

# ABACUS

CONSULTING ARBORISTS



P. O. Box 4248  
Auburn, CA 95604

[www.abacus-tree.com](http://www.abacus-tree.com)

(530) 305-0165

E-mail: [nicole@abacus-tree.com](mailto:nicole@abacus-tree.com)

## Arborist Report & Tree Inventory & Assessment

Prepared at the request of:

Jason Cole, Black Oak Design

For

# PFE Road Project

In

Placer County, California

**Nicole Harrison**

*International Society of Arboriculture, Certified Arborist #WE-6500AM, TRAQ*

April 14, 2015

Nicole Harrison © 2015  
Copyrighted, do not copy without written permission

## Table of Contents

<b>TABLE OF CONTENTS</b> .....	<b>1</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>2</b>
<b>ASSIGNMENT</b> .....	<b>3</b>
<b>OBSERVATIONS</b> .....	<b>3</b>
CHART A – RATINGS DESCRIPTION .....	4
ABBREVIATION KEY AND TERMS: .....	4
CHART B – INVENTORY OF TREES .....	6
<b>TESTING &amp; ANALYSIS</b> .....	<b>10</b>
<b>DISCUSSION</b> .....	<b>10</b>
<b>CONCLUSION</b> .....	<b>13</b>
<b>RECOMMENDATIONS</b> .....	<b>14</b>
<b>SURVEY AREA MAP</b> .....	<b>17</b>
<b>TREE SIZE EXPRESSED BY TRUNK DIAMETER</b> .....	<b>18</b>
<b>DISCLOSURE, ASSUMPTIONS AND DISCLAIMER</b> .....	<b>19</b>

**Executive Summary:**

Jason Cole of Black Oak Design, Inc. contacted **ABACUS** to inventory and evaluate the protected trees and produce an Arborist Report as the end product. The property is near the corner of PFE Road and North Antelope Road in Placer County, California; See attached site map.

Nicole Harrison, ISA Certified Arborist #WE-6500A, and Arborist Assistant, Nick McNamara, of **ABACUS** were on site April 1<sup>st</sup> through April 8<sup>th</sup>, 2015, providing species identification, number of trunks, measurements of DBH and canopy, field condition notes, recommended actions, and ratings.

There are **57** trees on this property that qualify as “protected trees” by the standards of the Placer County Tree Preservation Ordinance.

**1 of the protected trees on this property is rated a 0 (“dead”).**

**1 of the protected trees is noted for removal due to it’s poor condition and is rated 1 (“dangerous/non-correctable”).**

**12 of the trees are rated 2 (“poor”).**

**42 of the trees are rated 3 (“fair”) or 4 (“good”).**

**There is 1 trees rated 5 (“excellent”).**

There are **57** total trees inventoried, of which, **9** are Interior Live Oak, **31** are Valley Oak, **16** are Blue Oak, and **1** is Western Cottonwood.

Listed within this report is the “**Recommendations**” section. All of these recommendations must be followed for all trees to be saved onsite and offsite. In addition, **Specific Recommendations** are included in the action column in **Chart B** and must be followed for the protection of the trees.

## **Assignment:**

Pursuant to your request, **ABACUS** has completed an inventory of all the trees located on-site. We provided species identification, number of stems, measurements of DBH and canopy, field condition notes, recommended actions, and ratings

## **Observations:**

Nicole Harrison, *Project Manager & ISA Certified Arborist #WE-6500A*, and field assistant Nick McNamara, evaluated all protected trees that met the requirements of the Placer County Tree Preservation Ordinance. The fieldwork was performed April 1<sup>st</sup> through April 8<sup>th</sup>, 2015.



The protected trees (on-site) tagged by **ABACUS** have a numbered tag, placed on each one that is 1-1/8" x 1-3/8", green anodized aluminum, "acorn" shaped, and labeled: **ABACUS**, Auburn, CA with 1/8" pre-stamped tree number, our phone number 530-889-0603, attached with a natural colored aluminum 10d (3") nail, installed at 6 feet above ground level on the north side of the tree. The tag should last ~10 – 20+ years depending on the species, before it is enveloped by the trees' normal growth cycle.

Tree Site Map was by others. Tree locations have been verified on-site by **ABACUS**.

**Chart B** in this report is an inventory on the trees. The following terms, and **Chart A** will further explain our findings on **Chart B** and the trees in question.

**Species** of trees is listed by our local and correct common name and botanical name by genus (capitalized) and species (lower case). Oaks frequently cross-pollinate and hybridize, but the identification is towards the strongest characteristics.

**# Stems** refers to the quantity of trunks or stems of a tree that have a significant connection. If one stem or trunk were to be removed, it would cause decay to harm an adjoining stem, making it one tree. All stems must be of the same species. (Also see "Tree SIZE Expressed by Trunk Diameter" at the end of this report)

**DBH** (diameter breast high) is normally measured at 4'6" (above the average ground height for "Urban Forestry"), but if that varies then the location where it is measured is noted here. A Swedish caliper<sup>1</sup> was used to measure the DBH for trees less than 26" in diameter and a steel diameter tape<sup>2</sup> for trees greater than 26"Ø.

**Canopy** is the farthest extent of the crown composed of leaves and small twigs. This measurement further defines the Critical Root Zone (CRZ) or Protection Zone (PZ), which is a circular area around a tree with a radius equal to a tree's largest dripline plus 1'. Our canopy measurement is the longest dripline measurement from the center point of the tree and includes the 1' only on the Tree Site Map.

**Rating** is subjective to condition and is based on both the health and structure of the tree. All of the trees were rated for condition, per the recognized national standard as set up by the Council of Tree and Landscape Appraisers and the International Society of Arboriculture (ISA) on a numeric scale of 5 (being the highest) to 0 (the worst condition, dead) as in Chart A. The rating was done in the field at the time of the measuring and inspection. The scale is as follows:

<sup>1</sup>A large wooden sliding adjustable thickness gauge calibrated in 1/16" increments.

