot	Significant	Poor	Non-viable	Remove
Subject Property	920	BCh/Pe	16.3"	15.4"	4.0	24.0'	10.0'	10.0'	10.0'	10.0'	45%	Min. Asym.	Average	Average	Typical	NAD	Fill on 50% of root zone	dead branches in canopy, adjacent to # 921. Survey tag # 1045.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	921	BLM/Am	n/a	12.5"	0.0	N/A	N/A	N/A	N/A	N/A	60%	Min. Asym.	Healthy	Average	Center Rot	Base Rot	Fill on 50% of root zone	open wound north side 2' to 4.5' with rot	Significant	Poor	Non-viable	Remove
Subject Property	922	BLM/Am	n/a	8.0"	0.0	N/A	N/A	N/A	N/A	N/A	25%	Min. Asym.	Average	Average	Forked @ 20', with Rot Column to 12'	Base Rot	Fill on 50% of root zone	center rot	Significant	Dying	Non-viable	Remove

ATTACHMENT 2:
TREE INVENTORY/CONDITION SPREADSHEET

SITE: Totem Lake Apartments Site
NE 115th St, 124th Ave, Slater, NE 116th St
Kirkland, WA 98033

Date of Inspection: 6/26--29/06
2/1 2/11

1	2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
PROPERTY	TREE #	SPECIES	DBH 2011	DBH 2006	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE 2011	CURRENT HEALTH RATING 2011	VIABILITY 2011	RECOMMENDATION
Subject Property	923	BCh/Pe	n/a	8.0"	0.0	N/A	N/A	N/A	N/A	N/A	35%	Maj. Asym.	Thin	Straight	Leans W, Serpentine	Base Rot	Fill on 50% of root zone	center rot, not wind firm	Significant	Dead	Non-viable	Remove
Subject Property	924	BCh/Pe	n/a	7.6"	0.0	14.0'	6.0'	6.0'	6.0'	6.0'	30%	Min. Asym.	Average	Straight	Leans North	Exposed	-		Significant	Poor	Non-viable	Remove
Subject Property	925	BCh/Pe	17.7"	15.6"	4.0	26.0'	10.0'	10.0'	10.0'	10.0'	70%	Min. Asym.	Average	Average	Leans North	Partially exposed	Fill on 35% of root zone	sap sucker activity	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	926	BCw/Pt	n/a	est. 36"	0.0	N/A	N/A	N/A	N/A	N/A	20%	Maj. Asym.	Sparse	Dying	Forked @ 12'	Base Rot	-	Ivy 3 inches in diameter growing up tree, advanced Carpenter Ant infestation, tree is mostly dead	Significant	Dying	Non-viable	Remove
Subject Property	927	DF/Pm	33.6"	38.0"	12.0	44.0'	20.0'	20.0'	20.0'	to curb	25%	Gen. Sym.	Dense	Regenerating, Healthy	Straight	Ivy	Restricted	growing 12 feet east of parking lot curb, early Bark Beetle infestation, Ivy up 85% of tree. Survey tag # 1041	Significant	Fair	Viable	Potential to retain with tree protection measures
Off Property West	928	RM/Ar	8.8"	9.4"	1.0	60	N/A	N/A	N/A	N/A	35%	Gen. Sym.	Average	Average	Forked @ 6', with Rot Column to base	Base Rot	Restricted	open wound west side base up 6 feet, curb is 2 feet west and rock retaining wall is 2 feet east	Significant	Fair	Viable	Potential to retain with tree protection measures
Off Property West	929	RM/Ar	8.7"	77.0"	1.0	16	N/A	N/A	N/A	N/A	60%	Gen. Sym.	Average	Average	Forked @ 6' with Rot Column to base	Base Rot	Restricted	curb is 2 feet west and rock retaining wall is 2 feet east, open wound southwest side base up 5 feet	Significant	Fair	Viable	Potential to retain with tree protection measures
Off Property West	930	RM/Ar	8.8"	7.9"	1.0	12	N/A	N/A	N/A	N/A	60%	Gen. Sym.	Average	Average	Forked @ 5.5' with Rot Column to base	Base Rot	Restricted	curb is 2 feet west and rock retaining wall is 2 feet east, open wound southwest side base up 5 feet	Significant	Fair	Viable	Potential to retain with tree protection measures
