



California Tree and Landscape Consulting, Inc.

February 20, 2020

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Via Email: jzawidski@hotmail.com

PROPERTY TRANSITION ARBORIST REPORT

RE: Arborist Report and Tree Inventory for Fiddymment Farms, Unit 17 Project Site
City of Roseville, California

Executive Summary:

Signature Homes, Inc. contacted California Tree and Landscape Consulting, Inc. to document the trees on the property for a better understanding of the existing resource and any potential improvement obstacles that may arise. Signature Homes, Inc. requested an arborist report and tree inventory updates and impact assessment for the property located at Fiddymment Farms, Unit 17, suitable for submittal to the City of Roseville. This is an Updated Arborist Report and Tree Inventory for the filing of plans to develop the property.

Ed Stirtz, ISA Certified Arborist WE0510A, visited the property on February 17, 2020, to provide updated species identification, measurements of DBH and canopy, field condition notes, recommended actions, ratings, and approximate locations for the trees. A total of 26 trees were evaluated on this property, of which 26 are protected trees according to the City of Roseville's Municipal Code. Chapter 19.66, Tree Preservation, defines a "Protected Tree" as any native oak tree equal to or greater than 6 inches diameter at breast height (DBH) measured as a total of a single trunk or multiple trunks. The purpose of this field reconnaissance effort was to identify, inventory, and comment upon the current structure and vigor of the "protected trees" located within and/or overhanging the project site.

The vegetation on site includes those native oak trees as identified in the inventory and three to five other substandard size oak trees 1" to 2" diameter range.

TABLE 1

Tree Species	Trees on this Site	Protected Trees on the Site	Proposed for Removal for Development	Total Proposed for Retention
Blue Oak	13	13	11	2
Interior Live Oak	10	10	7	3
Valley Oak	3	3	2	1
TOTALS	26	26	20	6



ASSIGNMENT

Perform an examination of the site to document the presence and condition of trees protected by the City of Roseville. The “study area” for this effort includes the area as depicted on “The Plaza at Blue Oaks” preliminary tree impact plan prepared by TSD Engineering, Inc., dated February 5, 2020. (All trees protected by the City are included in the inventory.) Prepare a report of findings.

METHODS

Appendix 2 and Tables 1, 2 and 3 in this report are the detailed inventory and recommendations for the trees. The following terms and Table A – Ratings Descriptions will further explain our findings.

Species of trees is listed by our local common name and botanical name by genus and species.

DBH (diameter breast high) is normally measured at 4’6” (54” above the average ground, height but if that varies then the location where it is measured is noted here. A steel diameter tape was used to measure the trees.

Canopy radius is measured in feet. It is the farthest extent of the crown composed of leaves and small twigs measured by a Stanley digital distance meter. This measurement often defines the Critical Root Zone (CRZ) or Protection Zone (PZ), which is a circular area around a tree with a radius equal to this measurement.

Actions listed are recommendations to improve health or structure of the tree. Trees in public spaces require maintenance. If a tree is to remain and be preserved, then the tree may need some form of work to reduce the likelihood of failure and increase the longevity of the tree. Preservation requirements and actions based on a proposed development plan are not included here.

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

Table A – Ratings Descriptions

No problem(s)	5	excellent
No apparent problem(s)	4	good
<u>Minor problem(s)</u>	<u>3</u>	<u>fair</u>
Major problem(s)	2	poor
Extreme problem(s)	1	hazardous, non-correctable
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 indicate the health, structure and environment of the tree and explain why the tree should be removed or preserved. Additional notes may indicate if problems are minor, extreme or correctible.

Remove is the recommendation that the tree be removed. The recommendation will normally be based either on poor structure or poor health and is indicated as follows:

Yes H – Tree is unhealthy

Yes S – Tree is structurally unsound

OBSERVATIONS AND CONCLUSIONS

The site is a partially developed commercial site in northwest Roseville. The east side of the site has been rough graded and has annual grasses and a single oak (#1535). The western portion of the site has two patches of oak trees, which are both well below the surrounding grade and on two sides of both patches are City arterial streets.

Development impacts to the two trees proposed to be retained in the south patch will sustain moderate impacts and are anticipated to adjust to the proposed site changes. The trees to be retained in the north patch will be subjected to some amount of summer irrigation runoff. It is difficult to say with any certainty if this will prove detrimental to the trees. It may, and it may be that the trees adjust and adapt to the presence of additional summer moisture.

