California Tree and Landscape Consulting, Inc.

July 26, 2022

G.J. Gardner Homes
Attn: Tyler Shields
930 Alhambra Boulevard, #270
Sacramento, CA 95816
Via Email: tyler.shields@gjgardner.com

PRELIMINARY ARBORIST REPORT & TREE INVENTORY

RE: 2489 Garden Highway, [APN # 274-0690-002], County of Sacramento jurisdiction, California

Executive Summary:
Tyler Shields of G.J. Gardner Homes, on behalf of the property owner, contacted California Tree and Landscape Consulting, Inc. to inventory and evaluate the trees on the site for purposes of providing preliminary tree information for planning the development of the parcel. In addition, we are to provide expertise with regard to the County requirements for tree retention during development of this parcel. The property is located at 2489 Garden Highway, Sacramento, California, and is subject to the jurisdiction of Sacramento County. See Supporting Information Appendix A –Tree Location Map.

Tyler Thomson, ISA Certified Arborist #WE-12751A, visited the site April 18, 2022, to provide species identification, measurements of diameter and canopy, field condition notes and arborist ratings. A total of 61 trees were included in the inventory. A total of six (6) trees are impacted by the proposed project. Four (4) trees are proposed for removal and two (2) trees will be retained onsite with root encroachments. Of the 4 trees proposed for removal, 2 (#4895 and #4897) are smaller than 9" and therefore not subject to required retention pursuant to the Garden Hwy SPA. 1 tree proposed for removal is located inside the building envelope (#4896) and can be considered for removal; and 1 is a removal recommendation by the arborist due to poor structural integrity (#4893). No heritage or landmark trees are proposed for removal. There are 2 trees impacted by the driveway (#4898, 4899). Tree Protection and special development processes (such as aeration and/or permeable concrete) will likely be sufficient to keep the impacts in the moderate[1] category. Grading plans and elevations should be evaluated by the arborist prior to development for specific recommendations for these 2 trees.

Elderberry[2], *Sambucus sp*., was found on the site during the course of the inventory. The location is shown on Appendix 1 - Tree Location Map for reference but it is not included within this report because it does not meet the 4" size requirement for inclusion.

Table 1 - Summary of Findings

[1] See Page 4 for category descriptions

[2] Elderberry is a federally protected species. Please contact a biologist with regard to the restrictions for development of the parcel.

Tree Species	Trees Inventoried	Trees on the Site[3]	Trees subject to retention by Garden Hwy SPA (501-257)[4] and Proposed for Removal	Total Trees Proposed for Removal	Trees impacted by the proposed development and requiring special protection measures and/or mitigation[1]
Valley Oak, *Quercus lobata*	51	51	2	4	2
Northern Calif Black Walnut, *Juglans hindsii*	1	1	–	–	–
Willow sp. *Salix* sp.	**3**	**3**	**–**	–	–
White Alder, *Alnus rhombifolia*	**2**	**2**	**–**	–	–
Fremont Cottonwood, *Populus fremontii*	1	1	–	-	–
Other (Plum)	1	1	–	–	–
Totals	**61**	**61**	**2**	**4**	**2**

See Appendices for specific information on each tree.

Methods

Appendix 2 in this report is the detailed inventory and recommendations for the trees. The following terms and Table A – Ratings Description will further explain our findings.

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 diameter. A Stanley laser distance meter was used to measure distances. Canopy radius measurements may also have been estimated due to obstructions, such as steep slopes, fences, or other trees.

Terms

[3] 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. No evaluation of easement locations, such as required for street tree status, was conducted.

[4] (12) Existing trees. Trees which exceed nine (9) inches in diameter at a height of four (4) feet shall not be removed, except when such trees are located in the building pad area. The Director shall not approve the construction of a new dwelling if heritage or landmark trees must be removed from the building pad area, unless the construction attempts to preserve such heritage and landmark trees through careful design.

