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## Tree Evaluation The Lofts at Camas Meadows Camas, WA

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Prepared January 23<sup>rd</sup>, 2015 for:  
Kirkland Development, LLC  
Attn.: Dean Kirkland  
Kirkland Development  
2300 East 3rd Loop, Suite 100  
Vancouver, WA 98661  
Office (360) 816-1494

cc: Andrew Gunther  
PLS Engineering  
2008 C Street  
Vancouver, WA 98663  
[andrew@plsengineering.com](mailto:andrew@plsengineering.com)

Prepared by:  
Gaston Porterie  
Tree Plans Northwest  
7000 NE 294th St.  
Battle Ground, WA 98604  
Phone 360-904-9613  
FAX 1-888-826-2769 (toll free)  
International Society of Arboriculture (ISA)  
Certified Arborist #PN-1105  
Pacific Northwest Chapter ISA  
Certified Tree Risk Assessor #452  
Society of American Foresters Certified Forester #585

### Location, Purpose & Background

This tree evaluation addresses a 4-acre site located west of the Camas Meadows Golf Course in Camas. This site is planned for about 104 apartments on parcels #175980-000, 172973-000, and 172963-000, near #4105 Northwest Camas Meadows Drive. The purpose of this report is to document the field reconnaissance of existing trees within specific tree study area, validate their species, evaluate tree health, and report findings as a "tree survey" per City of Camas Tree Retention code 18.31.080. The code requires a tree survey for lands proposed to be developed:

"A tree survey, conducted by a qualified biologist, landscape architect, or arborist, shall be conducted for all lands proposed to be developed...."

and

"To the extent practical, existing healthy significant trees shall be retained. Preservation of groups of significant trees, rather than individual trees shall be preferred....."

CMC 17.19.030 (A)(2) also applies:

Vegetation. In addition to meeting the requirements of CMC Chapter 18.31, Tree Regulations, every reasonable effort shall be made to preserve existing significant trees and vegetation, and integrate them into the land use design.

However, significant trees are not defined in the code as of the preparation date of this report. Because the code lacks a specific definition of significant trees, this report utilizes a classification of significance based on their health and size. The report also evaluates significant trees based on the character of the site, historical use, and onsite development constraints in the general context of the proposed development as it relates to the City's vision for the site in its comprehensive plan and the applicability of required zoning regulations. Because of the City's site zoning and comprehensive plan designation for residential development as apartments, the significance of individual trees on this parcel must be evaluated based on the intended use. At this site, the City's density requirements make it extremely difficult to retain trees safely next to buildings.

The trees on this site were surveyed by a licensed surveyor (Olson Engineering) well over 10 years ago, then recently plotted on plan sheets by PLS Engineering.

Using the surveyed plan sheets provided, a reconnaissance level “walkthrough” tree evaluation was done by this arborist on January 1<sup>st</sup>, looking at most trees greater than 6” DBH,

Because specific development on lots will be established at the time of building permit, this tree evaluation is not to be considered a hazard assessment of any specific tree or groups of trees. Even after final engineering and plans are prepared, future property owners will need to have tree hazards assessed by a Certified Arborist with the specific lot development plan. These lot development plans may be done either on a lot by lot evaluation, or could be done as each phase of the plat is developed for the designated building envelopes.

#### **Land use and topography**

The property is bordered to the north, south and east by the existing Camas Meadows Golf Course. To the west is undeveloped acreage similar to the subject property. The slopes are gentle and vary from about 0% up to 20%+. Based on the Clark County GIS mapping, there may be some environmentally sensitive soils, wetlands, habitats, buffers, and unstable slopes.

#### **Estimated Numbers of Trees**

Based on my manual count of the trees plotted on the plan sheet (with tree symbols superimposed) I estimate there are approximately 140 trees with trunk diameters over 6 inches on the properties. Please refer to the Conceptual Plans for The Lofts at Camas Meadows for locations of surveyed trees.