Below is a summary of tree condition by Arborist Rating and Species.

TABLE 2

# Trees	Common Name	DBH	Canopy Radius	Arborist Rating	Defects Found	Retain/Remove?
1	Blue Oak	28	33	1 Extreme Structure or Health Problems	Old callusing trunk, west side, 9' above grade with interior decay; slightly out of balance east; above average amount of deadwood.	1 Remove
1	Interior Live Oak	35	38	1 Extreme Structure or Health Problems	Old callusing basal trunk wound, north side; moderate to significant decay; out of balance north; slightly above average amount of deadwood.	1 Remove
1	Valley Oak	57	39	1 Extreme Structure or Health Problems	Numerous large scaffold failures, with resulting decay; scaffold limb failure, north side, resulting in a large callusing wound reaching from 2'-20' above grade, with moderate interior decay; above average amount of deadwood.	1 Remove

# Trees	Common Name	DBH	Canopy Radius	Arborist Rating	Defects Found	Retain/Remove?
1	Blue Oak	24	25	2 Major Structure or Health Problems	Measured 2' above grade. Old callusing trunk wound, south side, at point of limb failure, with interior decay; above average amount of deadwood.	1 Retain
11	Blue Oak	8-45	9-39	3 Fair - Minor Problems	See Tree Inventory.	11 Retain
9	Interior Live Oak	17-53	16-32	3 Fair - Minor Problems	See Tree Inventory.	9 Retain
2	Valley Oak	13-16	16-17	3 Fair - Minor Problems	Out of balance northwest.	1 Retain
26 TOTAL						3 Remove 23 Retain

RECOMMENDED REMOVALS

At this time, 3 trees (totaling 120 aggregate diameter inches) have been recommended for removal from the proposed project area due to the nature and extent of defects, compromised health, and/or structural instability noted at the time of field inventory efforts. If these trees were retained within the proposed project area, it is our opinion that they may be hazardous depending upon their proximity to planned development activities. For reference, the trees which have been recommended for removal due to the severity of noted defects, compromised health, and/or structural instability are highlighted in green within the accompanying Tree Inventory Summary and are briefly summarized as follows:

TABLE 3

Tag #	Protected By Code	Common Name	Species	Multi-Stems (inches)	DBH (inches)	Measured At	Measured Canopy Radius (feet)	Arborist Rating
1514	Yes	Blue Oak	<i>(Quercus douglasii)</i>		28	54	33	1 Extreme Structure or Health Problems
1539	Yes	Valley Oak	<i>(Quercus lobata)</i>		57	54	39	1 Extreme Structure or Health Problems
1540	Yes	Interior Live Oak	<i>(Quercus wislizeni)</i>	14,21	35	54	38	1 Extreme Structure or Health Problems

Trees numbered 1510, 1513, 1521, 1523, 1533, 1562, 1563 and 1564 were all identified as having failed and being in down and dead condition. Some of these trees were identified as down in previous updates and all have been removed from the improvement plans.

CONSTRUCTION REMOVALS

At this time, 20 trees (totaling 535 aggregate diameter inches) have been recommended for construction removal from the proposed project area. Those trees are briefly summarized as follows:

