



# California Tree and Landscape Consulting, Inc.

May 22, 2023

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## TREE INVENTORY, CONSTRUCTION IMPACT ASSESSMENT AND TREE PROTECTION PLAN

RE: Brace Rd and Sierra College Blvd, Loomis, CA, APN #044-122-005-000, Town of Loomis jurisdiction, California

### Summary

Ashley Hodgson of Stantec, on behalf of the purchaser of the property, contacted California Tree and Landscape Consulting, Inc. to inventory and evaluate the trees protected by the Town of Loomis oak tree preservation ordinance which are located on the site on or within close proximity to the proposed development area on the parcel. The purpose is to provide the tree information required for the planning phase for development of a Quick Quack Carwash on the parcel. The property is located immediately northwest of the intersection of Brace Rd. and Sierra College Blvd. and falls within the jurisdiction of the Town of Loomis, California. See Supporting Information Appendix 1 –Tree Location Map.

Tyler Thomson, ISA Certified Arborist #WE-12751A, was on site May 11, 2023, to provide species identification, measurements of diameter and canopy, field condition notes, and arborist ratings. A total of 64 protected<sup>1</sup> trees are within the project area or within proximity on the parcel as to be potentially impacted by the development. In addition, one non-protected Valley Oak was included.

**Table 1 – Inventory Findings Summary**

Tree Species	Trees Inventoried	Trees on the Site <sup>2</sup>	Trees in Fair-Good Condition <sup>3</sup>
Interior Live Oak, <i>Quercus wislizeni</i>	17	17	5
Valley Oak, <i>Quercus lobata</i>	47	48	30
<b>Protected Tree Total</b>	<b>64</b>	<b>65</b>	<b>35</b>

### Construction Impact Analysis

At this time, we have reviewed the Overall Site Plan prepared by Stantec Architecture Inc., undated. The proposed removal trees are in the building envelope or near the construction area (within 4 times (4X) the tree’s DBH or less). Based on this, our analysis indicates that the following trees will require removal to permit development. Tree #'s 83, 84, 86 and 4247 should be re-evaluated in the field for suitability for preservation. Our approximate locations are inadequate to identify the impacts.

<sup>1</sup> Town of Loomis Chapter 13.54, Ordinance #252

<sup>2</sup> 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.

<sup>3</sup> Mitigation according to the Town requirements will be required for removal of these trees. Mitigation is generally charged in tree diameter inches and factored by trees species and size. See Appendix 5 - Town of Loomis Tree Removal Mitigation Table.

**Table 2 – Tree Removal and Mitigation Summary**

Tree Species	Total Trees to be Removed	Trees to be removed in Fair or better condition (and requiring mitigation)	Tag #'s of Tree to be Removed for Development (red = poor condition)	Mitigation Category A (Inches/Rate) Total \$	Mitigation Category B (Inches/Rate) Total \$	Mitigation Category C (Inches/Rate) Total \$	Mitigation Category D (Inches/Rate) Total \$
Interior Live Oak, <i>Quercus wislizeni</i>	3	2	4242, 4243, 98	0	0	1 28/\$100 \$2,800	1 32/\$110 \$3,520
Valley Oak, <i>Quercus lobata</i>	25	18	4245, 4246, 4247, 83, 96, 98, 101, 102, 105, 106, 108, 113, 114, 117, 121, 122, 123, 126, 127, 130, 180, 181, 182, 187, 198	0	17 269/\$100 \$26,900	0	1 30/\$120 \$3,600
<b>Protected Tree Removal Total</b>	<b>28</b>	<b>20</b>		<b>0</b>	<b>\$26,900</b>	<b>\$2,800</b>	<b>\$7,120</b>

The remaining trees can be preserved. The tree protection includes erecting tree protection fencing as shown in Appendix 1. Tree protection fencing should be installed prior to removal of trees within the construction zone. Equipment should not be operated within the tree protection zone. Debris from demolition and building materials shall not be staged within the tree protection zone. See Recommendations and the Tree Protection Plan for more information about preservation of the remaining trees during development.

**See Appendices for more Information about each individual tree**

## 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: CALTLC, 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 Nicole Harrison 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.
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 *canopy radius Plus 1 foot [per ordinance]*, 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	<b>5</b>	No problems found from a visual ground inspection. Structurally, these trees have properly spaced branches and near perfect
No apparent problem(s)	Good	<b>4</b>	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	<b>3</b>	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	<b>2</b>	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	<b>1</b>	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	<b>0</b>	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.