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".
Calculated DBH	Used to determine DBH of multi stem trees. The system for multi-stem trees has been developed by to derive a fair measurement for such a tree with 2 or more stems/trunks is explained in the book Guide for Plant Appraisal, 9th Edition (ISBN: 1-881956-25-3) printed by the International Society of Arboriculture (ISA) in 2000 for the Council of Tree & Landscape Appraisers.
Measured at	Height above average ground level where the measurement of DBH was taken
Canopy radius and Protection Area	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 further defines the protection zone and can indicate if pruning may be required for development. Sacramento County specifies this measurement as the required 'Protected Root Zone'
Critical Root Zone	The radius of the critical 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.

Table A - Ratings Description

Arborist Ratings			Sacramento County Ratings
No problem(s)	Excellent	**5**	Excellent
No apparent problem(s)	Good	**4**	Good
Minor problem(s)	Fair	**3**	Fair
Major problem(s)	Fair to Poor	**2**	Declining
Extreme problem(s)	Poor	**1**	Severe Decline
Dead	Dead	**0**	Dead

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

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

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

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

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

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

Notes

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.

Impact Term: Long Term Result of Impact

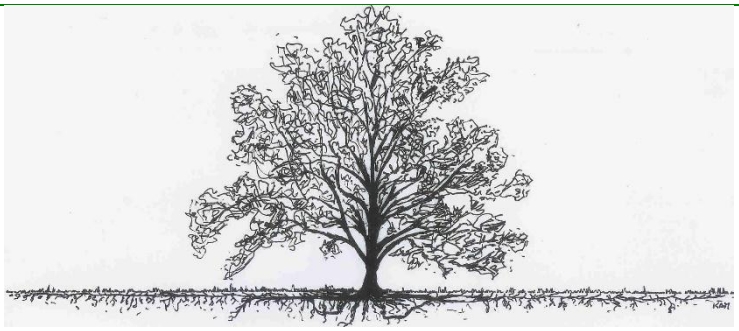
Negligible	Tree is unlikely to show any symptoms. Chance of survival post development is excellent. Impacts to the Protected Root Zone are less than 5%.
Minor	Tree is likely to show minor symptoms. Chance of survival post development is good. Impacts to the Protected Root Zone are less than 15% and species 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 healthy and viable on the site. Our recommendations are based on experience and the County ordinance requirements to enhance tree longevity. This requires their root zones remain intact and viable 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 for tree health. Tree Protection measures should be incorporated into the site plans in order to protect the trees.

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.

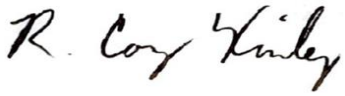
Consulting Arborist: An American Society of Consulting Arborists Registered Consulting Arborist is someone who has been trained and then tested to have specialized knowledge of trees; and trained and tested to provide high quality reports and documentation. You can look up registered consulting arborists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

RECOMMENDATIONS:The grading and site plans should include the following information:

- The project arborist for this project is California Tree & Landscape Consulting. The primary contact information is Cory Kinley (916) 955-6162. The secondary contact information is Nicole Harrison (530) 305-0165.
- Trees must be accurately located with base elevation and shown on the plans as a circle equal to the longest limb radius and cannot be depicted with an irregular canopy.
- The protection zone for trees is specified as the 'canopy radius' in Appendix 2 unless otherwise specified in the preservation requirements. The location of the tree protection fencing shall be depicted on the plans pursuant to the arborist recommendations. Note 'dripline' is not an acceptable location for installation of tree protection fencing.
- The Tree Protection Detail drawing shall be included on the plans.
- The root impact area shall be depicted on the plans as a hatched area with a percentage impact. Impacts are calculated using the tree protection fence location.
- The project arborist shall review the final plans and make recommendations with regard to increasing the likelihood of survival of the trees to remain on the site.
- Monitoring Recommended. This site has limitations as to the availability of areas for stocking, parking, etc during development. The project arborist shall specify areas where these activities can take place and review the tree protection fencing when it is installed. In addition, the project arborist should monitor the site during construction and may make additional recommendations to ensure the survivability of the trees.

