Tree Risk Assessment

for

The Ridge HOA

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TREE RESOURCE™

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Table of Contents

Summary

The overall risk from the trees in the community is *LOW*. From a risk perspective tree care should be prioritized in a way that reduces the *likelihood of failure*. This would include removing dead trees and pruning large dead branches from healthy trees. It may also include pruning for structure on healthy trees. In general, I recommend tree care to be a discretionary decision-making process by the HOA board.

Assignment

My assignment is to conduct and document a walking visual assessment of the community trees, including some specific trees as pointed out to me by HOA representatives.

Limits of Assignment

Unless stated otherwise, the information contained in this report covers only the trees I examined and reflects the condition of these trees at the time of inspection. My inspection is limited to a visual examination of the subject trees as prescribed for a level 1 Tree Risk Assessment in the ISA Best Management Practices: Tree Risk Assessment: International Society of Arboriculture: 2017, identifying pedestrians near trees as potential targets, and with a time frame of two years. Only specific trees pointed out to me by HOA representatives are noted within this assessment. Additional trees may be assessed individually upon request.

Purpose and Use of the Report

The primary purpose of this report is to assist the HOA in formulating management strategies for the community trees. This document should be used to understand the overall level of risk from the trees within the neighborhood.

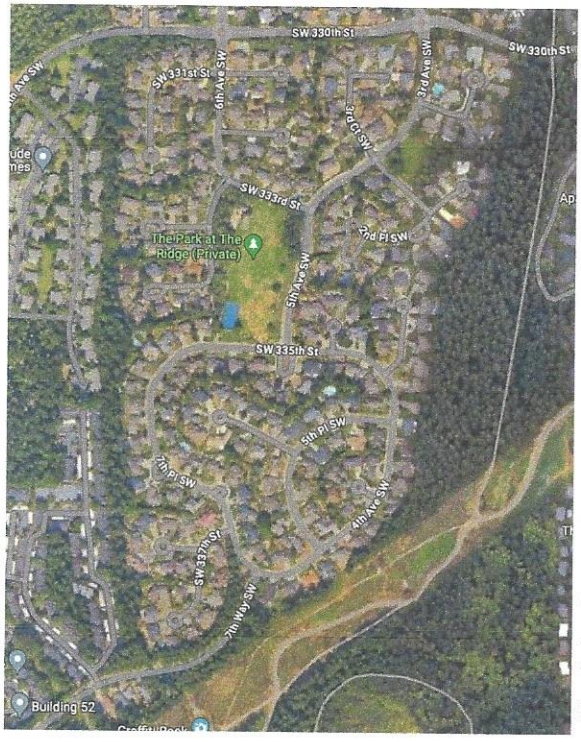


Image 1 - The Ridge is a community bordered by natural green spaces on the west and east with two community parks in the center of the neighborhood. The community residents and HOA board members should inform myself or another qualified arborist if the condition of any tree appears to decline.

Analysis and Observations

I use a Visual Tree Assessment (VTA) method to evaluate tree health, structure, and form. The VTA is an ordered analysis of the foliage and buds, small twigs, scaffold branches, the trunk, trunk flare, any roots that may be visible, and the general site condition around the tree. I am able to compare a tree with other trees I have observed to note typical patterns and abnormalities that may be present. The observations are based on my knowledge of tree structure and conditions as well as my past experiences as an arborist. (Lilly, 2001)

I walked through the community on August 9, 2023. Most of the trees I observed were generally in FAIR to GOOD condition with POSSIBLE likelihood of failure. Only a few people (target analysis) were near the trees during my inspection and they were within striking distance of the trees briefly. (INFREQUENT occupancy with VERY LOW likelihood of impacting a target).

