

APPENDIX B
ARBORIST REPORT



California Tree and Landscape Consulting, Inc.

August 17, 2020

Marco Gabbiani
5330 Rio Linda LLC
C/O: Michael T Robertson
Baker-Williams Engineering Group
6020 Rutland Dr Suite 19
Carmichael, CA 95608
VIA Email: miker@bwengineers.com

PRELIMINARY ARBORIST REPORT & TREE INVENTORY

RE: 5330 Rio Linda Blvd., APN 226-0062-004-0000, 226-0062-011-0000, 226-0062-008-0000; City of Sacramento jurisdiction, California

Executive Summary:

Michael Robertson of Baker-Williams, on behalf of the property owner, contacted California Tree and Landscape Consulting, Inc. to inventory and evaluate the protected trees on the site or within 25' of development for purposes of evaluating the impacts to the trees from Robla Estates Tentative Subdivision Map by Baker-Williams, dated July 2020. The property is located at 5330 Rio Linda Blvd. and falls under the jurisdiction of the City of Sacramento. See Supporting Information Appendix A –Tree Location Maps and Site Plan.

Nicole Harrison, ISA Certified Arborist #WE-6500AM, and/or Dave Merchado, ISA Certified Arborist #WE-7311A were at the site from July 30th to August 14th 2020. A total of 46 trees are included in the inventory. 12 trees are located on the parcel or within the street right of way. 34 trees included in the survey are along the Sacramento Northern Bike Path and could be impacted by the development proposal. Not *all* the trees in along the bike path were included, only trees potentially impacted by the development of these parcels. See Appendix 4 – Site Photos.

Tree Species	Trees Inventoried	Trees located on the Parcel ¹	Protected by Sacramento City Tree Preservation Code	Proposed for Removal	Trees impacted by the proposed development and requiring special protection measures
Valley Oak, <i>Quercus lobata</i>	17	1	1 (Private Protected/Street)	TBD	TBD
Blue Oak, <i>Quercus douglasii</i>	2	2		TBD	TBD
Interior Live Oak, <i>Quercus wislizenii</i>	1	-			
Aleppo Pine, <i>Pinus halepensis</i>	6	-			-
Almond, <i>Prunus dulcis</i>	6	1			
Black Willow, <i>Salix nigra</i>	2	1	1 (Private Protected)		TBD
Chinese Evergreen Elm, <i>Ulmus parvifolia</i>	1	1	1 (Street Tree)	TBD	
Western Cottonwood, <i>Populus fremontii</i>	4	-	2 (Private Protected)	-	TBD
Oregon Ash, <i>Fraxinus latifolia</i>	1	1		TBD	
Tree of Heaven, <i>Ailanthus altissima</i>	6	5	2 (Street Tree)		
Total:	46	12	7		

See Appendices for specific information on each tree

¹ CalTLC is not a licensed land surveyor. Tree locations on the 'Tree Location Map' are approximate. Tree ownership was not legally determined.

Methods

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

No field tags were applied for this project.

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. All trees measured at ground level, noted by ‘0’ in the measured at column, were estimated due to irregularities in the shape at the ground. A steel diameter tape was used to measure the trees. 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 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.
- City #** The number assigned to the tree in the City of Sacramento Managed Trees map available online.
- 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 measured
- 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.
- 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.

<u>Arborist Ratings</u>			
No problem(s)	Excellent	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.
No apparent problem(s)	Good	4	The tree is in good condition and there are no apparent problems that a Certified Arborist can see from a visual ground inspection. If potential

			structural or health problems are tended to at this stage future hazard can be reduced and more serious health problems can be averted.
Minor problem(s)	Fair	3	The tree is in fair condition. There are some minor structural or health problems that pose no immediate danger. When the recommended actions in an arborist report are completed correctly the defect(s) can be minimized or eliminated.
Major problem(s)	Fair to Poor	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.
Extreme problem(s)	Poor	1	The problems are extreme. This rating is assigned to a tree that has structural and/or health problems that no amount of work or effort can change. The issues may or may not be considered a dangerous situation
Dead	Dead	0	This indicates a tree that has no significant sign of life