General Tree protection measures are included as Appendix 3. These measures need to be included on the Site, Grading, Utility and Landscape Plans. A final report of recommendations specific to the plan can be completed as part of, and in conjunction with, the actual plans. This will require the arborist working directly with the engineer and architect for the project. If the above recommendations are followed, the amount of time required by the arborist for the final report should be minimal.

Report Prepared by:



R. Cory Kinley
ISA Certified Arborist #WC-9717A, TRAQ

Attachments

Appendix 1 – Tree Location Map
Appendix 2 – Tree Data
Appendix 3 – General Development Guidelines
Appendix 4 – Site Photographs

Bibliography

International Society of Arboriculture. (2015). *Glossary of Arboricultural Terms.* Champaign: International Society of Arboriculture.
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Tree Care Industry Association. (2017). *Tree, Shrub, and Other Woody Plant Management - Standard Practices (Pruning).* Londonderry: Tree Care Industry Association.
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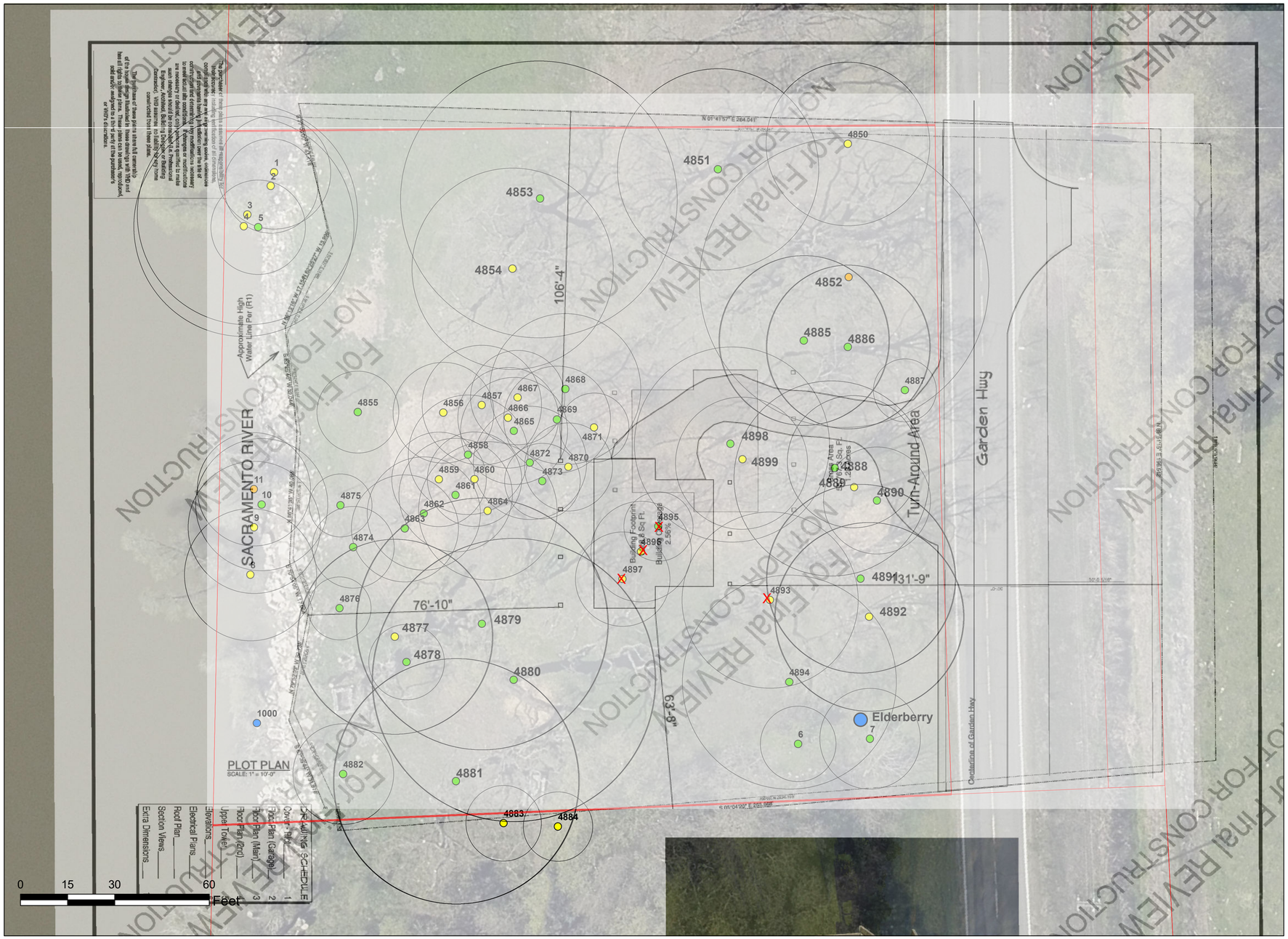