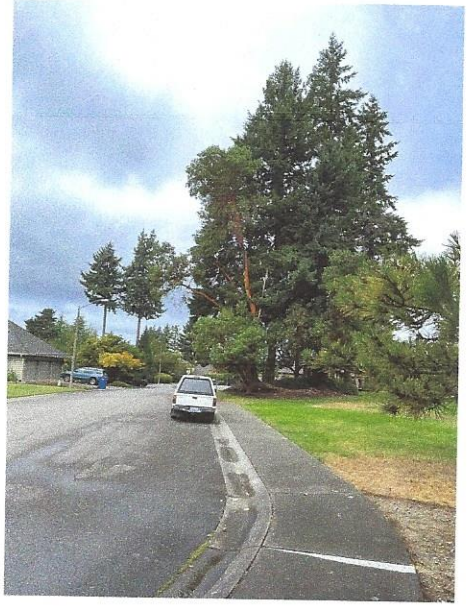


Image 2 - The group of trees in the center of the photo includes two madrona trees. One is DEAD and the other is in GOOD condition with one large dead branch. The likelihood of failure for each tree is PROBABLE with a LOW likelihood of impacting a target (park user). The consequences of a failure event as described would be SIGNIFICANT or SEVERE.

The overall risk is LOW.

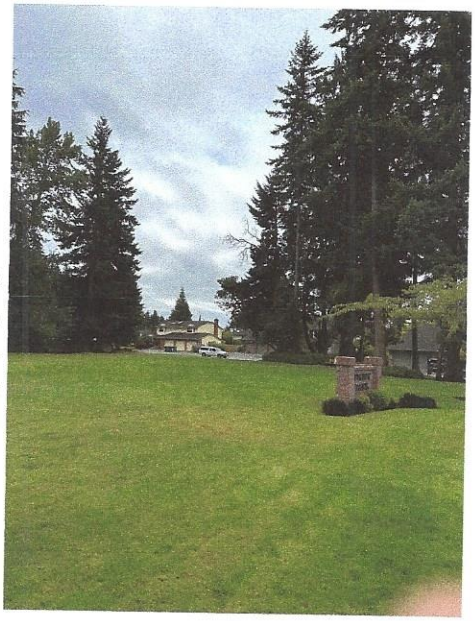


Image 3 - This image looks at the same tree from the previous image. The DEAD madrona can be seen silhouetted against the sky. Since the overall risk is LOW other tree care may be prioritized higher than these.

The large dead branches and dead trees should be removed at the discretion of the HOA.

Image 4 - A mature cottonwood tree in GOOD condition. The typical failure event for this tree would be a large diameter live branch failing during a normal weather event. People walking under this tree would be considered an OCCASIONAL to RARE occurrence during a windy/rainy day. The likelihood of failure is PROBABLE with a LOW likelihood of impacting a target (person walking along the sidewalk). The consequences of failure as described would be SIGNIFICANT or SEVERE. The overall risk is LOW.

Mitigation (pruning) would seek to reduce or remove structurally suspect live branches larger than two inches in diameter. The likelihood of failure after pruning would lessen to IMPROBABLE or POSSIBLE. However, the overall risk would remain the same.

Image 5 - The red maple in the center of the lawn has a very small mulched area. The area below trees should be mulched with wood chips to the dripline for optimum health as indicated by the white dashed oval.

Image 6 - Same photo from the previous image - this closeup shows A DEAD alder tree. It is next to sidewalk and street side parking and within reach of the landscape on the opposite side of the street. It should be removed.