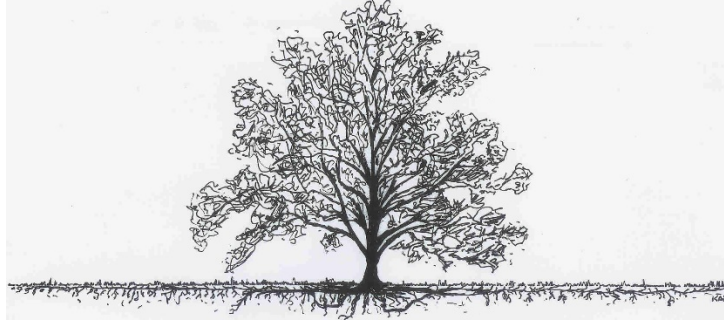
Notes: Provide notable details about each tree which are factors considered in the determination of the tree rating including: (a) condition of root crown and/or roots; (b) condition of trunk; (c) condition of limbs and structure; (d) growth history and twig condition; (e) leaf appearance; and (f) dripline 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.

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

Our native oak trees are easily damaged or killed by having the soil within the Protected Root Zone (PRZ) 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.

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: asca-consultants.org

RECOMMENDATIONS: Summary of Tree Protection Measures for Site Planning

The Owner and/or Developer should ensure the project arborist's protection measures are incorporated into the site plans and followed. Tree specific protection measures can be found in Appendix 2 – Tree Information Data.

- Identify the Root Protection Zones on the final construction drawings and show the placement of tree protection fencing pursuant to the arborists recommendation or county requirements.
- The project arborist should review the final construction drawings prior to submittal and identify the impacts to each tree and recommend actions to increase the likelihood of long term survival post construction.

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

Report Prepared by:



Nicole Harrison

ISA Certified Arborist #WC-6500AM, TRAQ

Member: American Society of Consulting Arborists

Appendix 1 – Tree Location Map/Development Site Plan

Appendix 2 – Tree Data and Tree Specific Recommendations

Appendix 3 – General Development Guidelines

Appendix 4 – Site Photos

Bibliography

International Society of Arboriculture. (2015). *Glossary of Arboricultural Terms*. Champaign: International Society of Arboriculture.
L.R., C. (2003). *Reducing Infrastructure Damage by Tree Roots*. Porterville: International Society of Arboriculture.

Matheny, J. C. (1994). *Evaluation of Hazard Trees in Urban Areas, Second Edition*. Champaign: International Society of Arboriculture.