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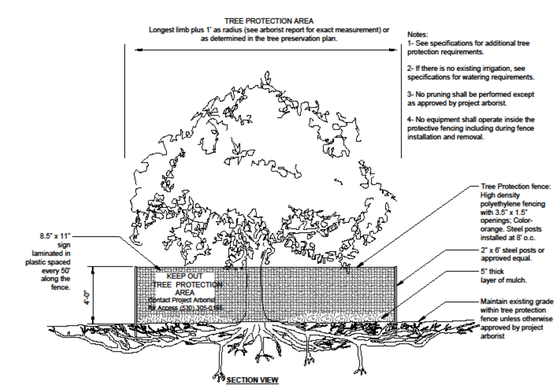
California Tree & Landscape Consulting, Inc.

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.



S-X 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 05/10/2022.
>Development plans provided by G.J. Gardner Homes dated 12/21/2021.

Property Line
Measured Tree Canopy

Arborist Rating
- 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

CATTANACH RESIDENCE

2489 Garden Highway
Sacramento, Sacramento County, CA

Sheet No.
TPP 1.0

Date: 5/10/2022

Appendix 2 – Tree Data

Tag #	Off Site	Species Common Name	Botanical Name	Calculated DBH (in.)	Multi-Stem	Measured at (in.)	Canopy Radius (ft.)	Arborist Rating	Dvlpmnt Status	Field Notes
1		Valley Oak	*Quercus lobata*	8		54	18	2 Major Structure or Health Problems		tree on steep slope down to river. 30% dead bark on t heavy lean west over river. fair vigor.
2		Valley Oak	*Quercus lobata*	8		54	15	2 Major Structure or Health Problems		base on steep slope. swollen trunk at 3'. fair structure vigor.
3		Black Willow	*Salix sp*	12		54	35	2 Major Structure or Health Problems		tree grows completely horizontally over water. small throughout. fair vigor.
4		Black Willow	*Salix sp*	12		54	35	2 Major Structure or Health Problems		tree grows completely horizontally over water. small throughout. fair vigor.
5		White Alder	*Alnus rhombifolia*	6		54	15	3 Fair - Minor Problems		grows next to river. good structure and vigor.
6		Wild Plum	*Prunus sp.*	6		54	12	3 Fair - Minor Problems		good base, structure and vigor.
7		Northern CA Black Walnut	*Juglans hindsii*	12		54	16	3 Fair - Minor Problems		good base, structure and vigor. crowded codom stem
8		Black Willow	*Salix sp*	11	12, 11	54	21	2 Major Structure or Health Problems		fair base. heavy lean over water west. 40% small deac branches. fair vigor.
9		Black Willow	*Salix sp*	14	15, 14	54	21	2 Major Structure or Health Problems		fair base. heavy lean over water west. 50% dead bark stem trunk. 40% small dead branches. fair vigor.
10		White Alder	*Alnus rhombifolia*	9	10, 9	54	21	3 Fair - Minor Problems		good base, codom at 1'. leans slightly southwest. good structure and vigor.
11		Black Willow	*Salix sp*	14		54	18	1 Extreme Structure or Health Problems		growing out of large concrete chunks. horizontal heavy lean southwest. 60% dead branches. adjacent tree trunk laying on top of canopy. poor structure. low vigor.
4850		Valley Oak	*Quercus lobata*	12		54	26	2 Major Structure or Health Problems		good base. long branches with poor taper, and mature epicormic growth. unbalanced canopy north east up slope. poor canopy branch structure, moderate tip die back. fair vigor.