<sup>2</sup>Diameter Tape is used to figure the tree's diameter, by measuring the circumference, whereon the inches are pre-multiplied by 3.14 or π (π called pi) and shown to produce the diameter of the tree directly on the tape.

## Chart A – Ratings Description

No problem(s)	5	excellent
No apparent problem(s)	4	good
Minor problem(s)	3	fair
Major problem(s)	2	poor
Extreme problem(s)	1	hazardous, non-correctable
Dead	0	dead

There is a very important line drawn between a tree rated a **3** and a **2**. A tree rated **3**, **4**, or **5** is a tree to be preserved, and a tree rated **0**, **1**, or **2** is recommended for removal. On the following tree list **BLACK** marks are field notes and action items on trees that are to remain, and **RED** are trees that are recommended for removal, and **VIOLET** refers to trees that are to be removed for permitted development activities. **Trees rated a 2 may be retained but only if the recommendations are followed, otherwise the tree should be removed.**

**Rating #0:** This indicates a tree that has no significant sign of life.

**Rating #1:** The problems are extreme. This rating is assigned to a tree that has structural and/or health problems that no amount of work or effort can change. The issues may or may not be considered a dangerous situation.

**Rating #2:** The tree has major problems. If the option is taken to preserve the tree, its condition could be improved with correct arboricultural work including, but not limited to: pruning, cabling, bracing, bolting, guying, spraying, mistletoe removal, vertical mulching, fertilization, etc. If the recommended actions are completed correctly, hazard can be reduced and the rating can be elevated to a 3. If no action is taken the tree is considered a liability and should be removed.

**Rating #3:** The tree is in fair condition. There are some minor structural or health problems that pose no immediate danger. When the recommended actions in an arborist report are completed correctly the defect(s) can be minimized or eliminated.

**Rating #4:** The tree is in good condition and there are no apparent problems that a Certified Arborist can see from a visual ground inspection. If potential structural or health problems are tended to at this stage future hazard can be reduced and more serious health problems can be averted.

**Rating #5:** No problems found from a visual ground inspection. Structurally, these trees have properly spaced branches and near perfect characteristics for the species. Highly rated trees are not common in natural or developed landscapes. No tree is ever perfect especially with the unpredictability of nature, but with this highest rating, the condition should be considered excellent.

**Notes:** explain why the tree should be removed or preserved. If it is to remain and be preserved the tree may need some form of work to limit future liability from partial or total failure. Lower deadwood may not be an immediate problem, but the same size wood at a much higher location on the trees could be dangerous and might cause a minor injury to a fatal blow if the branch failed.

### Abbreviation key and terms:

**CDL: Co-Dominant Leader:** Stems or trunks of the tree that are equal in size and relative importance.

**CRZ: Critical Root Zone:** The canopy is the farthest extent of the crown composed of leaves and small twigs. This measurement further defines the CRZ, which is a circular area around a protected tree with a radius equal to a tree's largest dripline radius. The roots of a tree grow minimally within this canopy measurement and have been found growing 2 to 3 times beyond the farthest branches.

**IB: Included Bark:** A sharp "V" crotch, usually less than a 45° angle of attachment, between 2 branches where the bark is kept between two narrowly joined branches and the bark is continually turned inward, rather than

being pushed out. It is a common point for potential massive structural failure and this hazard can be minimized with properly installed and maintained cabling, bolting or bracing.

**BMT: Broadleaf Mistletoe** infested tree.

**EG: Epicormic Growth**: Shoots that arise from latent buds along the trees trunk or mature branches. This growth is usually a sign that the tree has undergone a stressful period.

**LTD: Limb Tip Dieback**: Generally associated with drought, the tips of scaffold limbs have died.

**NABA: Narrow Angle Branch Attachment**: A sharp "V" crotch, usually less than a 45° angle of attachment. Included bark is explained above and is common in branches with narrow attachments. In addition, these branches may not be attached to the trunk as well as others with wider angles of attachment, and can fail more frequently depending on the size of the branch.

**OPC: Old Pruning Cuts**

**OWL: Over Weight Limb**

**PRZ: Protected Root Zone**: A circular area around a protected tree with a radius equal to a tree's largest dripline radius plus 1'.

**PS: Poor Structure**: These trees have grown with structural imperfections that cannot be corrected and therefore render them hazardous and more likely to fail in the future.

**R4D: Remove For Development**

**RDW: Remove Dead Wood**: All dead wood to be removed over 3" in diameter and if over 2" in diameter when above 25', as this is a potential hazard for people under these limbs and a future health problem for the tree.

**RH: Remove Hanger**: There is a broken or cut branch that is hanging in the tree and needs to be removed.

**RBMT: Remove Broadleaf Mistletoe**: Broadleaf mistletoe, *Phoradendron villosum*, is an evergreen parasitic that grows on many hardwood trees and is spread most commonly by birds excreting the living seeds onto woody branches where they germinate. It is important to stop the spread by correctly removing the mistletoe plant by either pruning off the branch it lives on (if small enough) or by removing its light source and killing the parasite. Pruning: remove the branch at least 12" below the point of attachment to the next lateral using an approved thinning-type cut. Light exclusion: remove the mistletoe to flush with limb or trunk where it is attached and wrap the limb/trunk with 2-3 layers 6 mil polyethylene plastic 8" above and below the point of attachment. Tape it with a few wraps of electrical tape to keep all light out to kill the mistletoe, remove in 2-3 years.

**TBR: To Be Removed**: Tree to be removed due to health and/or structural reasons. Removal should be done carefully as to not harm the surrounding trees, branches, and/or trunks above or roots below ground. Do **NOT** rip out or push over the tree stumps if they are near other trees that are to be preserved. Cut them off close to ground level and leave the stumps and roots to decay, unless they are located within a proposed foundation or area to be paved/concrete surfaced.

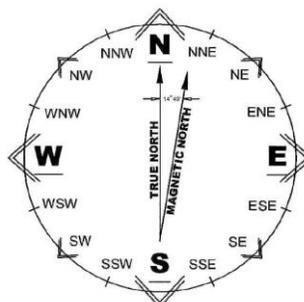
~: **Tilde**: This mark is used in the field in any empty box to indicate that there is no information to enter in that space.