Tree #	Common Name	Species	Multi-Stems (inches)	Total DBH (inches)	DLR (feet)	Structure	Vigor
1522	Blue Oak	<i>(Quercus douglasii)</i>		18	22	Fair	Fair
1528	Blue Oak	<i>(Quercus douglasii)</i>		17	24	Poor to fair	Poor to fair
1529	Blue Oak	<i>(Quercus douglasii)</i>		26	32	Poor to fair	Fair
1530	Blue Oak	<i>(Quercus douglasii)</i>		27	33	Poor to fair	Fair
1531	Blue Oak	<i>(Quercus douglasii)</i>		24	31	Poor to fair	Fair
1532	Blue Oak	<i>(Quercus douglasii)</i>		8	9	Poor	Fair
1534	Blue Oak	<i>(Quercus douglasii)</i>		21	30	Poor	Fair
1535	Blue Oak	<i>(Quercus douglasii)</i>		14	17	Fair	Fair
1536	Interior Live Oak	<i>(Quercus wislizeni)</i>		21	22	Fair	Fair
1537	Blue Oak	<i>(Quercus douglasii)</i>		26	31	Fair	Fair
1538	Blue Oak	<i>(Quercus douglasii)</i>		45	37	Fair	Fair
1539	Valley Oak	<i>(Quercus lobata)</i>		57	39	Poor	Fair
1540	Interior Live Oak	<i>(Quercus wislizeni)</i>	14,21	35	38	Poor	Fair
1541	Blue Oak	<i>(Quercus douglasii)</i>		25	39	Fair	Fair
1542	Valley Oak	<i>(Quercus lobata)</i>		13	16	Poor to fair	Fair
1543	Interior Live Oak	<i>(Quercus wislizeni)</i>	12,12,13	37	32	Poor to fair	Fair
1544	Interior Live Oak	<i>(Quercus wislizeni)</i>	12,20,21	53	32	Poor to fair	Fair
1545	Interior Live Oak	<i>(Quercus wislizeni)</i>		21	29	Poor to fair	Fair
1559	Interior Live Oak	<i>(Quercus wislizeni)</i>		26	26	Poor to fair	Fair
1563	Interior Live Oak	<i>(Quercus wislizeni)</i>		21	32	Poor	Fair

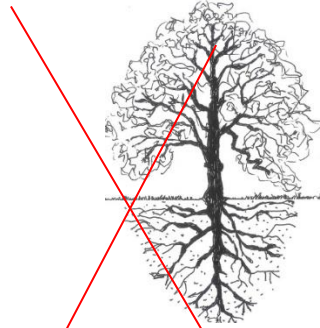
DISCUSSION

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 County ordinance requirements, so as to enhance tree longevity. This requires their root zones remain intact and viable, despite heavy equipment being on site, and the need to install foundations, driveways, underground utilities, and landscape irrigation systems. Simply walking and driving on soil has serious consequences for tree health.

Following is a summary of Impacts to trees during construction and Tree Protection measures that should be incorporated into the site plans in order to protect the trees. Once the plans are approved, they become the document that all contractors will follow. ***The plans become the contract between the owner and the contractor, so that only items spelled out in the plans can be expected to be followed. Hence, all protection measures, such as fence locations, mulch requirements and root pruning specifications must be shown on the plans.***

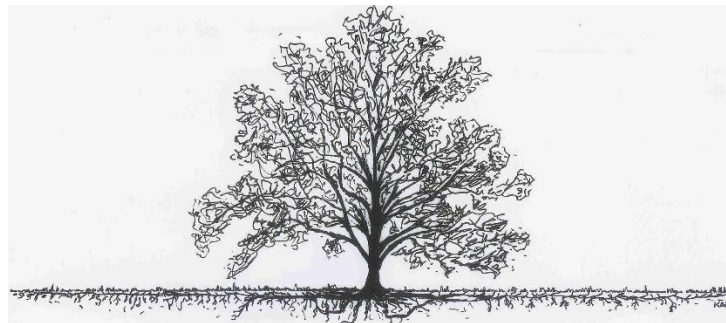
Root Structure

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 (see Drawing A below). The correct root structure of a tree is in Drawing B. All plants' roots need both water and air for survival. Surface roots are a common phenomenon with trees grown in compacted soil. Poor canopy development or canopy decline in mature trees is often the result of inadequate root space and/or soil compaction.