Tag #	Off Site	Species Common Name	Botanical Name	Calculated DBH (in.)	Multi-Stem	Measured at (in.)	Canopy Radius (ft.)	Arborist Rating	Dvlpmnt Status	Field Notes
4851		Valley Oak	*Quercus lobata*	29		54	32	3 Fair - Minor Problems		good base and flare, elevated west roots. closed seams on trunk. multi stem at 14'. good canopy structure. good vigor.
4852		**Valley Oak**	***Quercus lobata***	**60**		**36**	**46**	**1 Extreme Structure or Health Problems**	**Risk Evaluation Recommended**	**good west base, large 2 by 7' open cavity east base. 40% hollow lower trunk with large heavy canopy above, weak attachment. overextended lateral branch north towards road. good canopy structure. good foliage vigor. low overall vigor.**
4853		**Valley Oak**	***Quercus lobata***	**32**		**54**	**44**	**3 Fair - Minor Problems**		**good base, unbalanced east. codom at 7'. slightly swollen trunk west at 6'. multiple 4 to 6" canopy branch failers. moderately sparse foliage in top of canopy. good/fair vigor.**
4854		**Valley Oak**	***Quercus lobata***	**23**		**54**	**32**	**2 Major Structure or Health Problems**		**swollen base, concrete chunks west. closing wounds on trunk. canopy leans southwest. open 10" cavity on trunk at 18', faces upward, weak apical trunk at mid point. fair/low vigor.**
4855		Valley Oak	*Quercus lobata*	8		54	13	3 Fair - Minor Problems		good base, structure and vigor.
4856		Valley Oak	*Quercus lobata*	9		54	16	2 Major Structure or Health Problems		good base, fair/poor structure. understory, high amount of epicormic growth on trunks. small/medium canopy branch failers. moderately damaged foliage..fair/low vigor.
4857		Valley Oak	*Quercus lobata*	10		54	19	2 Major Structure or Health Problems		good base and structure. slight understory structure. high amount of epicormic growth on trunk and canopy. branch die back. fair vigor.
4858		Valley Oak	*Quercus lobata*	11		54	19	3 Fair - Minor Problems		4 closed wounds on base. flush cut 4" stub on east base. good structure and vigor. leans slightly west.
4859		Valley Oak	*Quercus lobata*	8		54	15	2 Major Structure or Health Problems		closed wounds on base and trunk. poor structure, understory. leans west. moderately damaged foliage throughout. fair/low vigor.
4860		Valley Oak	*Quercus lobata*	4		48	15	2 Major Structure or Health Problems		fair base. understory structure. poor trunk taper. fair vigor.
4861		Valley Oak	*Quercus lobata*	7		54	18	3 Fair - Minor Problems		good base and vigor. understory structure, leans west.
4862		Valley Oak	*Quercus lobata*	10		54	18	3 Fair - Minor Problems		good base, structure and vigor.
4863		Valley Oak	*Quercus lobata*	10		54	17	3 Fair - Minor Problems		good base, structure and vigor.