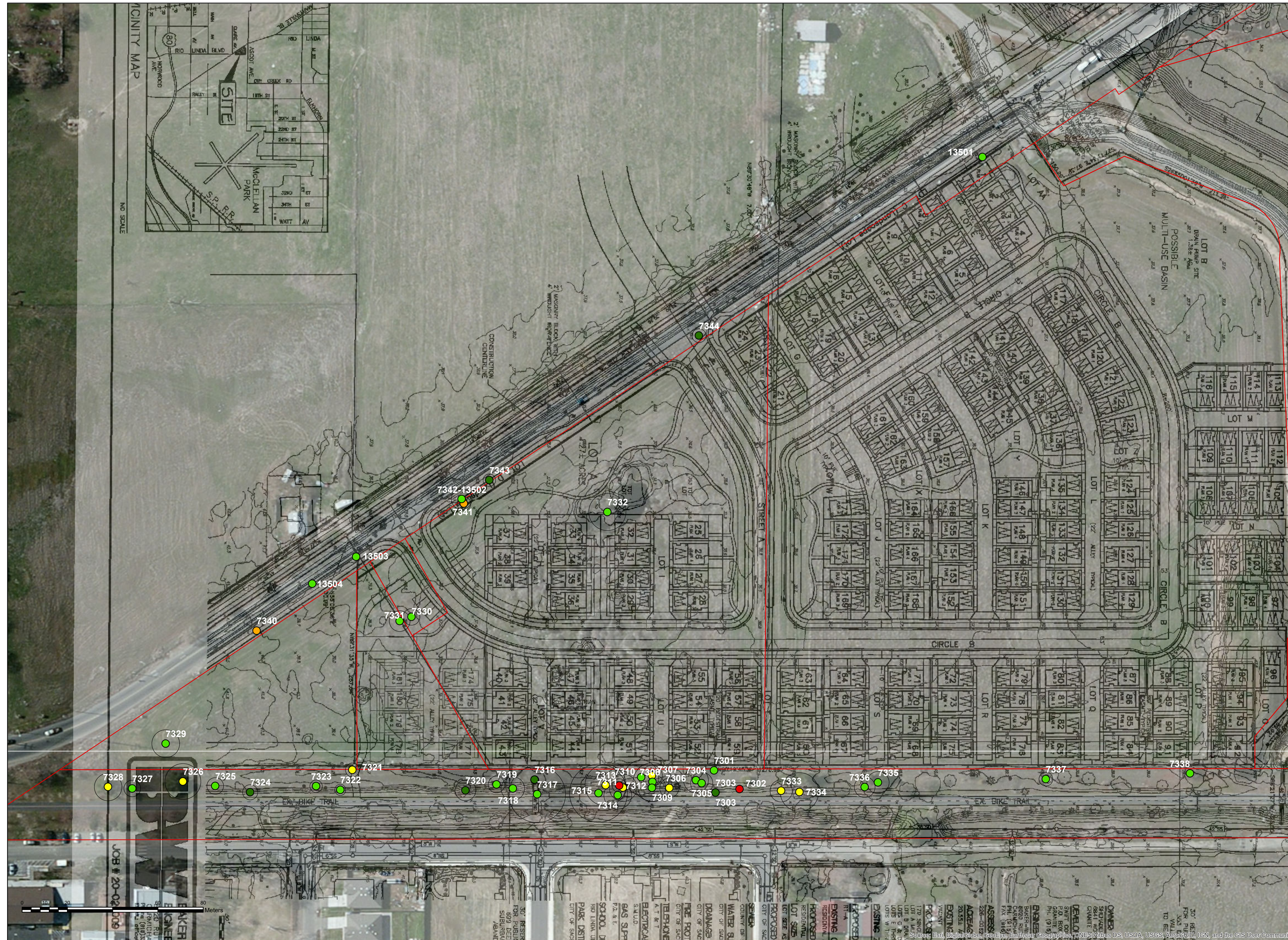
Menzer, K. (2008). *Consulting Arborist Report*.

Smiley. (2008). *Managing Trees During Construction, Best Management Practices*. Champaign: International Society of Arboriculture.

Stamen, R. (1997). *California Arboriculture Law*. Riverside: Law Offices of Randall S. Stamen.

Tree Care Industry Association. (2017). *Tree, Shrub, and Other Woody Plant Management - Standard Practices (Pruning)*. Londonderry: Tree Care Industry Association.

Urban, J. (2008). *Up by the Roots*. Champaign: International Society of Arboriculture.

