



California Tree and Landscape Consulting, Inc.

June 29, 2022

Engstrom Properties
Attn: Callie Huff
837 Jefferson Boulevard
West Sacramento, CA 95691
Phone: (916) 987-9044
Email: callie@epropinc.com

PRELIMINARY ARBORIST REPORT & TREE INVENTORY

RE: APN's #204-0010-001, 204-0010-002 & 204-0010-017, 8600, 8550 & 8516 Auburn Blvd, City of Citrus Heights jurisdiction, California

Executive Summary:

Callie Huff, from Engstrom Properties, contacted California Tree and Landscape Consulting, Inc. to inventory and evaluate the protected trees on the site or within 25' of development for purposes of evaluating the impacts to the trees for pursuant to the development plan by Starbucks + Retail by MoCandless & Associates Architects dated June 29, 2022. The properties are located at 8600, 8550 & 8516 Auburn Blvd, in the City of Citrus Heights, California. See Supporting Information Appendix 1 –Tree Location Map.

Tyler Thomson, ISA Certified Arborist #WE-12751A was on site June 27, 2022. A total of 37 trees on the site were evaluated and 14 additional trees on the surrounding sites were included due to their proximity to the development. 32 Trees are protected according to the City of Citrus Heights Tree Preservation ordinance. 21 of the protected trees are solely on this property, of which, 9 are proposed for removal. 11 protected trees are located on the neighboring parcels and could be impacted by development of the parcel.

Tree Species	Trees Inventoried	Trees on the Site ¹	Protected Trees	Protected Trees proposed for Removal
Valley Oak, <i>Quercus lobata</i>	34	23	30	8
Interior Live Oak, <i>Quercus wislizeni</i>	1	1	0	0
California Black Walnut, <i>Juglans hindsii</i>	1	0	1	0
California Fan Palm, <i>Washingtonia filifera</i>	1	1	1	1
Other Landscape Trees, Not Protected	14	12	-	-
Totals	51	37	32	9

See Appendices for specific information on each tree and preservation requirements and/or restrictions

¹ CalTLC is not a licensed land surveyor. Tree locations are approximate, and we do not determine tree ownership. Trees which appear to be on another parcel are listed as off-site and treated as the property of that parcel.

METHODS

Appendix 2 in this report is the detailed inventory of the trees. The following terms will further explain our methods and findings.

The protected trees evaluated as part of this report have a numbered tag that was placed on each one that is 1-1/8" x 1-3/8", green anodized aluminum, "acorn" shaped, and labeled: ABACUS, Auburn, CA with 1/4" pre-stamped tree number and Tree Tag. They are attached with a natural-colored aluminum 10d nail, installed at approximately 6 feet above ground level on the approximate 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.

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. Additional limiting factors, such as blackberries, poison oak, and/or debris piled at the base of a tree can inhibit the visual assessment.

Tree Location: The GPS location of each tree was collected using the ESRI's ArcGIS collector application on an Apple iPhone or Samsung. The data was then processed in ESRI's ArcMap by Julie McNamara, M.S. GISci, to produce the tree location map.

Tree Measurements: 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. A steel diameter tape was used to measure the DBH for all trees. A Stanley laser distance meter was used to measure distances and/or pacing was used to estimate canopy measurements. Canopy radius measurements may also have been estimated due to obstructions, such as steep slopes or other trees.

Terms

Field Tag #	The pre-stamped tree number on the tag which is installed at approximately 6 feet above ground level on the north side of the tree. NT indicates no field tag was placed on the tree in the field.
Old Tag #	If additional field tags are found on the trees and are legible, they are listed here.
Species	The species of a tree 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.
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 in the next column "measured at"
Measured at	Height above average ground level where the measurement of DBH was taken
Canopy radius	The farthest extent of the crown composed of leaves and small twigs. Most trees are not evenly balanced. This measurement represents the longest extension from the trunk to the outer canopy. The dripline measurement is from the center point of the tree and is shown on the Tree Location Map as a circle. This measurement can further define a protection zone if specified in the local ordinance as such or can indicate if pruning may be required for development.

Protected Root Zone	The radius of the protected root zone is a circle equal to the trunk diameter inches converted to feet and factored by tree age, condition and health pursuant to the industry standard. Best Management Practices: Managing Trees During Construction, the companion publication to the Approved American National Standard, provides guidance regarding minimum tree root protection zones for long term survival. In instances where a tree is multi-stemmed the protected root zone is equal to the extrapolated diameter (sum of the area of each stem converted to a single stem) factored by tree age, condition and health.		
Arborist Rating	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.		
No problem(s)	Excellent	5	No problems found from a visual ground inspection. Structurally, these trees have properly spaced branches and near perfect
No apparent problem(s)	Good	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.
Minor problem(s)	Fair	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 and/or health can be improved.
Major or uncorrectable problems (2)	Poor	2	The tree has major problems. If the option is taken to preserve the tree, additional evaluation to identify if health or structure can be improved with correct arboricultural work including, but not limited to: pruning, cabling, bracing, bolting, guying, spraying, mistletoe removal, vertical mulching, fertilization, etc. Additionally, risk should be evaluated as a tree rated 2 may have structural conditions which indicate there is a high likelihood of some type of failure. Tree rated 2 should be removed if these additional evaluations will not be performed.
Extreme problem(s)	Hazardous	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.
Dead	Dead	0	This indicates the tree has no significant sign of life.