Tag #	Off Site	Species Common Name	Botanical Name	Calculated DBH (in.)	Multi-Stem	Measured at (in.)	Canopy Radius (ft.)	Arborist Rating	Dvlpmnt Status	Field Notes
4864		**Valley Oak**	***Quercus lobata***	**21**		**54**	**22**	**2 Major Structure or Health Problems**		**good base. roughly 9" closing wounds on trunk. unbalanced heavy canopy west. fair vigor.**
4865		Valley Oak	*Quercus lobata*	9		54	17	3 Fair - Minor Problems		good base. poor trunk taper. fair structure and vigor.
4866		Valley Oak	*Quercus lobata*	10		36	16	2 Major Structure or Health Problems		good base. swollen trunk below codom union at 5'. high amount of epicormic growth on trunk. fair/poor understory structure. branch die back. fair/low vigor.
4867		Valley Oak	*Quercus lobata*	10		54	15	2 Major Structure or Health Problems		good base. codom at 6'. sparse foliage, branch die back throughout. low vigor.
4868		Valley Oak	*Quercus lobata*	14		54	24	3 Fair - Minor Problems		good base. 2 closed 7' wounds on trunk. leans north. fair structure and vigor.
4869		Valley Oak	*Quercus lobata*	6		54	17	3 Fair - Minor Problems		good base. leans south. understory structure. good vigor.
4870		Valley Oak	*Quercus lobata*	7		36	14	2 Major Structure or Health Problems		fair base, slightly swollen. codom at 4'. swollen codom union. high amount of epicormic growth on stems. poor structure, crossing stems. branch die back. low vigor.
4871		Valley Oak	*Quercus lobata*	5		54	11	2 Major Structure or Health Problems		eroding root mat. sparse foliage, epicormic growth. low vigor.
4872		Valley Oak	*Quercus lobata*	6		54	18	3 Fair - Minor Problems		good base, structure and vigor. leans east. grows on slope.
4873		Valley Oak	*Quercus lobata*	4		54	12	3 Fair - Minor Problems		good base. understory structure. grows on slope. fair vigor.
4874		Valley Oak	*Quercus lobata*	7		54	13	3 Fair - Minor Problems		good base, structure and vigor.
4875		Valley Oak	*Quercus lobata*	9		12	10	3 Fair - Minor Problems		good base, structure and vigor. codom at 2'.
4876		Valley Oak	*Quercus lobata*	7		54	10	3 Fair - Minor Problems		good base. fair structure, stunted growth, crowded branches. good vigor.
4877		**Fremont Cotton-wood**	***Populus fremontii***	**69**		**54**	**31**	**2 Major Structure or Health Problems**		**fair base, varmint hole west. large tree with large canopy stem failers. fair foliage vigor. fair/low overall vigor.**
4878		Valley Oak	*Quercus lobata*	6		54	12	3 Fair - Minor Problems		good base, structure and vigor. slightly understory.
4879		**Valley Oak**	***Quercus lobata***	**30**		**54**	**40**	**3 Fair - Minor Problems**		**good base, structure and vigor.**