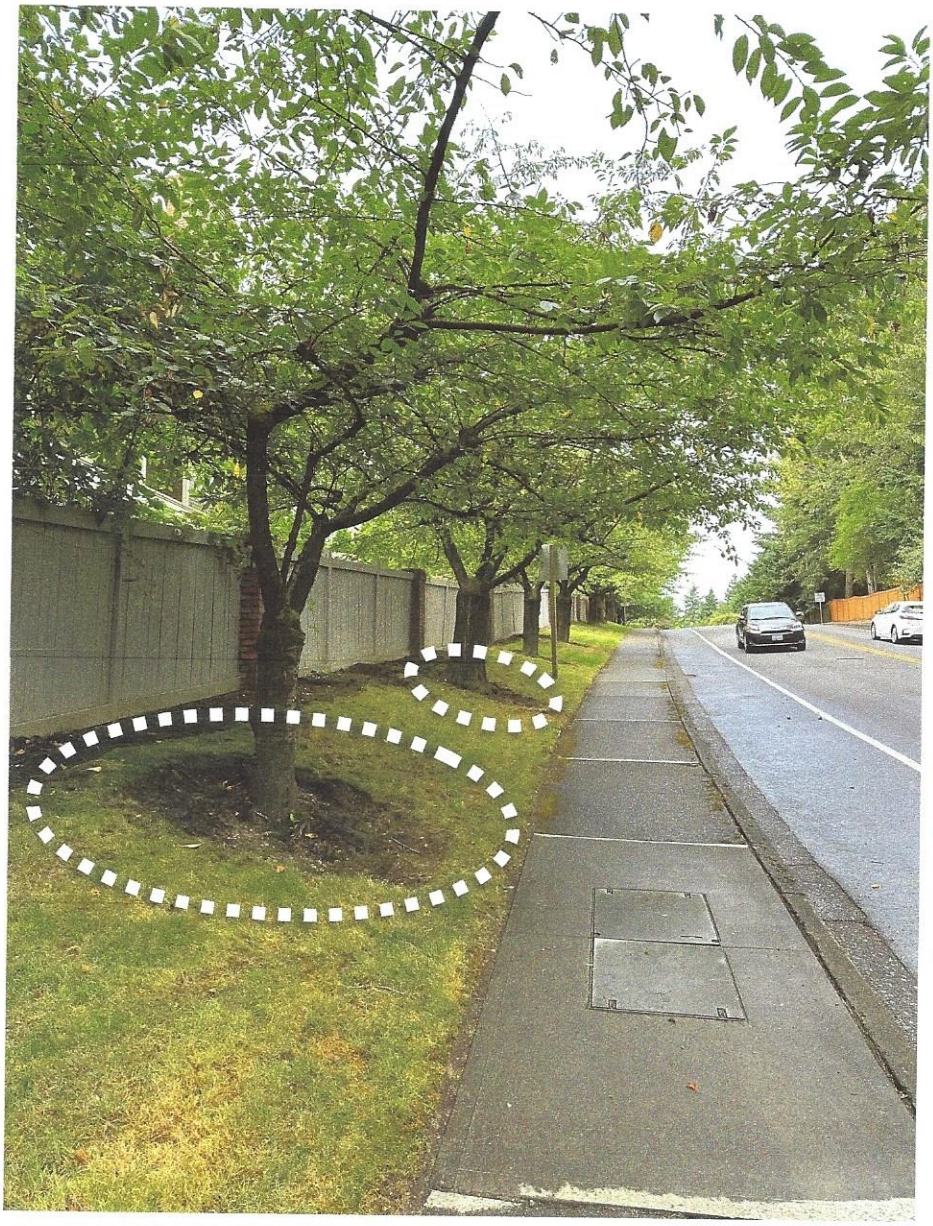


Image 7 - The Mt Fuji cherry trees growing along SW 330th St and 3rd Ave SW range in condition from FAIR to GOOD. The crowns on many of these trees are asymmetrical due to shading from larger trees to the south and previous poor quality pruning treatments.

The health of the trees will improve with mulching the entire dripline area.

Aesthetics can be improved with good pruning and by reducing or removing branches that overhang the trees from nearby properties.

Image 8 (left) and 9 (right) show the trees at the edge of the natural space that borders the community on the east. The trees in this area are (and should be) unmaintained. However, large trees near the edges of the area should be monitored for changes in condition. Any tree that appears to be in POOR or lower condition should be inspected for risk by the community arborist. For comparison purposes the edge trees (for example the cottonwood in Image 9 - arrow) have a similar risk rating to the cottonwood in Image 4. LOW overall risk.

Tree Risk Assessment

Tree Risk Assessment (TRA) is an orderly process of identifying, analyzing, and evaluating the risk associated with a tree. Trees are surveyed for the absence or presence of structures that indicate a higher likelihood of failure. Buildings or people that are within striking distance of the tree or tree parts are identified and categorized for type or value. For example, is the target stationery, such as a building, or transient as in the case of people or vehicles? How long a movable target is in the area and how valuable it is are examined, as well. Finally, an analysis of the consequences of a tree, or parts of the tree, striking the surveyed targets is expressed in terms of the consequences of failure.