Drawing A

Common misconception of where tree roots are assumed to be located



Drawing B

The reality of where roots are generally located

Structural Issues

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

Dominant Tree

Growth is upright

Canopy is balanced by limbs and foliage equally

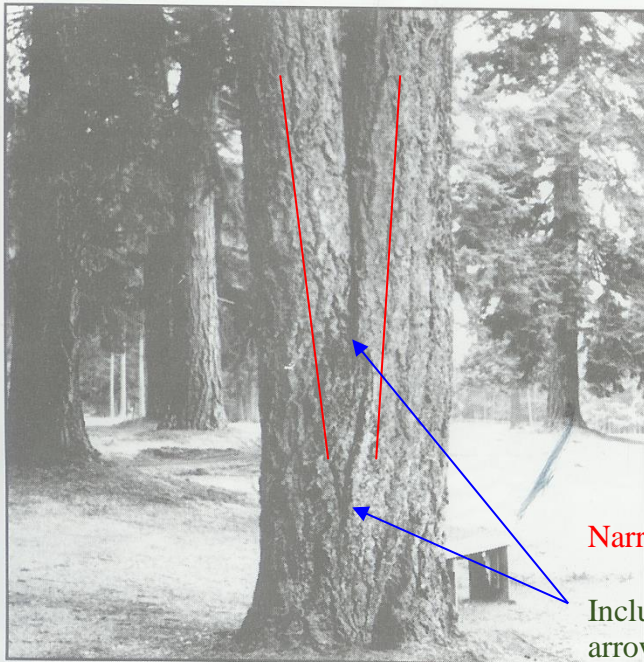


Suppressed Tree

Canopy weight all to one side

Limbs and foliage grow away from dominant tree

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



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

Narrow Angle

Included Bark between the arrows

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

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

Pruning Mature Trees for Risk Reduction

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. 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.

Pruning causes an open wound in the tree. Trees do not “heal” they compartmentalize. 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 with advanced decay are a likely failure point. Mature trees with large wounds are a high failure risk.

Overweight limbs are a common structural fault in suppressed trees. There are two remedial actions for overweight 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 require annual inspection.



Photo of another tree – not at this site.

Normal limb structure

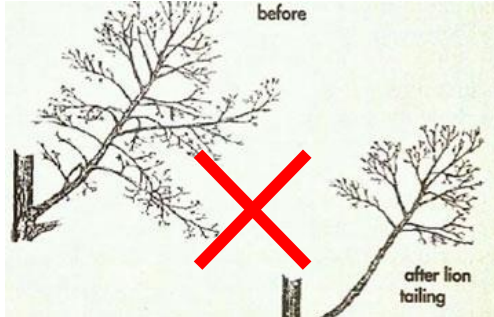
Over weight, reaching limb with main stem diameter small compared with amount of foliage present



Photo of another tree – not at this site

Lion's – Tailing is the pruning practice of removal of “an excessive number of inner and/or lower lateral branches from parent branches. Lion's tailing is not an acceptable pruning practice” ANSI A300 (part 1) 4.23. It increases the risk of failure.

Pruning – Cutting back trees changes their natural structure, while leaving trees in their natural form enhances longevity.



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, but they do not necessarily know anything about trees;

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

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

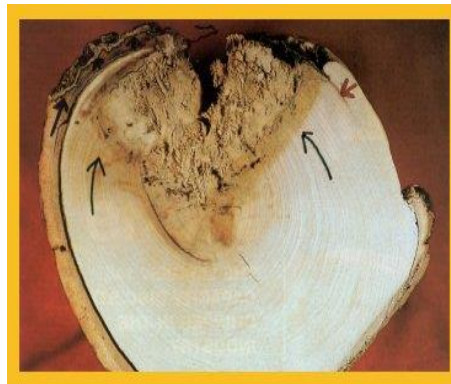
Consulting Arborist: An American Society of Consulting Arborists Registered Consulting Arborist is someone who has been trained and tested to have specialized knowledge of trees and trained and tested to provide high quality reports and documentation. You can look up registered consulting arborists at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

Decay in Trees

Decay (in General): Fungi cause all decay of living trees. Decay is considered a disease because cell walls are altered, wood strength is affected, and living sapwood cells may be killed. Fungi decay wood by secreting enzymes. Different types of fungi cause different types of decay through the secretion of different chemical enzymes. Some decays, such as white rot, cause less wood strength loss than others because they first attack the lignin (causes cell walls to thicken and reduces susceptibility to decay and pest damage) secondarily the cellulose (another structural component in a cell walls). Others, such as soft rot, attack the cellulose chain and cause substantial losses in wood strength even in the initial stages of decay. Brown rot causes wood to become brittle and fractures easily with tension. Identification of internal decay in a tree is difficult because visible evidence may not be present.



According to Evaluation of Hazard Trees in Urban Areas (Matheny, 1994) decay is a critical factor in the stability of the tree. As decay progresses in the trunk, the stem becomes a hollow tube or cylinder rather than a solid rod. This change is not readily apparent to the casual observer. Trees require only a small amount of bark and wood to transport water, minerals and sugars. Interior heartwood can be eliminated (or degraded) to a great degree without compromising the transport process. Therefore, trees can contain significant amounts of decay without showing decline symptoms in the crown.



additional cells. The weakest of the vertical wall. Accordingly, decay progression inward at large are more than one pruning cut trunk of the tree, the likelihood of decay progression and the associated structural loss of integrity of the internal wood is high.