**TMD: Too Much Decay**

**TMDW: Too Much Dead Wood**

**UC: Unbalanced Canopy**: Either the trunk is leaning and/or the canopy is phototropic and overly heavy on one side.

**Compass Points**: These are the standard 16 points of the compass as aligned with Geographic North or True North. In our area, True North (TN) is adjusted for declination 14°49' to the west of Magnetic North (MN).



## Chart B – Inventory of Trees

**BLACK** marks are field notes and action items on trees that are to remain, and **RED** are trees that are recommended for removal. Trees rated a **2** may be retained but only if the recommendations are followed.

0 = Dead   1 = Very Poor   2 = Poor   3 = Fair   4 = Good   5 = Excellent

Tree Tag #	Common Name	Botanical Name	# of Stems	DBH	Canopy radius	Notes	Action	Rating
701	Valley Oak	Quercus lobata	3	15, 17 @ 3', 12	26	Under high voltage, topped, lower canopy narrow angles	Needs corrective pruning	3
702	Interior Live Oak	Quercus wislizenii	1	20	19	Decay under base, lean with correction, old pruning cut at 1'	Remove rocks at base	3
703	Valley Oak	Quercus lobata	1	18	21	Off- site? Old pruning cut at 2' to east, poor cut, embedded fence wire and post	Remove fence wire, end weight reduction over school yard, recut at 2', re-inspect annually	3
704	Valley Oak	Quercus lobata	1	12	21	Crossing almond stem at 4'	Remove almond stems	3
705	Interior Live Oak	Quercus wislizenii	1	8	17	Imbedded equipment, poor taper	Move equipment	3
706	Valley Oak	Quercus lobata	1	13	18	Co-dominant leader at 8', included bark	Reduce west stem, re-inspect in 3 years	3
707	Valley Oak	Quercus lobata	1	7	10	Poor taper, suppressed		3
708	Blue Oak	Quercus douglasii	1	23 @ 3'	21	Co-dominant leader at 7', included bark, materials at base, narrow angles through out		3
709	Valley Oak	Quercus lobata	2	7, 7	13	Co-dominant leader at 2', included bark, suppressed by #710, unbalanced canopy to north, narrow angles through out		2
710	Valley Oak	Quercus lobata	1	16 @ 2'	21	Embedded fence wire, co-dominant leader at 5', included bark 1 - 5', poor structure, epicormic growth	Needs corrective pruning	3

Tree Tag #	Common Name	Botanical Name	# of Stems	DBH	Canopy radius	Notes	Action	Rating
711	Valley Oak	Quercus lobata	1	15 @ 2'	20	Surrounded by blackberries - <b>no tag</b> , co-dominant leader at 4' with included bark, sparse canopy, epicormic growth	Re-inspect after removal of blackberries	3
712	Interior Live Oak	Quercus wislizenii	2	8 @ 1', 7 @ 1'	15	Unbalanced canopy to north east, suppressed by tree #713		2
713	Valley Oak	Quercus lobata	1	20 @ 2'	22	Over fence line, co-dominant leader at 5'	Crown clean	3
714	Interior Live Oak	Quercus wislizenii	4	13, 15, 13, 5	20	Over fence line, co-dominant leader at 2' into 3 stems, embedded fence wire	Remove dead wood, remove fence wire, remove 5" stem at crotch	3
715	Blue Oak	Quercus douglasii	1	19 @ 3'	23	Good	Crown clean	3
716	Valley Oak	Quercus lobata	1	7	12	<b>Tag to south</b> , Imbedded fence wire, at tank, poor taper		3
717	Valley Oak	Quercus lobata	1	6	5	Old pruning cut at 6", topped, <b>No Tag</b>	<b>To be Removed</b>	1
718	Blue Oak	Quercus douglasii	1	15	18	Under high voltage, topped, epicormic growth		3
719	Valley Oak	Quercus lobata	1	22	25	Epicormic growth, stubs	Crown clean	3
720	Valley Oak	Quercus lobata	2	10, 8	21	Epicormic growth		3
721	Interior Live Oak	Quercus wislizenii	1	10		Removed		
722	Valley Oak	Quercus lobata	2	20 @ 2', 13 @ 3'	24	Covered in ants, epicormic growth, active borers, <b>No Tag</b>	<b>Crown clean, treat for borers</b>	2
723	Valley Oak	Quercus lobata	1	24 @ 1'	17	Co-dominant leader at 3', topped - one stem remains, epicormic growth, under high voltage		2
724	Blue Oak	Quercus douglasii	1	7	10	Topped, poor taper		2
725	Blue Oak	Quercus douglasii	1	10	10	Topped, under high voltage, many old pruning cuts, epicormic growth		2

Tree Tag #	Common Name	Botanical Name	# of Stems	DBH	Canopy radius	Notes	Action	Rating
726	Valley Oak	Quercus lobata	1	9	14	Topped, epicormic growth		3
727	Valley Oak	Quercus lobata	1	14	23	Co-dominant leader at 10' with included bark		4
728	Valley Oak	Quercus lobata	1	11	18	Suppressed		3
729	Valley Oak	Quercus lobata	1	9	24	Dead wood at base, suppressed, bows to south	Remove dead wood	3
730	Valley Oak	Quercus lobata	1	7	~15	Suppressed, epicormic growth, poor structure, bows to south		2
731	Valley Oak	Quercus lobata	2	12, 11	15	Under high voltage, at culvert, epicormic growth, under mined by creek		2
732	Valley Oak	Quercus lobata	1	6	7	Closed wound at 2'		4
733	Interior Live Oak	Quercus wislizenii	1	11 @ 3'	12	Co-dominant leader at 3', ants, topped, epicormic growth		2
741	Interior Live Oak	Quercus wislizenii	1	7 @ 1'	14	Decay at base, good canopy, <b>Tag to south east</b>	Remove dead tree	3
742	Interior Live Oak	Quercus wislizenii	1	18 @ 2'	20	Embedded fence wire and post, co-dominant leader at 5' into 3 stems, good canopy, <b>Tag to south east</b>	Crown clean for crossing limbs	4
743	Valley Oak	Quercus lobata	3	5, 6, 3	12	Good	Remove smallest stem	4
744	Blue Oak	Quercus douglasii	2	9, 11	17	Co-dominant leader at 3', included bark		3
745	Valley Oak	Quercus lobata	2	13, 14	23	Co-dominant leader at 3', prostrate limb to south	Prune to balance	3
746	Valley Oak	Quercus lobata	1	6	8			5
747	Valley Oak	Quercus lobata	1	35	30	12" prostrate limb to south	Reassess for development plan	4
748	Valley Oak	Quercus lobata	1	15	17	Epicormic growth, limb tip dieback	Remove dead wood	3
749	Blue Oak	Quercus douglasii	2	8, 8	13	Co-dominant leader at 1', included bark		3

