

ABACUS

"Where Every Detail Counts"



Kenneth Menzer, Senior Consulting k ISA Certified Arborist #WE-2122AM + Tree Risk Assessment Qualified (TRAQ)

Member of the: American Society of Consulting Arborists & International Society of Arboriculture

145 Duncan Hill Road Auburn, CA 95603

E-mail: ken@abacus-tree.com

(530) 305-7505 Phone

www.abacus-tree.com

Final...with Mitigation Parameters

ARBORIST REPORT: 10941 Fair Oaks Blvd, Fair Oaks, California

February 16, 2015 [AJN: 15-07]

Assignment

Per the request of Ron Higgins; Ken Menzer of **ABACUS** was hired to make an arborist report as required by the County of Sacramento for developing this parcel (4 acres +/-) of land located in Fair Oaks between Fair Oaks Blvd & Plumeria Ave, Sacramento County (Sacramento County APN: 244-0064-023), State of California.

On-site observations

Ken Menzer was on-site on February 1, 2015 to create an up-to-date report including his: field identification, measurements, to assess the current condition of the protected trees, what could be done to improve the quality (and reduce the hazard potential of the trees), plus to assign an overall rating for each tagged tree. I personally did all the measuring, tagging, field notes and rating.

Many of the trees were not included in this report, as these trees are non-protected species in Sacramento County including: olive, mulberry, pecan, plum, pear, Tree of Heaven, Arizona Cypress and Glossy Privet.

All of the 8 protected trees 6" DBH and greater, were located and given a new green acorn-shaped aluminum tag secured on the north side of the tree with a blue ribbon with black dots for the surveyor to remove.

The protected tree species are the: Valley Oak, *Quercus lobata* (1 tree), Interior Live Oaks, *Quercus wislizenii* (6 trees), Blue Oak, *Quercus douglasii* (1 tree). The protected trees vary in size from 11" DBH to 34" DBH (measured at the standard measurement location of 54" above grade for the typical Diameter Breast High or DBH measurement). ...for a total of 8 protected trees in this inventory and arborist report

Data gathered

Tagging:

The new tree tags were added to all 8 trees with the green "acorn-shaped" **ABACUS** (1-1/8" x 1-3/8") anodized aluminum tag with stamped 1/4" (6mm) numbers, nailed to allow the tree to grow without the normal growth pushing off or engulfing the tag for 5-10 years. Any and all mapping to show the tree locations by tag/tree number will be by others. All protected trees 6" DBH and greater were tagged and are included within this arborist report. The new tags were

installed to the tree with exterior galvanized 10d nails 3" long (7.62 cm) and with a distinctive blue flagging ribbon with black dots. The blue/black ribbon is to be removed by the surveyor after aiding to locate the trees, but then to blend-in without the ribbon, so there will be less potential for tag theft or vandalism during the development period.



ABACUS acorn-shaped tag with blue ribbon with black dots

DBH¹ (in diameter inches):

This is normally measured at 4'-6" (above the average ground height), but if that varies then the location where it is measured is noted here. A Swedish caliper² was used to measure the DBH for trees smaller than 27"Ø and a steel diameter tape³ for trees greater than 27"Ø. For special measurements see the 2nd to the last page of this report for DBH measurement details.

Stems:

This refers to the quantity of trunks or stems (also see "Tree Size Expressed by Trunk Diameter" at the end of this report) that are connected enough and are of the same species, that if one stem or trunk were to be removed, it would cause decay to harm an adjoining stem... making it one tree. Somewhat horizontal branches/limbs are not stems or trunks.

Extrapolated multi-stem DBH (in inches):

This measurement is calculated by using the total (sq in) area of each stem at the DBH measurement, as a total sum and extrapolating (calculating) in reverse to the equivalent area of one DBH measurement.

Canopy Radius (in feet):

This is the radius measurement from the center point of the trunk to the horizontal farthest dripline of the canopy of leaves and twigs and then becoming a circle that minimally needs to be protected as the Critical Root Zone (CRZ) or Tree Protection Zone (TPZ). It is almost

¹ DBH or dbh: Diameter Breast High is the measurement of the trunk's diameter at 4.5' above ground level (see "Tree SIZE Expressed in Trunk Diameter" in the supporting section, at the end of this letter report)

² A large wooden sliding adjustable thickness gauge calibrated in 1/16" increments.

