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Appraisals ~ Site Planning ~ Urban Landscape Design and Management
Environmental Education ~ Environmental Restoration ~ Risk Assessments

8/7/2023

McGranahan Architects
C/o: Todd Olson, Senior Project Manager
2111 Pacific Ave, Ste. 100
Tacoma, WA 98402

RE: Tacoma Community College Tree Assessment

Mr. Olson:

Upon the request of McGranahan Architects, I have conducted an assessment of the trees located within the built areas of the Tacoma Community College, Tacoma and Gig Harbor campuses. I have been asked to identify any risk trees, disease or pest issues and infrastructure damage and provide general maintenance recommendations. I visited the site on June 28, 2023.

Tree Risk Assessment Methodology

The tree risk assessment methodology used for this report was developed by the International Society of Arboriculture in 2013. It replaces the original method adopted in 2011.

Tree risk assessment can be conducted at different levels of intensity, each employing varying methods and providing the client with varied options of reporting and recommendations. The level selected should be appropriate for the assignment.

The ANSI standard for risk assessment and ISA's *Best Management Practices: Tree Risk Assessment* defines three levels of tree risk assessment:

- Level 1: Limited visual
- Level 2: Basic
- Level 3: Advanced

Level 1 assessment involves a visual assessment of an individual tree or populations of trees near specified targets, conducted from a specified perspective in order to identify certain obvious defects or specified conditions. A limited visual assessment typically focuses on identifying trees with *imminent* and/ or *probable* likelihood of failure.

A Level 2 or basic assessment is the standard assessment performed by arborists in response to most private client requests for tree risk assessments. It consists of a detailed visual inspection of a tree and its surrounding site and a synthesis of the information collected. A basic assessment requires walking completely around the tree – looking at the site, buttress roots, trunk and branches. Looking at the tree from some distance away, as well as close up, to consider crown shape and surroundings.

Level 3 is an advanced assessment and it is performed to provide detailed information about specific tree parts, defects, targets, or site conditions. It may be in conjunction with or after a basic assessment if additional information is needed and the client approves the additional service. Specialized equipment, data collection and analysis, and/or expertise are usually required for advanced assessments. These assessments are, therefore, generally more time intensive and more expensive.

After determining the likelihood of failure and the likelihood of impacting a target, the combined likelihood of a failure impacting a target can be categorized. Matrix 1 can be used as a guide in relating these likelihood factors within a given time frame. The resulting terms (unlikely, somewhat likely, likely, very likely) are defined by their use within the table and are used to represent this combination of occurrences in Matrix 2.

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Matrix 1. Likelihood of Failure

Likelihood of Failure	Likelihood of Impacting Target			
	Very Low	**Low**	**Medium**	**High**
Imminent	Unlikely	Unlikely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk Rating

Likelihood of Failure and Impact	Consequences of Failure			
	Negligible	**Minor**	**Significant**	**Severe**
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

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Findings and Recommendations

<u>Tacoma Campus</u>

Individual trees along with groups of trees with a common defect or maintenance need were identified. Table 1 presents my complete findings and recommendations for the individual trees while Table 2 presents the groups or areas of trees. The locations of all are noted on the attached aerials and photos have been included.