Off Property West	931	RM/Ar	6.3"	5.8"	1.0	10.0'	10' NE and SW and to the curb				60%	Gen. Sym.	Average	Average	Forked @ 6'	NAD	Restricted	curb is 2 feet west and rock retaining wall is 2 feet east, callused wound southwest side 2 feet to 4 feet	Significant	Fair	Viable	Potential to retain with tree protection measures
Off Property West	932	RM/Ar	8.8"	8.0"	1.0	10.0'	10' NE and SW and to the curb				60%	Gen. Sym.	Average	Average	Forked @ 6', Included bark to 1'	NAD	Restricted	curb is 2 feet west and rock retaining wall is 2 feet east, callused wound east side at 5.5 feet	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	933	RM/Ar	9.6"	8.6"	1.0	14.0'	10' NE and SW and to the curb				60%	Gen. Sym.	Average	Average	Forked @ 5.5', Included bark to 1'	NAD	Restricted	curb is 2 feet west and rock retaining wall is 2 feet east, open wound south side at 4.5 feet	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	934	DF/Pm	39.8"	35.3"	15.0	46.0'	20.0'	20.0'	20.0'	to top of retaining wall	90%	Gen. Sym.	Dense	Healthy	Kinked @ 34', Straight	NAD	Restricted	Ivy up 24 feet, growing 18 feet southeast of 4 foot rock retaining wall	Significant	Very Good	Viable	Potential to retain with tree protection measures
Subject Property	935	DF/Pm	0.0"		0.0													Removed in prior construction +/or demolition		Removed	Non-viable	Eliminate from site plan
Subject Property	936	WRC/Tp	0.0"		0.0													Removed in prior construction +/or demolition		Removed	Non-viable	Eliminate from site plan
Subject Property	937	DF/Pm	0.0"		0.0													Removed in prior construction +/or demolition		Removed	Non-viable	Eliminate from site plan
Right-of-Way Slater	938	DF/Pm	39.9"	39.6"	15.0	40.0'	18.0'	to prop line	to edge of road	18.0'	80%	Min. Asym.	Dense	Regenerating, Average	Forked @ 60'	owed at bas	Restricted	open wound west side 2 feet to 5 feet with sap flow, ice storm damage, in gravel parking area near road, wire and metal embedded in base of trunk	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	939	WRC/Tp	0.0"		0.0													Removed in prior construction +/or demolition		Removed	Non-viable	Eliminate from site plan
Subject Property	940	DF/Pm	0.0"		0.0													Removed in prior construction +/or demolition		Fair	Viable	Eliminate from site plan
Subject Property	941	WRC/Tp	0.0"		0.0													Removed in prior construction +/or demolition		Fair	Viable	Eliminate from site plan
Subject Property	942	BLM/Am	0.0"		0.0													Removed in prior construction +/or demolition		Fair	Viable	Eliminate from site plan
Subject Property	943	BLM/Am	12.7"	10.7"	2.0	36.0'	14.0'	8.0'	to edge of road	14.0'	75%	Min. Asym.	Dense	Healthy		Bowed at base	-	8 feet north of house	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	944	BLM/Am	11.0"	9.4"	1.0	36.0'	14.0'	12.0'	to edge of road	14.0'	70%	Min. Asym.	Dense	Healthy		NAD	-	fork at 12 feet	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	945	BLM/Am	11.1"	9.6"	1.0	36.0'	14.0'	14.0'	to edge of road	14.0'	80%	Maj. Asym.	Dense	Healthy	Slight lean SW	Bowed at base	-		Significant	Fair	Viable	Potential to retain with tree protection measures