³ Diameter Tape is used to figure the tree's diameter, by measuring the circumference, where on 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.

impossible to measure the irregular dripline area, so this is a practical method to show an approximation of the furthest and longest dripline as a circular area to be protected around the trunk, as roots tend to go equally in all directions from the trunk and do not follow under the branches above ground. If the branches are cut back (the dripline reduced in size) the roots do not retreat and the CRZ or TPZ stays the same size

Observations (Field Notes):

These are what I saw from viewing the tree from the ground. It does not include climbing, aerial inspections, core & bore inspections, root &/or soil excavation, or chemical/biological testing.

Recommended Actions (if the tree is to remain):

If a tree is to remain and be protected then my recommended actions generally will improve the tree's overall rating to go up one or more full number rating. If the recommended actions are not taken then the tree may become more of a hazard over time. The measurements, observation, and recommended actions are a "snap-shot" in time and as a living organism; if it is not treated for some minor issues at this time, they may make the tree much less valuable and more of a potential danger.

Overall 0-5 Rating:

Rating is subjective to health and structure = condition. All of the trees were rated for condition, per the recognized national standard as set up by the Council of Tree and Landscape Appraisers⁴ and the International Society of Arboriculture (ISA) on a numerical scale of 5 (being the highest) to 1 (the worst condition)...with "0" being totally dead. The rating was done in the field at the time of the measuring and inspection. The scale is as follows:

No problem	5	excellent
No apparent problem(s)	4	good
Minor problem(s)	3	fair
Major problem(s)	2	poor with serious issues, but correctable
Extreme problem(s)	1	non-repairable with any amount of work
Dead	0	100% dead

Rating #0: 100% dead, to be removed

Rating #1: The problems are extreme or nearly dead. 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.

⁴ "The Council of Tree & Landscape Appraisers" is a non-membership consortium that represents: American Nursery and Landscape Association, [American Society of Consulting Arborists](#), American Society of Landscape Architects, Associated Landscape Contractors of America, Association of Consulting Foresters of America, [International Society of Arboriculture](#), and National Arborist Association ([I am a member of these organizations in blue](#)).

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.

Note:

There is a very important line drawn between a tree rated a 3 and a 2. A rating of 3 – 4 – 5 means that the trees are of high enough quality to possibly be preserved and protected. A rating of a 0 – 1 – 2 is a tree that should be removed unless the recommended work is completed to be an asset rather than a liability (except under certain specified circumstances when a low rated tree could remain with a lot of work).

Final Field Action:

This is the proposed plan of retain, removing & mitigating, removal without mitigation, non-protected species, non-protected by size, or to be relocated on-site. The legend for this column is as follows:

SAVE	To be preserved and protected
R4D	Remove for development
TBR no mitigation	To Be Removed [with no mitigation due to low (0, 1 or 2) condition rating]
?	Un-protected /too small of native oak species with no requirements to preserve

Abbreviation key (Field Observations & Recommendations):

CC: Crown clean, to remove crossing branches, broken branches, too densely crowded branches; more of a cleaning process than structural correction

CDL: Codominant leaders, rather than a single leader

EWR: End weight reduction pruning

IB: Included bark, means bark that is imbedded between two or more stems (in a crotch), but the wood (xylem tissue) is not structurally connected (a weak structure)

NCP: Needs corrective pruning to improve structure &/or reduce hazard(s)

PS: Poor structure

PTB: Prune to balance

RDW: Removed dead wood (1-1/2" and greater in diameter, as this is a potential hazard for people under this limb and a future health problem for the tree)

TMD: Too much decay

TBR: the tree is To Be Removed, as it is dead, dying, or not repairable with any amount of professional tree care

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 17°5' to the west of Magnetic North (MN).