**Development 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:**

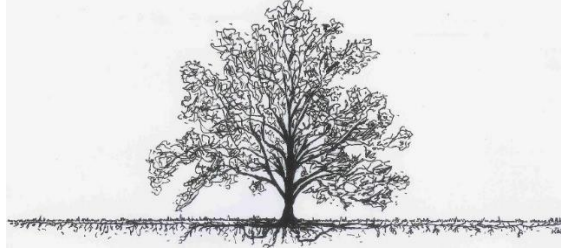
Negligible	Tree is unlikely to show any symptoms. Chance of survival post development is excellent. Impacts to the Protected Root Zone are less than 5%.
Minor	Tree is likely to show minor symptoms. Chance of survival post development is good. Impacts to the Protected Root Zone are less than 15% and species 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 (Menzer, 2008)

## ARBORIST CLASSIFICATIONS

A project arborist is likely required during the project development. It is the duty of the project arborist to specify protection for trees that will remain and protect their longevity. Experience in this small part of the tree industry is required to effectively manage trees during construction.

There are different types of Arborists with different roles within the tree industry. A project arborist should be a consulting arborist, or minimally, an ISA certified arborist with experience in tree protection during construction.

**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](http://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](http://ASCA-consultants.org).

## RECOMMENDATIONS: SUMMARY OF TREE PROTECTION MEASURES

### For Project Submittal to the Town:

- Identify each tree on the final construction drawings and show the root protection zone.
- List the name and telephone number of the project arborist on the final construction drawings (grading plans) and a monitoring schedule a minimum of once per month during development.
- The project arborist should review the plans prior to submittal and provide detailed tree protection requirements for all the trees to be preserved.

### Prior to Onsite Activity:

- The project arborist should inspect the installed tree protection fencing prior to grading and/or grubbing for compliance with the recommended protection zones.
- The project arborist should directly supervise the irrigation, fertilization, placement of mulch and chemical treatments.

- Prior to any grading, or other work on the site that will come within 50' of tree #2070, irrigation will be required from April through October and placement of a 4-6" layer of chip mulch over the protected root zone. Chips should be obtained from onsite trees onsite 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 directly oversee the pruning to be performed by a contractor who is an ISA Certified Arborist.

#### During Construction:

- Any and all work to be performed inside the protected root zone fencing shall be supervised by the project arborist.
- The project arborist shall monitor the site a minimum of once per month during development and may require additional measures as a result of changing tree response.

Report Prepared by:

Tom Stein  
ISA Certified Arborist #WC-12751A, TRAQ

Report Reviewed by:



Nicole Harrison  
Registered Consulting Arborist #719  
ISA Certified Arborist #WC-6500AM, TRAQ  
American Society of Consulting Arborists