Table 1. Identified Individual Trees

Tree ID#	Species	DBH (in)	Height (ft)	Live Canopy Ratio (%)	Target	Distance to Target	Condition	Comments	Risk Rating	Recommendations
1	Incense Cedar	40	60	20	Sidewalk, street, power lines	30', 40', 38'	Poor	Main trunk divides into multi-stems at 5'. Past co-dominant stem failure and the remaining portion of the tree is vulnerable and compromised. Inclusions between the stems measure 3-5'.	High	Remove tree
2	Bitter Cherry	6	20	0	Sidewalk, street	5', 15'	Dead	Tree leans towards targets.	Moderate	Remove tree
3	Ponderosa Pine	20	65	30	Roadway	5'	Fair	Dead branches overhanging roadway. No other indications of decay, disease or structural issues.	Moderate	Prune to remove dead/dying branches 2"+ diameter.
4	Pacific Madrone	14	40	5	Roadway	20'	Poor	Tree is nearly dead and will not recover.	Moderate	Remove tree
5	Douglas Fir	26	70	30	Building & Walkway	18' & 6'	Good	Roots are lifting cement walkway by 2-6". Root prune if walkway is to be repaired.	Moderate	Root prune
6	Red Maple	4	10'		Parking	5'	Dead		Low	Remove and replace.
7	Red Maple	3	12'	2	Walkway & Parking Drive	4' & 8'	Poor	Tree is 50% dead and will not recover.	Low	Remove and replace.
8	Red Maple	3	10'		Parking	6'	Dead		Low	Remove and replace.

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Tree ID#	Species	DBH (in)	Height (ft)	Live Canopy Ratio (%)	Target	Distance to Target	Condition	Comments	Risk Rating	Recommendations
9	Birch	14	45	20	Building	1'	Fair	Difficult to conduct complete assessment due to ivy. Branches are growing against building.	Low	Prune for clearance, cut ivy at base.
10	Birch	10, 8	30'	20	Building	4'	Fair	Branches growing against building. Ivy growing up stem.	Low	Prune for clearance, cut ivy at base.
11	Sweetgum	9	35'	25	Walkway	2'	Good	Base of trunk is lifting iron tree grates, tripping hazard.	Low	Remove grates
12	Black Locust	26	50	30	Sidewalk, street	5', 15'	Poor	Past co-dominant stem failure at the base revealed decayed bases of remaining stems. Fungal fruiting body also found.	High	Remove tree
13	Pacific Madrone	22	35	10	Walkway	20'	Poor	Tree is dying due to bacterial infection. Many dead limbs.	Moderate	Remove tree
14	Birch	14	30	5	Walkway	7'	Poor	Tree is in severe decline.	Moderate	Remove tree
15	Pacific Madrone	14	30	0	Walkway, roadway	12', 40'	Dead	The main stem and scaffold branches are fracturing and may fail soon.	High	Remove tree

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Table 2. Identified Areas/Groups of Trees

Area	Description	Issue	Recommendation
A	(16) 18-30" London Plane Trees (1) 21" Ponderosa Pine	Low branching over drive and parking lot.	Prune to raise crowns and provide proper clearance and visibility (12-14').
B	(2) 14-17" White Birch (3) 18-19" Norway Maple	Branches overhanging flat building roof, sidewalk and parking.	Prune to raise crowns and provide clearance and visibility.
C	Alder and willow	Low branches along 12th Ave sidewalk.	Prune to raise crowns and provide pedestrian clearance.
D	(1) Multi-stemmed Vine Maple (1) 16" Douglas Fir (1) 17" Deodar Cedar	Blocking college signs and reader board.	Remove or reduce height of vine maple. Prune fir and cedar for sign clearance.
E	(3) 13-18" Scots Pine	Trees are located 2-4' behind walkway and roots are cracking & lifting asphalt by 1-3".	Remove trees or prune roots if walkway is to be repaired.
F	(7) 8-12" Purple Plums (1) 10" Cherry (8) 5-12" Norway Maples	Trees have been severely topped and are in poor condition. Structural integrity has been compromised.	Remove and replace trees
G	(2) 14-16" Red Maples	Roots are lifting asphalt walkway.	Remove trees or root prune if walkway is to be repaired.
H	(1) 25" Douglas Fir (1) 14" Port Orford Cedar	Roots are lifting asphalt walkway.	Remove trees or root prune if walkway is to be repaired.
I	(2) 2" Red Maples	One is dead, the other 25% dead.	Remove and replace with a different species.
J	(20) 4-9" Raywood Ash	Trees are behind Mildred St sidewalk and are blocking.	Prune to provide 8-10' of clearance.
K	(5) 8-10" Norway Maples	Trees have been topped and are in poor condition. Structural integrity has been compromised.	Remove and replace trees.