Notes: Provide notable details about each tree which are factors considered in the determination of the tree rating including: (a) condition of root crown and/or roots; (b) condition of trunk; (c) condition of limbs and structure; (d) growth history and twig condition; (e) leaf appearance; and (f) dripline environment. Notes also indicate if the standard tree evaluation procedure was not followed (for example - why dbh may have been measured at a location other than the standard 54"). Additionally, notes will list any evaluation limiting factors such as debris at the base of a tree.

Actions	Recommended actions to increase health and longevity.
Construction Impacts	Projected development impacts are based solely on distance relationships between tree location and grading. Field inspections and findings during the project at the time of grading and trenching can change relative impacts. Closely followed guidelines and requirements can result in a higher chance of survival, while requirements that are overlooked can result in a dramatically lower chance of survival. Impacts are measured as follows:

Impact Term:**Long Term Result of Impact:**

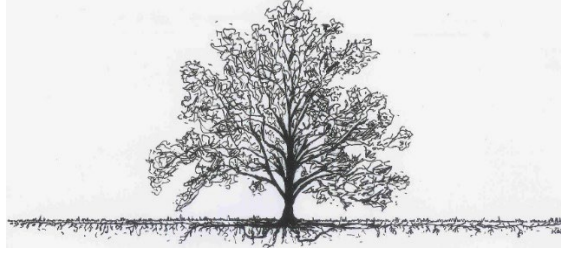
Negligible	Tree is unlikely to show any symptoms. Chance of survival post development is excellent. Impacts to the Protected Root Zone are less than 5%.
Minor	Tree is likely to show minor symptoms. Chance of survival post development is good. Impacts to the Protected Root Zone are less than 15% and species tolerance is good.
Moderate	Tree is likely to show moderate symptoms. Chance of survival post development is fair. Impacts to the Protected Root Zone are less than 35% and species tolerance is good or moderate.
Severe	Tree is likely to show moderate symptoms annually and a pattern of decline. Chance of long-term survival post development is low. Impacts to the Protected Root Zone are up to 50% and species tolerance is moderate to poor.
Critical	Tree is likely to show moderate to severe symptoms annually and a pattern of decline. Chance of long-term survival post development is negligible. Impacts to the Protected Root Zone are up to 80%.

DISCUSSION

Trees need to be protected from normal construction practices if they are to remain on the site and are expected to survive long term. While construction damage in the root zone is often the death of a tree, the time from when the damage occurs to when the symptoms begin and/or the tree dies can be years. Our recommendations are based on experience and the local ordinance requirements to enhance tree longevity. It requires the calculated root zone must remain intact as an underground ecosystem despite the use of heavy equipment to install foundations, driveways, underground utilities, and landscape irrigation systems. Simply walking and driving on soil can have serious consequences to tree health. The Tree Preservation Requirements and General Development Guidelines should be incorporated into the site plans and enforced onsite. The project arborist should be included in the development team during construction to provide expertise and make additional recommendations if additional impacts occur or tree response is poor.

Root Structure

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. The correct root structure of a tree is in the drawing below. All plants' roots need both water and air for survival. Poor canopy development or canopy decline in mature trees after development is often the result of inadequate root space and/or soil compaction.



The reality of where roots are generally located

Pruning Mature Trees for Risk Reduction and/or Development Clearance

There are few good reasons to prune mature trees. Removal of deadwood, directional pruning, removal of decayed or damaged wood, and end-weight reduction as a method of mitigation for structural faults are the only reasons a mature tree should be pruned. Live wood over 3" should not be pruned unless absolutely necessary. Pruning cuts should be clean and correctly placed. Pruning should be done in accordance with the American National Standards Institute (ANSI) A300 standards.

Pruning causes an open wound in the tree. Trees do not "heal" they compartmentalize. It is far better to use more small cuts than a few large cuts as small pruning wounds reduce risk while large wounds increase risk. Any wound made today will always remain, but a healthy tree, in the absence of decay in the wound, will 'cover it' with callus tissue. Large, old pruning wounds which did not close with callous tissue often have advanced decay. These wounds are a likely failure point. Mature trees with large wounds have a high risk of failure.

Overweight limbs are a common structural fault in suppressed trees. There are two remedial actions for over-weight limbs (1) prune the limb to reduce the extension of the canopy, or (2) cable the limb to reduce movement. Cables do not hold weight they only stabilize the limb and additionally require annual inspection.

Arborist Classifications

There are different types of Arborists:

Tree Removal and/or Pruning Companies: These companies may be licensed by the State of California to do business as a tree removal company, but they do not necessarily know anything about trees biology.

Arborists: Arborist is a broad term intended to mean someone with specialized knowledge of trees, but it is often used to imply knowledge that is not there.