Appendix 1 – Tree Location Map & Protection Plan

Appendix 2 – Tree Data

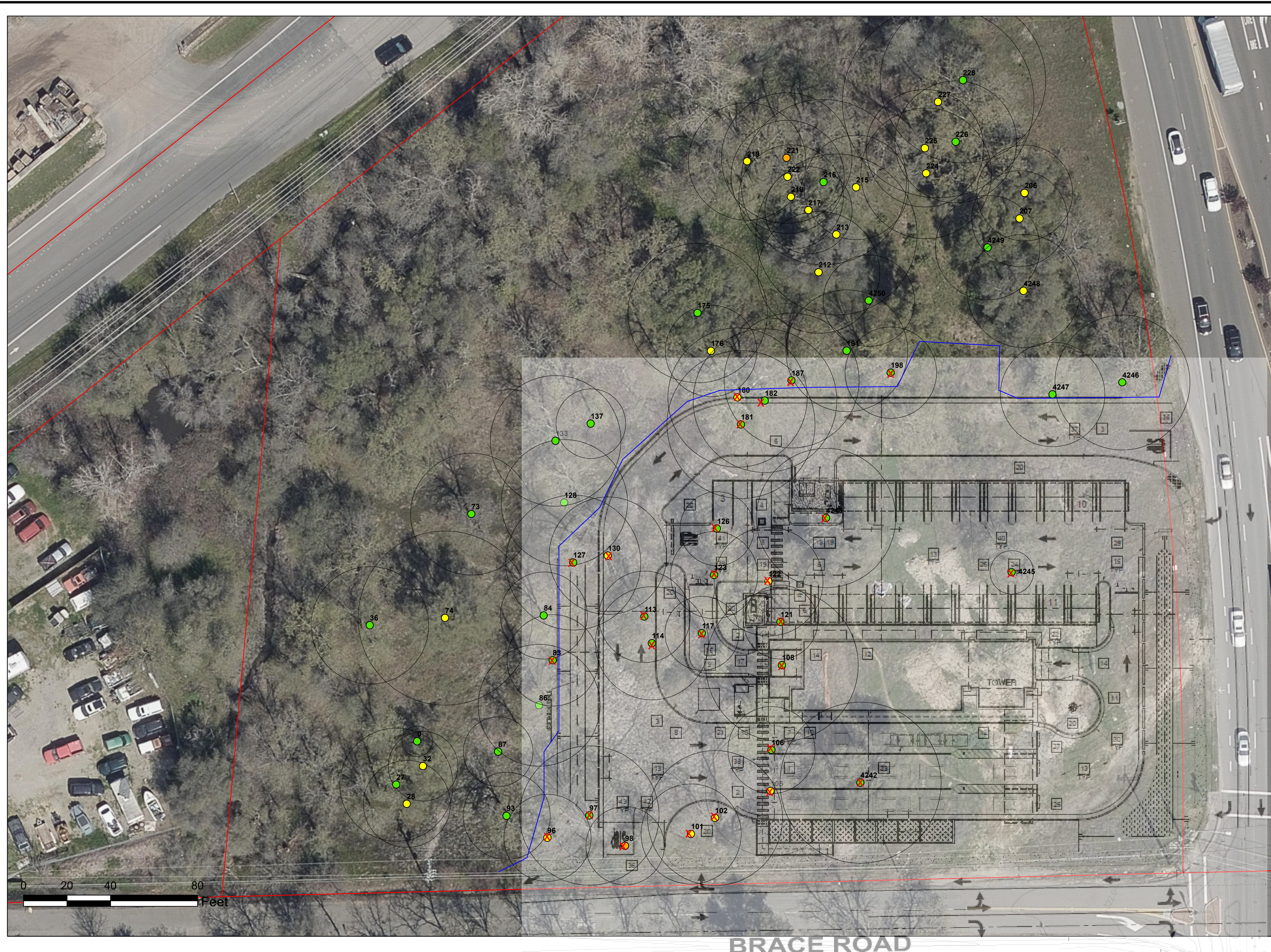
Appendix 3 – General Development Guidelines

Appendix 4 – Site Photographs

Appendix 5 – Town of Loomis, Table 5-3: Tree Removal Mitigation Table

#### Bibliography

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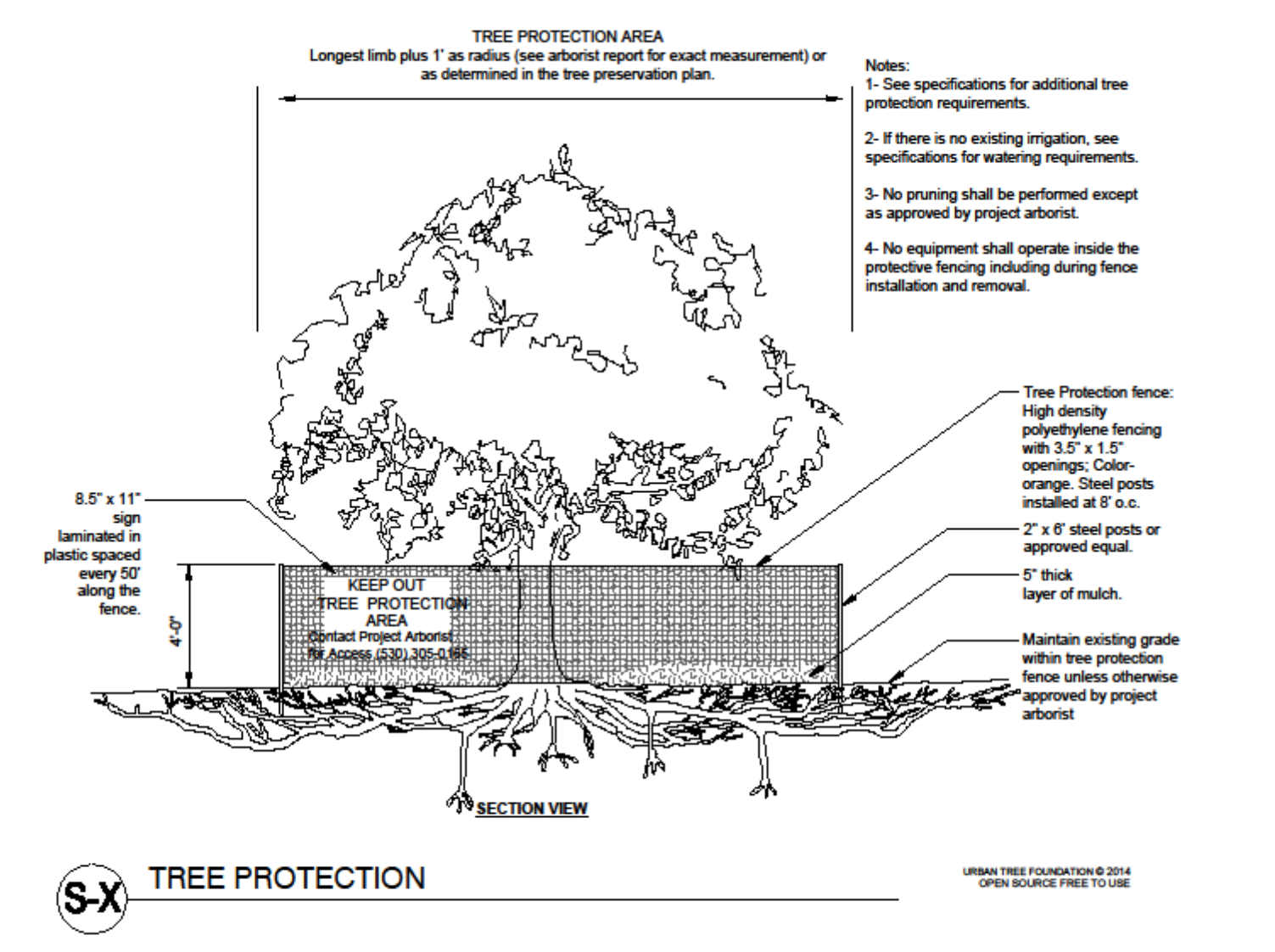
**California Tree & Landscape Consulting, Inc.**