Tree Tag #	Common Name	Botanical Name	# of Stems	DBH	Canopy radius	Notes	Action	Rating
750	Blue Oak	Quercus douglasii	1	12	14	Co-dominant leader at 6', good		4
751	Interior Live Oak	Quercus wislizenii	5	7, 3, 7 @3', 2, 12 @ 3'	15	Good canopy		3
752	Blue Oak	Quercus douglasii	2	9, 11	25	Co-dominant leader at 1', good		3
753	Blue Oak	Quercus douglasii	1	10	15	Dogleg in main trunk		2
754	Blue Oak	Quercus douglasii	2	8, 18 @2'	20	8" stem is suppressed and bows to north west, sparse canopy		3
755	Blue Oak	Quercus douglasii	1	20 @ 1'	15	Co-dominant leader at 1', crossing limbs, narrow angles	Crown clean	3
756	Blue Oak	Quercus douglasii	1	20 @ 1'	17	Co-dominant leader at 3', canker disease, sparse canopy, poor structure at 5'	Remove dead wood, re-inspect in 3 years	2
757	Blue Oak	Quercus douglasii	1	14 @ 1'	13	Co-dominant leader at 5', poor structure at base, 6" limb @ 2' to south	Remove 6" limb, crown clean	3
758	Valley Oak	Quercus lobata	1	23	25	Good, mid-canopy narrow angles		4
759	Valley Oak	Quercus lobata	1	7	9	Needs corrective pruning at 3', crossing limbs at co-dominant leader		3
760	Blue Oak	Quercus douglasii	1	14	23	Ivy on tree, epicormic growth, slight unbalanced canopy to west	Remove ivy and re-inspect base	3
761	Valley Oak	Quercus lobata	1	25 @ 2'	31	Co-dominant leader at 5', canopy to ground to east and west		4
762	Valley Oak	Quercus lobata	1	24 @ 3'	30	Co-dominant leader at 5', canopy to ground to east and west		4
763	Western Cottonwood	Populus fremontii	2	22, ~16	40	Co-dominant leader at 3'		2
764	Blue Oak	Quercus douglasii	1	14	22	Good		4

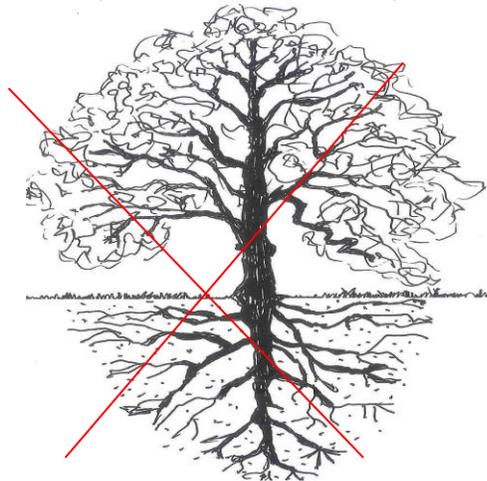
### **Testing & Analysis:**

A Level 2 – Basic Visual Assessment was performed in accordance with the International Society of Arboriculture’s best management practices. This assessment level is limited to the observation of conditions and defects which are readily visible. No laboratory or chemical testing and analysis was performed, only ground level observations.

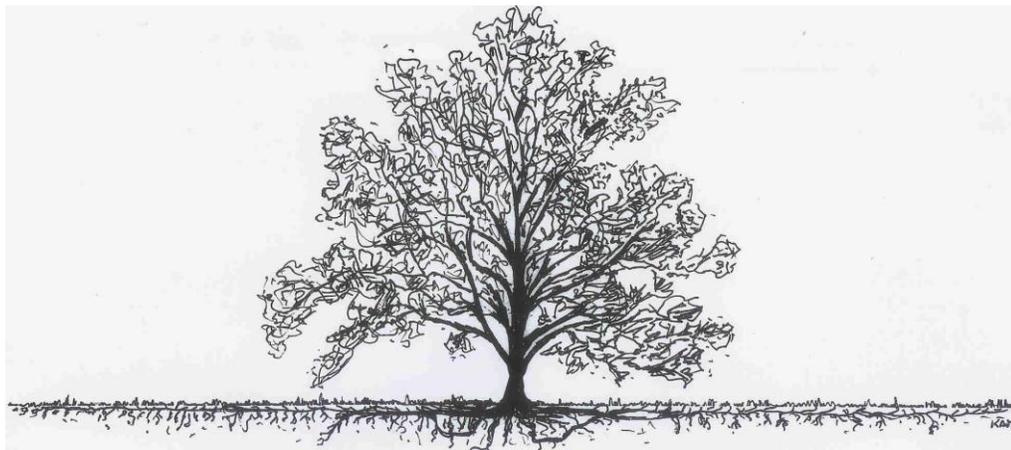
A recommended Level 3 – Advanced Assessment should be performed on trees determined during the development process to have a target. Level 3 assessment includes aerial inspection and evaluation of the structural defects of a tree including decay and load testing for purposes of risk analysis.