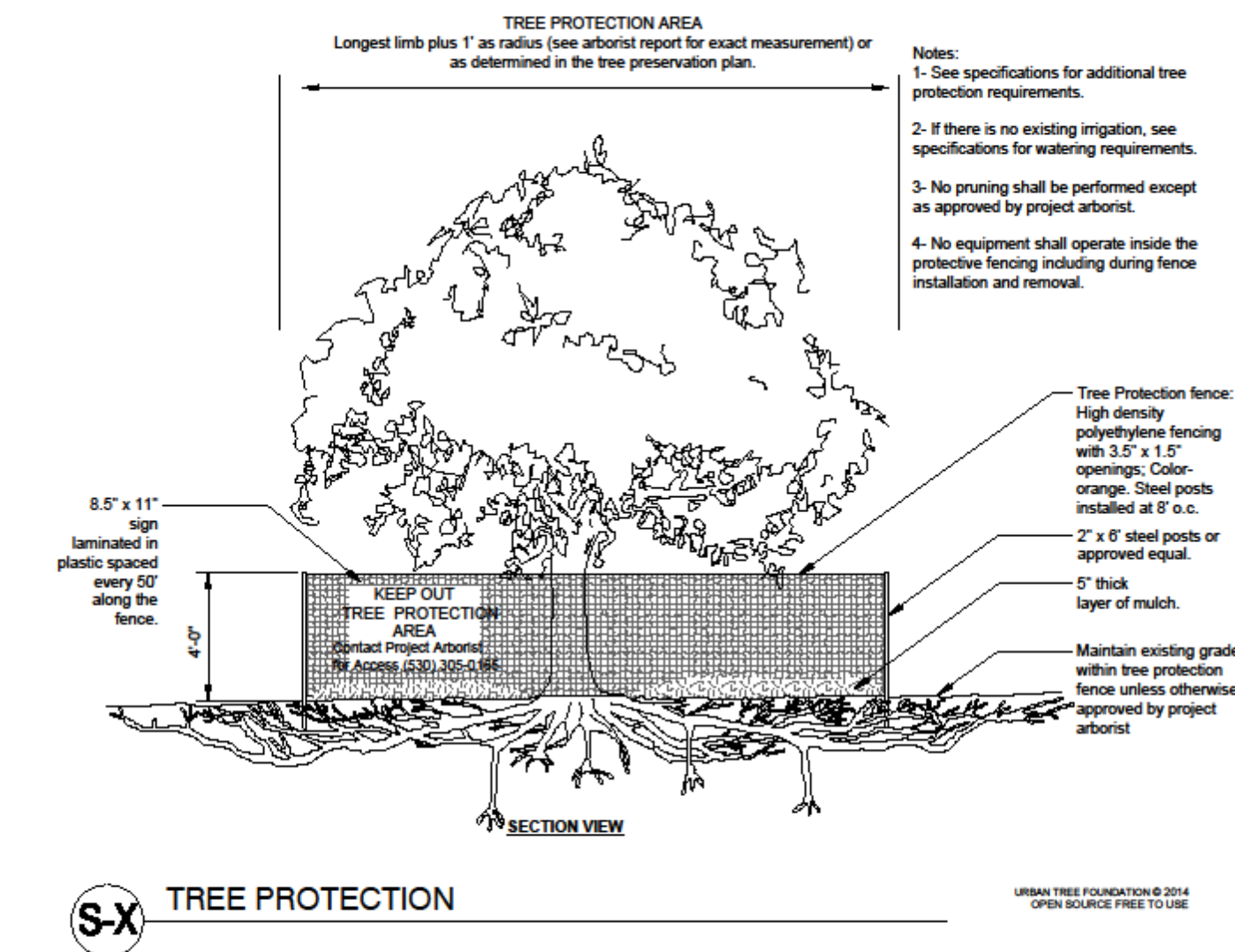


California Tree & Landscape Consulting, Inc.

1243 High Street
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.



Document Path: F:\Personal-net\CalTLC\Maps 2020\Rio Linda Blvd\RioLindaBlvd.mxd

**ALL TREES SURVEYED
LOCATION MAP**

>Tree locations are approximate and were collected using ISO apple products.
>Property line information was downloaded from Sacramento County on 08/12/2020.
>Development plans provided by Baker Williams Engineering Group dated 07/2020.