359 Nevada Street, Suite 201  
Auburn, CA 95603

**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.

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**TREE LOCATION MAP & PROTECTION PLAN**

>Tree locations are approximate and were collected using apple iOS products.  
>Property line information was downloaded from Placer County on 05/15/2020.  
>Development plans provided by Stantec dated 04/19/2023.

Property Line	<b>Arborist Rating</b>
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**

**Quick Quack Car Wash #26-066**

**ADDRESS:**  
**ADDRESS**  
**Date: 5/19/2023**

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Appendix 2 - Tree information Data

Field Tag #	Old Tag #	Protected By Code	Off Site	Species Common Name	Species Botanical Name	Multi-Stem	DSH (in.)	Measured at (in.)	Canopy Radius (Ft.)	Arborist Rating	Field Notes	Development Status	Mitigation Category	Mitigation Rate	Mitigation
0		No		valley oak	Quercus lobata		5.7	54	7	3-Minor Problems	good base, structure and vigor. undersized tree.	Retain			
27		Yes		valley oak	Quercus lobata		9	54	26	3-Minor Problems	fair base, structure and vigor. leans moderately northeast.	Retain		90	
28		Yes		interior live oak	Quercus wislizeni		9	54	20	2-Major Structure or health problems	tree leans heavy southeast. cavity in base east. open deep 7 inch wide cavity at 4 feet east. poor structure. low vigor.	Retain	A2	80	0
32		Yes		interior live oak	Quercus wislizeni		12	54	16	2-Major Structure or health problems	unbalanced base. swollen trunk at 4 feet. severe branch die-back throughout canopy. sparse foliage. low vigor.	Retain	B	90	0
36		Yes		valley oak	Quercus lobata		15.5	54	27	3-Minor Problems	good base. codominant at 14 feet. fair structure and vigor.	Retain	B	100	
73		Yes		valley oak	Quercus lobata		15	54	28	3-Minor Problems	dbh approximate, poison oak around base and trunk. fair base, structure and vigor. epicormic sprouts on trunk. moderate branch die-back throughout canopy.	Retain	B	100	
74		Yes		interior live oak	Quercus wislizeni		19.5	54	40	2-Major Structure or health problems	unbalanced base, trunk and canopy southwest. high amount of branch die-back. sparse miniaturized foliage.	Retain	B	90	0
83		Yes		valley oak	Quercus lobata		12	54	21	3-Minor Problems	dbh approximate, poison oak around base and trunk. fair base, structure and vigor. minor small branch die-back throughout canopy.	Removal	B	100	1200