#### **General Explanation of Tree Health**

Trees with a low to moderate failure potential are generally considered to be “healthy” until examined closer, or until conditions change. Failure potential is based on professional arborist judgment, as described in chapter 4 “Evaluating Trees for Hazard” in the International Society of Arboriculture book, *A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas*, by Nelda P. Matheny and James R. Clark, 1993. Please see here:

<http://www.amazon.com/Photographic-Guide-Evaluation-Hazard-Trees/dp/1881956040>

The *Tree Risk Assessment in Urban Areas and the Urban/rural Interface* manual was also used, from the Pacific Northwest Chapter of the International Society of Arboriculture, 2008.

Trees scattered throughout the sites show signs of root rot, trunk rot, sparse crowns or limbs that may break off and fall. Other trees show signs of mechanical damage or ice storm damage, as indicated by trunk breaks with re-



sprouts and re-growth from the damage point. This condition creates a weak area of the trunk that will again be susceptible to failure. Also, there is always some degree of risk of failure of trees which appear to be healthy, due to unusual weather, or sometimes, without any obvious reason. As a general rule, unhealthy trees that could pose a risk to human life should be removed, along with any tree which had excavation, fill, root damage or ground disturbance that occurred within the crown drip line root zone (a generally circular area on the ground that is outlined by the outer edge of the tree crown's green foliage). Also, apartment and street construction may negatively affect tree health in many ways. Some damage may occur underground, yet be covered up by streetscaping and landscaping.

*This tree evaluation is limited to the conditions observed as of the field dates the evaluation was made, and no assumptions or predictions are made about any human activities (including site development for a subdivision), excavation, tree decline, or acts of nature that may occur anytime after the date of the field evaluation. Also, it should be kept in mind that all trees eventually die and/or fall or get blown over. Because of this fact, a building or person within one height's distance (or more on steeper ground) may be impacted by a falling tree. Even "healthy" trees will be blown over during extreme storm winds greater than 60 miles per hour. Please see the following "Tree Retention and Removal" and "Mitigation Strategy" sections how this will be addressed going forward.*

#### **Existing trees and tree health**

During my January 1<sup>st</sup> field visit, I observed some trees that are "unhealthy" trees defined as those trees that already have a high failure potential, before the planned construction activity. Tall tree heights with some sparse tree crowns, risk of tree windthrow, and root rot negatively affect tree health.

A major indicator of a tree's ability to withstand storm winds is the vertical crown ratio, which measures the portion of the tree's height that is covered by the green crown, with leaf or needle-bearing branches. Some trees in the more open areas of the property show generally high crown ratios of 40% to 90% indicating good wind resistance. These trees have grown like that for years, due to the more open conditions on neighboring areas. However, some trees were crowded, have top heavy crowns, and will become quite hazardous when neighboring trees are removed. In many areas, tree heights are 100 feet tall or taller. Given that the planned buildings will be high density and four stories tall, any tree within or next to the site (whether wind resistant or not) could possibly fall on a house or person. Washington State DNR rules allow removal of trees around rural residences to minimize these possibilities in rural areas, and the tree evaluation and mitigation

strategy proposed in the tree protection areas is consistent with this practice. This is wise for urban lots too because even a healthy, windfirm tree can fall.

### **Tree Retention and Removal**

Because of the tall tree heights, risk of tree windthrow, root rot, the previously discussed density standards, and access requirements, all of the trees on the properties will need to be removed, due to the risk of trees falling on apartments, people, streets, or sidewalks occupied by people. No trees should be retained at this project site, in my opinion.

Please see the pictures (pages 8 thru 9) showing pictures of tall trees presenting a hazard to the planned development on the site, along with pictures of trees that recently blew over, aggravated by root rot disease.

The following Mitigation Strategy will mitigate the tree removals over time by infilling with healthy, wind firm trees.

### **Mitigation Strategy**

New landscape trees will be planted in some landscape , in addition to required street trees. Appropriate species will be selected from a list of commonly available landscape trees (see last paragraph of this section). The planted trees will be small when planted (a minimum caliper of 2 inches is recommended for the deciduous species, and a minimum height of 6 feet for evergreen species). However, they will grow steadily over time and develop tree form adapted to the new environment. This will provide ecological, watershed and wildlife habitat benefits along with trees that will be more wind resistant than the original trees removed.

When trees are planted through this mitigation strategy, the planting holes should be the same depth as the root balls, but three times the diameter. A mulch of wood chips should be applied in the largest affordable radius. The blackberries and other competing vegetation should be kept away from the root zones of the planted trees.