ATTACHMENT 2:
TREE INVENTORY/CONDITION SPREADSHEET

SITE: Totem Lake Apartments Site
NE 115th St, 124th Ave, Slater, NE 116th St
Kirkland, WA 98033

Date of Inspection: 6/26--29/06
2/1 2/11

1	2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
PROPERTY	TREE #	SPECIES	DBH 2011	DBH 2006	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE 2011	CURRENT HEALTH RATING 2011	VIABILITY 2011	RECOMMENDATION
Subject Property	946	BLM/Am	13.2"	11.1"	2.0	36.0'	14.0'	14.0'	to edge of road	14.0'	80%	Min. Asym.	Dense	Healthy	Slight lean NE	Bowed at base	-		Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	947	DF/Pm	29.4"	28.6"	10.0	34.0'	14.0'	14.0'	to edge of road	14.0'	85%	Min. Asym.	Dense	Average	Straight	NAD	-	bark beetle infestation, dead branches in canopy on north side. Survey tag # 107.	Significant	Good	Viable	Potential to retain with tree protection measures
Subject Property	948	BLM/Am	n/a	6.0"	0.0	N/A	N/A	N/A	N/A	N/A	10%	Maj. Asym.			Center Rot	Base Rot	Fill on 50% of root zone	carpenter ant infestation	Significant	Dying	Non-viable	Remove
Subject Property	949	BLM/Am	16.8"	13.4"	4.0	N/A	N/A	N/A	N/A	N/A	10%	Min. Asym.	Thin	Weak	Center Rot	Base Rot	-	Ivy up 50 feet	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	950	BLM/Am	n/a	12.0"	0.0	30	N/A	N/A	N/A	N/A	60%	Gen. Sym.			Straight, Center rot	Base Rot	Fill on 50% of root zone	fork at 22 feet. Ivy up 20 feet. Survey tag # 1037.	Significant	Poor	Non-viable	Remove
Subject Property	951	BLM/Am	22.1"	16.8", 8.2	7.0	20	N/A	N/A	N/A	N/A	80%		Dense	Healthy	Center Rot	Base Rot	Fill on 50% of root zone	Ivy up 30 feet, fork at base stump sprouts. 2011 trunk diameters are 12.5 & 18.2 inches = single trunk of 22.1 inches.	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	1375	BCw/Pt	8.3"		0.0	10	n/a	n/a	n/a	n/a	75	Maj. Asym.	ABS/ASE	Average	Leans SW	NAD	NAD	Kinked at 10 feet with rot pockets.	Significant	Poor	Non-viable	Remove
Subject Property	1378	BCh/Pe	11.2"		1.0	12					65	Gen. Sym.	ABS/ASE	Average	Forked at 3.5'. Leans north.	NAD	NAD	Trunk diameters are 8.8 & 7.0 inches = single trunk of	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	1379	BCh/Pe	10.4"		1.0	14					65	Gen. Sym.	ABS/ASE	Average	Serpentine, leans NW	NAD	NAD		Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	1380	BCh/Pe	14.8"		0.0	12	n/a	n/a	n/a	n/a	60	Maj. Asym.	PBS/PSE	Weak	Forked at base. Center rot	Base Rot	Probable root rot.	Open wound on south side from base up 3.5 feet with decay.	Significant	Poor	Non-viable	Remove
Subject Property	1381	BCh/Pe	8.0"		1.0	14					65	Min. Asym.	ABS/ASE	Average	Forked at base, typical.	NAD	NAD	Trunk diameters are 6.1 & 5.2 inches = single trunk of	Significant	Fair	Viable	Potential to retain with tree protection measures
Subject Property	1382	BCw/Pt	32.7"		0.0	n/a	n/a	n/a	n/a	n/a	0	n/a	none	Dead	n/a	n/a	n/a		Significant	Dead	Non-viable	Remove
Subject Property	1383	SG/Ls	5.3"			6	6	6	6	6	60	Gen. sym.	ABS/ASE	Healthy	Typical	NAD	Restricted	growing in small planter bed between shoulder and the coffee stand in the parking lot.	Not Significant	Very Good	Viable	Potential to retain with tree protection measures
Subject Property	1384	BCh/Pe	5.4			6	n/a	n/a	n/a	n/a	45	Maj. Asym.	PBS/PSE	Broken Out	Bowed & leans SW	NAD	-		Not Significant	Poor	Non-viable	Remove
Subject Property	1385	BCh/Pe	6.2			8	8	8	8	8	60	Min. Asym.	ABS/ASE	Average	Serpentine	NAD	-		Significant	Fair	Viable	Potential to retain with tree protection measures
					322.0	**Total Existing Tree Credits**																