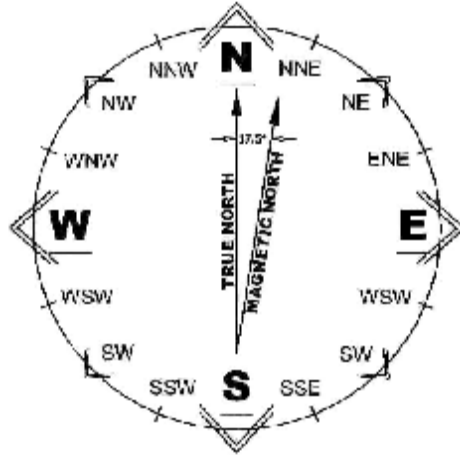


Chart B

Tag #	Common Name	Botanical Name	# of Stems	DBH	Extrapolated DBH	Canopy Radius	Field Notes	Recommended Action (if to remain)	0-5 Rating	Final Action
601	Interior Live Oak	<i>Quercus wislizenii</i>	1	24	~	31	Slight lean to N, old stub cuts	RDW, remove old stubs	4	R4D
602	Interior Live Oak	<i>Quercus wislizenii</i>	1	19	~	24	Slight lean to SW, IB, CDL @ 5', mistletoe	Remove mistletoe, CC	3	R4D
603	Interior Live Oak	<i>Quercus wislizenii</i>	1	23	~	29	Leans to W, mistletoe	RDW, remove old stubs, remove mistletoe, RDW	3	R4D
604	Interior Live Oak	<i>Quercus wislizenii</i>	2	8, 10	13	~	Too much decay, leans to SE	TBR	1	TBR, no mitigation
605	Blue Oak	<i>Quercus douglasii</i>	1	23	~	26	By 8089 driveway, CDL @ 5', IB, under high voltage lines, directionally pruned	EWR, CC, RDW	3	R4D
606	Interior Live Oak	<i>Quercus wislizenii</i>	1	17	~	~	Low vigor, CDL @ ~ 9'	TBR	1	TBR, no mitigation
607	Valley Oak	<i>Quercus lobata</i>	1	11	~	~	Suppressed by Elm to E, leans too much	TBR	1	TBR, no mitigation
608	Interior Live Oak	<i>Quercus wislizenii</i>	1	34	~	38	"Property Line Tree", leans to E & S	PTB, RDW, EWR, add prop under spar to S (see special details below)	3	SAVE

Special details

Tree #608 has an extra large spar limb extending to the south that requires a custom prop under it to prevent catastrophic failure. The prop is to be set at ~7' from the trunk with a 20" x 20" x 10" (for 2,800# load on 2,000psf soil) pier that is just below grade with 3 pcs #4 rebar ea wy, 6 sack concrete. Inserted into the concrete, a 1-1/2" steel galv pipe flange into a 1-1/2" Ø (plumb mounted) steel pipe (post) under the centerline of the horizontal limb. A 2" Ø steel galv cap is drilled into the bottom of the branch, set in flush and the branch jacked up ~2" to set on top of the inserted 1-1/2" pipe. This is a "property line/boundary line tree", so any work must be completed with approval with the other equal owner of the tree.

These are the protected oak trees on the site that are in [CHART B](#)

See Page #9 for tree site map...

None of the trees were rated "5" or excellent.

1 tree was rated "4" or good.

4 trees were rated "3" or fair.

0 trees were rated "2" or poor.

3 trees were rated "1" or dangerous.

0 trees were rated "0" or dead

The 3 trees rated 0, 1, 2 or non-rated/non-protected and may be removed without any requirements for mitigation. The 5 trees rated 3 and 4 will either be preserved or if removed, will require re-planting of mitigation tree or paying an in-lieu mitigation fee.

The Valley, Blue and Interior Live Oaks can thrive and do well especially here in our native soils with winter/spring rains and cool temperatures, plus with our hot and dry 4-6 month long "summer" season. These oaks do poorly when soil grades are changed, roots are cut off, covered over, compacted, and exposed to frequent watering durations (irrigation) in the summer. The Tree Protection Zone (TPZ) or Critical Root Zone (CRZ) fencing is important to keep all vehicles, people, and equipment out of these areas below the trees. There shall be no dumping, grubbing, storage, grading, irrigation, trenching within the exclusionary zones of the trees to remain.

It is important to plan well by removing the trees that are not destined to remain, giving room to build new structures and connecting the structure with new infrastructure to existing streets and walks. The remaining trees can grow for decades or centuries if given the proper space and not destroying the soils capacity to support these native oaks.

It is also important to plan the landscaping and irrigation system to not cause fungal problems like *Armillaria mellea*, by utilizing a plant pallet and irrigation system that is specifically designed for the native oak woodland conditions. There is an important symbiotic relationship between the tree and good fungus in the soil. Adding a 4-6" layer of hardwood mulch (NOT redwood or cedar bark) to the soil (without a weed cloth separating the soil fungus from the organic layer) within the TPZ, will help: maintain more optimal temperatures, improve soil pH (making it more acidic, favored by oaks), add needed organic matter to the soil, reduce soil compaction, plus improve drainage and aeration.