ISA Certified Arborist: An International Society of Arboriculture Certified Arborist is someone who has trained, met the qualifications for application, and been tested to have specialized knowledge of trees. You can look up certified arborists at the International Society of Arboriculture website: isa-arbor.org.

Consulting Arborist: An American Society of Consulting Arborists Registered Consulting Arborist is someone who has been trained and then tested to have specialized knowledge of trees; and trained and tested to provide high quality reports and documentation. You can look up registered consulting arborists at the American Society of Consulting Arborists website: ASCA-consultants.org.

RECOMMENDATIONS: SUMMARY OF TREE PROTECTION MEASURES

The Owner and/or Developer should ensure the project arborist's protection measures are incorporated into the site plans and followed. Tree specific protection measures can be developed when grading plans are available.

- Identify the Root Protection Zones on the final construction drawings and show the placement of tree protection fencing pursuant to the City requirements and Appendix 3.
- The project arborist should inspect the fencing prior to grading and/or grubbing for compliance with the recommended protection zones.
- Identify the areas to be irrigated, fertilized and mulched on the final construction drawings and tree with recommended chemical treatments pursuant to the project arborist's recommendations.
- The project arborist should directly supervise the irrigation, fertilization, placement of mulch and chemical treatments.
- All stumps within the root zone of trees to be preserved shall be ground out using a stump router or left in place. **No trunk within the root zone of other trees shall be removed using a backhoe or other piece of grading equipment.**
- Prior to any grading, or other work on the site that will come within 50' of any tree to be preserved, irrigation will be required from April through September and placement of a 4-6" layer of chip mulch over the protected root zone of all trees that will be impacted. Chips should be obtained from onsite materials and trees to be removed.
- Clearance pruning should include removal of all the lower foliage that may interfere with equipment PRIOR to having grading or other equipment on site. The Project Arborist should approve the extent of foliage elevation and oversee the pruning to be performed by a contractor who is an ISA Certified Arborist.
- Clearly designate an area on the site outside the drip line of all trees where construction materials may be stored, and parking can take place. No materials or parking shall take place within the root zones of protected trees.
- Any and all work to be performed inside the protected root zone fencing shall be supervised by the project arborist.
- Trenching inside the protected root zone shall be by a hydraulic or air spade, placing pipes underneath the roots, or boring deeper trenches underneath the roots.
- Include on the plans an Arborist inspection schedule to monitor the site during (and after) construction to ensure protection measures are followed and make recommendations for care of the trees on site, as needed.
- Follow all of the General Development Guidelines, Appendix 3, for proposed for retention on the site an any offsite trees identified as impacted by the proposed development.

Report Prepared by:



Nicole Harrison

Registered Consulting Arborist #719

ISA Certified Arborist #WC-6500AM, TRAQ

American Society of Consulting Arborists, RCA #719

Appendix 1 – Tree Location Map

Appendix 2 – Tree Data

Appendix 3 – General Development Guidelines

Bibliography

- International Society of Arboriculture. (2015). *Glossary of Arboricultural Terms*. Champaign: International Society of Arboriculture.
- L.R., C. (2003). *Reducing Infrastructure Damage by Tree Roots*. Porterville: International Society of Arboriculture.
- Matheny, J. C. (1994). *Evaluation of Hazard Trees in Urban Areas, Second Edition*. Champaign: International Society of Arboriculture.
- Menzer, K. (2008). *Consulting Arborist Report*.
- Smiley. (2008). *Managing Trees During Construction, Best Management Practices*. Champaign: International Society of Arboriculture.
- Stamen, R. (1997). *California Arboriculture Law*. Riverside: Law Offices of Randall S. Stamen.
- Tree Care Industry Association. (2017). *Tree, Shrub, and Other Woody Plant Management - Standard Practices (Pruning)*. Londonderry: Tree Care Industry Association.
- Urban, J. (2008). *Up by the Roots*. Champaign: International Society of Arboriculture.