Compartmentalization of decay in trees is a biological process in which the cellular tissue around wounds is changed to inhibit fungal growth and provide a barrier against the spread of decay agents into the barrier zones is the formation of while a tree may be able to limit pruning cuts, in the event that there located vertically along the main

Oak Tree Impacts

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

RECOMMENTATIONS: SUMMARY OF TREE PROTECTION MEASURES

Hire a Project Arborist to help ensure protection measures are incorporated into the site plans and followed. The Project Arborist should, in cooperation with the Engineers and/or Architects:

- Identify the Root Protection Zones on the final construction drawings, prior to bidding the project.
- Show the placement of tree protection fences, as well as areas to be irrigated, fertilized and mulched on the final construction drawings.
- Clearly show trees for removal on the plans and mark them clearly on site. A Contractor who is a Certified Arborist should perform tree and stump removal. 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:
 1. Irrigate (if needed) and place a 3" layer of chip mulch over the protected root zone of all trees that will be impacted.
 2. Erect Tree Protection Fences. Place boards against trees located within 3' of construction zones, even if fenced off.
 3. Remove 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, performed by a contractor who is an ISA Certified Arborist.
- For cuts, expose roots by hand digging, potholing or using an air spade and then cut roots cleanly prior to further grading outside the tree protection zones.
- For fills, if a cut is required first, follow as for cuts.
- Where possible, specify geotextile fabric in lieu of compacting and root cutting, prior to placing fills on the soil surface. Any proposed retaining wall or fill soil shall be discussed with the engineer and arborist in order to reduce impacts to trees to be preserved.
- 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.
- Design utility and irrigation trenches to minimize disturbance to tree roots. Where possible, dig trenches with a hydraulic or air spade, placing pipes underneath the roots, or bore the 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.

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 minim 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.

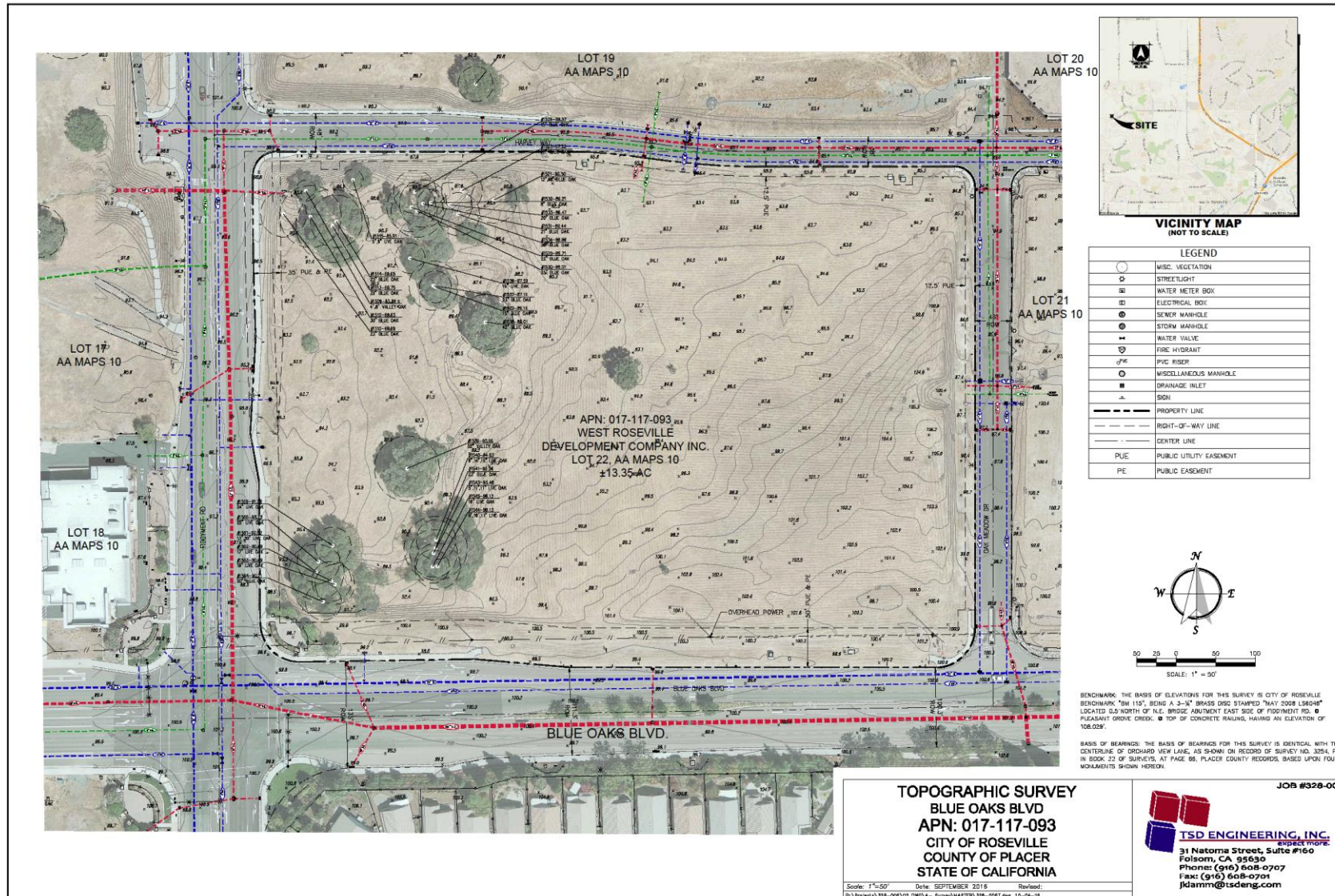
Report Prepared by:



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International Society of Arboriculture
Certified Arborist WE-0510A
ISA Tree Risk Assessment Qualified
Member, American Society of Consulting Arborists

Enc.: Appendix 1 – Map of The Property Showing Tree Locations
Appendix 2 – Tree Information Collected
Appendix 3 – General Practices for Tree Protection

APPENDIX 1 – MAP OF THE PROPERTY SHOWING TREE LOCATIONS



APPENDIX 2 – TREE INFORMATION COLLECTED

Tree #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT						ARBORIST RATING	NOTABLE CHARACTERISTICS	PERCEIVED IMPACTS	RECOMMENDATIONS	Construction Removal Mitigation Inches
						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR					
1509	Valley Oak	<i>(Quercus lobata)</i>		16	17	Fair	Fair	Fair	Dormant	Fair	Fair	3 Fair - Minor Problems		No encroachment depicted.	None at this time.	
1512	Blue Oak	<i>(Quercus douglasii)</i>		24	25	Fair	Poor to fair	Fair	Dormant	Poor to fair	Fair	2 Major Structure or Health Problems	AKA Tree 931 Measured 2' above grade. Old callusing trunk wound, south side, at point of limb failure, with interior decay; above average amount of deadwood.	Minor to negligible encroachment for retaining wall construction south side.	Perform decay detection and provide further recommendations. If retained, any excavation for retaining wall footings shall be monitored by the project arborist. May require root pruning. Will require canopy pruning.	
1514	Blue Oak	<i>(Quercus douglasii)</i>		28	33	Fair	Poor to fair	Fair	Dormant	Poor to fair	Fair	1 Extreme Structure or Health Problems	AKA Tree 929 Old callusing trunk, west side, 9' above grade with interior decay; slightly out of balance to the east; above average amount of deadwood.	Arborist's tree removal.	Recommend removal due to nature and extent of noted defects	
1515	Interior Live Oak	<i>(Quercus wislizenii)</i>		17	16	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair	3 Fair - Minor Problems	Measured 1.5' above grade; trunk forks 2' above grade into codominant stems which then graft 6'-9' above grade; slightly above average amount of deadwood.	Minor to negligible encroachment for retaining wall construction south side.	Excavation for retaining wall footings shall be monitored by the project arborist. Root pruning may be necessary.	