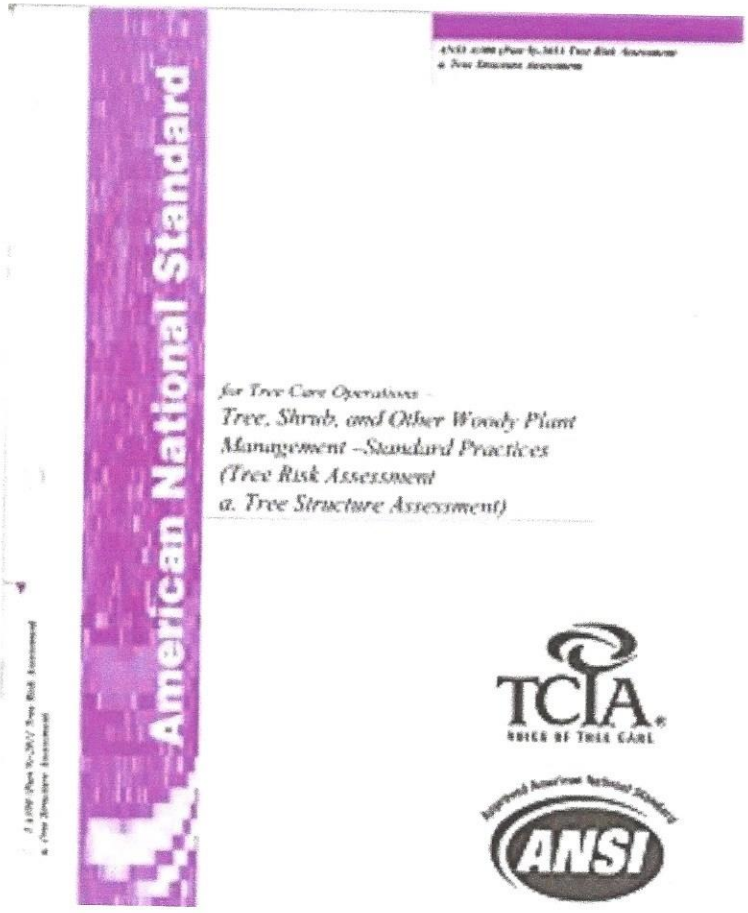
Tree risk assessment in the arboricultural profession is guided by a document called the *ANSI A300 (Part 9)-2017 Tree Risk Assessment*. This document suggests that "assessment data include… a specified objective; tree species; tree condition; type, severity and location of defects; presence or absence of reaction wood and compensatory growth; live crown ratio and crown density; site conditions and characteristics; site and maintenance history; past failure patterns; local weather, climatic events; and risk mitigation."

I endeavor to present my conclusions in a format that easily explains the risks associated with the tree and how best to manage or mitigate those risks.

Risk Factors

The minimum criteria for a risk assessment report include the following factors:

- Timeframe for the assessment.
- Level of inspection (limited visual, basic, or advanced).
- Assessment of tree condition and likelihood of failure.
- Target identification, occupancy rates, likelihood of impacting the target, and potential consequences of failure.
- Risk rating.
- Risk mitigation and residual risk after mitigation (unless risk is already low).



Discussion

Condition Rating

Tree condition is a factor of overall health, structure, and form. The categories are based on a Visual Tree Assessment (VTA) and are described as follows:

Exceptional - Good health, structure, and form. This would be an ideal (or nearly) tree of the species and location.

Good - Normal vigor, and well-developed structure as well as functionally and aesthetically beneficial. A tree with potential long life on this site.

Fair - Reduced vigor and/or significant damage or problems that are not fatal. At least one significant structural problem or multiple moderate defects requiring treatment. Major asymmetry or deviation from the species' normal form. Function and aesthetics are compromised.