Limeing is a practice often used during the construction period to help stabilize the soil if seems too wet for large grading equipment. Do not lime this soil, as the change in pH (to a more alkaline condition) as it can greatly reduce the viability and vigor of these native oaks (or even cause their death). Also do not use crushed limestone as a base rock for paving around oaks, as this too can alter the soil pH similar to liming, just in a slower reaction time.

Any pruning, cabling, or tree work shall conform to ANSI A300 Standards for Tree Care and should be performed by a qualified International Society of Arboricultural Certified Arborist.

The trees that have multi-stems (trunks) are not to have their trunk diameter added together as a diameter total, but rather figure the square inch area of each trunk, added together to come to a total square inch area. This area will then be converted (and rounded to the nearest diameter inch) of the closest hypothetical trunk size that is representative of the same trunk area.

Conclusion

There are 8 trees in this inventory: **Chart B** (see page #9 for Tree Exhibit)

3 trees to be removed (rated to low) with no mitigation (**TBR no mitigation**): Trees #604, 606 & 607

4 trees to be removed for development with mitigation (**R4D**): Trees #601, 602, 603 & 605

1 tree to be saved, preserved, protected and remain (**SAVE**): Tree #608

Tree# 601 + 602 + 603 + 605, DBH" = 89 total diameter inches to be removed for development

The mitigation for 4 trees, 89 diameter inches (x \$325/") = \$28,925 ...or... planting trees as follows and surviving in 3 years:

Based on the following Sacramento County mitigation ratio:

One deepot (40 cu in or larger) tree= 1" DBH [plant 89 oak trees of this size] ...or:

One #15 (aka 15 gallon) tree = 1" DBH [plant 89 oak trees of this size] ... or:

One 24" boxed tree = 2" DBH [plant 45 oak trees of this size] ...or:

One 36" boxed tree = 3" DBH [plant 30 oak tree of this size] ...or any combination of the above

If trees are to remain and be preserved, then proper care shall be required to keep all construction activities from occurring within the CRZ or TPZ by having 4' high, bright-orange tree protection fencing installed 100% around the CRZ or TPZ. Any trees or pruned branches of the trees to be removed shall be chipped or tub ground and stored on-site to be used as wood chip mulch under the trees to remain and spread to a maximum depth of 4-6" (initially), settling to a 2-4" depth.

If the TPZ or CRZ is encroached upon, it can be okay if only by 20% or less...as long as there are other areas the same sized area for the same tree where the roots outside of the TPZ/CRZ can be retained. If 20% - 50% of the TPZ/CRZ is destroyed, then a percentage of the mitigation will be calculated for that tree; if 50% or greater is damaged or destroyed, then full mitigation may be required by the County.

Our large and established native oaks can be a huge asset for a newly developed property by giving a multi-year to decades of tree-growth-shade to cool a structure in the hottest months and give the new building a sense of being already established. Care must be given all during the construction period to ensure the survival of these monoliths.

Recommendations

u Follow Special Details for Tree #608

Carefully remove the trees that are not to remain per the tree site map

u Fence and add proper signage as required around all trees to remain and be protected

u Maintain the 4' high TPZ/CRZ fencing and signs during all phases of development

u Prune, cabling, and other tree care per ANSI A300 Standards by an ISA Certified Arborist

- u If any live roots or branches 2" in diameter or greater are damaged or are to be cut on a tree to be preserved and protected, it shall be by an ISA Certified Arborist
- u Minimize the size of any pruning cuts, best if less than 3" in diameter
- u Minimize the amount of pruning, as the VERY maximum in any year period should be 20% on native oaks
- u Chip or grind all of the removed trees & branches for mulch and retain on-site for re-use
- u Do not disturb the fenced areas (unless you contact the County & project arborists first) for permission
- u Add 4-6" hardwood chip under all trees to remain and be protected
- u Do NOT use redwood or cedar bark for mulch
- u Do NOT use weed barrier cloth between the mulch and the soil
- u Summer watering can be beneficial during construction, 1x/month June-October
- u Frequent warm weather watering can be damaging to the root system and whole tree
- u Add plants that are known to thrive in conjunction with these native oaks
- u Plan, install, and operate your irrigation system to protect these native oaks
- u Minimally use herbicides and pesticides (practice IPM) to protect these native oaks
- u Conform with all aspects of State mandated SB1881, Model Water Efficient Landscape Ordinance
- u Prior to any planting, as required with SB1881, 1st have a Soil Fertility Test and follow the recommendations from the test results

