August 9, 2023

Todd Sherman
Design Build Homes
11400 SE 8th Street, Suite 415
Bellevue, WA 98004

Site: 4719 86th Ave SE SP
Mercer Island, WA 98040
TPN: 7598100420
Area: 28,644 sq ft. = .66 acres

Re: RFI dated February 2023 all corrections highlighted in yellow

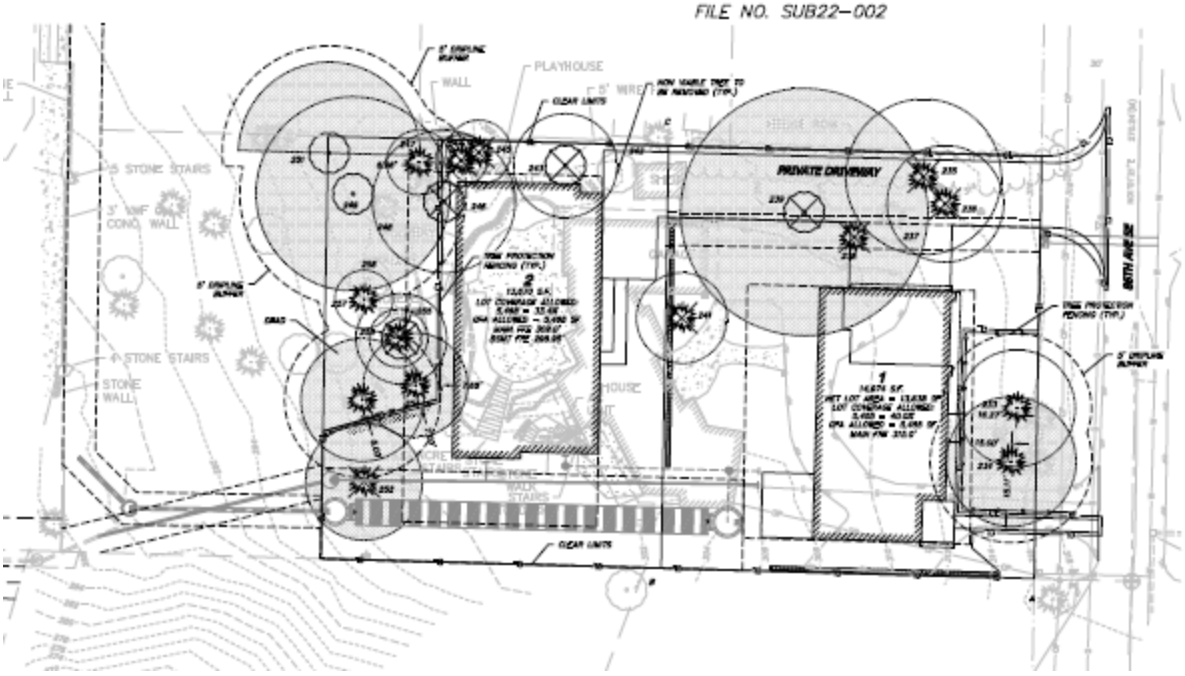
City Arborist

8. Please move the building pad and over excavation outside of the critical root zones of trees 233, 234, 249, and 253. Air excavation root analysis will need to be provided prior to construction to demonstrate that these trees will not be damaged by the proposed work. The analysis will need to call out the specifics of the project design. Alternatively, these trees could be proposed to be removed if the minimum required number of regulated trees will be retained. The building envelope was moved 5' to the west to reduce the potential impact of construction on tree #233 & 234) I have reduced the LOD by a 2' and 5' respectively (see "Onsite Tree Observation Table on pages 7-11). The soil around the roots will be air-evacuated and the exposed roots will be cut cleanly to BMP, ANSI 300 and ISA standards.