Field Tag #	Old Tag #	Protected By Code	Off Site	Species Common Name	Species Botanical Name	Multi-Stem	DSH (in.)	Measured at (in.)	Canopy Radius (Ft.)	Arborist Rating	Field Notes	Development Status	Mitigation Category	Mitigation Rate	Mitigation
84		Yes		valley oak	Quercus lobata		13	54	20	3-Minor Problems	dbh approximate, poison oak around base and trunk. fair base, structure, and vigor. moderate small branch die-back throughout canopy.	Retain	B	100	
86		Yes		valley oak	Quercus lobata		17	54	28	3-Minor Problems	fair base, structure and vigor. small branch die-back throughout canopy.	Retain	B	100	
87		Yes		valley oak	Quercus lobata		10	54	16	3-Minor Problems	dbh approximate, poison oak around base and trunk. good base, structure and vigor. codominant at 18 feet. leans slightly west.	Retain	B	100	
93		Yes		valley oak	Quercus lobata		15	54	20	3-Minor Problems	fair base. good structure and vigor. codominant at 13 feet. south codominant canopy stem is getting close to powerlines.	Retain	B	100	
96		Yes		valley oak	Quercus lobata		16.5	54	20	2-Major Structure or health problems	fair base. sunken trunk west from 3 to 6 feet. topped multiple times for powerline clearance, poor structure, suspected canopy stem decay where topping occurred.	Removal	B	100	0
97		Yes		valley oak	Quercus lobata		20	54	32	3-Minor Problems	good base flare. tree leans moderately west. fair structure and vigor. moderate/minor small branch die-back throughout canopy.	Removal	B	100	2000
98		Yes		interior live oak	Quercus wislizeni		13	60	18	1-Extreme Structure or Health Problems	severe internal base decay with large opening west. epicormic sprouts. severe branch die-back. miniaturized/sparse/yellowing foliage.	Removal	B	90	0

Field Tag #	Old Tag #	Protected By Code	Off Site	Species Common Name	Species Botanical Name	Multi-Stem	DSH (in.)	Measured at (in.)	Canopy Radius (Ft.)	Arborist Rating	Field Notes	Development Status	Mitigation Category	Mitigation Rate	Mitigation
101		Yes		valley oak	Quercus lobata		12.5	54	23	2-Major Structure or health problems	slightly swollen base and lower trunk. canopy moderately unbalanced southwest towards powerlines. 25% branch die-back throughout. fair foliage health. low/fair vigor.	Removal	B	100	0
102		Yes		valley oak	Quercus lobata		14.5	54	31	2-Major Structure or health problems	fair base flare. trunk leans moderately then severely starting at 14 feet. severely unbalanced/leaning canopy northwest. poor structure, healthy foliage.	Removal	B	100	0
105		Yes		valley oak	Quercus lobata		11.5	54	30	2-Major Structure or health problems	very swollen base with 2 large closed wounds north and 1 open 5 inch wound north. trunk and canopy leans heavy south towards powerlines. poor structure. healthy foliage.	Removal	B	100	0
106		Yes		valley oak	Quercus lobata		14	54	20	3-Minor Problems	fair base, structure and vigor. moderate branch die-back throughout.	Removal	B	100	1400
108		Yes		valley oak	Quercus lobata		22	54	35	3-Minor Problems	dbh approximate, poison oak around base and trunk. good base, structure and vigor. codominant at 15 feet.	Removal	B	100	2200
113		Yes		valley oak	Quercus lobata		10	54	21	3-Minor Problems	fair base, structure and vigor. canopy leans west. codominant at 12 feet. minor small branch die-back in canopy.	Removal	B	100	1000
114		Yes		valley oak	Quercus lobata		16	54	26	3-Minor Problems	fair base, structure and vigor. tree leans slightly south. moderate amount of small branch die-back throughout canopy.	Removal	B	100	1600