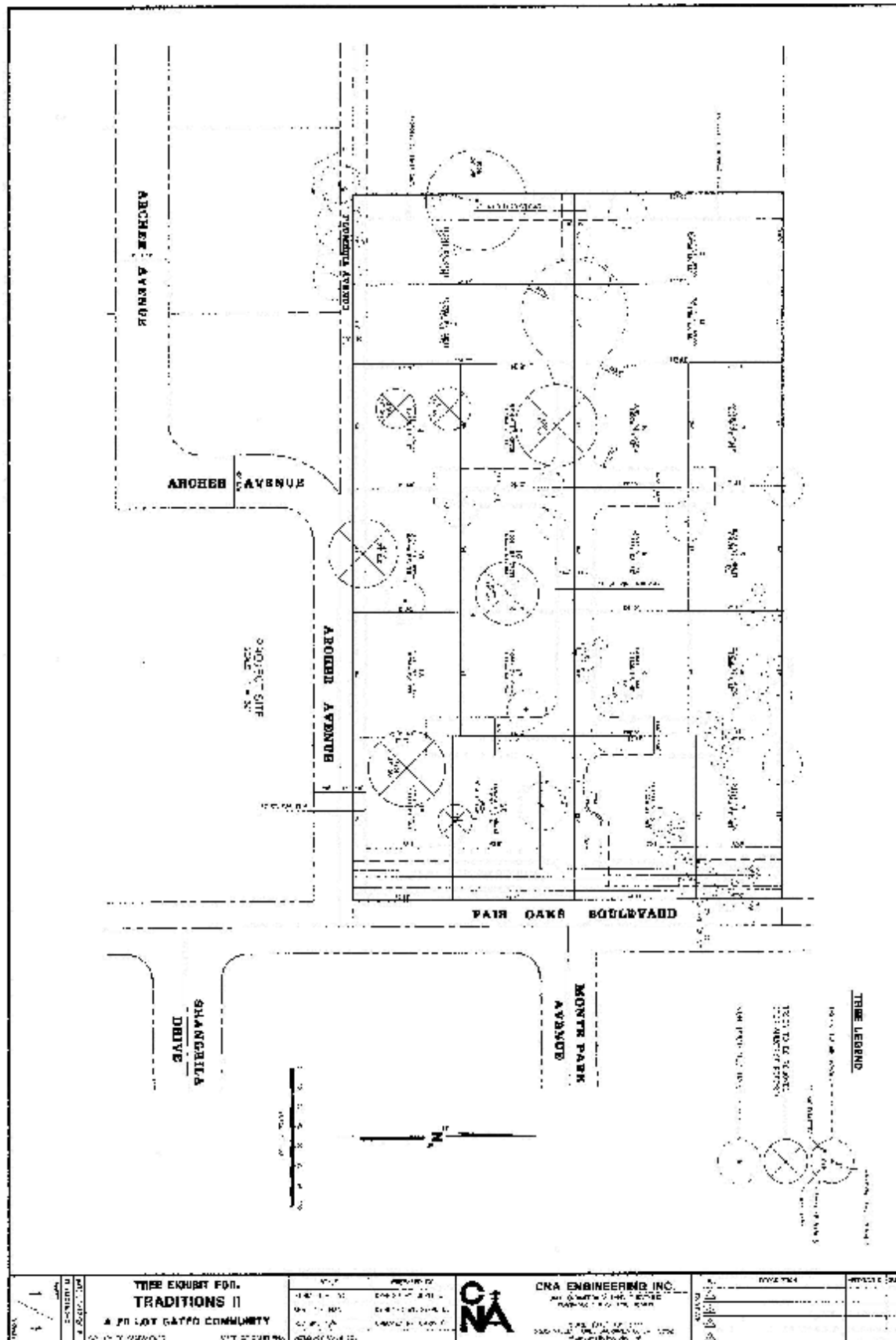
If I can be of further assistance or if you have any arborist related questions...please contact me as soon as possible. If you have any questions about this report or any details about my observations, conclusions, or recommendations...please contact me at any time.

Kenneth Menzer

Senior Consulting & ISA Certified Arborist #WE-2122AM



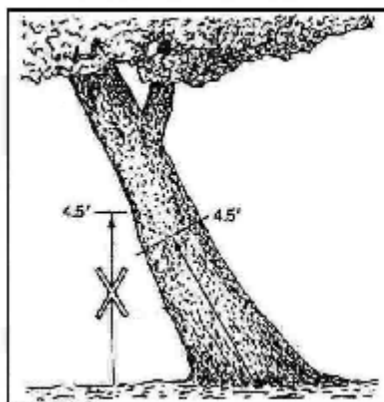
ABACUS©2015



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 (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 (π called pi) or by using a "diameter tape" wherein the inches are multiplied by π 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) above the center of the trunk hole to the height is the average of the two horizontal longest sides of the trunk.