9. Please provide a tree replacement plan for at least 49 trees. If you can show that there is not enough space on the lot for the required replacement trees, you may request a fee in lieu that charges $919 for each tree that cannot be replaced. A bond or assignment of funds will be required at the final plat, which will be completed before building permits for the lots are finalized.

Mitigation was originally 49 trees; however, the applicant has revised the site grading and retained additional trees. Mitigation is now thirty-six (36) trees. The site will only accommodate fifteen replacement trees requiring a fee-in-lieu-of of (21 trees X $919) $19,299.

FILE NO. SUB22-002



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Dear Todd:

Thank you for requesting my services. On July 6th, 2022, we performed a Level 2 Tree Risk Assessment (TRA) for all onsite trees as well as any offsite trees with driplines that overhang the property lines. The applicant proposes to demolish the current house and short plat the lot into two (2) parcels.

The information gathered and presented in this report fulfills Mercer Island's City Code requirement for a Tree Retention Plan to be included for a short plat permit. (MICC 19.10.090(C)(1) & (2))

In summary:

Tree Density Calculations	
Total number of onsite trees	24
Total number of non-viable trees	5
Total number of viable trees	19
Total number of trees removed for site improvements	9
Total number of required tree credits (30% X 24)	8
Total number of retained tree credits	10
Mitigation:	
Exceptional trees 6: 1 (4)	24
Large trees 24"-36" (3:1) 2	6
10"-24" (2:1) 3	6
Mitigation Total	36

I have included a detailed report of my findings, if you have any questions, please contact me. I can be reached on my cell phone: 425.890.3808 or by email: sprince202@aol.com

Warm regards,

Susan R

Susan Prince
Creative Landscape Solutions
ISA Certified Arborist #1481
TRAQ Certified Arborist #481
Landscape Designer
425.890.3808

*The City of Mercer Island defines a *significant tree* as an existing tree over 10" in diameter

Personal qualifications, scope of work and methodology:
My examination was limited to a visual one, and did not involve any root excavation, trunk or limb coring, or any soil testing. To evaluate the trees and prepare the report, I drew on my formal college education in botany, preparation and training used to obtain my ISA certification in addition to my certification as a Tree Risk Assessor. I have worked in the field of arboriculture since 1994, have been an ISA Certified Arborist since 1999 and have been TRACE/TRAQ certified since 2009.

I followed protocol delineated by the International Society of Arboriculture (ISA) for Visual Risk Assessment (VRA). By doing so, I am examining each tree independently as well as collectively as groups or stands of trees provide stability and can lower risk of independent tree failure. This scientific process examines tree health (e.g., size, vigor, and insect and disease process) as well as site conditions (soil moisture and composition, quantity of impervious surfaces surrounding the tree etc.)

Introduction:
Identifying and managing the risks associated with trees is still largely a subjective process. Since the exact nature of tree failures remains largely unknown, our ability as scientists and arborists to predict which trees will fail and in what fashion remains limited. As currently practiced, the science of hazard tree evaluation involves examining a tree for structural defects, including genetic problems, those caused by the local environmental that the tree grows in and those attributed to man (pruning etc.).

The assessment process involves evaluating three components: 1) a tree with the potential to fail, 2) an environment that may contribute to that failure, and 3) a person or object that would be injured or damaged (the target). A defective tree cannot be considered hazardous without the presence of a target.
All trees have a finite lifespan though it is not pre-programmed internally in the same manner as annual plantings. As trees age, they are less able to compartmentalize structural damage following injury from insects, disease or pruning. Trees in urban settings have a shorter life span than trees grown in an undisturbed habitat.

Each species of trees grows differently. Evergreen trees have a “reputation” of growing slowly and defensively. These trees allocate a high proportion of their resources to defending themselves from pathogens, parasites, and wounds. As a rule, trees with this type of growth tend to be long lived. Though like all other living things, they have a predictable life span. Examples of this type of tree include the northwest *Pseudotsuga menziesii* - Douglas fir, and *Thuja plicata* - Western red cedar.