### **Discussion:**

The majority of a tree’s roots are contained in a radius from the main trunk outward approximately two to three times the canopy of the tree. These roots are located in the top 6” to 3’ of soil. It is a common misconception that a tree underground resembles the canopy (see Drawing A below). The correct root structure of a tree is in Drawing B. All plants’ roots need both water and air for survival. Surface roots are a common phenomenon with trees grown in compacted soil. Poor canopy development or canopy decline in mature trees is often the result of inadequate root space and/or soil compaction.



***Drawing A***  
Common misconception of where tree roots are assumed to be located



***Drawing B***  
The reality of where roots are generally located

Roots are the method by which a tree receives water and water-soluble nutrients. The water and nutrients are transported through the tree in the cambium layer, which lies just

underneath the bark. Photosynthesis, which occurs in the leaves, requires the water from the roots. In return, the leaves produce sugars to feed the roots. There is a balance between the roots and leaves. There must be enough of each to provide for the other. In re-iteration: The GREEN part of the tree has an equal and more vigorous portion of roots that are unseen below the ground. What you see is a small portion of the tree!



Water is required to maintain each leaf on a tree. The larger a tree becomes, the more water is required to maintain it. If there is not enough water in the soil, the tree will begin to drop leaves to balance the leaf surface to the available water. Our native oaks have adapted to our dry environment and cycle in and out of leaf drop and re-growth phases. Non-native species, however, are not able to adapt to this cycle. In particular, Coast Redwood are notorious for growth to a certain size, a size to which water is available, and then they quickly decline and die from lack of available water.

Epicormic growth is a tree's response to loss of leaf surface from either limb drop, over pruning, or stressful conditions. Epicormic growth is simply the release of latent buds, which begin rapid growth in order to provide as much new leaf surface in the shortest period of time to make up for the loss of leaf surface. Epicormic growth prevents the death of the tree in stressful times, but creates a need for additional pruning. It is not the formation of a structurally intact new limb. The new limbs are weakly attached and need support and pruning.



Limited space for canopy development produces poor structure in trees. The largest tree in a given area, which is 'shading' the other trees is considered Dominant. The 'shaded' trees are considered Suppressed. The following picture illustrates this point. Suppressed trees are more likely to become a potential hazard due to their poor structure.

Dominant Tree

Growth is upright

Canopy is balanced by limbs and foliage equally

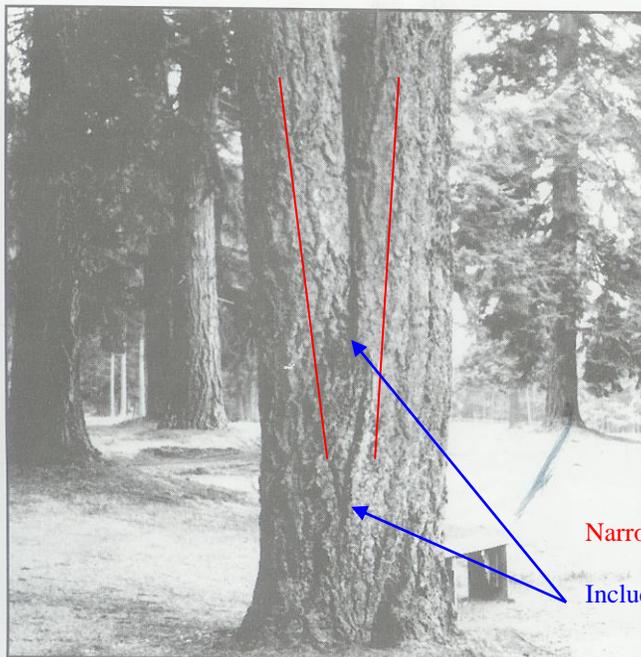


Suppressed Tree

Canopy weight all to one side

Limbs and foliage grow away from dominant tree

Co-dominant leaders are another common structural problem in trees.



The tree in this picture has a co-dominant leader at about 3' and included bark up to 7 or 8'. Included bark occurs when two or more limbs have a narrow angle of attachment resulting in bark between the stems – instead of cell to cell structure. This is considered a critical defect in trees and is the cause of many failures.

Narrow Angle

Included Bark between the arrows

Figure 6. Codominant stems are inherently weak because the stems are of similar diameter.

Photo from Evaluation of Hazard Trees in Urban Areas by Nelda P. Matheny and James R. Clark, 1994 International Society of Arboriculture

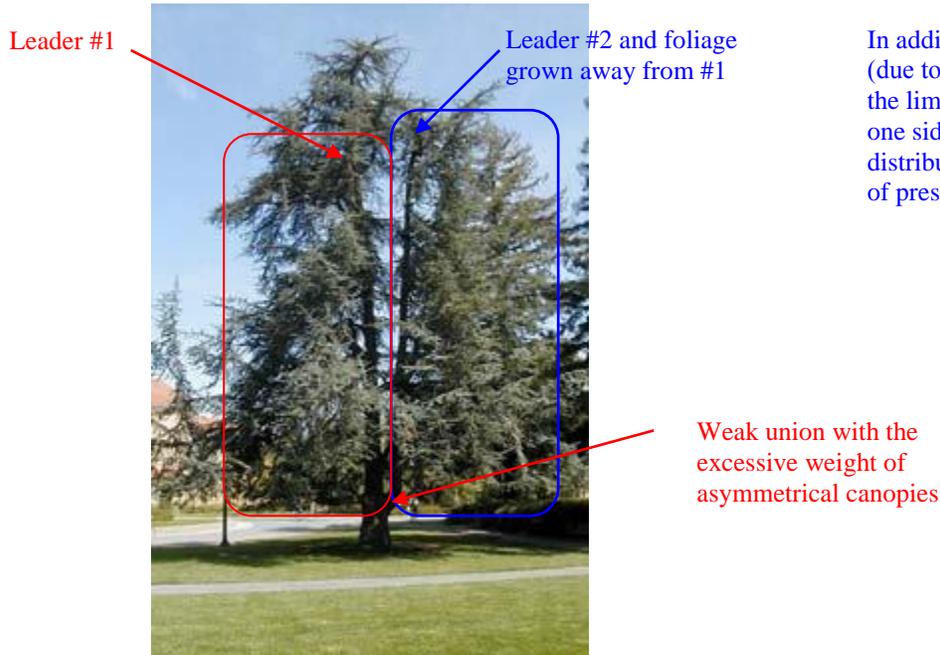


Photo from <http://grounds.stanford.edu/points/significanttrees/cedrusatlantica.html>

In addition, co-dominant leaders phototropically (due to sunlight) suppress each other's growth. All the limbs are grown away from the main trunk to one side. The weight of the foliage of the tree is distributed asymmetrically placing a greater amount of pressure on the already weak union.