SUMMARY

Tree Locations:	
1	Right-of-Way Trees
11	Off Property Trees
119	Subject Property Trees
131	**Total # of Trees**

Evaluation of Subject Property Trees:

Significance:	
115	Significant
4	Non-Significant
119	**Total # of Trees**

Viability:	
68	Viable
51	Non-Viable
119	**Total # of 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 reader's 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**—Whether the tree is on or off the Subject Property, or a Right-of-Way tree.
2) **TREE LOCATION**—Relative placement of the tree.
3) **TREE #**—the unique tag number of each tree.
4) **SPECIES**—this describes the species of each tree with both most readily accepted common name and the officially accepted scientific name.
5) **DBH**—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 as, '28.4" at 36"'.
    ii) Trees with multiple stems are listed as a "clump of x," 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.
6) **TREE CREDIT**—Tree Credit based on Trunk Diameter
7) **DRIP LINE**— the radius, the distance from the trunk to the furthest branch tips.
8) **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.

9) **% 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.
10) **SYMMETRY**—is the description of the form of the canopy. That is, the balance or overall shape of the canopy and crown. This is the place I list any major defects in the tree shape—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, root defects.
11) **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 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) Dense—extremely thick foliage, an indication of healthy vigorous growth,
        (2) Good—thick foliage, thicker than average for the species,

(3) Normal/Average—thick foliage, average for the species, an indication of healthy growth,
(4) Thin or Thinning—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) Sparse—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) Necrosis—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 tree's long-term health.
(7) Hangers—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.

12) **CROWN CONDITION**—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 tree's 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 Crown—exceptional growth for the species.
      (2) Average Crown—typical for the species.
      (3) Weak Crown—thin spindly growth with thin or sparse needles.
      (4) Flagging Crown—describes a tree crown that is weak and unable to grow straight up.
      (5) Dying Crown—describes obvious decline that is nearing death.
      (6) Dead Crown—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 out—a formerly weak crown condition that has been broken off by adverse weather conditions or other mechanical means.

(8) Regenerated or Regenerating—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) Suppressed—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.

13) **TRUNK**—this is the area to note any defects that can have an impact on the tree's stability or hazard potential. Typical things noted are:

i) FORKED—bifurcation of branches or trunks that often occur at a narrow angle.

ii) INCLUDED BARK—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 GROWTH—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 WEAKNESS—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) BOWED—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) KINKED—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 FLOWER—an area of deformed bark near the base of a tree trunk that indicates long-term root rot.

14) **ROOT COLLAR**—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.
15) **ROOTS**—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.
16) **COMMENTS**—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.
17) **SIGNIFICANCE**—a "significant" tree is at least 6" in diameter measured at 4.5' above the average ground level.
18) **CURRENT HEALTH RATING**— a description of general health ranging from dead, dying, poor, senescent, suppressed, fair, good, very good, to excellent.
19) **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.
    (1) Please note that many trees may be listed as "Non-Viable" due to poor health, poor structure, or the tree may be below the size threshold for a "Viable Tree." However, it is worth examining the Non-Viable 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.
20) **RECOMMENDATION**— 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: "**Monitor" 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. "Monitor annually" (or bi-annually, tri-annually, etc.)" 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 damage—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 "Significant," while another may be marked "Non-Significant." The difference is in the degree of the description—early necrosis versus advanced necrosis for instance. Again, these descriptions were left brief in an effort to include as much pertinent information as possible, to make the report manageable, and, not to bore the reader with infinite levels of detail.