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						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR					
1522	Blue Oak	<i>(Quercus douglasii)</i>		18	22	Fair	Fair	Fair	Dormant	Fair	Fair	3 Fair - Minor Problems	AKA Tree 917 Above average amount of deadwood.	Tree removal.	None at this time.	18
1528	Blue Oak	<i>(Quercus douglasii)</i>		17	24	Fair	Poor to fair	Poor to fair	Dormant	Poor to fair	Poor to fair	3 Fair - Minor Problems	AKA Tree 927 Out of balance to the south; above average amount of deadwood; poor bud formation.	Tree removal.	None at this time.	17
1529	Blue Oak	<i>(Quercus douglasii)</i>		26	32	Fair	Poor to fair	Poor to fair	Dormant	Poor to fair	Fair	3 Fair - Minor Problems	AKA Tree 926 Out of balance to the west; above average amount of deadwood; sprout growth on the larger wood.	Tree removal.	None at this time.	26
1530	Blue Oak	<i>(Quercus douglasii)</i>		27	33	Fair	Poor to fair	Fair	Dormant	Poor to fair	Fair	3 Fair - Minor Problems	AKA Tree 925 Slightly out of balance to the south; above average amount of deadwood.	Tree removal.	None at this time.	27
1531	Blue Oak	<i>(Quercus douglasii)</i>		24	31	Fair	Poor to fair	Poor to fair	Dormant	Poor to fair	Fair	3 Fair - Minor Problems	AKA Tree 924 Out of balance to the east; above average amount of deadwood.	Tree removal.	None at this time.	24
1532	Blue Oak	<i>(Quercus douglasii)</i>		8	9	Poor	Poor to fair	Poor to fair	Dormant	Poor	Fair	3 Fair - Minor Problems	Past partial root system failure, partially on grade.	Tree removal.	None at this time.	8
1534	Blue Oak	<i>(Quercus douglasii)</i>		21	30	Poor	Poor	Poor	Dormant	Poor	Fair	3 Fair - Minor Problems	AKA Tree 922 Tree suffered a partial root system failure in the past and is lying on grade to the south; above average amount of deadwood.	Tree removal.	None at this time.	21

Tree #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT						ARBORIST RATING	NOTABLE CHARACTERISTICS	PERCEIVED IMPACTS	RECOMMENDATIONS	Construction Removal Mitigation Inches
						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR					
1535	Blue Oak	<i>(Quercus douglasii)</i>		14	17	Fair	Fair	Fair	Dormant	Fair	Fair	3 Fair - Minor Problems	AKA Tree 919 Out of balance to the east; slightly above average amount of deadwood.	Tree removal.	None at this time.	14
1536	Interior Live Oak	<i>(Quercus wislizeni)</i>		21	22	Fair	Fair	Poor to fair	Fair	Fair	Fair	3 Fair - Minor Problems	AKA Tree 918 Old callusing lower trunk wounds, north side, with minor decay; slightly above average amount of deadwood.	Tree removal.	None at this time.	21
1537	Blue Oak	<i>(Quercus douglasii)</i>		26	31	Fair	Poor	Poor to fair	Dormant	Fair	Fair	3 Fair - Minor Problems	AKA Tree 916 Out of balance to the west; inherently weak primary crotch; slightly above average amount of deadwood.	Tree removal.	None at this time.	26
1538	Blue Oak	<i>(Quercus douglasii)</i>		45	37	Fair	Fair	Fair	Dormant	Fair	Fair	3 Fair - Minor Problems	AKA Tree 915 Root crown and some buttresses exposed from bank erosion on the northwest side; above average amount of deadwood.	Tree removal.	None at this time.	45

Tree #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT						ARBORIST RATING	NOTABLE CHARACTERISTICS	PERCEIVED IMPACTS	RECOMMENDATIONS	Construction Removal Mitigation Inches
						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR					
1539	Valley Oak	<i>(Quercus lobata)</i>		57	39	Fair	Poor	Poor to fair	Dormant	Poor	Fair	1 Extreme Structure or Health Problems	AKA Tree 913 Numerous large scaffold failures, with resulting decay; scaffold limb failure, north side, resulting in a large callusing wound reaching from 2'-20' above grade, with moderate interior decay; above average amount of deadwood.	Arborist's tree removal.	Recommend removal due to nature and extent of noted defects	57
1540	Interior Live Oak	<i>(Quercus wislizeni)</i>	14,21	35	38	Poor	Poor	Poor to fair	Fair	Poor	Fair	1 Extreme Structure or Health Problems	AKA Tree 911 Old callusing basal trunk wound, north side; moderate to significant decay; out of balance to the north; slightly above average amount of deadwood.	Arborist's tree removal.	Recommend removal due to nature and extent of noted defects	35
1541	Blue Oak	<i>(Quercus douglasii)</i>		25	39	Poor to fair	Poor to fair	Fair	Fair	Fair	Fair	3 Fair - Minor Problems	AKA Tree 910 Buttress roots exposed due to bank erosion; out of balance east; slightly above average amount of deadwood.	Tree removal.	Clean out crown and perform weight/size reduction pruning.	25
1542	Valley Oak	<i>(Quercus lobata)</i>		13	16	Fair	Poor to fair	Fair	Dormant	Poor to fair	Fair	3 Fair - Minor Problems	Out of balance northwest.	Tree removal.	None at this time.	13