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Gig Harbor Campus Field Data and Recommendations

A previous assessment of the Gig Harbor campus was conducted as part of a separate project with the college in February 2023. With that project, a general assessment of trees to be located within a new fenced area was performed, along with a risk assessment along the western perimeter of any trees with a target. Upon my follow-up site visit, it was confirmed that there are no additional recommendations to what was presented in my report dated 4/10/2023.

Comments

Pruning Guidelines

All pruning should follow the ANSI A300 (Part 1) 2017 Pruning Standards with no tearing or remaining stubs. Pruning should be specific with no more than 25% of the live canopy removed within a 3-year period. Topping is not an acceptable form of pruning and is considered the removal of a tree by the City of Tacoma.
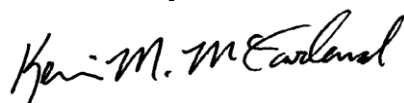
Root Pruning Guidelines

Root pruning has been mentioned in many instances where the adjacent walkways are being lifted. While this is an option, tree removal is typically the preferred action as root pruning is considered a temporary solution and can be detrimental to the health and/or stability of a tree. It can be expensive and is an indication that the tree is the wrong species and simply too close to infrastructure. If it is decided to retain these trees, in order to avoid repeated problems, root barriers should be installed.

To lessen the impacts on the trees, root pruning needs to be applied correctly. If any roots >2" are exposed/disturbed, I recommend they be severed approximately 6-8" behind the edge of pavement/asphalt. Care should be taken to make clean cuts with a hand saw or pruners. Roots should never be torn with equipment. I can provide additional guidance on-site if needed.

Please contact me if you should have questions.

Professionally Submitted,

Kevin M. McFarland, Principal
ISA Certified Arborist PN-0373 & ISA Tree Risk Assessment Qualified
Sound Urban Forestry, LLC
P.O. Box 489
Tahuya, WA 98588