Deciduous trees are trees that annually shed leaves or needles. These trees tend to grow quickly and try to “outgrow” problems associated with insects, disease, and wounds. They allocate a relatively small portion of their internal resources to defense and rely instead upon an ability to grow more quickly than the pathogens which infect them. However, as these trees age, their growth rate declines, and the normal problems associated with decay begins to catch up and compromise the tree’s structural integrity. Examples of this type of tree include *Salix, Populus* and *Alnus.*

Knowledge of the growth and failure patterns of individual tree species is critical to effective hazard analysis. Species vary widely in their rates of failure. The hazard tree evaluation rating system used by most arborists was developed by the Colorado Urban Forest Council and recognizes this variation in species failure and includes a species component as part of the overall hazard evaluation.

Methods used to determine tree location and tree health:

Trees were identified previously by numbered aluminum tags attached to the western side of the tree. All the trees on site were examined using the Matheny and Clark[1] criteria for determining the potential hazard of trees in an urban environment as well as the Tree Risk Assessment in Urban Areas and The Urban/Rural Interface by Julian Dunster[2]. Tree diameters were measured at DSH (diameter standard height – 4.5' above ground) using a logger's tape. Tree driplines were measured using a PRO Laser Rangefinder™.

Spreadsheet Legend:

1. Tree tag #: Numbered aluminum tags attached to the trees in the field*[1]

2. Species: The common name of each tree

3. Species: Species ID: Spreadsheet contains common names of trees which correspond to scientific names as follows:

- Apple: *Malus sp.*
- American sycamore: *Plantanus occidentalis*
- Austrian pine: *Pinus nigra*
- Bigleaf maple: *Acer macrophyllum*
- Birch: *Betula nigra*
- Bitter Cherry: *Prunus emarginata*
- Blue atlas cedar: *Cedrus atlantica 'Glauca'*
- Cedar: *Thuja plicata*
- Cherry: *Prunus sp.*
- Dawn redwood: *Chamaecyparis nootkatensis*
- Deodora cedar: *Cedrus deodara*
- Colorado blue spruce: *Picea pungens*
- Cottonwood*: Populus trichocarpa*
- Dogwood*: Cornus nuttallii*
- Douglas fir: *Pseudotsuga menziesii*
- English laurel: *Prunus laurocerasus*
- Filbert: *Corylus avellana var.*
- Grand fir: *Abies grandis*
- Hemlock: *Tsuga hetrophylla*
- Holly: *Ilex aquifolium*
- Japanese maple: *Acer palmatum*
- Leylandii cypress: *Cupressocyparis leylandii*
- Lodgepole pine*: Pinus contorta*
- Mountain ash: *Sorbus americana*
- Noble fir: *Abies procera*
- Pear: *Pyrus sp.*
- Plum: *Prunus*
- Red Alder: *Alnus rubra*
- Red maple: *Acer rubrum*
- Walnut: *Juglans sp.*
- Western red cedar: *Thuja plicata*
- Weeping Alaska cedar*: Metasequoia glyptostrobides*
- White fir*: Abies concolor*
- White pine*: Pinus strobus*

4. DBH: Diameter of the tree measured at 48" above grade

5. Adjusted Diameter of the tree: Calculated equivalent for multi-stemmed tree

6. Dripline Radius: Measurement in feet of the tree canopy from tree trunk to outermost branch tip

7. Windfirm: Whether the tree can withstand wind if surrounding grove is changed

8. Health: A measurement of overall tree vigor and vitality rated as excellent, good, and fair or poor based on an assessment of crown density, leaf color and size, active callusing, shoot growth rate, extent of crown dieback, cambium layer health, and tree age
   - Excellent: Tree is an ideal specimen for the species with no obvious flaws
   - Good: Tree has minimal structural or situational defects
   - OK: Tree has minimal structural defects AND minimal environmental concerns
   - Fair: Tree has structural or health issues that predispose it to failure if further stressed, it is not suitable for retention as a single tree but may sometimes be retained if it is retained in a grove
   - Poor: Tree has significant structural and/or health issues. It is exempt from total tree count.