Field Tag #	Old Tag #	Protected By Code	Off Site	Species Common Name	Species Botanical Name	Multi-Stem	DSH (in.)	Measured at (in.)	Canopy Radius (Ft.)	Arborist Rating	Field Notes	Development Status	Mitigation Category	Mitigation Rate	Mitigation
117		Yes		valley oak	Quercus lobata		14	54	17	3-Minor Problems	fair base, structure and vigor. moderate small branch die-back throughout.	Removal	B	100	1400
121		Yes		valley oak	Quercus lobata		17	54	17	3-Minor Problems	dbh approximate, poison oak around base and trunk. good base, structure and vigor. codominant at 12 feet.	Removal	B	100	1700
122		Yes		valley oak	Quercus lobata		13	54	25	2-Major Structure or health problems	dbh approximate, poison oak around base and trunk. can't see base. fair structure. sparse foliage. moderate branch die-back. low/fair vigor.	Removal	B	100	0
123		Yes		valley oak	Quercus lobata		14	54	20	3-Minor Problems	dbh approximate, poison oak around base and trunk. can't see base. fair structure, and vigor.	Removal	B	100	1400
126		Yes		valley oak	Quercus lobata		10	54	17	3-Minor Problems	dbh approximate, poison oak around base and trunk. can't see base. fair structure, and vigor. minor small branch die-back.	Removal	B	100	1000
127		Yes		valley oak	Quercus lobata		15	54	31	3-Minor Problems	dbh approximate, poison oak around base and trunk. good base. tree leans moderately southwest. good foliage health.	Removal	B	100	1500
128		Yes		valley oak	Quercus lobata		14.5	54	29	3-Minor Problems	fair base, structure and vigor. trunk and canopy leans slightly southwest.	Retain	B	100	
130		Yes		valley oak	Quercus lobata		14	54	27	2-Major Structure or health problems	dbh approximate, poison oak around base and trunk. good base. codominant at 8 feet. high amount of epicormic growth. 60% branch die-back throughout. sparse foliage. low vigor.	Removal	B	100	0

Field Tag #	Old Tag #	Protected By Code	Off Site	Species Common Name	Species Botanical Name	Multi-Stem	DSH (in.)	Measured at (in.)	Canopy Radius (Ft.)	Arborist Rating	Field Notes	Development Status	Mitigation Category	Mitigation Rate	Mitigation
133		Yes		valley oak	Quercus lobata		13	54	30	3-Minor Problems	dbh approximate, poison oak around base and trunk. fair base, structure and vigor. moderate small branch die-back throughout canopy.	Retain	B	100	
137		Yes		valley oak	Quercus lobata		9	54	16	3-Minor Problems	dbh approximate, poison oak around base and trunk. fair base, structure and vigor.	Retain	A2	90	
175		Yes		interior live oak	Quercus wislizeni		20	54	32	3-Minor Problems	fair base. trunk leans west at 5 feet. fair canopy structure. healthy foliage. good vigor.	Retain	B	90	
176		Yes		interior live oak	Quercus wislizeni		15.5	40	21	2-Major Structure or health problems	large decayed flush cut on base southwest. codominant at 6 feet. north codominant stem 90% dead. high amount of dead branches throughout. low vigor.	Retain	B	90	0
180		Yes		valley oak	Quercus lobata		12	54	32	2-Major Structure or health problems	dbh approximate, poison oak around base and trunk. fair base. heavy understory lean northwest. severely unbalanced main canopy stems. low vigor.	Removal	B	100	0
181		Yes		valley oak	Quercus lobata		17	54	34	3-Minor Problems	dbh approximate, poison oak around base and trunk. fair base, structure and vigor. leans moderately west.	Removal	B	100	1700
182		Yes		valley oak	Quercus lobata		21	54	33	3-Minor Problems	dbh approximate, poison oak around base and trunk. good base, structure and vigor.	Removal	B	100	2100
183	4244	Yes		valley oak	Quercus lobata		12	54	10	1-Extreme Structure or Health Problems	fair base and lower trunk. dying canopy, 70% dead. poor structure. low vigor.	Retain	B	100	0