Please see the list of Enclosures for a tree planting list "Tree Selection List for 8 foot wide planter strips.pdf" (separate file). These trees are specified for an 8 foot wide planting strip, and the trees on this list will eventually grow to heights ranging from 40 to 70 feet tall, and 30 to 60 feet wide. Although the sample tree list has almost all deciduous trees, both deciduous and evergreen varieties may be planted, provided that that will not be any larger at maturity (due to risk to the homes). The common native species such as Douglas-fir, western redcedar, grand

fir, red alder and bigleaf maple are NOT recommended, because they will grow over 100 feet tall and present a much greater risk eventually.

**Future Review of the Management Strategy**

Future changes in ownership objectives, forest inventory, zoning, technology, and/or the business climate can all result in the need for modification of this tree plan. Periodic review and update is suggested every 10 to 20 years by a certified arborist or forester.



GASTON PORTERIE



*Experience*

- 25+ years' experience as a forester for private companies and the U.S.D.A. Forest Service in Louisiana, California, Nevada, Oregon and Washington
- past Forestry Instructor, Clark College, Vancouver, Washington

*Recent Projects*

- Completed a total of over one hundred tree plans for development projects in Beaverton, Hillsboro, Durham, Tigard, and Tillamook, Oregon; Vancouver and Clark County, Washington

*Education*

- B.S. Forestry: Louisiana State University, 1973
- M.F.R. Ecology and Silviculture University of Washington, 1984

*Professional Affiliations*

- Certified Arborist #PN-1105, International Society of Arboriculture
- Certified Forester #585, Society of American Foresters
- Pacific Northwest Chapter ISA Certified Tree Risk Assessor #452
- formerly a Certified Silviculturist, U.S.D.A. Forest Service, Pacific Northwest Region (for 22 years, from 1981 thru 2003)
- formerly a Forester and Budget Coordinator, U.S.D.A. Forest Service, Pacific Northwest Research Station



**Some typical fir and oak trees at this site, showing how tall and variable the tree crowns are**

(January 1<sup>st</sup>, 2015)



**More fir and oak trees at this site, showing how tall and variable the tree crowns are**

(January 1<sup>st</sup>, 2015)





**Roots of a tree that recently blew over, showing root rot that made them more susceptible to blowdown**

(January 1<sup>st</sup>, 2015; probably on the adjacent property, but still illustrative of the condition)