9. Defects/Concerns: A measure of the tree's structural stability and failure potential and rated as good, fair or poor based on assessment of specific structural features, e.g., decay, conks, co-dominant trunks, included bark, abnormal lean, one-sided canopy, history of failure, prior construction impact, pruning history, etc.

10. Proposed action:
    - Retain
    - Remove due to viability
    - Remove due to planned development (tree is otherwise healthy)

11. Limits of disturbance: The area surrounding the tree that defines the area that surrounds the trunk that cannot be encroached upon during construction. This may be a multiple of the trunk diameter (1 -1.5 times the trunk diameter converted to feet.) or it may be related to the width of the canopy. It is always determined by tree species and environment and is up to the discretion of the ISA Certified Arborist to determine

12. Value: The value the municipality assigns a tree with the specific DBH, species or location of the assessed tree

Specific Tree Observations:

1	2	3	4	5	6	7		8	9	10			11				12				
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				Exceptional tree DBH > 24"	Value	Healthy Trees	Retained trees	Replacement
										Ret.	Remove		Radius in feet								
										Viable	Non-viable	Construct	N	W	E	S					
1	233	Douglas fir	21	21	18			OK	Typical of species	1			18	16	18	18	N	1	1	1	
2	234	Douglas fir	28	28	20			OK	Self-corrected lean towards west, dead wood, broken branches, dead twigs, typical of species	1			20	15	20	15	Y	1	1	1	
3	235	Douglas fir	22	22	24			OK	Debris over crown, previous top loss, coning, dead wood, broken branches, typical of species			1	24	24	24	24	N	1	1		2
4	236	Douglas fir	19	19	18			OK	Previous ivy @ root crown up to 50', typical of species, asymmetric canopy towards north			1	18	18	18	18	N	1	1		2
5	237	Douglas fir	19	19	16			Fair	Self-corrected lean towards north, serpentine trunk, co-dominant leaders with included bark x2 @ 30' towards north, strong leader, reaction wood, horizontal crack @ 25', column of decay @ root crown up to 12' towards west, 3 calloused wounds towards west, free flowing sap		1		16	16	16	16	N	1			

1	2	3	4	5	6	7		8	9	10			11				12				
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				Exceptional tree DBH > 24"	Value	Healthy Trees	Retained trees	Replacement
										Ret.	Remove		Radius in feet								
										Viable	Non-viable	Construct	N	W	E	S					
6	238	Douglas fir	24	24	18		Y	Fair	Exposed roots, moss and lichen, previous top loss, dead wood, broken branches, elongated branches			1	18	18	18	18	Y	1	1		3
7	239	Bigleaf maple	38	38	38			Fair	Calloused wound @ 6' towards south, exposed roots, decay in roots towards north, dead wood, broken branches, grade lowered 3' towards east		1		38	38	38	38	Y	1			
8	241	Scots pine	13	13	14			OK	Typical of species			1	14	14	14	14	N	1	1		2
9	242	Bigleaf maple	16	16	14			Fair	Vertical crack @ 3' up to 10' towards south, co-dominant leaders with included bark x3 @ 10'		1		14	14	14	14	N	1			
10	243	Bigleaf maple	10, 8, 14, 15	24	16			OK	Co-dominant leaders with included bark x4 @ root crown, moss and lichen, typical of species			1	16	16	16	16	Y	1	1		3
11	244	White pine	15	15	8			OK	Serpentine trunk, dead wood, broken branches, typical of species			1	8	8	8	8	N	1	1		6
12	245	White pine	19	19	10			OK	Dead wood, broken branches, a towards east, typical of species			1	10	10	10	10	N	1	1		6