Weak union with the excessive weight of asymmetrical canopies

Our native oak trees are easily damaged or killed by having the soil within the Critical Root Zone (CRZ) disturbed or compacted. All of the work initially performed around protected trees that will be saved should be done by people rather than by wheeled or track type tractors. Oaks are fragile giants that can take little change in soil grade, compaction, or warm season watering. Don't be fooled into believing that warm season watering has no adverse effects on native oaks. Decline and eventual death can take as long as 5-20 years with poor care and inappropriate watering. Oaks can live hundreds of years if treated properly during construction, as well as later with proper pruning, and the appropriate landscape/irrigation design.

### Conclusion:

There are **57** trees on this property that qualify as "protected trees" by the standards of the Placer County Tree Preservation Ordinance.

**1** of the protected trees on this property is rated a **0** ("dead").

**1** of the protected trees is noted for removal due to it's poor condition and is rated **1** ("dangerous/non-correctable").

**12** of the trees are rated **2** ("poor").

**42** of the trees are rated **3** ("fair") or **4** ("good").

**There is 1** trees rated **5** ("excellent").

There are **57** total trees inventoried, of which, **9** are Interior Live Oak, **31** are Valley Oak, **16** are Blue Oak, and **1** is Western Cottonwood.

## **Recommendations:**

- 1) Follow all of the recommendations in the action column of **Chart B** immediately.
- 2) Mulch the area under the oaks' branched canopy with arborist type hard wood woodchips (4 – 6" deep), not redwood or cedar bark
- 3) All trees to be saved shall have their root zones and trunk(s) protected with a four (4') foot high orange or yellow plastic, high visibility exclusionary fence surrounding the trees' root zone. The fence shall be staked 10' o.c. maximum spacing, with 5' steel "T" posts, 2" x 2" square or 2"+ Ø wood posts. The exclusionary area shall be under the tree's branched canopy and extend out to the tree's longest dripline radius plus one foot, as a circle. Where new construction will be within the Protected Root Zone, the fencing shall be 4' away from the footings, and extend around the rest of the canopy of the tree from that point. The fencing shall be maintained and not removed until the completion of construction. The fencing shall completely surround the Protected Root Zone and not be "U" shaped or open at any point. Whenever possible, include as many trees that are to be saved into one fenced exclusionary Protected Root Zone. The fencing plan will be completed once the developer decides on driveway, utility, and structure placement.
- 4) As soon as the concrete is poured and the forms are stripped, backfill the footings and stem walls. The protected trees nearby that are to remain should be watered to the point of soil saturation.
- 5) Care must also be continued after the construction is over to select the right plants to live under and near the native oaks. Watered lawns and any frequent summer watering near California oaks will not mix well over a long period. This will cause the oaks to perish due to *Armillaria mellea* (oak root fungus). The demise of the native oaks due to *Armillaria mellea* may take 5 – 20 years. Oaks should live 200 - 500 years.
- 6) To help control root damage, utility-trenching paths are to be established away from the roots and branches of the oaks that are to remain.
- 7) Soil compaction shall be avoided by maintaining the exclusionary Protected Root Zone fencing, keeping material storage, people, portable outhouses, vehicles, and dogs out of this area.
- 8) Soil contamination shall be avoided by eliminating chemical dumping on the property that may infiltrate into the Protected Root Zone. **No**: washing, dumping, or contaminating the site including but not necessarily limited to the following: concrete from tools or trucks, paint materials, sheetrock mud or stucco materials, other chemicals, solvents, herbicides, etc. Limestone gravel should not be used as base material or for drain rock as it will change the pH to be more alkaline, and may harm the native oaks.
- 9) Do not nail, tie, screw, or fasten any signs, braces, etc. to the trees that are to remain.
- 10) The cut and fill material excavated from or added to the lot can kill an oak by removing too many roots, drying or wetting the soil or by suffocating the roots with too much soil. Care must be taken with the added soil as well as with the actual excavation. Roots need air as much as they need water to survive and for the whole tree to live and to flourish. If fill material is needed, properly designed aeration/ventilation systems made to protect the trees and allow for the fill material can be installed.

11) When deciding on a pruning arborist, inquire about a chipper and require them to utilize the chipped branches of the trees to be removed or pruned. The chips are to be used under the oaks that are to remain, as mulch in the Protected Root Zone. Other mulch may be used of arborist type woodchips (4 – 6” deep), but not redwood or cedar bark.

12) When the recommended pruning is completed, it is only advisable if a qualified ISA Certified Arborist is on site. No cutting of live wood over 2”Ø shall be made. All cutting, pruning, trimming, cabling, guying, bracing, and lightning protection systems shall conform to the most current standards of the American National Standards Institute (ANSI). The current ANSI Tree Care Standards are A300 (Parts 1-4) 2000 to 2002 (copies at: [www.ansi.org](http://www.ansi.org)). The BMPs are “Best Management Practices”, as companion publications to the ANSI Tree Care Standards, printed by the International Society of Arboriculture (copies at: [www.isa-arbor.com](http://www.isa-arbor.com)). The BMP booklets explain the details of the ANSI Tree Care Standards and how to follow them correctly. Pruning of branches under 3” in diameter should be made with sharp hand tools: pruners, loppers, and/or handsaws, not chainsaws.