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References

Dunster, Dr, Julian et al. 2013. *Tree Risk Assessment Manual.* International Society of Arboriculture. Champaign, IL.
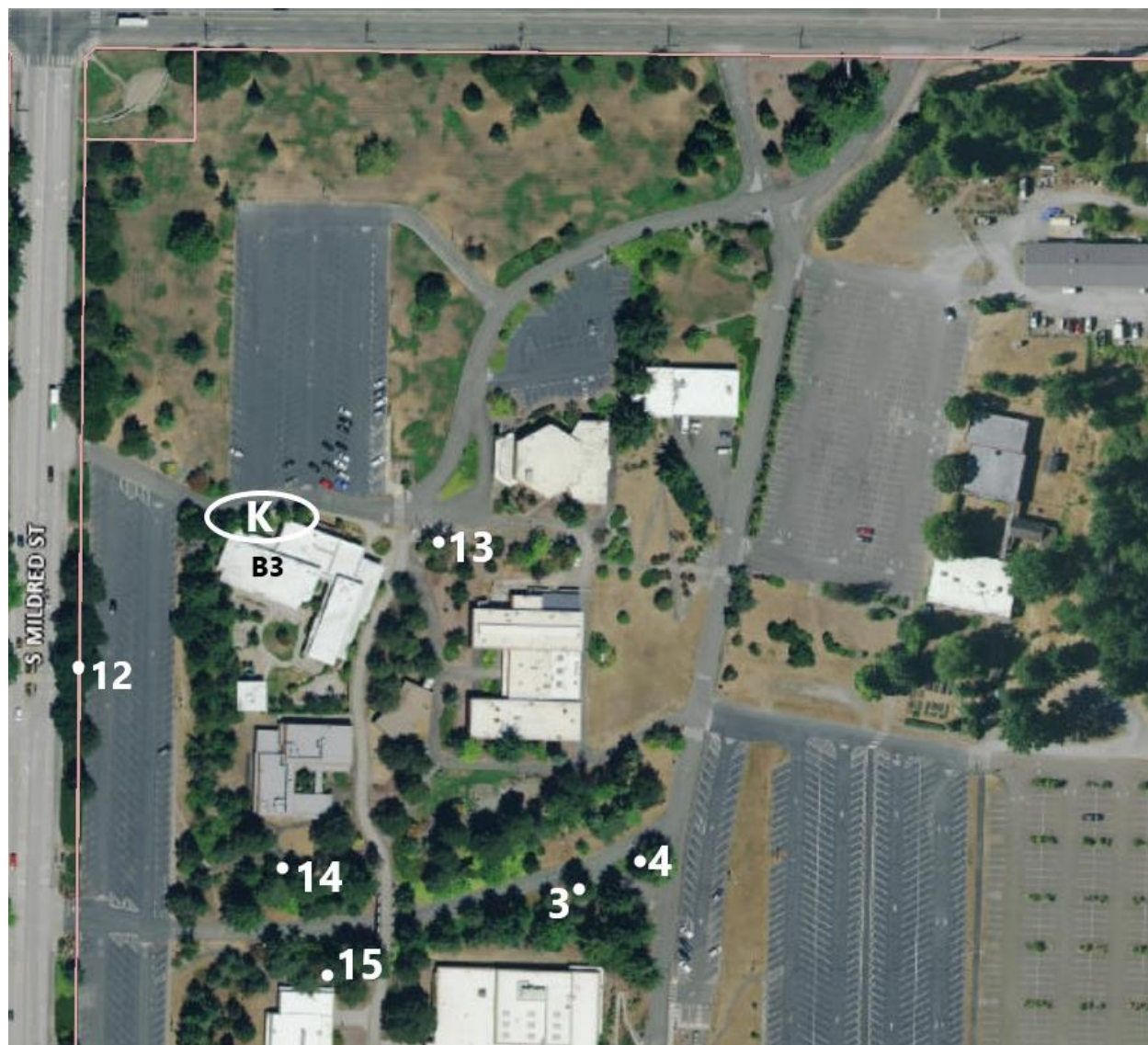
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Smiley, E. Thomas, Nelda Matheny and Sharon Lilly. 