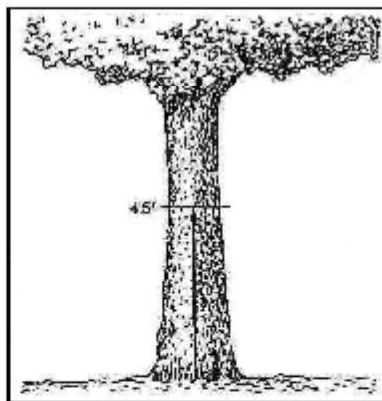


Figure 4-3: Trees with horizontal growth and trunk holes with the lowest branch lower than the trunk height than 4.5 feet (1.4 m) above the ground should be measured at 4.5 feet (1.4 m).

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

Figure 4-5: In a multi-trunk 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 the values for each trunk are added together to represent the total diameter of the tree and each of the stems contribute its proportionate share to the average.

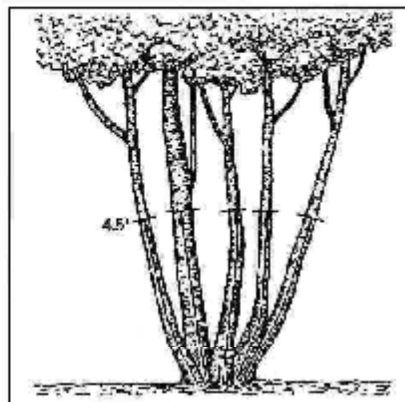
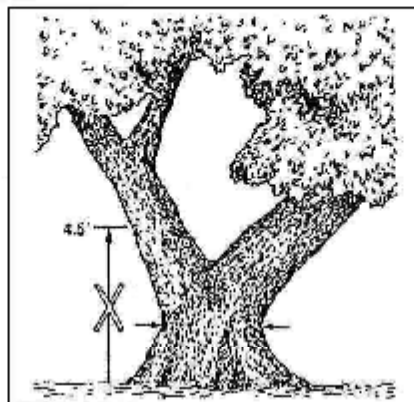
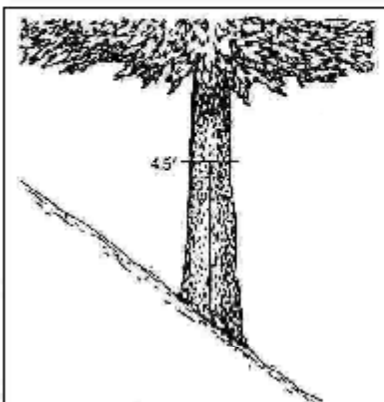


Figure 4-5: When low branches preclude measuring the trunk at 4.5 feet (1.4 m) measure the smallest circumference below the smallest branch. In these cases, an alternative would be to determine the sum of the cross-sectional areas of the two stems measured about 10 inches (25 cm) above the crown, then average the sum of the two four diameters at the normal cross-sectional area below the branches. This may give a better estimate of tree size. Record the height of measurement(s), and the reasons that height or those heights were chosen.

ABACUS

"Where Every Detail Counts"



145 Duncan Hill Rd.
Auburn, CA 95603
Phone & Fax (530) 889-0603
Email: kenn@abacus-tree.com
www.abacus-tree.com

This information is taken from the Planning Appraisal, English edition, prepared 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 Arborists, Association of Landscape Contractors of America, International Society of Arboriculture and the National Society of Arboriculture.

Tree SIZE Expressed by Trunk Diameter

Scale: NTS

Drawing: TSE

ABACUS

“Where Every Detail Counts”



Kenneth Menzer, Senior Consulting k ISA Certified Arborist #WE-2122AM + Tree Risk Assessment Qualified (TRAQ)

Member of the: American Society of Consulting Arborists & International Society of Arboriculture

145 Duncan Hill Road Auburn, CA 95603

E-mail: ken@abacus-tree.com

(530) 305-7505 Phone

www.abacus-tree.com

Disclosure, Assumptions and Disclaimer

- 1) I, Kenneth Menzer, of “**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. Data input by Cherie Menzer.
- 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.

Kenneth Menzer