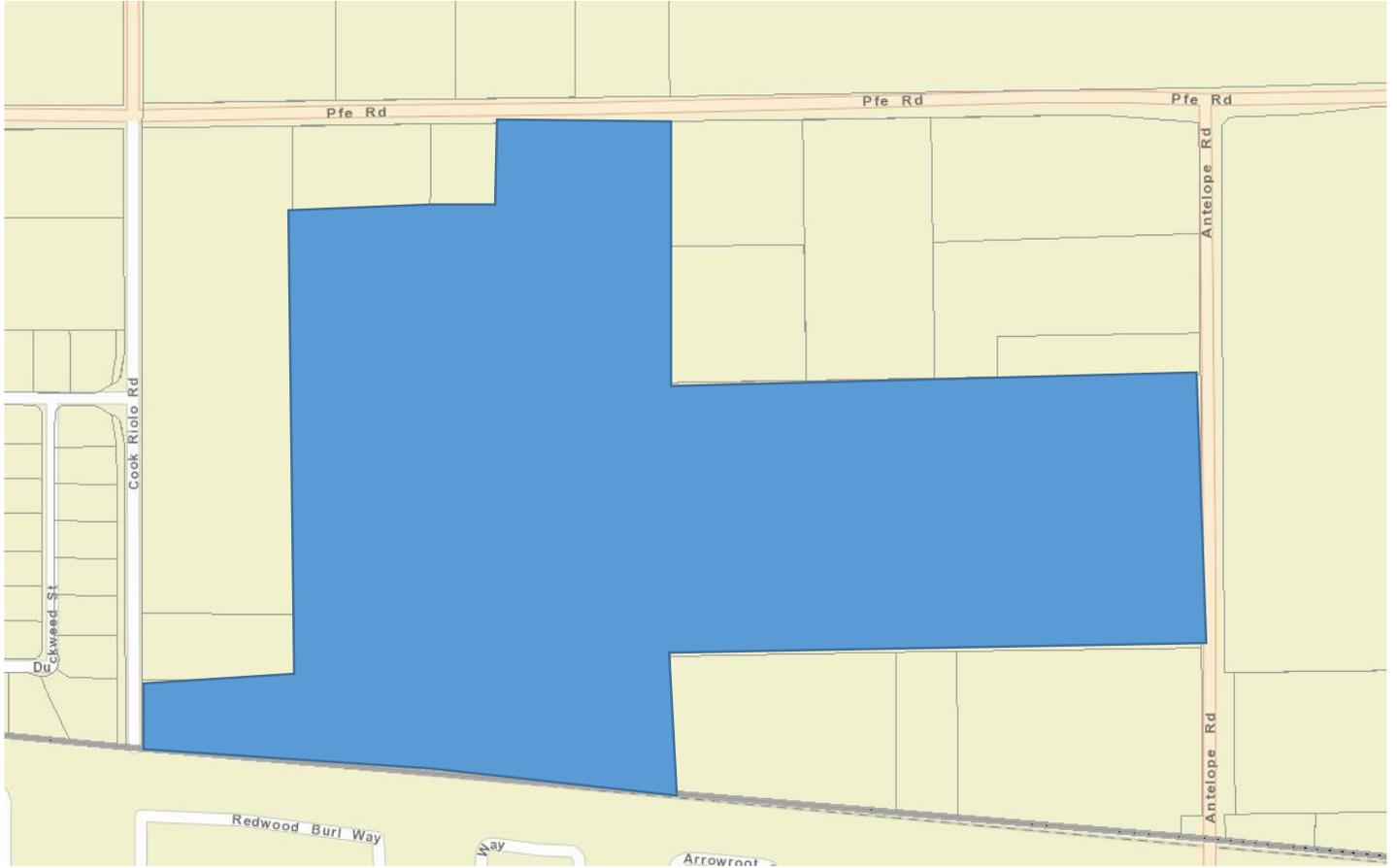
These important details will greatly increase the likelihood of survival for your protected trees.



## **Preservation Requirements**

To be Determined

# Survey Area Map

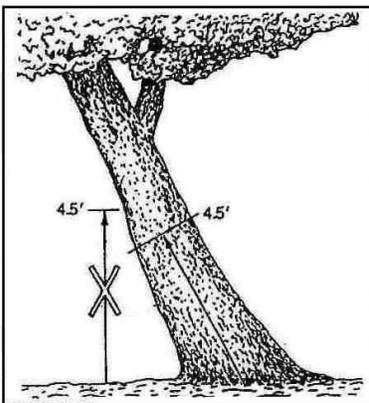


## Tree Size Expressed by Trunk Diameter

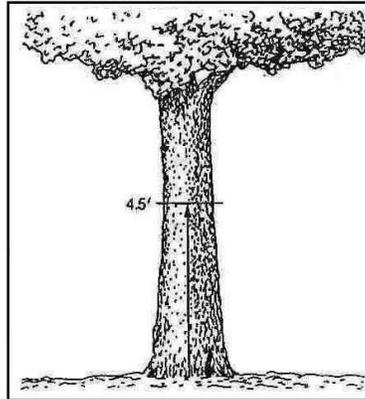
### Tree SIZE Expressed by Trunk Diameter

"The height at which the trunk diameter of a tree is measured depends upon its size. The American Standard for Nursery Stock (ANSI, 1990) state that measurements shall be taken 6 inches (15 cm) above the ground for trunk diameters up to and including 4 inches (10 cm). Larger trees (assumed, but not stated, to be of transplantable size) are to be measured at 12 inches (30 cm). Trees normally considered too large to transplant are to be measured 4.5 feet [4'-6" is also called diameter breast high or dbh] (1.4 m) above the ground. Trees, like conifers, which have branches below 4.5 feet should be measured at a height that most effectively represents the size of the tree." The diameter is calculated by first measuring the circumference divided by 3.14 ( $\pi$  called pi) or by using a "diameter tape" whereon the inches are multiplied by  $\pi$  and shown to produce the diameter directly.

This is the dbh standard for measurement as shown in figure 4-2.