**Roots of another tree that recently blew over, showing root rot that made them more susceptible to blowdown**

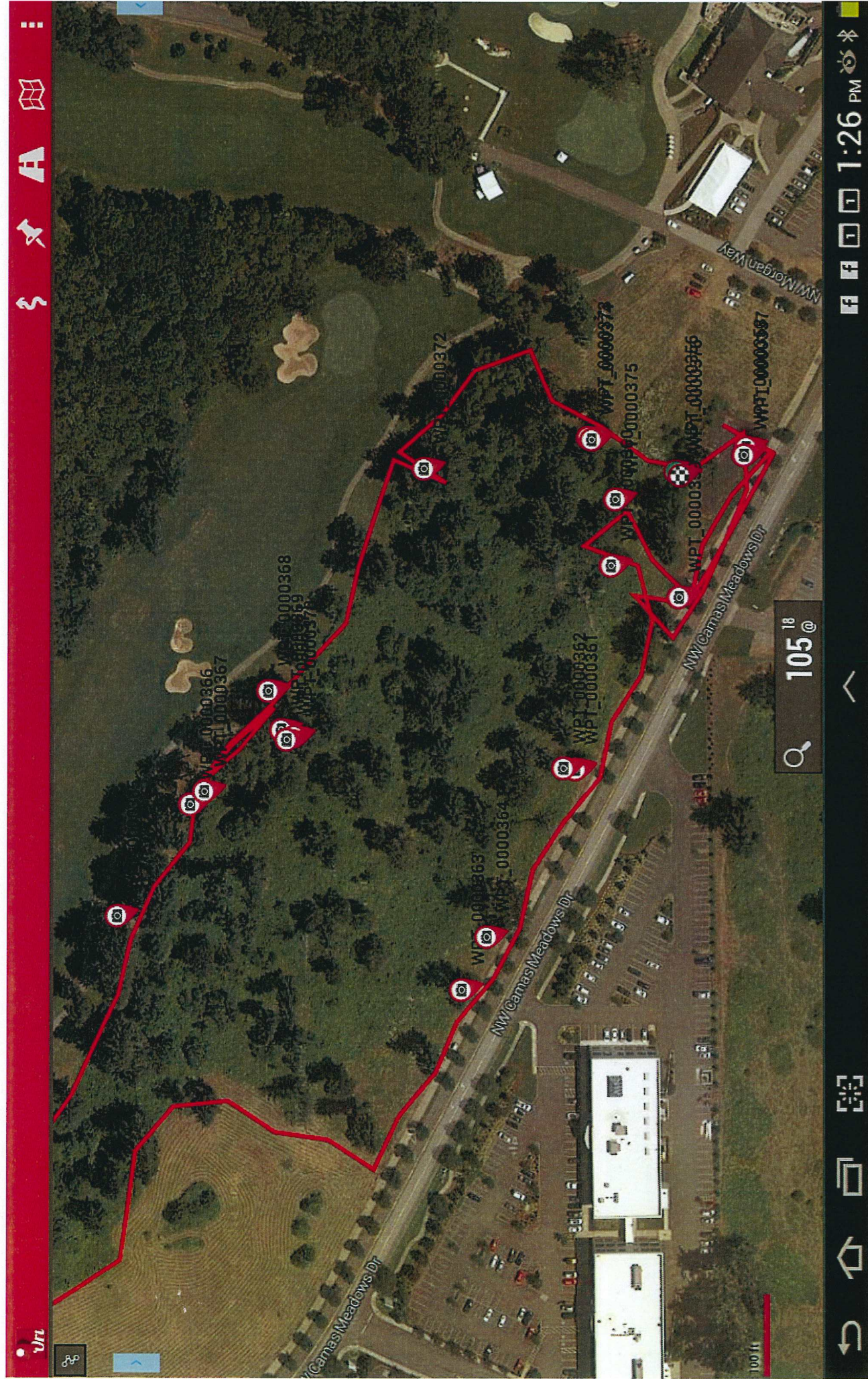
(January 1<sup>st</sup>, 2015; probably on the adjacent property, but still illustrative of the condition)



**Enclosures** (separate electronic files)

- Conceptual Plans for The Lofts at Camas Meadows, with surveyed trees and building envelopes on plan sheet (provided by PLS Engineering):
  - 2340-SHT\_-Layout1.pdf
- Aerial photo, field evaluation tracks and photopoints; as mapped by Gaston Porterie:
  - Screenshot\_2015-01-01-13-26-21.png
- Tree planting list:
  - Tree Selection List for 8 foot wide planter strips.pdf







**City of Vancouver  
Street Tree Selection**

**Minimum 8' Planting Strip Width**

\*Refer to 4' tree list for additional trees for use under power lines

Call (360) 619-1132 for a site inspection before planting a street tree.  
Updated July 27, 2007