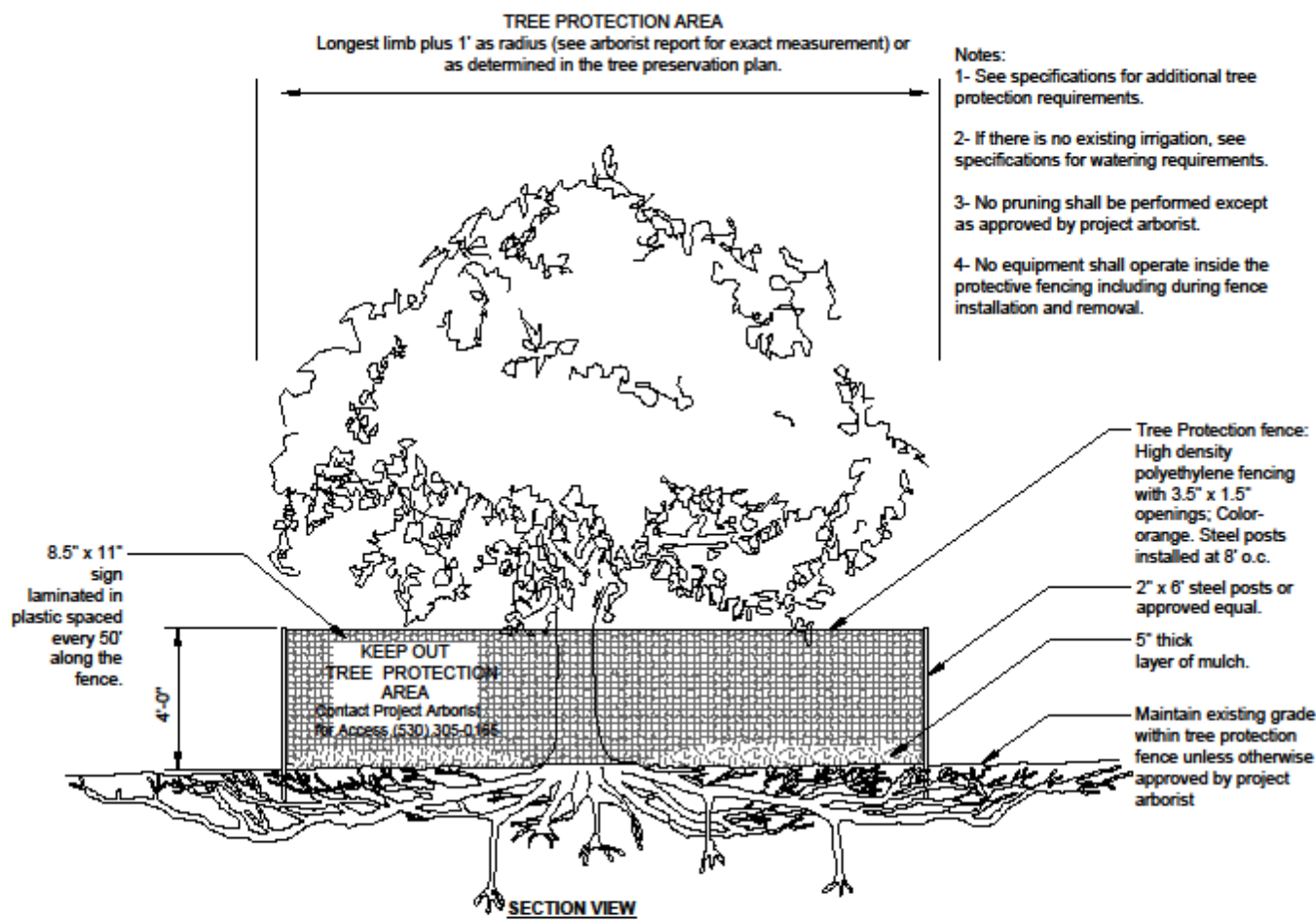


California Tree & Landscape Consulting, Inc.

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TREE PROTECTION GENERAL REQUIREMENTS

1. The project arborist for this project is California Tree & Landscape Consulting. The primary contact information is Nicole Harrison (530) 305-0165. The project arborist may continue to provide expertise and make additional recommendations during the construction process if and when additional impacts occur or tree response is poor. Monitoring and construction oversight by the project arborist is recommended for all projects and required when a final letter of assessment is required by the jurisdiction.
2. The project arborist should inspect the exclusionary root protection fencing installed by the contractors prior to any grading and/or grubbing for compliance with the recommended protection zones. Additionally, the project arborist shall inspect the fencing at the onset of each phase of construction. The root protection zone for trees is specified as the 'canopy radius' in Appendix 2 in the arborist report unless otherwise specified by the arborist. Note 'dripline' is not an acceptable location for installation of tree protection fencing.
3. The project arborist should directly supervise any clearance pruning, irrigation, fertilization, placement of mulch and/or chemical treatments. If clearance pruning is required, the Project Arborist should approve the extent of foliage elevation and oversee the pruning to be performed by a contractor who is an ISA Certified Arborist. Clearance pruning should include removal of all the lower foliage that may interfere with equipment PRIOR to having grading or other equipment on site.
4. No trunk within the root protection zone of any trees shall be removed using a backhoe or other piece of grading equipment.
5. Clearly designate an area on the site that is outside of the protection area of all trees where construction materials may be stored, and parking can take place. No materials or parking shall take place within the protection zones of any trees on or off the site.
6. Any and all work to be performed inside the protected root zone fencing, including all grading and utility trenching, shall be approved and/or supervised by the project arborist.
7. Trenching, if required, inside the protected root zone shall be approved and/or supervised by the project arborist and may be required to be performed by hand, by a hydraulic or air spade, or other method which will place pipes underneath the roots without damage to the roots.
8. The root protection zone for trees is specified as the 'canopy radius' in Appendix 2 in the arborist report unless otherwise specified by the arborist. Note 'dripline' is not an acceptable location for installation of tree protection fencing.



SX TREE PROTECTION

TREE INVENTORY MAP

>Tree locations are approximate and were collected using apple iOS products.
>Property line information was downloaded from Sacramento County on 05/15/2020. >Development plans provided by Engstrom Properties, Inc. on 6/29/2022.