Tree #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT						ARBORIST RATING	NOTABLE CHARACTERISTICS	PERCEIVED IMPACTS	RECOMMENDATIONS	Construction Removal Mitigation Inches
						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR					
1543	Interior Live Oak	<i>(Quercus wislizeni)</i>	12,12,13	37	32	Poor to fair	Poor to fair	Fair	Fair	Poor to fair	Fair	3 Fair - Minor Problems	AKA Tree 909 Out of balance south; old callusing wounds in various locations on the scaffold branches, with minor decay evident.	Tree removal.	<i>Clean out crown and perform weight/size reduction pruning.</i>	37
1544	Interior Live Oak	<i>(Quercus wislizeni)</i>	12,20,21	53	32	Poor to fair	Poor to fair	Fair	Fair	Poor to fair	Fair	3 Fair - Minor Problems	AKA Tree 908 Old callusing basal trunk wound, west side, with minor decay; out of balance east; slightly above average amount of deadwood.	Tree removal.	None at this time.	53
1545	Interior Live Oak	<i>(Quercus wislizeni)</i>		21	29	Poor to fair	Fair	Poor to fair	Fair	Poor to fair	Fair	3 Fair - Minor Problems	AKA Tree 907 Old callusing basal trunk wound, north side, with minor decay; out of balance south; slightly above average amount of deadwood.	Tree removal.	None at this time.	21
1559	Interior Live Oak	<i>(Quercus wislizeni)</i>		26	26	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair	3 Fair - Minor Problems	AKA Tree 902 Old callusing wounds, various locations, with no obvious decay; above average amount of deadwood.	Tree removal.	None at this time.	26

Tree #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT						ARBORIST RATING	NOTABLE CHARACTERISTICS	PERCEIVED IMPACTS	RECOMMENDATIONS	Construction Removal Mitigation Inches
						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR					
1560	Interior Live Oak	<i>(Quercus wislizeni)</i>		25	28	Fair	Fair	Fair	Fair	Fair	Fair	3 Fair - Minor Problems	AKA Tree 901	Moderate to significant encroachment from retaining wall construction 14' north of trunk.	<i>Excavation for retaining wall footings shall be monitored by the project arborist. Root pruning may be necessary.</i>	
1561	Interior Live Oak	<i>(Quercus wislizeni)</i>		40	30	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair	3 Fair - Minor Problems	AKA Tree 903 Measured 2' above grade; callusing on the south side; suspect interior decay; out of balance south; slightly above average amount of deadwood.	Minor to moderate encroachment from retaining wall construction 126'4" north of trunk.	<i>Excavation for retaining wall footings shall be monitored by the project arborist. Root pruning may be necessary.</i>	
1563	Interior Live Oak	<i>(Quercus wislizeni)</i>		21	32	Poor	Poor	Fair	Fair	Poor	Fair	3 Fair - Minor Problems	AKA Tree 905 Partial failure of the root system has left the tree growing prone on grade toward the south; terminal 15' is dead.	Tree removal.	None at this time.	21

TOTAL INVENTORIED TREES = 26 trees (685 aggregate diameter inches)

TOTAL RECOMMENDED REMOVALS = 3 trees (120 aggregate diameter inches)

PRECAUTIONARY TREES HIGHLIGHTED FOR REFERENCE

TOTAL CONSTRUCTION REMOVALS = 20 Trees (535 aggregate diameter inches)

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.¹

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.

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

¹ 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.

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.