Common Name	Scientific Name	Cultivar	Height (in FT)	Width (in FT)	Shape	Features/Considerations	Drought Tolerant	Overhead Utilities OK*	Soil Type
Autumn Blaze Maple	<i>Acer x freemani</i>	Jeffersred	50	40	broadly oval	fast growing; brilliant long-lasting fall color	✓		all
State Street Maple	<i>Acer miyabei</i>	Morton	50	35	rounded	red in fall	✓		all
Crimson King Maple	<i>Acer platanoides</i>	Crimson King	40	35	oval/rounded	purple leaves; reddish bronze in fall			all
Deborah Maple	<i>Acer platanoides</i>	Deborah	45	40	oval/rounded	dark bronze green leaves; bronze in fall			all
Emerald Queen Maple	<i>Acer platanoides</i>	Emerald Queen	50	40	oval/upright	tolerant of pollution			all
Summershade Maple	<i>Acer platanoides</i>	Summershade	42	40	broad/rounded	fast growing; yellow in fall			all
Spaethii Maple	<i>Acer pseudoplatanus</i>	Atropurpureum	40	30	oval/upright	green/purple leaves			all
Red Sunset Maple	<i>Acer rubrum</i>	Franksred	45	35	upright/oval	vigorous/symmetrical; orange/red in fall	✓		all
Schlesinger Maple	<i>Acer rubrum</i>	Schlesingeri	45	35	vase shaped	orange/red in fall	✓		all
Bonfire Maple	<i>Acer saccharum</i>	Bonfire	50	40	broadly oval	fast growing; orange-red in fall	✓		all
Legacy Maple	<i>Acer saccharum</i>	Legacy	50	35	oval	glossy leaves; orange-red in fall	✓		all
Jacquemontii Birch	<i>Betula jacquemontii</i>		40	30	upright/oval	yellow in fall			all
River Birch	<i>Betula nigra</i>		40	35	pyramidal/rounded	yellow in fall			all
Hardy Rubber Tree	<i>Eucommia ulmoides</i>		55	45	conical/globose	yellowish in fall	✓		all
American Beech	<i>Fagus americana</i>		50	40	broadly oval	slow growing; striking grey bark	✓		all
European Beech	<i>Fagus sylvatica</i>		50	35	slightly rounded	leaves persistent through winter; striking bark			well drained
Rivers Purple Beech	<i>Fagus sylvatica</i>	Riversii	50	40	broadly oval	deep purple foliage; striking grey bark			well drained
Oregon Ash	<i>Fraxinus latifolia</i>		50	30	upright oval	native tree; drought and flood tolerant	✓		all
Kentucky Coffeetree	<i>Gymnocladus dioica</i>		65	50	ovate	bluish green leaflets; yellow in fall	✓		all
Sweetgum	<i>Liquidambar styraciflua</i>	Palo Alto	55	45	pyramidal	aromatic leaves; brittle; red orange purple in fall			all
Tulip Tree	<i>Liriodendron tulipifera</i>		60	30	oval	yellow flowers; yellow in fall			all
Dawn Redwood	<i>Metasequoia glyptostroboides</i>		60	25	conical	fast growing; deciduous conifer; urban tolerant	✓		all
Bloodgood London Planetree	<i>Platanus x acerifolia</i>	Bloodgood	50	40	broadly pyramidal	exfoliating bark; somewhat disease resistant	✓		all
Swamp White Oak	<i>Quercus bicolor</i>		45	45	rounded	adapted to wet soils	✓		well drained
Scarlet Oak	<i>Quercus coccinea</i>		50	40	upright/oval	red in fall	✓		all
Oregon White Oak	<i>Quercus garryana</i>		65	50	oval	native; slow grower; yellow in fall	✓		all
Pin Oak	<i>Quercus palustris</i>		55	40	pyramidal	strong leader; retains leaves in winter; orange/red in fall	✓		well drained
Willow Oak	<i>Quercus phellos</i>		60	40	rounded/oval	very urban tolerant; transplants easily	✓		all
Shingle Oak	<i>Quercus imbricaria</i>		50	40	broadly oval	transplants readily; beautiful summer foliage	✓		well drained
Red Oak	<i>Quercus rubra</i>		50	45	rounded	fast growing/large; red in fall	✓		well drained
Shumard Oak / Texas Red	<i>Quercus shumardii</i>		50	40	upright/oval	red in fall	✓		well drained
Bald Cypress	<i>Taxodium distichum</i>		55	30	pyramidal/oval	deciduous conifer; wet/dry sites; urban tolerant; rusty	✓		all
Accolade Elm	<i>Ulmus</i>	Morton	70	60	arching vase	disease resistant; fast grower; graceful arching habit	✓		all
Honestead Elm	<i>Ulmus</i>	Honestead	50	35	arching vase	tolerant to urban conditions; fast grower; yellow in fall			all
Pioneer Elm	<i>Ulmus</i>	Pioneer	50	50	rounded	disease resistant; vigorous grower	✓		all
Triumph Elm	<i>Ulmus</i>	Morton Glossy	55	45	upright oval/vase	disease resistant; glossy green foliage	✓		all
Green Vase Zelkova	<i>Zelkova serrata</i>	Green Vase	50	40	vase shaped	clean appearance; red in fall			all