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

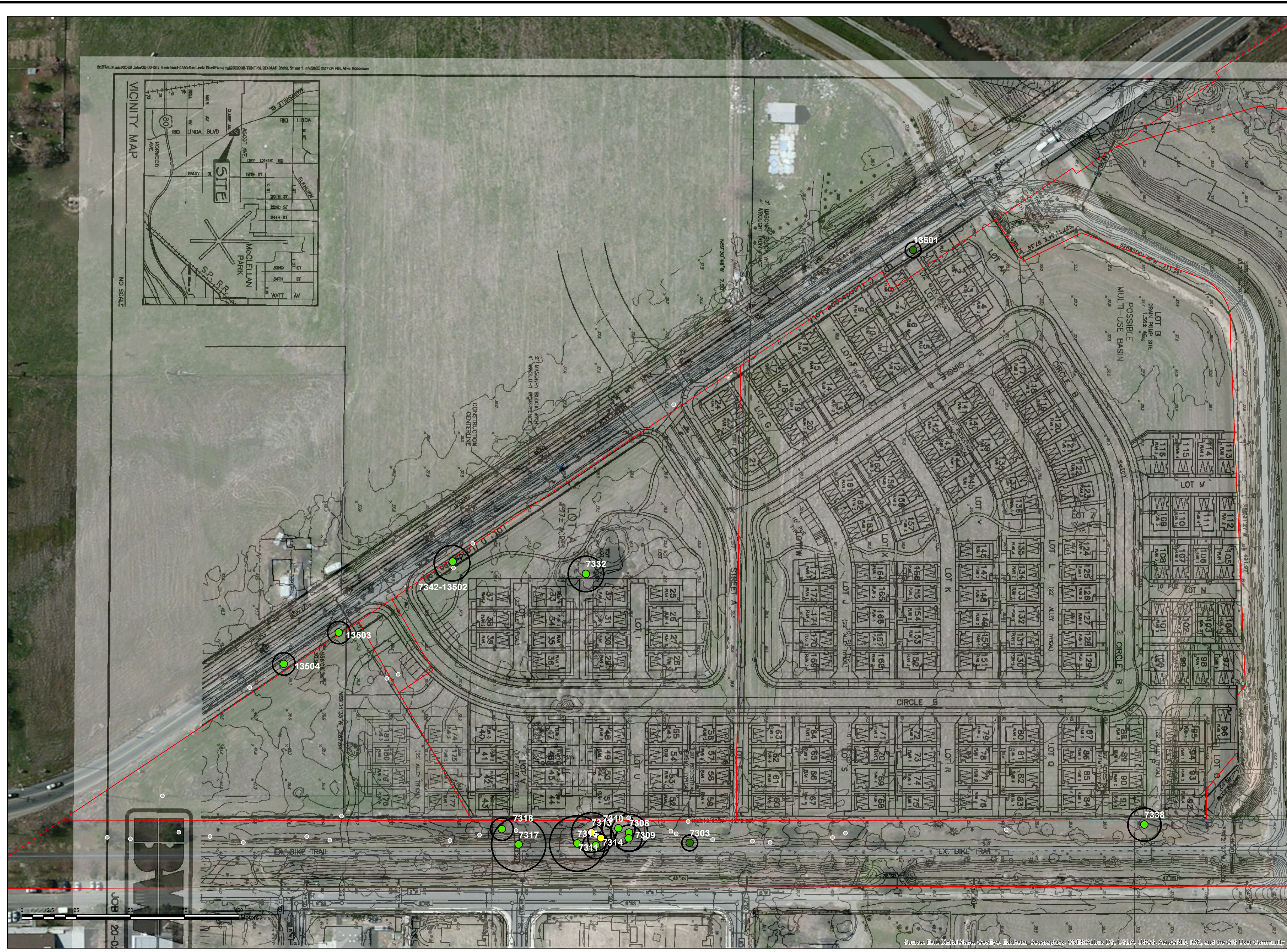


Sheet No.
TPP 1.0

ROBLA ESTATES

5330 Rio Linda Blvd
City of Sacramento, Sacramento County, CA

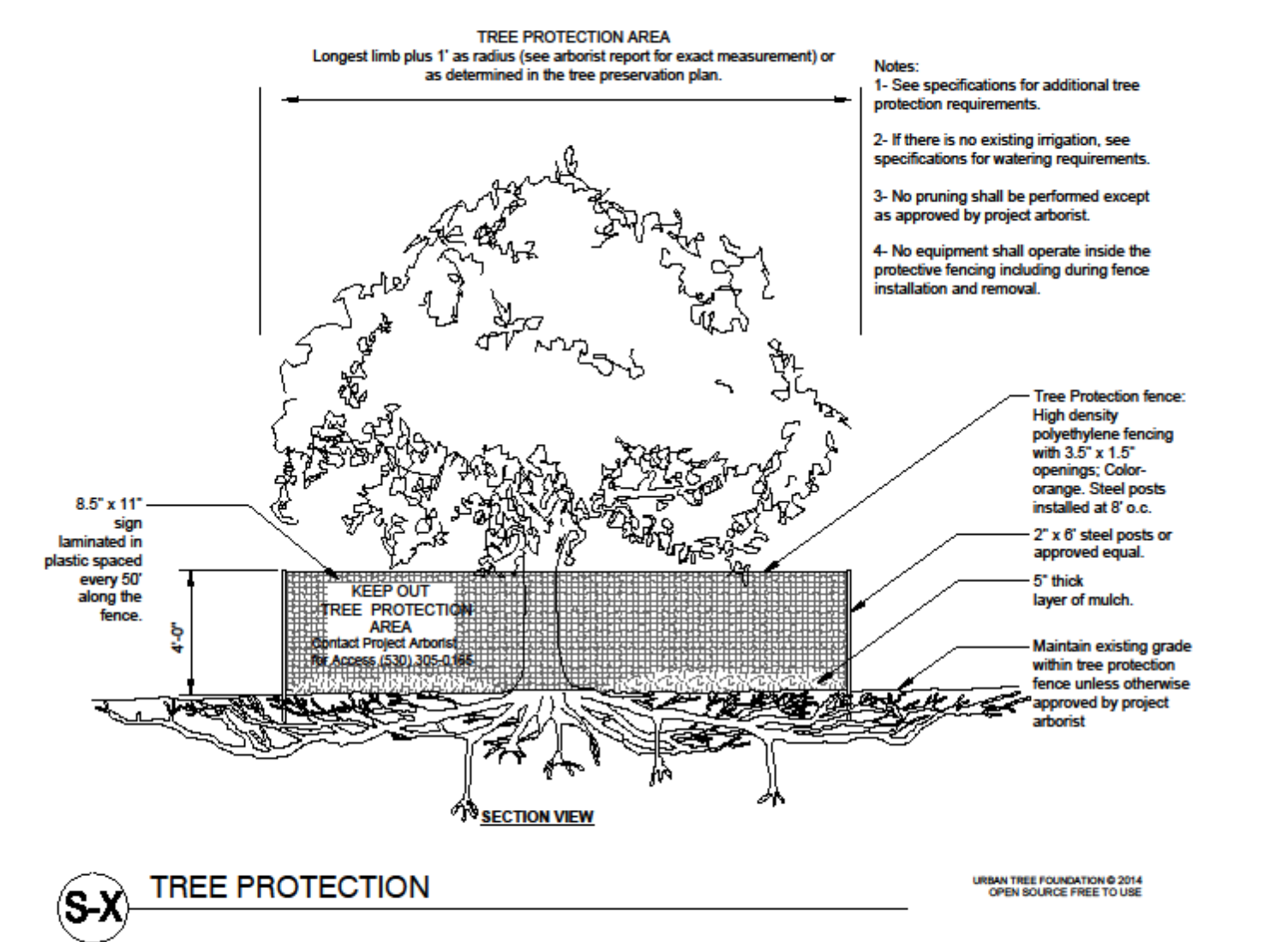
Date: 8/13/2020



California Tree & Landscape Consulting, Inc.
 1243 High Street
 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.



Document Path: F:\Personal-net\CalTLC\Maps 2020\Rio Linda Blvd\RioLindaBlvd.mxd

PROTECTED TREES LOCATION MAP

>Tree locations are approximate and were collected using ISO apple products.
 >Property line information was downloaded from Sacramento County on 08/12/2020.
 >Development plans provided by Baker Williams Engineering Group dated 07/2020.

Property Line	Arborist Rating
Measured Tree Canopy	0 Dead
Tree Protection Fencing	1 Extreme Structure or Health Problems
Not Protected	2 Major Structure or Health Problems
	3 Fair - Minor Problems
	4 Good - No Apparent Problems
	5 Excellent

Sheet No.
 TPP 1.0

ROBLA ESTATES
 5330 Rio Linda Blvd
 City of Sacramento, Sacramento County, CA
 Date: 8/18/2020

Appendix 2 – Tree Data

Field Tag #	City Tree #	Protected by Code	Offsite	Species Common Name	Species Botanical Name	DBH	Measure d at	Canopy Radius	Arborist Rating	Dvlpmt Status	Notes