1	2	3	4	5	6	7		8	9	10			11				12				
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				Exceptional tree DBH > 24"	Value	Healthy Trees	Retained trees	Replacement
										Ret.	Remove		Radius in feet								
										Viable	Non-viable	Construct	N	W	E	S					
13	246	Bigleaf maple	17, 18	25	22			OK	Co-dominant leaders with included bark x2 @ 2', asymmetric canopy towards south, typical of species			1	22	22	22	22	Y	1	1		6
14	247	White pine	11	11	10			OK	Suppressed canopy, dead wood, broken branches, typical of species	1			10	10	10	10	N	1	1	1	
15	248	Douglas fir	19	19	18			Fair	Epicormic branch formation @ 25' towards south, previous top loss, elongated branches, serpentine trunk, asymmetric canopy towards south		1		18	18	18	18	N	1			
16	249	Bigleaf maple	16, 44	47	30		Y	Fair	Co-dominant leaders with included bark x2 @ 4', exposed roots, calloused wound, dead wood, broken branches, asymmetric canopy towards north	1			30	30	21	30	Y	1	1	1	
17	251	Bigleaf maple	26	26	28 north only			OK	Asymmetric canopy towards north, typical of species, dead wood, moss and lichen	1			28	28	28	28	Y	1	1	1	

1	2	3	4	5	6	7		8	9	10			11				12				
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				Exceptional tree DBH > 24"	Value	Healthy Trees	Retained trees	Replacement
										Ret.	Remove		Radius in feet								
										Viable	Non-viable	Construct	N	W	E	S					
18	252	Douglas fir	28	28	18		Y	Fair	Self-corrected lean towards south, fill over crown, abnormal bark, popping bark, previous top loss, elongated branches, typical of species, dead wood, broken branches			1	18	18	18	18	Y	1	1		6
19	253	Douglas fir	36	36	19			OK	Dead wood, broken branches, previous top loss, carpenter ants bark only	1			19	19	7	19	Y	1	1	1	
20	254	Douglas fir	36, 28	45.5	16			OK	Co-dominant leaders with included bark x2 @ 1', previous top loss @ 50', strong laterals, dead wood, broken branches, abnormal bark, popping bark, woodpecker activity	1			16	16	16	16	Y	1	1	1	
21	255	Douglas fir	16	16	14		Y	Fair	Abnormal bark, shedding bark, popping bark, topped @ 50', strong lateral, low live crown ratio <10%	1			14	14	14	14	N	1	1	1	
22	256	Bigleaf maple	36, 24	43.5	26			Poor	Co-dominant leaders with included bark x2 @ 1', dead scaffolds, dead wood, cavity @ 3' towards north		1		26	26	26	26	Y	1			
23	257	Incense cedar	8, 9	12	9			OK	Co-dominant leaders with included bark x2 @ 3', typical of species	1			9	9	9	9	N	1	1	1	