Property Line	Arborist Rating
Measured Tree Canopy	0 Dead
	1 Extreme Structure or Health Problems
	2 Major Structure or Health Problems
	3 Fair - Minor Problems
	4 Good - No Apparent Problems
	5 Excellent



Sheet No.
TPP 1.0

8600, 8550, & 8516 Auburn Blvd

Provided for: Callie Huff, Engstrom Properties, Inc.

ADDRESS

Date: 6/30/2022

APPENDIX 2 – TREE INFORMATION DATA

Field Tag #	Protected By Code	Offsite	Species Common Name	Species Botanical Name	Multi-Stem (in.)	DBH (in.)	Measured at (in.)	Canopy Radius	Arborist Rating	Construction Impacts	Field Notes
100	Yes		Valley Oak	Quercus lobata		11	54		0 Dead	N/A	offsite. standing intact, 100% dead.
101	Yes		Valley Oak	Quercus lobata		7	54	17	2 Major Structure or Health Problems	To be Determined	shared tree. fair structure leans slightly east. partial understory structure. moderate/high foliage disease/damage throughout. fair vigor.
102	Yes	Yes	Valley Oak	Quercus lobata		13	54	22	3 Fair - Minor Problems	To be Determined	offsite tree, codominant at 5'. moderate branch die back. fair structure and vigor.
103	Yes		Valley Oak	Quercus lobata		16	54		0 Dead	Proposed for Removal	standing intact dead.
104	Yes	Yes	Valley Oak	Quercus lobata		12	24	32	2 Major Structure or Health Problems	To be Determined	offsite tree. 2 long, dead canopy stems. poor structure. fair foliage health. low vigor
105	Yes	Yes	Valley Oak	Quercus lobata	14, 14	28	24	34	3 Fair - Minor Problems	To be Determined	offsite tree. codominant at grade and at 3'. northwest stem leans heavy over property. fair structure and vigor.
106	Yes	Yes	Valley Oak	Quercus lobata		9	54	20	3 Fair - Minor Problems	To be Determined	offsite tree. fair structure and vigor. leans 12' over lot.

Field Tag #	Protected By Code	Offsite	Species Common Name	Species Botanical Name	Multi-Stem (in.)	DBH (in.)	Measured at (in.)	Canopy Radius	Arborist Rating	Construction Impacts	Field Notes
107	Yes	Yes	Valley Oak	Quercus lobata		18	36	33	3 Fair - Minor Problems	To be Determined	offsite tree. low lateral branch extends heavy northwest over lot by 30'. fair overall structure and vigor.
108	Yes	Yes	Valley Oak	Quercus lobata	6, 6	12	54	16	3 Fair - Minor Problems	To be Determined	offsite tree, codominant at grade. leans 13' north over property line.
109	Yes	Yes	Valley Oak	Quercus lobata		13	54	22	3 Fair - Minor Problems	To be Determined	offsite tree. 10' high lateral leans 18' south over lot.
110	Yes		Valley Oak	Quercus lobata		13	54	26	1 Extreme Structure or Health Problems	Proposed for Removal	old apical trunk stem failure cavity at 10'. unbalanced possibly weakly attached canopy stem leans south over lot. significant branch die back. low vigor.
111	No	Yes	Valley Oak	Quercus lobata		5.5	54	10	2 Major Structure or Health Problems	To be Determined	growing directly under powerlines. topped 80% of canopy. low vigor.
112	Yes	Yes	Valley Oak	Quercus lobata		16	54	26	3 Fair - Minor Problems	To be Determined	offsite tree. dbh approximate. topped for powerlines lines. fair structure besides topping. good foliage health.

Field Tag #	Protected By Code	Offsite	Species Common Name	Species Botanical Name	Multi-Stem (in.)	DBH (in.)	Measured at (in.)	Canopy Radius	Arborist Rating	Construction Impacts	Field Notes
113	No		Acacia	Acacia sp.	10, 8		54		0 Dead	Proposed for Removal	2 stems 10" and 8" dead. standing intact.
114	No		Chinaberry	Melia azedarach	6, 6, 5, 5		54	16	2 Major Structure or Health Problems	Proposed for Removal	stump that re grew many sprouts. swollen base with extensive decay. large codominant stem failed last year on west side.
115	No		Acacia	Acacia abyssinica	5, 4		54		0 Dead	Proposed for Removal	codominant at grade. standing intact dead.
116	No	Yes	Weeping Willow	Salix babylonica		7	54	7	3 Fair - Minor Problems	To be Determined	canopy to ground west over property line, overhangs 5'.
117	No	Yes	Wild Plum	Prunus sp.		6	54	10	3 Fair - Minor Problems	To be Determined	overhangs property 8'.
118	No		Purple-Leaf Plum	Prunus cerasifera		11	6	14	2 Major Structure or Health Problems	Proposed for Removal	swollen base with 30% dead bark. multi stem at 1'. dead 5" stem. rubbing canopy stems lean southeast.
119	No		Crape Myrtle	Lagerstroemia indica		4.5	54	6	3 Fair - Minor Problems	Proposed for Removal	multiple sprouts at base. good structure and vigor.