Poor - Poor vigor with abnormal foliar color, size, or density with potentially irreversible decline. One serious structural defect or multiple significant defects that cannot be corrected and failure may occur at any time. Such a poor form the tree has little or no function/aesthetic benefit.

Very Poor - Poor vigor and dying with little foliage and in irreversible decline. Severe defects with the likelihood of failure being probable or imminent. This would be a very unappealing tree in the landscape.

Dead - No foliage with no functional benefit to the site. (Some dead trees may have a high ecological benefit to the site and would be noted as such.)

Aspects of Tree Risk

My role as a tree risk assessor is to evaluate the tree for the part or parts most likely to fail within a specified time frame, identify what types of targets might be within striking distance, and assess the significance of such an event. Tree risk assessment takes into account the site around a tree and identifies how much use the site has when combining all three of the aforementioned factors.

Visual tree risk assessment is limited to only conditions that are visible on the day of inspection. Conditions in the environment and a tree change over time. Additionally, it is important to recognize that trees are self-optimized organisms; they grow in concert with the normal environmental forces of the region. In other words, I endeavor to evaluate the risks of tree failure in terms of normal weather events.

Many people view the risks from trees to be quite high. However, the statistical risk from trees is very low; the vast majority of trees grow from youth to senescence without ever causing damage or harm. When conducting risk assessments of individual trees it is important to identify signs and symptoms of increased likelihood of tree failure. Conversely, it's necessary to identify conditions indicative of strong trees. By evaluating trees in an objective manner, the likelihood of failure can be weighed against target factors and potential damage or harm.

Risk Perception and Acceptable Risk

People perceive risk and personal safety in very subjective ways. It is imperative that a tree risk assessor maintain objectivity. Municipalities or other controlling authorities may have laws, ordinances, or risk management plans that define acceptable risk. Safety may not be the only basis used by a risk manager to determine an acceptable level of risk. Factors such as budget, environmental considerations, aesthetics, or historical significance may all be considered.

The decision for managing or mitigating any risks falls on the manager of a property. In many cases, the risk manager is a different person than the risk assessor. The risk manager must identify an acceptable level of risk and take steps to ensure that mitigation efforts keep trees at or below that level.

Risk mitigation can vary from removing a tree entirely to removing or modifying the target present. It is also important to understand the long-term effects of different risk mitigation strategies. My role in this process is to offer appropriate steps that mitigate identified risks. The appropriate level of mitigation will preserve the highest benefit and use of trees on a given site. (Dunster, 2008)

Tree removal should be considered for trees that pose higher than acceptable risk.

Conclusions

I am using the cottonwood tree in Image 4 to show common risk scenarios for the trees in the community. The failure scenario presented is for a branch falling from a tree and striking a resident of the HOA walking along the sidewalk within the next two years.

People walking under this tree during a windy or rainy day are classified as rare to occasional occupancy.

The likelihood of this type of failure is *probable*. A probable likelihood of failure is described as "The tree or branch is not likely to fail during normal weather conditions and may not fail in many severe weather conditions within the specified time frame." A possible likelihood of failure rating is described as "Failure could occur, but it is unlikely during normal weather conditions within the specified time frame."

The likelihood of a branch impacting a person below the tree is *low*. A low likelihood of target impact is described as "It is not likely that the failed tree or part will impact the target. This is the case for "an occasionally used area fully exposed to the assessed tree." The likelihood of impact is *low* since this failure would probably happen during weather not conducive to outside activity.

The consequences of a branch striking a person are *significant*. Significant consequences are described as, "those that involve property damage of moderate to high value, considerable disruption, or personal injury."