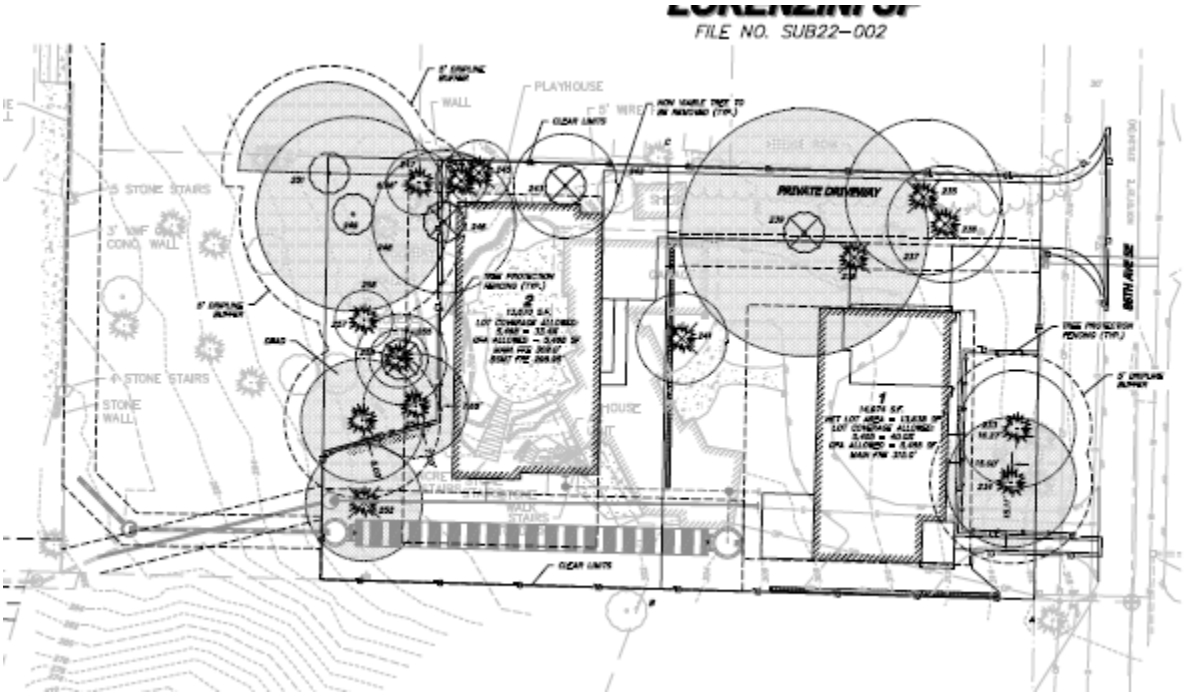
1	2	3	4	5	6	7		8	9	10			11				12				
#	Tree Tag #	Species ID	DBH (in)	Adj. DBH (in)	Drip-line radius (ft)	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action			CRZ/TPZ/LOD				Exceptional tree DBH > 24"	Value	Healthy Trees	Retained trees	Replacement
										Ret.	Remove		Radius in feet								
										Viable	Non-viable	Construct	N	W	E	S					
24	258	Incense cedar	18	18	9			OK	Typical of species	1			9	9	9	9	N	1	1	1	
									24	10	5	9						24	19	10	36

Offsite Trees:

1	2	3	4	5	6	7		8	9	10		11			
#	Tree Tag #	Species ID	DBH inches	Adj. DBH inches	Drip-line radius feet	Wind-firm	OK in Grove	Health	Defects/Comments	Proposed Action		CRZ/TPZ/LOD			
										Retain		Radius in feet			
										Viable	Non- viable	N	W	E	S
1	231	Douglas fir	18	18	20			Poor	Topped @ 22' for power		1	20	20	20	20
2	232	Douglas fir	18	18	18			Poor	Topped @ 22' for utilities		1	18	18	18	18
3	C	Douglas fir	32	32	16		Y	Fair	Epicormic branch formation @ 40' towards south, dead wood, broken branches, previous top loss elongated branches, free flowing sap	1		16	16	16	16

Aerial View of Site:

Proposed Site Improvements (for reference only, see Civil Engineering Plans for details):



Discussion:

Tree Density Calculations	
Total number of onsite trees	24
Total number of non-viable trees	5
Total number of viable trees	19
Total number of trees removed for site improvements	9
Total number of required tree credits (30% X 24)	8
Total number of retained tree credits	10
Mitigation:	
Exceptional trees 6: 1 (4)	24
Large trees 24"-36" (3:1) 2	6
10"-24" (2:1) 3	6
Mitigation Total	36

The .66-acre site is in a residential area of Mercer Island. The property has an existing home on it that is proposed to be demolished and the parcel divided into two (2) properties. The parcel slopes to the west, has numerous trees on it and natural landscape.