7301		No	Yes	Almond	Prunus dulcis	9	54	15	3 Fair - Minor Problems		Tree is in drainage ditch trunk lean 20% minor damage to trunk area at base
7302		No	Yes	Aleppo Pine	Pinus halepensis	6	54		0 Dead		Totally dead previously burned
7303		No	Yes	Valley Oak	Quercus lobata	8	54	12	4 Good - No Apparent Problems		Young tree no apparent problems
7304		No	Yes	Almond	Prunus dulcis	14	54	18	3 Fair - Minor Problems		Multi stem almond small branch inclusions gummosis at base
7305		No	Yes	Almond	Prunus dulcis	12	54	16	3 Fair - Minor Problems		Understory tree Leans west. Dead branches and canopy touching the ground
7307		No	Yes	Cottonwood	Populus fremontii	14	54	15	2 Major Structure or Health Problems		Split trunk lots of decay on tension side
7308		Private Protected	Yes	Valley Oak	Quercus lobata	12	54	28	3 Fair - Minor Problems		Understory tree to 2 dominant Valley Oaks to the east. no major problems dead branches
7309		Private Protected	Yes	Valley Oak	Quercus lobata	16	54	20	3 Fair - Minor Problems		Dead and crossing limbs, no major problems
7310		Private Protected	Yes	Valley Oak	Quercus lobata	18	54	25	3 Fair - Minor Problems		Dead and crossing limbs, no major problems