Figures 4-3 (top) and 4-4 (bottom). In each case, the trunk circumference should be measured at right angles to the trunk 4.5 feet (1.4 m) along the center of the trunk axis so the height is the average of the shortest and longest sides of the trunk.



Figures 4-2. Trees with fairly straight, upright trunks with the lowest branch arising on the trunk higher than 6 feet (1.8 m) above the ground should be measured at 4.5 feet (1.4 m).

There are some exceptions to the dbh standard as shown in the figures 4-3, 4-4, 4-5 & 4-6.

Figure 4-6. In a multi-stem tree, measure the trunk circumference of each trunk at 4.5 feet (1.4 m) above the ground. The area of each trunk is determined and then added together to obtain a trunk area that is representative of the size of the tree and each of the stems contribute its proportionate share to the canopy.

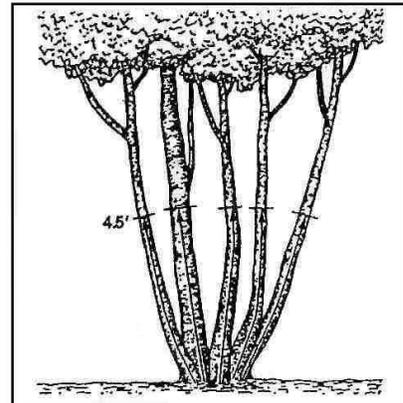
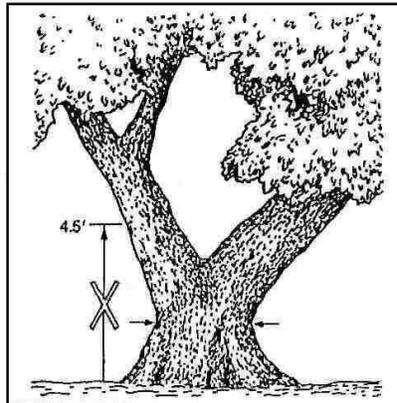
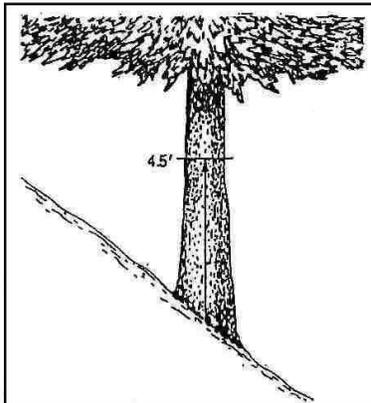


Figure 4-5. When low branches preclude measuring the trunk at 4.5 feet (1.4 m) measure the smallest circumference below the smallest branch. In this example, an alternative would be to determine the sum of the cross-sectional areas of the two stems measured about 12 inches (30 cm) above the crotch; then average the sum of the two branch areas and the smallest cross-sectional area below the branches. This may give a better estimate of tree size. Record the height of measurement(s) and the reasons the height or those heights were chosen.

This information is taken from: Guide for Planting Appraisal, English Edition, authored by the Council of Tree & Landscape Appraisers, edited, published & copyrighted by the International Society of Arboriculture, representing: American Association of Nurserymen, American Society of Consulting Arborist, Associated Landscape Contractors of America, International Society of Arboriculture and the National Arborist Association.

**ABACUS**  
 "Where Every Detail Counts!"  
  
 145 Duncan Hill Rd.  
 Auburn, CA 95603  
 Phone & Fax (530) 889-0603  
 Email: ken@abacus-tree.com  
 www.abacus-tree.com

Tree SIZE Expressed by Trunk Diameter

Scale: NTS

Drawing: TSE

# ABACUS

CONSULTING ARBORISTS



P.O. Box 4248  
Auburn, CA 95604

www.Abacus-Tree.com

(530) 305-0165

Nicole.Abacus@gmail.com

## Disclosure, Assumptions and Disclaimer

- 1) I, Nicole Harrison, *ISA Certified Arborist WE-6500AM*, with “**ABACUS**”, did personally inspect the site and investigated the tree(s) as mentioned in this report and I performed all aspects of this report unless noted otherwise in the report. Arborist’s Assistant on site was Greg Nicholas.
- 2) We have neither financial interest in the tree work that may or may not be done, nor financial interest in the property where the tree(s) is (are) located unless noted within the report.
- 3) All opinions and recommendations expressed herein this report are ours solely. We have used our specialized education, knowledge, training and experience to examine the tree(s) and to make our opinions and recommendations to enhance the beauty, health and longevity, with an attempt to reduce the risk of who and/or what is near these trees. We cannot guarantee or warranty that a tree will not be healthy or safe under all circumstances, nor for a specific period of time or that problems may not arise in the future.
- 4) Our report with its opinions and recommendations are limited to the tree(s) inspected.
- 5) We attempt to be cognizant of the whole scope of a project, but many matters are beyond the scope of our professional consulting arborist services such as: exact property boundaries, property ownership, site lines, easements, codes, covenants & restrictions (CC&Rs), disputed between neighbors, and other issues.
- 6) We rely on the information disclosed to us and assume the information to be complete, true, and accurate.
- 7) The inspection is limited to visual examination of accessible items of the tree(s), from the ground unless otherwise noted, without excavation, probing, boring, or dissection, unless noted otherwise. Only information covered in this report was examined, and reflects the condition of those inspected items at that specific time.
- 8) Clients may choose to accept or disregard these opinions and recommendations of the arborist or to seek additional advice.
- 9) This report is copyrighted. Any modification or partial use shall nullify the whole report. Do not copy without written permission. This report is for the client and the client’s assignees.
- 10) Sketches, diagrams, graphs, drawings, and photographs within this report are intended as visual aids and are not necessarily to scale, and should not be construed as engineering or architectural detail, reports or surveys.
- 11) We shall not attend or give a deposition and/or attend court by reason of this report unless fees are contracted for in advance, according to our standard fee schedule, adjusted yearly, for such services as described.

Signed: \_\_\_\_\_

Arborist Report by:

**ABACUS**

Nicole Harrison © 2015