There are twenty-four (24) significant trees with DBH measurements 10” or larger; five (5) are non-viable. Of the remaining nineteen (19) viable trees, nine (9) are proposed to be removed and ten (10) are to be retained.

Work in the dripline of all trees must be supervised by an onsite ISA certified arborist. Any encountered roots should be cut by hand and covered with damp burlap until they can be recovered with soil. Trees where work has been conducted in the dripline of the tree should have 4” of hog fuel put in the dripline of the tree by hand prior to re-establishing the tree protection fencing. Additional water maybe required at the discretion of the arborist to be determined after reviewing the number of cut roots for each tree (there may not be any root damage).

Mercer Island municipal code requires that during site development, the applicant retain 30% of the existing trees (24 * 30%) = eight (8) trees. The applicant exceeds code requirements.

Mitigation for removed trees is thirty-six (36) trees. The site will only accommodate fifteen (15) trees; a fee in lieu of for twenty-one (21) trees will be required.

Mitigation:	
Mitigation:	
Exceptional trees 6: 1 (4)	24
Large trees 24"-36" (3:1) 2	6
10"-24" (2:1) 3	6
Mitigation Total	36

Tree Protection Fencing: Tree Protection fencing should be erected prior to any site grading.

First, protect roots that lie in the path of construction. Approximately 90 to 95 percent of a tree's root system is in the top three feet of soil, and more than half is in the top one foot. Construction activities should be avoided in this area. Protect as much of the area beyond the tree's dripline as possible. Some healthy trees survive after losing half of their roots. However, other species are extremely sensitive to root damage even outside the dripline.

Do not disturb the Critical Root Zone (CRZ). The CRZ is defined by its "critical root radius." It is more accurate than the dripline for determining the CRZ of trees growing in forests or that have narrow growth habits. To calculate critical root radius, measure the tree's diameter (DBH) in inches, 4.5 feet above the ground. For each inch, allow for 1 to 1.5 feet of critical root radius. If a tree's DBH is ten inches, its critical root radius is 10 to 15 feet.

In addition to the CRZ, it is important to determine the Limits of Disturbance (LOD) for preserved trees. Generally, this approximates the CRZ however in previously excavated areas around the dripline the LOD may be smaller, or in the case of a tree situated on a slope the LOD may be larger. The determination of LOD is also subject to the tree species. Some tree species do better than others after root disturbance.

Tree protection is advised throughout the duration of any construction activities whenever the critical root zone or leaf canopy many be encroached upon by such activities.

The Critical Root Zone (CRZ) or LOD should be protected with fencing adequate to hinder access to people vehicles and equipment. Fencing detail is provided. It should consist of continuous 4 ft. high temporary chain-link fencing with posts sec at 10’ on center or polyethylene laminar safety fencing or similar. The fencing must contain fencing signage detailing that the tree protection area cannot be trespassed on.

Soil compaction is one of the most common killers of urban trees. Stockpiled materials, heavy machinery and excessive foot traffic damage soil structure and reduce soil pore space. The effected tree roots suffocate. When construction takes place close to the protected CRZ, cover the site with 4 inches of bark to reduce soil compaction

Tree Protection fencing must be erected prior to soil excavation, boring, grading or fill operations. It is erected at the LOD. If it is necessary to run utilities within the LOD, the utilities should be combined into one cut, as practical. Trenching is not allowed in the LOD. In these areas boring or tunneling techniques should be used. In the event that roots greater than 1” diameter near the LOD are damaged or torn, it is necessary to hand trim them to a clean cut. Any roots that are exposed during construction should be covered with soil as soon as possible.

During drought conditions, trees must be adequately watered. Site should be visited regularly by a qualified ISA Certified Arborist to ensure the health of the trees. Tree protection fencing is the last item to be removed from the site after construction is completed.

After construction has been completed, evaluate the remaining trees. Look for signs and symptoms of damage or stress. It may take several years for severe problems to appear.