Field Tag #	City Tree #	Protected by Code	Offsite	Species Common Name	Species Botanical Name	DBH	Measure d at	Canopy Radius	Arborist Rating	Dvlpmt Status	Notes
7311		Private Protected	Yes	Cottonwood	Populus fremontii	26	54	20	2 Major Structure or Health Problems		Severe decline broken tops one large spar fell over - decay at base
7312		No	Yes	Cottonwood	Populus fremontii	8	54	10	0 Dead		Completely dead tree
7313		Private Protected	Yes	Cottonwood	Populus fremontii	26	54	30	2 Major Structure or Health Problems		45° Lean, Decay in large broken branches
7314		Private Protected	Yes	Valley Oak	Quercus lobata	21	54	20	3 Fair - Minor Problems		Dead Crossing branches
7315		Private Protected	Yes	Valley oak	Quercus lobata	40	54	42	3 Fair - Minor Problems		No major problems dead crossing branches one inclusion at trunk 4 feet up
7316		No	Yes	Valley Oak	Quercus lobata	5	54	6	4 Good - No Apparent Problems		Understory tree, poor branch angles in upper canopy
7317		Private Protected	Yes	Valley Oak	Quercus lobata	38	54	41	3 Fair - Minor Problems		No major problems sparse canopy lots of dead branches.
7318		Private Protected	Yes	Valley Oak	Quercus lobata	16	54	17	3 Fair - Minor Problems		Dead branches and washed away soil from root flare on east side of tree- due to drainage ditch overflow
7319		No	Yes	Black Willow	Salix nigra	14	54	12	3 Fair - Minor Problems		Lots of dead branches dead tops/tips all breakouts in center multi-stem

Field Tag #	City Tree #	Protected by Code	Offsite	Species Common Name	Species Botanical Name	DBH	Measured at	Canopy Radius	Arborist Rating	Dvlpmt Status	Notes
7320		No	Yes	Valley Oak	Quercus lobata	10	54	15	4 Good - No Apparent Problems		No major problems dead branches first branch / bole height is 3 feet off the ground so potential inclusions in the future but no apparent problems currently
7321		No	Yes	Almond	Prunus dulcis	6	54	10	2 Major Structure or Health Problems		Lots of dead branches split trunk bark flaking off at base possibly disc damage to roots
7322		No	Yes	Valley Oak	Quercus lobata	4.5	54	8	3 Fair - Minor Problems		Multi-stem Bole height 8 inches second spar 3 feet off the ground extremely narrow branch angle
7323		No	Yes	Valley Oak	Quercus lobata	4.5	54	9	3 Fair - Minor Problems		Multi-stem ball height 1 foot off the ground inclusion narrow branch angle
7324		No	Yes	Valley Oak	Quercus lobata	9	54	11	4 Good - No Apparent Problems		Dead branches old trunk wounds at base
7325		No	Yes	Valley Oak	Quercus lobata	6	54	12	3 Fair - Minor Problems		Multi stem bole height 18 inches inclusion poor branch angle
7326		No	Yes	Aleppo Pine	Pinus halepensis	22	54	26	2 Major Structure or Health Problems		Lots of dead branches pitch moth sunken in root flare on one side Frass observed on sunken area
7327		No	Yes	Interior Live Oak	Quercus wislizenii	6	54	12	3 Fair - Minor Problems		Multi-stem Live Oak bole height 10 inches dead branches