2011. *Best Management Practices – Tree Risk Assessment.* International Society of Arboriculture. Champaign, IL
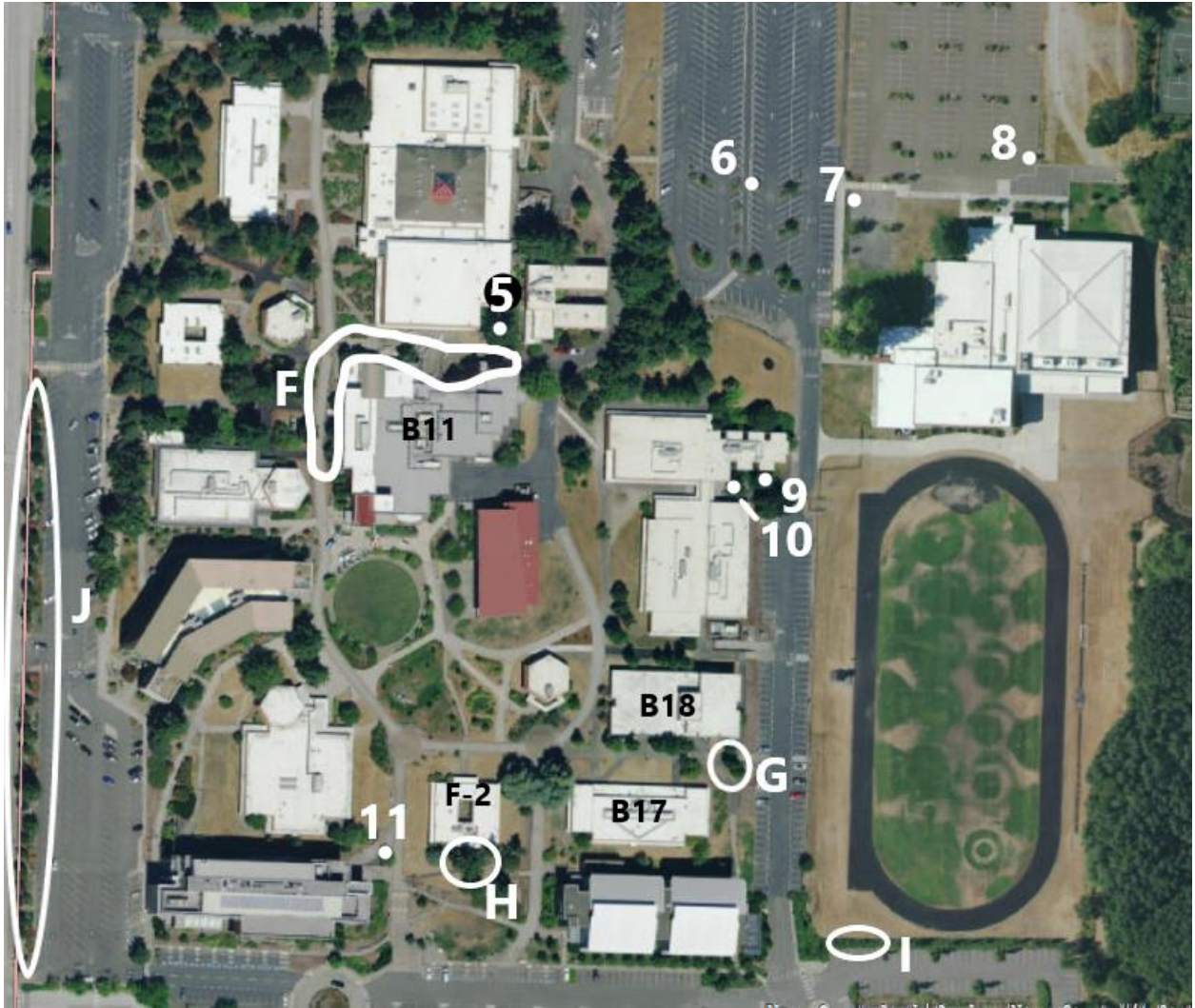
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Identified Individual and Groups of Trees