If fencing around portions of the CRZ of a tree to be retained is not practical to erect due to construction or obstacles, tree protection fencing should be placed three feet laterally from the obstruction (ex. three feet back of a curb, building, or other existing or planned permanent infrastructure.

Glossary:

ANSI A300: American National Standards Institute (ANSI) standards for tree care

Chlorotic: discoloration caused by lack of chlorophyll in the foliage

Conifer: A tree that bears cones and has evergreen needles or scales

Crown: the above ground portion of the tree comprised of branches and their foliage

Crown raise pruning: a pruning technique where the lower branches are removed, thus raising the overall height of the crown from the ground

DBH or DSH: diameter at breast or standard height; the diameter of the trunk measured 54 inches (4.5 feet) above grade

Deciduous: tree or other plant that loses its leaves annually and remains leafless generally during the cold season

Epicormic: arising from latent or adventitious buds

Evergreen: tree or plant that keeps its needles or leaves year-round; this means for more than one growing season

Increment: the amount of new wood fiber added to a tree in a given period, normally one year.

ISA: International Society of Arboriculture

Landscape function: the environmental, aesthetic, or architectural functions that a plant can have

Lateral: secondary or subordinate branch

Limits of disturbance: The boundary of minimum protection around a tree, the area that cannot be encroached upon without possible permanent damage to the tree. It is a distance determined by a qualified professional and is based on the age of the tree, its health, the tree species tolerance to disruption and the type of disturbance. It also considers soil and environmental condition and previous impacts. It is unique to each tree in its location.

Limited visual assessment: a visual assessment from a specified perspective such as foot, vehicle, or aerial (airborne) patrol of an individual tree or a population of trees near specified targets to identify specified conditions or obvious defects (ISA 2013)

Live crown ratio: the percentage of living tissue in the canopy versus the tree's height. It is a good indicator of overall tree health and the trees growing conditions. Trees with less than a 30% Crown ratio often lack the necessary quantity of photosynthetic material necessary to sustain the roots; consequently, the tree may exhibit low vigor and poor health.

Monitoring: keeping a close watch; performing regular checks or inspections

Owner/manager: the person or entity responsible for tree management or the controlling authority that regulates tree management

Pathogen: causal agent of disease

Phototropic growth: growth toward light source or stimulant

ROW: Right-of-way; generally referring to a tree that is located offsite on a city easement

Reaction wood: Specialized secondary xylem which develops in response to a lean or similar mechanical stress, it serves to help restore the stem to a vertical position

Self-corrected lean: a tree whose trunk is at an angle to the grade but whose trunk and canopy changes to become upright/vertical

Significant tree: a tree measuring a specific diameter determined by the municipality the tree grows in. Some municipalities deem that only healthy trees can be significant, other municipalities consider both healthy and unhealthy trees of a determined diameter to be significant

Snag: a tree left partially standing for the primary purpose of providing habitat for wildlife

Soil structure: the size of particles and their arrangement; considers the soil, water, and air space

Sounding: process of striking a tree with a mallet or other appropriate tool and listening for tones that indicate dead bark, a thin layer of wood outside a cavity, or cracks in wood

Structural defects: flaws, decay, or other faults in the trunk, branches, or root collar of a tree, which may lead to failure; may be genetic, or environmental

Tree credit: A number assigned to a tree by a municipality that may be equal to the diameter of the tree or a numerical count of the tree, or related to diameter by a factor conveyed in a table of the municipal code

Trunk area: the cross-sectional area of the trunk based upon measurement at 54 inches (4.5 ft.) above grade

Visual Tree Assessment (VTA): method of evaluating structural defects and stability in trees by noting the pattern of growth. Developed by Claus Mattheck (Harris, et al 1999) detailed visual inspection of a tree and surrounding site that may include the use of simple tools. It requires that a tree risk assessor walk completely around the tree trunk looking at the site, aboveground roots, trunk, and branches (ISA 2013)

References

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