Field Tag #	Old Tag #	Protected By Code	Off Site	Species Common Name	Species Botanical Name	Multi-Stem	DSH (in.)	Measured at (in.)	Canopy Radius (Ft.)	Arborist Rating	Field Notes	Development Status	Mitigation Category	Mitigation Rate	Mitigation
187		Yes		valley oak	Quercus lobata		15	54	31	3-Minor Problems	dbh approximate, poison oak around base and trunk. good base. leans moderately east. fair structure and vigor. minor/moderate branch die-back throughout canopy.	Removal	B	100	1500
191		Yes		valley oak	Quercus lobata		17	54	28	3-Minor Problems	dbh approximate, poison oak around base and trunk. good base, structure and vigor.	Retain	B	100	
198		Yes		valley oak	Quercus lobata		16	54	21	3-Minor Problems	dbh approximate, poison oak around base and trunk. base not visible. good structure and vigor.	Removal	B	100	1600
201	4247	Yes		valley oak	Quercus lobata		15	54	24	3-Minor Problems	dbh approximate, high amount of poison oak around base. fair base, structure and vigor.	Removal	B	100	1500
203	4246	Yes		valley oak	Quercus lobata		30	54	31	3-Minor Problems	dbh approximate, high amount of poison oak around base and growing up trunk. fair base, structure and vigor. minor small branch die-back, mainly in west canopy.	Removal	D	120	3600
205	4248	Yes		interior live oak	Quercus wislizeni		28	40	26	2-Major Structure or health problems	dbh approximate, high amount of poison oak around base. multi-stem at 5 feet. high amount of branch die-back 35%. sparse foliage throughout. low vigor.	Retain	C	100	0
206		Yes		interior live oak	Quercus wislizeni	15, 12	19	54	22	2-Major Structure or health problems	dbh approximate, poison oak around base. fair stem and canopy balance. 60% branch die-back throughout. low vigor.	Retain	B	90	0
207		Yes		interior live oak	Quercus wislizeni		13	54	22	2-Major Structure or	codominant stem south dead and flush cut. open flush cuts on base and lower trunk. unbalanced	Retain	B	90	0

Field Tag #	Old Tag #	Protected By Code	Off Site	Species Common Name	Species Botanical Name	Multi-Stem	DSH (in.)	Measured at (in.)	Canopy Radius (Ft.)	Arborist Rating	Field Notes	Development Status	Mitigation Category	Mitigation Rate	Mitigation
										health problems	canopy southeast. high amount of small branch die-back.				
208	4209	Yes		interior live oak	Quercus wislizeni		17	54	24	3-Minor Problems	dbh approximate, poison oak around base. fair base. flush cut with internal decay north at 5 feet. fair overall structure and vigor.	Retain	B	90	
212		Yes		interior live oak	Quercus wislizeni	13, 9, 7	17	54	28	2-Major Structure or health problems	dbh approximate, poison oak around base and trunk. fair base flare. weak codominant union at 2 feet. severely unbalanced, long stems south, poor structure.	Retain	B	90	0
213		Yes		interior live oak	Quercus wislizeni		20	54	37	2-Major Structure or health problems	dbh approximate, poison oak around base and trunk. suspect base partially uprooted years ago. tree leans severely south. 25% branch die-back throughout canopy. poor structure, low vigor.	Retain	B	90	0
215		Yes		valley oak	Quercus lobata		15	54	24	2-Major Structure or health problems	dbh approximate, poison oak on trunk. fair base. codominant at 15 feet. long unbalanced spindly canopy stems. branch failures throughout canopy, poor structure. low vigor.	Retain	B	100	0
216		Yes		valley oak	Quercus lobata		20	54	38	3-Minor Problems	dbh approximate, poison oak around base and trunk. fair base, structure and vigor. dead 7 inch diameter branch north at 4 feet. healthy foliage. canopy leans slightly south.	Retain	B	100	
217		Yes		valley oak	Quercus lobata		12	54	20	2-Major Structure or	dbh approximate, poison oak around base and trunk. fair base.	Retain	B	100	0

Field Tag #	Old Tag #	Protected By Code	Off Site	Species Common Name	Species Botanical Name	Multi-Stem	DSH (in.)	Measured at (in.)	Canopy Radius (Ft.)	Arborist Rating	Field Notes	Development Status	Mitigation Category	Mitigation Rate	Mitigation
										health problems	Sparse, miniaturized foliage throughout. low vigor.				
218		Yes		valley oak	Quercus lobata	10, 8, 7	15	54	24	2-Major Structure or health problems	dbh approximate, poison oak around base and trunk. codominant at grade and 3 feet. high amount of epicormic growth on trunks. stems lean heavy north west, and south. poor branching in canopy. low vigor.	Retain	B	100	0
219		Yes		valley oak	Quercus lobata		10	54	27	2-Major Structure or health problems	dbh approximate, poison oak around base and trunk. fair base. high amount of epicormic sprouts on trunk. codominant at 16 feet. severely unbalanced codominant stems, poor structure. low vigor.	Retain	B	100	0
221		Yes		valley oak	Quercus lobata		10	54	30	1-Extreme Structure or Health Problems	dbh approximate, poison oak around base and trunk. fair base. high amount of epicormic growth on trunk. severely unbalanced northwest, poor trunk taper, no mature branches. low vigor.	Retain	B	100	0
222		Yes		valley oak	Quercus lobata		7	54	26	2-Major Structure or health problems	dbh approximate, poison oak around base and trunk. fair base. high amount of epicormic growth on trunk. no mature branches. trunk leans heavy south, poor trunk taper. low vigor.	Retain	A2	90	0
224		Yes		interior live oak	Quercus wislizeni	10, 8.5	13	54	30	2-Major Structure or health problems	swollen inclusion on base from codominant union at 2 feet. crowded codominant stems pressing into each other. unbalanced stems and canopy. 40%	Retain	B	90	0