Field Tag #	Protected By Code	Offsite	Species Common Name	Species Botanical Name	Multi-Stem (in.)	DBH (in.)	Measured at (in.)	Canopy Radius	Arborist Rating	Construction Impacts	Field Notes
120	No		Camphor	Cinnamomum camphora		3, 2, 2, 2, 2	54	9	3 Fair - Minor Problems	Proposed for Removal	multi stem at grade, circular shape. good vigor. short tree.
121	No		Arizona Cypress	Hesperocyparis arizonica		11	54	16	2 Major Structure or Health Problems	Proposed for Removal	spiral shaped base and trunk, 40% dead bark. good canopy. fair vigor.
1465	Yes		Valley Oak	Quercus lobata		14	12	12	1 Extreme Structure or Health Problems	Proposed for Removal	90% dead. foliage remains on south side on southernmost trunk.
1466	Yes		Valley Oak	Quercus lobata		6, 6, 4	54		1 Extreme Structure or Health Problems	Proposed for Removal	multi stem at grade, crossing rubbing stems with a total of 60% dead bark. mostly dead canopy. low vigor.
1467	No		Valley Oak	Quercus lobata		5	48	10	2 Major Structure or Health Problems	To be Determined	fair structure and vigor. completely understory tree.

Field Tag #	Protected By Code	Offsite	Species Common Name	Species Botanical Name	Multi-Stem (in.)	DBH (in.)	Measured at (in.)	Canopy Radius	Arborist Rating	Construction Impacts	Field Notes
1468	Yes		Valley Oak	Quercus lobata		17	54	32	3 Fair - Minor Problems	To be Determined	good base. small low lateral branch west. 8" low lateral branch south over lot. good structure. minor branch die back in canopy.
1469	Yes		Valley Oak	Quercus lobata		22.5	6	32	3 Fair - Minor Problems	To be Determined	multi stem at 1', crowded stems with included bark. fair foliage health. fair/low vigor.
1470	Yes		Valley Oak	Quercus lobata		16.5	54	32	3 Fair - Minor Problems	To be Determined	close to fence. garbage on west base. good structure and vigor.
1471	Yes		Valley Oak	Quercus lobata		12	12	18	2 Major Structure or Health Problems	Proposed for Removal	swollen base. swollen included bark below codominant union. sparse foliage. 30% branch die back. yellowing foliage. low vigor.
1472	Yes		Valley Oak	Quercus lobata		6.5, 5.5	54	13	2 Major Structure or Health Problems	Proposed for Removal	small diameter Pecan Tree 1' west. codominant at grade, swollen weak attachment with decay and staining. yellowing foliage. low vigor.
1473	No		Valley Oak	Quercus lobata		5	54	12	2 Major Structure or Health Problems	To be Determined	swollen, unbalanced base. understory tree with poor structure. 40% branch die back. low vigor.

Field Tag #	Protected By Code	Offsite	Species Common Name	Species Botanical Name	Multi-Stem (in.)	DBH (in.)	Measured at (in.)	Canopy Radius	Arborist Rating	Construction Impacts	Field Notes
1474	Yes		Valley Oak	Quercus lobata		15	54	20	1 Extreme Structure or Health Problems	To be Determined	old apical trunk stem failure cavity at 10'. one lateral branch remains. 80% branch die back. weak branch attachment, leans heavy south over lot.
1475	Yes		Valley Oak	Quercus lobata		33.5	54	45	2 Major Structure or Health Problems	To be Determined	good base and flare. 6" elevated root, very established and possibly girdling root collar. good flare. codominant at 14'. 30% die back. multiple canopy branch failures up to 8". branch tip die back. heavy canopy south over lot. recommend watering and pruning.
1476	Yes	Yes	Valley Oak	Quercus lobata		26	54	40	3 Fair - Minor Problems	To be Determined	dbh approximate, property unable to access tree. pruned north canopy for powerlines. heavy lean southwest over lot. moderate/minor branch die back. good foliage health. fair vigor.
1477	Yes	Yes	Valley Oak	Quercus lobata		25.8	54	40	3 Fair - Minor Problems	To be Determined	good base and flare. leans moderately/heavy south. low canopy south. heavy canopy branches.

Field Tag #	Protected By Code	Offsite	Species Common Name	Species Botanical Name	Multi-Stem (in.)	DBH (in.)	Measured at (in.)	Canopy Radius	Arborist Rating	Construction Impacts	Field Notes
1478	Yes	Yes	Black Walnut	Juglans hindsii		30	24	40	2 Major Structure or Health Problems	To be Determined	minor swelling in base and codominant union. crowded codominant union at 4'. dead top 15' of south canopy. staining on north trunk with smell of decay present. fair foliage health. moderate canopy branch die back. fair/low vigor.
1479	Yes		California Fan Palm	Washingtonia filifera		33	54	13	2 Major Structure or Health Problems	Proposed for Removal	eroded base, somewhat compromised, no bark until 3'. all fronds yellowing.
1480	No		Interior Live Oak	Quercus wislizeni		5.5	54	13	1 Extreme Structure or Health Problems	Proposed for Removal	swollen, unbalanced base with 30% dead bark and decayed heartwood. heavy lean southwest. 50% branch die back. 50% dying canopy foliage. low vigor.
1481	No	No	Valley Oak	Quercus lobata		5.5	54	9	3 Fair - Minor Problems	Proposed for Removal	fair base, structure and vigor. growing close to powerlines.
1482	No		Black Walnut	Juglans hindsii		7, 5.5	54	14	2 Major Structure or Health Problems	Proposed for Removal	swollen base. fair structure, weeping branches. high amount of dead branches. good foliage health.

