

Marione Drive Cell Tower Project

Arborist Report

APN: 283-0242-003
Address: 5204 Marione Drive Carmichael, CA 95608

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Prepared for:

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Statement of Qualifications

Ms. Brilts is an International Society of Arboriculture (ISA) Certified Arborist (#WE-13338A) with Tree Risk Assessment Qualification (TRAQ). She received a Bachelor of Science in Environmental Studies with a minor in biology from California State University, Sacramento, in 2013. Ms. Brilts has over eight years of experience in plant ecology, restoration, dendrology, and habitat mapping in California and has worked as a consulting biologist in California since 2015.

Ms. Elimelech is an International Society of Arboriculture (ISA) Certified Arborist (#WE-15122A). She received a Bachelor of Science in Environmental Systems from the University of California, San Diego in 2019. Ms. Elimelech has over three years of experience in dendrology in California and has worked as a consulting biologist in California since 2023.

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1.0 INTRODUCTION

This report documents the results of an arborist survey conducted for the proposed Marione Drive Cell Tower Project (proposed project) located southeast of the intersection of Fair Oaks Boulevard and Marione Drive in Sacramento County, California. HELIX Environmental Planning, Inc. (HELIX) was tasked with conducting an arborist survey of trees in the Study Area, as well as estimating the extent and significance of impact from the cell tower footprint on the trees, and providing general preservation and avoidance, and mitigation guidance, as applicable, for trees that may be preserved on-site during and after construction.

An arborist survey was conducted on August 9, 2024, by HELIX Biologist and International Society of Arboriculture (ISA) Certified Arborist Marisa Brilts (#WE-13338A) to inventory and verify the current conditions of the trees. A follow-up survey was conducted on October 11, 2024, by HELIX Biologist and International Society of Arboriculture (ISA) Certified Arborist Dena Elimelech (#WE-15122A) to assess the suitability of trees for transplant that are within or overlap the project footprint.

1.1 Project Location

As shown in Figure 1, *Site and Vicinity Map* (Appendix A), the proposed project is located southeast of the intersection of Fair Oaks Boulevard and Marione Drive in the community of Carmichael in Sacramento County, CA, 95829 with Assessor's Parcel Number (APN) 283-0242-003 (Study Area). The Study Area encompasses approximately 0.84 acre, and the approximate center of the site is at latitude 38.5966042 and longitude -121.3435097.

1.2 Regulatory Background

Sacramento County has adopted measures for the preservation of native and non-native trees through the County Code as well as objectives and policies within the General Plan.

Chapter 19.04 of the County Code regulates removal and impacts to public trees, heritage trees, and landmark trees. Public trees are defined as any tree or shrub planted or maintained by the County on an easement, planting easement, street, County park, or public premises; heritage trees are any California oak tree with a trunk 60 inches or greater in girth, which equates to a trunk diameter of approximately 19 inches; landmark trees include any especially prominent or stately tree. A tree permit is required to prune, remove, or otherwise disrupt any public tree.

Chapter 19.12 of the County Code, titled "Tree Preservation and Protection," provides protection for native oak trees in the designated urban area of the unincorporated county. Native oaks are defined as valley oak (*Quercus lobata*), interior live oak (*Q. wislizeni*), blue oak (*Q. douglasii*), and oracle oak (*Q. x morehus*) trees having a diameter at breast height (DBH) of at least 6 inches for a single stem tree or a combined DBH of 10 inches for a tree with multiple stems. Grading, trenching, or filling within the dripline, or removal, destruction, or killing of a tree as defined in the ordinance is prohibited without a tree permit. Tree permits are issued by the Director of Public Works or by the body approving a discretionary action such as a conditional use permit. Section 19.12.150 provides authority to approving bodies to adopt mitigation measures as conditions of approval for discretionary projects to protect other species of trees in addition to native oaks. The Tree Preservation Ordinance does not specify replacement obligations for native oaks removed under a tree permit; the approving body may impose

“reasonable conditions of approval as are necessary to minimize the environmental, health, or safety effects of the development or use” and may require financial security to ensure completion of “additional work” specified in the conditions of approval. “Additional work” may include replanting.