Field Tag #	Old Tag #	Protected By Code	Off Site	Species Common Name	Species Botanical Name	Multi-Stem	DSH (in.)	Measured at (in.)	Canopy Radius (Ft.)	Arborist Rating	Field Notes	Development Status	Mitigation Category	Mitigation Rate	Mitigation
											branch die-back throughout. low vigor.				
225		Yes		interior live oak	Quercus wislizeni		11	54	27	2-Major Structure or health problems	fair base. high amount of epicormic growth on trunk. severe branch die-back in canopy, high canopy, poor trunk taper. low vigor.	Retain	B	90	0
226		Yes		valley oak	Quercus lobata		10	54	28	3-Minor Problems	fair base, structure and vigor. canopy unbalanced southeast. healthy foliage.	Retain	B	100	
227		Yes		valley oak	Quercus lobata		27	54	44	2-Major Structure or health problems	dbh approximate, poison oak around base and trunk. fair base. high amount of epicormic sprouts throughout. small branch die-back throughout. sparse yellowing foliage throughout.	Retain	C	110	0
228		Yes		valley oak	Quercus lobata		25	54	38	3-Minor Problems	dbh approximate, poison oak around base and trunk. fair base, structure and vigor. one sided east. healthy foliage.	Retain	C	110	
4242	7416	Yes		interior live oak	Quercus wislizeni	21, 19, 14.6	32	54	37	3-Minor Problems	fair base. codominant at 1 and 3 feet. north codominant stem leans heavy, has 7 inch diamonds flush cut at 6 feet. minor/moderate small branch die-back throughout. fair overall canopy balance. healthy foliage. low canopy southeast. southeast upper canopy getting close to powerlines.	Removal	D	110	3520

Field Tag #	Old Tag #	Protected By Code	Off Site	Species Common Name	Species Botanical Name	Multi-Stem	DSH (in.)	Measured at (in.)	Canopy Radius (Ft.)	Arborist Rating	Field Notes	Development Status	Mitigation Category	Mitigation Rate	Mitigation
4243		Yes		interior live oak	Quercus wislizeni	20, 14, 13	28	54	32	3-Minor Problems	fair base. codominant at 2 and 4 feet. moderate small branch die-back throughout. low southeast canopy touching ground. mostly one-sided south. fair/poor structure. fair vigor.	Removal	C	100	2800
4245		Yes		valley oak	Quercus lobata	15, 14	21	54	10	3-Minor Problems	dbh approximate, heavy poison oak around base and up trunks. codominant at grade. good base, structure and vigor. low canopy south, 5 feet from ground.	Removal	B	100	2100
4250	194	Yes		interior live oak	Quercus wislizeni		14.5	54	21	3-Minor Problems	good base and structure. moderate branch die-back throughout. fair/poor foliage health.	Retain	B	90	
36820															
<b>TOTAL INVENTORIED TREES = 65 trees (1012.7 aggregate diameter inches)</b>															
<b>TOTAL RECOMMENDED REMOVALS = None</b>															
Rating (0-5, where 0 is dead) = 0=0 trees; 1=3 trees; 2=24 trees; 3=38 trees; 4=0 tree; 5=0 trees															
<b>TOTAL REMOVALS FOR DEVELOPMENT= 28 Trees ( 466.5 aggregate diameter inches)</b>															
Total Non-Protected Trees = 1 tree (5.7 aggregate diameter inches)															
Total Protected Int. Live Oak Trees = 17 (302.5 aggregate diameter inches)															
Total Protected Valley Oak Trees = 47 tree (704.5 aggregate diameter inches)															
<b>TOTAL PROTECTED TREES = 64 trees (1007.0 aggregate diameter inches)</b>															

## 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 if required by local ordinance. 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.<sup>4</sup>

**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.

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<sup>4</sup> 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.

Appendix 4 – Site Photographs



Photo #1 by Tyler Thomson, May 11, 2023. Representing the overall tree makeup of the site.

Photos #2 through 5 by Tyler Thomson, May 11, 2023. Photos of individual trees for reference.