The scenario is represented in the following chart:

Tree Part Assessed - Failure of large diameter branch within the next two years.		
Likelihood of Failure	Improbable I Possible I Probable I Imminent	"Failure may be expected under normal weather conditions"
Likelihood of Impacting Target	Very Low I Low I Medium I High	"The failed part is as likely impact the target as not."
Consequences of Failure	Negligible I Minor I Significant I Severe	"Consequences that involve personal injury"
Overall Risk Rating	Low I Moderate I High I Extreme	

Mitigation would reduce the likelihood of this type of failure to be *improbable* or *possible*. An *improbable* likelihood of failure is described as "The tree or branch is not likely to fail during normal weather conditions and may not fail in many severe weather conditions within the specified time frame." A *possible* likelihood of failure rating is described as "Failure could occur, but it is unlikely during normal weather conditions within the specified time frame." However, the overall risk would remain *LOW*

Matrix 1 - Likelihood matrix

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

Matrix 2 - Risk rating matrix

Likelihood of Failure & 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

Image 10 - The different risk ratings are indicated by the green ovoids overlaid on the matrices. This is used to represent the current risk rating from the cottonwood tree from Image 4.

Matrix 1 - Likelihood matrix

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

Matrix 2 - Risk rating matrix

Likelihood of Failure & 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

Image 11 - This risk matrix shows the reduction of the Likelihood of Failure after pruning from Probable to Possible/Improbable. The overall risk remains the same.

Appendix A - Bibliography

Accredited Standards Committee. ANSI A300 (Part 9)-2017 Tree Risk Assessment a. Tree Risk Assessment. Londonderry, NH: Tree Care Industry Association, 2017

Dunster, Julian; et al. Tree Risk Assessment Manual. Champaign, IL: International Society of Arboriculture, 2013

Lilly, Sharon. Arborists' Certification Study Guide. Champaign, IL: The International Society of Arboriculture, 2001

Shigo, Alex. A New Tree Biology. Durham, NH: Shigo and Trees, Associates, 1999

Appendix B - Assumptions & Limiting Conditions

1. Consultant assumes that any legal description provided to Consultant is correct and the title to property is good and marketable. Consultant assumes no responsibility for legal matters. Consultant assumes all property appraised or evaluated is free and clear, and is under responsible ownership and competent management.
2. Consultant assumes that the property and its use do not violate applicable codes ordinances statutes or regulations.
3. Although Consultant has taken care to obtain all information from reliable sources and to verify the data in so far as possible, Consultant does not guarantee and is not responsible for the accuracy of information provided by others.
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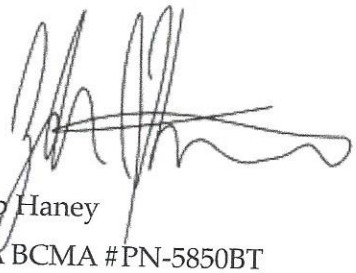
7. This report and any values expressed herein represent the opinion of the Consultant, and the Consultant's fee is in no way contingent upon the reporting of a specific value, stipulated result, the occurrence of a subsequent event, or any finding to be reported.
8. Sketches, drawings, and photographs 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. The reproduction of any information generated by architects, engineers, or other consultants in any sketches, drawings, or photographs is for the express purpose of coordination and easy reference only inclusion of such information on any drawings or other documents does not constitute a representation by Consultant to the sufficiency or accuracy of the information.
9. Unless otherwise agreed, (1) information contained in this report covers only the items 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, climbing, or coring. Consultant makes no warranty or guarantee, express or implied, that the problems or deficiencies of the plans or property in question may not arise in the future.
10. Loss or alteration of any part of this agreement invalidates the entire report.

Appendix C - Certification of Performance

I, Zebadiah J. Haney, certify that:

1. I have personally inspected the trees in properties referred to in this report and have stated my findings accurately.
2. I have no current or prospective interest in the tree or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
3. The analysis, opinions, and conclusions as stated herein are my own and are based on current scientific procedures and facts.
4. My analysis, opinions, and conclusions developed in this report have been prepared according to commonly accepted arboricultural practices.
5. No one provided significant professional assistance to me, except as indicated within the report.
6. My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other reporting party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a Registered Consulting Arborist® with the American Society of Consulting Arborists (ASCA) and that I adhere to the ASCA Standards of Professional Practice. I am a Board Certified Master Arborist® and a Certified Tree Worker Climber Specialist® through the International Society of Arboriculture (ISA). I have been involved with the practice of Arboriculture since 1999.



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