Field Tag #	Protected By Code	Offsite	Species Common Name	Species Botanical Name	Multi-Stem (in.)	DBH (in.)	Measured at (in.)	Canopy Radius	Arborist Rating	Construction Impacts	Field Notes
1483	No		Chinaberry	Melia azedarach		4, 3, 2, 2	54	14	3 Fair - Minor Problems	To be Determined	multi stem at grade. good vigor.
1484	Yes		Valley Oak	Quercus lobata		7	54	16	3 Fair - Minor Problems	Proposed for Removal	good base. 6" from fence. good foliage health. unbalanced canopy east, partially understory. good vigor.
1485	Yes		Valley Oak	Quercus lobata		11, 8.5, 7.5, 6	54	16	2 Major Structure or Health Problems	To be Determined	4 codominant unions with swelling, staining and included bark, poor base structure. good canopy structure. good foliage health. fair/poor vigor.
1486	Yes		Valley Oak	Quercus lobata		12	54	24	3 Fair - Minor Problems	To be Determined	dbh approximate, could not access tree. growing in closed off small fence area. good structure and vigor. 5" low stem at grade.
1487	No		London Plane	Platanus x hispanica		11, 7	54	16	2 Major Structure or Health Problems	Proposed for Removal	large old stem tear out failures on base, aggressive wound wood response. one sided southwest. poor canopy stem structures. diseased/damaged foliage throughout. fair/low vigor.
1488	No		London Plane	Platanus x hispanica		11, 10, 9.5	54	23	2 Major Structure or Health Problems	Proposed for Removal	large, deep 2' by 2' open codominant union well, swollen base. fair canopy structure. minor foliage damage. fair/low vigor.

Field Tag #	Protected By Code	Offsite	Species Common Name	Species Botanical Name	Multi-Stem (in.)	DBH (in.)	Measured at (in.)	Canopy Radius	Arborist Rating	Construction Impacts	Field Notes
1489	No		Fruitless Mulberry	Morus alba		21	36	20	2 Major Structure or Health Problems	To be Determined	elevated tension roots east. leans heavy west over fence. crowded, crossing multi stem union at 5'. crowded canopy stems. good foliage health. fair/low vigor.
1490	Yes		Valley Oak	Quercus lobata		17.5	54	26	3 Fair - Minor Problems	To be Determined	good base and flare, grows around concrete slab west. codominant at 13'. good canopy structure. dominant west canopy. good vigor.
1491	Yes		Valley Oak	Quercus lobata		8.5	54	12	3 Fair - Minor Problems	To be Determined	fair base, growing around concrete slab for city electrical box. growing under powerlines, will have to be aggressively pruned eventually. good structure and vigor.
1492	Yes		Valley Oak	Quercus lobata		14.5, 13.5	54	35	3 Fair - Minor Problems	To be Determined	codominant at 1', included bark in codominant union. wire wrapping around east stem. powerline guy wire contacting west stem at 12'. topped center of canopy. broad canopy stems. fair vigor.
1493	Yes		Valley Oak	Quercus lobata		18.5	54	30	3 Fair - Minor Problems	Proposed for Removal	good base and flare. pruned north canopy for powerline clearance. leans west. good vigor.

APPENDIX 3

GENERAL DEVELOPMENT GUIDELINES

Definitions

Root zone: The roots of trees grow fairly close to the surface of the soil, and spread out in a radial direction from the trunk of tree. A general rule of thumb is that they spread 2 to 3 times the radius of the canopy, or 1 to 1 ½ times the height of the tree. It is generally accepted that disturbance to root zones should be kept as far as possible from the trunk of a tree.

Inner Bark: The bark on most large trees is quite thick, usually 1" to 2". If the bark is knocked off a tree, the inner bark, or cambial region, is exposed and/or removed. The cambial zone is the area where tissues responsible for adding new layers to the tree each year are located. Removing or damaging this tissue results in a tree that can only grow new tissue from the edges of the wound. In addition, the interior wood of the tree is exposed to decay fungi and becomes susceptible to decay. Tree protection measures require that no activities occur which can knock the bark off the trees.

Methods Used in Tree Protection:

No matter how detailed Tree Protection Measures are in the initial Arborist Report, they will not accomplish their stated purpose unless they are applied correctly, and a Project Arborist oversees the construction. The Project Arborist should have the ability to enforce the Protection Measures. It is advisable for the Project Arborist to be present at the Pre-Construction meeting to answer questions the contractors may have about Tree Protection Measures. This also lets the contractors know how important tree preservation is to the developer.