K

B3

12

13

14

4

3

15

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5

F

B11

J

6

7

8

9

10

B18

G

F-2

B17

11

H

I

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Compromised Base of Tree #1

Overhanging dead branches of Tree #3

Roots of Tree #5 lifting cement walkway

Dead upper stem of Tree #7

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Tree #9 engulfed in ivy & touching building

Tree #11 lifting tree grates

Decayed base of Tree #12

Tree #13

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Tree #14

Tree #15

Low branching of Area 'A' London Plane Trees

Low branching of Area 'A' Ponderosa Pine
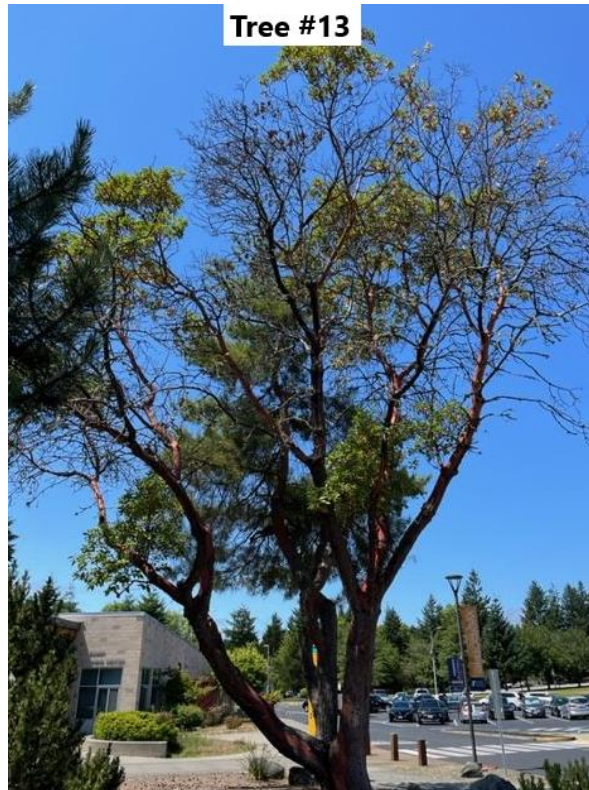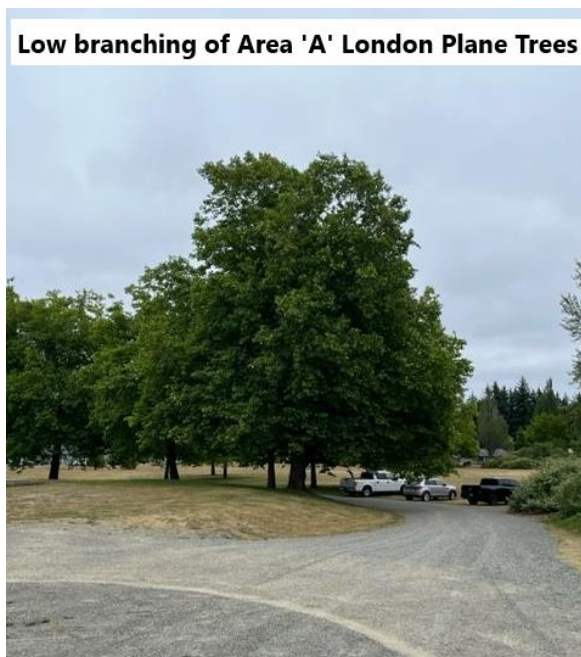
Overhanging branches of Area 'B' Birch

Low branching of Area 'B' Norway maples

Area 'C' branches overhanging 12th Ave

Area 'D' branches encroaching College signs

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Area 'E' Scots pine roots lifting sidewalk

Severely topped plums in Area 'F'

Severely topped Norway maple in Area 'F'

Walkway root damage in Area 'G'

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Walkway root damage in Area 'H'

Dying red maples in Area 'I'

Ash trees in Area 'J' needing clearance pruning

Topped Norway maples in Area 'K'

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Assumptions and Limitations of Tree Risk Assessment

1. Tree risk assessment is limited in scope to the specific risks(s) of interest, and does not include any and all risks.

2. Tree risk assessment considers significant known and/or assigned targets and visible or detectable tree conditions.

3. Tree risk assessments represent the condition of the tree and site at the time of inspection.

4. Only those trees specified in the scope of work were assessed, and assessments were performed within the limitations specified.

5. Any tree, whether it has visible weaknesses or not, will fail if the forces applied exceed the strength of the tree or its parts.

6. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee not be responsible for the accuracy of information provided by others. Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable.

7. Loss or alteration of any part of this report invalidates the entire report.

8. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of Sound Urban Forestry, LLC.

9. Neither all or any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of Sound Urban Forestry, LLC – particularly as to the value considerations, identity of Sound Urban Forestry, LLC, or any reference to any professional society or to any initialed designation conferred upon Sound Urban Forestry, LLC as stated in its qualifications.

10. This report and any values expressed herein represent the opinion of Sound Urban Forestry, LLC and the fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence neither of a subsequent event, nor upon any finding to be reported.

11. Diagrams, graphs, photographs and sketches in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.

12. Sound Urban Forestry, LLC shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made.

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

14. The time frame for risk categorization should not be considered a "guarantee period" for the risk assessment.

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