Tag #	Off Site	Species Common Name	Botanical Name	Calculated DBH (in.)	Multi-Stem	Measured at (in.)	Canopy Radius (ft.)	Arborist Rating	Dvlpmnt Status	Field Notes
4880		**Valley Oak**	***Quercus lobata***	**45**		**54**	**45**	**3 Fair - Minor Problems**		**good base, structure and vigor. leans moderately east. large east canopy lateral heavy lean.**
4881		**Valley Oak**	***Quercus lobata***	**36**		**54**	**39**	**3 Fair - Minor Problems**		**good base, structure and vigor. mature epicormic growth on trunk.**
4882		Valley Oak	*Quercus lobata*	10		54	16	3 Fair - Minor Problems		chicken wire around base, closing open 2 by 8" cavity on lower trunk east. good structure and vigor.
4883		Valley Oak	*Quercus lobata*	7		48	12	2 Major Structure or Health Problems		fair base. 20% dead bark on trunk at 4' north. poor understory structure. fair/low vigor.
4884		Valley Oak	*Quercus lobata*	8		54	11	2 Major Structure or Health Problems		good base. epicormic growth on trunk. 2 flush cuts on trunk northeast. understory structure. canopy branch die back.
4885		Valley Oak	*Quercus lobata*	15		36	27	3 Fair - Minor Problems		good base. leans heavy south. fair structure and vigor.
4886		**Valley Oak**	***Quercus lobata***	**25**		**36**	**26**	**3 Fair - Minor Problems**		**good base, structure and vigor. leans east.**
4887		Valley Oak	*Quercus lobata*	5		54	10	3 Fair - Minor Problems		good base, structure and vigor. small low lateral branches all around.
4888		Valley Oak	*Quercus lobata*	12		54	21	2 Major Structure or Health Problems		good base fair vigor. leans heavy northeast. poor structure.
4889		Valley Oak	*Quercus lobata*	21		54	31	3 Fair - Minor Problems		good base, structure and vigor.
4890		Valley Oak	*Quercus lobata*	14		54	17	3 Fair - Minor Problems		good base, structure and vigor.
4891		**Valley Oak**	***Quercus lobata***	**21**		**54**	**30**	**3 Fair - Minor Problems**		**good base, structure and vigor. codom at 9'.**
4892		Valley Oak	*Quercus lobata*	16		54	30	2 Major Structure or Health Problems		good base. multi stem at 7'. swollen closed flared inclusions below multi stem union. unbalanced canopy east. poor structure. fair vigor.
4893		Valley Oak	*Quercus lobata*	16		54	28	2 Major Structure or Health Problems	Remove	unbalanced base on mound, signs of being partially uprooted. leans west. fair structure and vigor.
4894		**Valley Oak**	***Quercus lobata***	**25**		**54**	**34**	**3 Fair - Minor Problems**		**good base. codom at 4'. long overextended canopy trunks lean west.**
4895		Valley Oak	*Quercus lobata*	6		54	11	3 Fair - Minor Problems	Remove	good base, structure and vigor.
4896		Valley Oak	*Quercus lobata*	11		54	16	2 Major Structure or Health Problems	Remove	fair base. abnormal flat trunk structure. high amount of epicormic growth. branch die back in canopy. fair/low vigor. red x on trunk..

Tag #	Off Site	Species Common Name	Botanical Name	Calculated DBH (in.)	Multi-Stem	Measured at (in.)	Canopy Radius (ft.)	Arborist Rating	Dvlpmnt Status	Field Notes
4897		Valley Oak	*Quercus lobata*	8		54	15	2 Major Structure or Health Problems	Remove	fair base. high amount of epicormic growth. branch die back in canopy. fair/low vigor. red x on trunk.
4898		Valley Oak	*Quercus lobata*	14	14,14	54	20	3 Fair - Minor Problems	Impacted	Added 6/14/22
4899		Valley Oak	*Quercus lobata*	14	14,14	54	20	2 Major Structure or Health Problems	Impacted	Added 6/14/22

Appendix 3
General Practices for Tree Protection

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 large valley oaks and coast live oaks is quite thick, usually 1" to 2". If the bark is knocked off a tree, the inner bark, or cambial region, is exposed or removed. The cambial zone is the area of tissue responsible for adding new layers to the tree each year, so by removing it, the tree can only grow new tissue from the edges of the wound. In addition, the wood of the tree is exposed to decay fungi, so the trunk present at the time of the injury 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 to individual trees and a Project Arborist is hired to oversee the construction. The Project Arborist should have the ability to enforce the Protection Measures. The Project Arborist should be hired as soon as possible to assist in design and to become familiar with the project. He must be able to read and understand the project drawings and interpret the specifications. He should also have the ability to cooperate with the contractor, incorporating the contractor's ideas on how to accomplish the protection measures, wherever possible. It is advisable for the Project Arborist to be present at the Pre-Bid tour of the site, 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 underneath the tree's canopy (out to the dripline, or edge of the canopy), plus 10'. The Project Arborist must approve work within the RPZ.

Irrigate, Fertilize, Mulch: Prior to grading on the site near any tree, 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.[5]

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.

[5] 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.

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.

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. If longer term monitoring is required, the arborist should report this to the developer and the planning agency overseeing the project.

Appendix 4
Site Photographs

Arrow: Elderberry Shrub

Photos #1 & 2. Tree #4894 and location of Elderberry.

Photo #3. Heritage Tree #4880. Risk Evaluation is recommended if this tree is to remain on the site.

Photo #4. Tree #4893: Uprooted Tree, proposed removal

Photo #5. Trees which will be impacted the the driveway.