Root Protection Zone (RPZ): Since in most construction projects it is not possible to protect the entire root zone of a tree, a Root Protection Zone is established for each tree to be preserved. The minimum Root Protection Zone is the area calculated as 1 to 1.25' for every inch of trunk diameter (ie. A 10" diameter tree will have an RPZ of 10') or the dripline, whichever is greater. The Project Arborist must approve work within the RPZ.

Irrigate, Fertilize, Mulch: Prior to grading on the site near any tree, if specified by the project arborist, the area within the Tree Protection fence should be fertilized with 4 pounds of nitrogen per 1000 square feet, and the fertilizer irrigated in. The irrigation should percolate at least 24 inches into the soil. This should be done no less than 2 weeks prior to grading or other root disturbing activities. After irrigating, cover the RPZ with at least 12" of leaf and twig mulch. Such mulch can be obtained from chipping or grinding the limbs of any trees removed on the site. Acceptable mulches can be obtained from nurseries or other commercial sources. Fibrous or shredded redwood or cedar bark mulch shall not be used anywhere on site.

Fence: Fence around the Root Protection Zone and restrict activity therein to prevent soil compaction by vehicles, foot traffic or material storage. The fenced area shall be off limits to all construction equipment, unless there is express written notification provided by the Project Arborist, and impacts are discussed and mitigated prior to work commencing.

No storage or cleaning of equipment or materials, or parking of any equipment can take place within the fenced off area, known as the RPZ.



The fence should be highly visible, and stout enough to keep vehicles and other equipment out. I recommend the fence be made of orange plastic protective fencing, kept in place by t-posts set no farther apart than 6'.

In areas of intense impact, a 6' chain link fence is preferred.

In areas with many trees, the RPZ can be fenced as one unit, rather than separately for each tree.

Where tree trunks are within 3' of the construction area, place 2" by 4" boards vertically against the tree trunks, even if fenced off. Hold the boards in place with wire. Do not nail them directly to the tree. The purpose of the boards is to protect the trunk, should any equipment stray into the RPZ.

Elevate Foliage: Where indicated, remove lower foliage from a tree to prevent limb breakage by equipment. Low foliage can usually be removed without harming the tree, unless more than 25% of the foliage is removed. Branches need to be removed at the anatomically correct location in order to prevent decay organisms from entering the trunk. For this reason, a contractor who is an ISA Certified Arborist should perform all pruning on protected trees.²

Expose and Cut Roots: Breaking roots with a backhoe, or crushing them with a grader, causes significant injury, which may subject the roots to decay. Ripping roots may cause them to splinter toward the base of the tree, creating much more injury than a clean cut would make. At any location where the root zone of a tree will be impacted by a trench or a cut (including a cut required for a fill and compaction), the roots shall be exposed with either a backhoe digging radially to the trunk, by hand digging, or by a hydraulic air spade, and then cut cleanly with a sharp instrument, such as chainsaw with a carbide chain. Once the roots are severed, the area behind the cut should be moistened and mulched. A root protection fence should also be erected to protect the remaining roots, if it is not already in place. Further grading or backhoe work required outside the established RPZ can then continue without further protection measures.

Protect Roots in Deeper Trenches: The location of utilities on the site can be very detrimental to trees. Design the project to use as few trenches as possible, and to keep them away from the major trees to be protected. Wherever possible, in areas where trenches will be very deep, consider boring under the roots of the trees, rather than digging the trench through the roots. This technique can be quite useful for utility trenches and pipelines.

Protect Roots in Small Trenches: After all construction is complete on a site, it is not unusual for the landscape contractor to come in and sever a large number of "preserved" roots during the installation of irrigation systems. The Project Arborist must therefore approve the landscape and irrigation plans. The irrigation system needs to be designed so the main lines are located outside the root zone of major trees, and the secondary lines are either laid on the surface (drip systems), or carefully dug with a hydraulic or air spade, and the flexible pipe fed underneath the major roots.

Design the irrigation system so it can slowly apply water (no more than ¼" to ½" of water per hour) over a longer period of time. This allows deep soaking of root zones. The system also needs to accommodate infrequent irrigation settings of once or twice a month, rather than several times a week.

² International Society of Arboriculture (ISA) maintains a program of Certifying individuals. Each Certified Arborist has a number and must maintain continuing education credits to remain Certified.

Monitoring Tree Health During and After Construction: The Project Arborist should visit the site at least twice a month during construction to be certain the tree protection measures are being followed, to monitor the health of impacted trees, and make recommendations as to irrigation or other needs. After construction is complete, the arborist should monitor the site monthly for one year and make recommendations for care where needed.

Chemical Treatments: The owner or developer shall be responsible to contact an arborist with a pesticide applicators license to arrange for an application of a root enhancing hormone, such as Paclobutrazol, to mitigate the stress produced by the development **prior to grading**. Additionally, at the discretion of the project arborist, an insect infestation preventative for both boring insects and leaf feeding insects and/or fungal preventative for leaf surfaces may be required. Roots pruned during the course of performing a cut may be required to be treated with a biofungicide such as Bio-Tam.