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 and as noted in the attached Tree Inventory/Conditions Spreadsheet, Column 6 - Limits of Disturbance.
    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 operators.
        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.

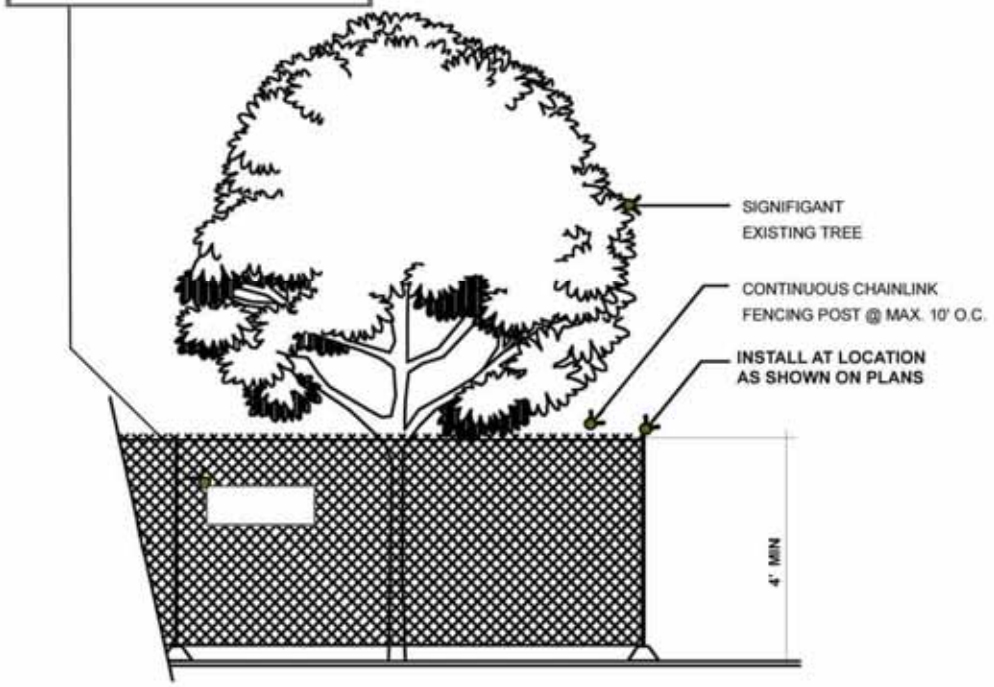
d. The Certified Arborist should then excavate around the tree root by hand/shovel and cleanly cut the tree root.
    i. The Certified Arborist should then instruct the equipment operator to continue.

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 composed 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.

FENCING SIGN DETAIL

Tree Protection Area, Entrance Prohibited
To report violations contact
City Code Enforcement
at (425)587-3225



1. MINIMUM FOUR (4) FOOT HIGH TEMPORARY CHAINLINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE (S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.

2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND COVERED WITH SOIL AS SOON AS POSSIBLE.

3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.

4. FENCING SIGNAGE AS DETAILED ABOVE MUST BE POSTED EVERY FIFTEEN (15) FEET ALONG THE FENCE.

CITY OF KIRKLAND WASHINGTON

TREE PROTECTION FENCING DETAIL

ATTACHMENT 5 - REFERENCES

1. Arno, Stephen F. and Hammerly, Ramona P. *Northwest Trees*. Anniversary Ed. Seattle, Washington: The Mountaineer Books, 2007.

2. Brockman, C. Frank, *Trees of North America, A Guide to Field Identification*. New York: Golden Press, 1979.

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

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. Pacific Northwest Chapter-ISA. *Tree Risk Assessment in Urban Areas and the Urban/Rural Interface.* Course Manual. Release 1.4. PNW-ISA: Silverton, Oregon, 2010.

7. Watson, Gary W., and Neely, Dan, eds. *Trees & Building Sites*. Savoy: The International Society of Arboriculture Press, 1995.