Field Tag #	City Tree #	Protected by Code	Offsite	Species Common Name	Species Botanical Name	DBH	Measure d at	Canopy Radius	Arborist Rating	Dvlpmt Status	Notes
7328		No	Yes	Tree of heaven	Ailanthus altissima	13	54	20	2 Major Structure or Health Problems		Lots of dead declining tips trunk wound northeast Berks flaking off bore damage from exposed trunk area
7329		No	No	Tree of heaven	Ailanthus altissima	15	54	20	3 Fair - Minor Problems		Bole height 3 feet three spars with inclusions lower bark is flaking off root flare is buried
7330		No	No	Tree of Heaven	Ailanthus altissima	6	54	12	3 Fair - Minor Problems		Bole height 18 inches three main spars bark peeling off construction damage likely diskings bark peeling off
7331		No	No	Tree of heaven	Ailanthus altissima	7.5	54	15	3 Fair - Minor Problems		Bole height 6 inches three main spars bark peeling off at base
7332		Private Protected	No	Black Willow	Salix nigra	25	54	27	3 Fair - Minor Problems	Impacted	Multi-stem Lots of dead branches canopy is sparse flood area
7333		No	Yes	Aleppo Pine	Pinus halepensis	13	54	16	2 Major Structure or Health Problems		Lots of dead branches Tree was burned in the past pitch tubes pitch Moth signs of bore sunken root flare large wound north east on trunk at base.
7334		No	Yes	Aleppo Pine	Pinus halepensis	22	54	28	2 Major Structure or Health Problems		Tree leans south west , was burned previously pitch tubes activity Frass large wound north east side of tree wound approximately 10 feet long- 10 inch branch failure

Field Tag #	City Tree #	Protected by Code	Offsite	Species Common Name	Species Botanical Name	DBH	Measure d at	Canopy Radius	Arborist Rating	Dvlpmt Status	Notes
7335		No	Yes	Aleppo Pine	Pinus halepensis	16	54	16	3 Fair - Minor Problems		Absent of root flare pitch months dead branches
7336		No	Yes	Aleppo Pine	Pinus halepensis	15	54	15	3 Fair - Minor Problems		Pitch tubes signs of bore actually likely red Turpentine beetle - dead branches
7337		No	Yes	Valley Oak	Quercus lobata	10	54	10	3 Fair - Minor Problems		Multi stem to spars two 10 inch Inclusion 6 feet up
7338		Private Protected	Yes	Valley Oak	Quercus lobata	16	54		3 Fair - Minor Problems	Impacted	Foliage is good dead branches lower canopy included bark at most branch unions bole height 3 feet and absent of root flare
7339		No	No	Almond	Prunus dulcis	5	54	5	0 Dead	Proposed for Removal	Totally dead
7340		No	Yes	Almond	Prunus dulcis	4	54	5	1 Extreme Structure or Health Problems		Half dead. Previously tree fell over and then sprouted back
7341		No	No	Oregon Ash	Fraxinus latifolia	9	54	10	1 Extreme Structure or Health Problems	Proposed for Removal	At base tree was 25 inches old decayed spar, trunk is completely rotten decay all the way through trunk 9 inch spar above decay
7342	13502	Street	No	Valley Oak	Quercus lobata	16	54	15	3 Fair - Minor Problems	TBD	Tree is under distribution lines hangs over Road
7343		No	No	Blue Oak	Quercus douglasii	8	54	9	4 Good - No Apparent Problems	TBD	Small trunk wound

Field Tag #	City Tree #	Protected by Code	Offsite	Species Common Name	Species Botanical Name	DBH	Measured at	Canopy Radius	Arborist Rating	Dvlpmt Status	Notes
7344		No	No	Blue Oak	Quercus douglasii	5	54	10	4 Good - No Apparent Problems	TBD	No apparent problems but it's 3 feet off the road and under powerlines
1	13501	Street	No	Chinese Evergreen Elm	Ulmus	0-3	54	10	3 Fair - Minor Problems	TBD	
2	13503	Street	No	Tree of Heaven	Ailanthus altissima	0-3	54	10	3 Fair - Minor Problems	TBD	
3	13504	Street	No	Tree of Heaven	Ailanthus altissima	0-3	54	10	3 Fair - Minor Problems	TBD	



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.²

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

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

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

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

Design the irrigation system so it can slowly apply water (no more than $\frac{1}{4}$ " to $\frac{1}{2}$ " 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 Photos

Photo 1, Historical Google Photo.





Photo 2, August 18, 2020. Looking south down the bike path



Photo 3, August 18, 2020. Looking north. Demonstrates Trees inside and outside the survey area