The Conservation Element of the General Plan includes a section regarding landmark and heritage tree protection. The plan's stated objective is that “heritage and landmark tree resources [are] preserved and protected for their historic, economic, and environmental functions.” The plan states that:

“Conservation of native tree species other than oaks and preservation of native oaks and landmark trees is the primary intent of the policies in the section. However, if preservation cannot be attained, then loss of the protected trees shall be compensated. Compensation for tree loss may be achieved by on-site or off-site replacement or payment into a Tree Preservation Fund.”

The section discusses thresholds of significance under CEQA for impacts to trees and concludes that tree impacts are “circumstantial.” The section states that projects that exceed the threshold of significance may have significant impacts even after mitigation, and conversely, tree loss of some species that exceeds the threshold in certain circumstances may not constitute a significant impact. The section states that the final determination of significance will be made by the Environmental Coordinator. The section does not include a definition of “tree” based on DBH.

Policy CO-139 of the General Plan states that “Native trees other than oaks, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed.” Tree replacement values are stipulated as follows:

- one D-pot seedling = 1-inch DBH
- one 15-gallon tree = 1-inch DBH
- one 24-inch box tree = 2-inches DBH
- one 36-inch box tree = 3-inches DBH

The Sacramento County General Plan contains policies aimed at preserving tree canopy in the County. The Conservation Element of the General Plan includes a section on urban forest management. The stated objective of the plan is a “coordinated and funded Urban Tree Management Plan and program sufficient to achieve a doubling of the County’s tree canopy by 2050...”

Policy CO-146 of the General Plan states that “If new tree canopy cannot be created on-site to mitigate for the non-native tree canopy removed for new development, project proponents (including public agencies) shall contribute to the Greenprint funding in an amount proportional to the tree canopy of the specific project.”

Additionally, the Sacramento County CEQA Planning and Environmental Review process considers the potential need for mitigation for selected native trees that are four inches in diameter or larger at breast height, including California sycamore (*Platanus racemosa*), Oregon ash (*Fraxinus latifolia*) Northern California black walnut (*Juglans californica* v. *hindsii*), Goodding’s black willow (*Salix gooddingii*), box elder (*Acer negundo* v. *californicum*), white alder (*Alnus rhombifolia*) and California buckeye (*Aesculus californica*).

1.3 Project Description

The project proposes to construct a new wireless communication site within a new 24'x24' lease area. AT&T proposes to install a 6' wood fence enclosure, 30KW diesel generator, new fiber and DC cables, utility cabinets, GPS antennas, meter, 3 DC-9 surge protectors, 12-panel antennas, new underground utilities, a 20' non-exclusive gravel access driveway, and a monopine antenna tower. Trees may be removed from the project site during construction, several trees may be preserved on-site, and some trees may have the potential to be transplanted.

2.0 METHODS

Arborist survey fieldwork was conducted on August 9, 2024, by HELIX Biologist and ISA Certified Arborist Marisa Brilts (#WE-13338A) and on October 11, 2024, by HELIX Biologist and ISA Certified Arborist Dena Elimelech (#WE-15122A).

2.1 Tree Map

All trees rooted in or overhanging the Study Area were mapped using an EOS Mapping Systems Arrow 100 GNSS receiver with sub-meter accuracy. Trees were tagged in the field with numbered metal tags on flagging tape. Appendix A, Figure 2, *Approximate Tree Locations*, displays trees within or overhanging the project site.

2.2 Tree Inventory

In accordance with the County's arborist report submittal requirements, the tree inventory included all trees rooted in or overhanging the Study Area or that may be affected by off-site project-related construction and having a DBH of 4 inches or larger for single-stem trees or 10 inches or larger for multi-stemmed trees. Tree data is provided in Appendix B.

2.3 Assessment

Inventoried trees were assessed in the field for the parameters in the subsection below, including size, root protection zone, health, structure, overall condition, and recommendation for protection or removal.

2.3.1 Size

Size is the measured diameter of the trunk at 54 inches above grade, referred to in this report as diameter at breast height (DBH), in inches. For multi-stem trees, all stems at least one-inch DBH were measured and summed. Measurements were made using either a Haglof 36-inch tree caliper or a U.S. Tape Company forester's diameter tape measure. Appendix B summarizes the collected data for each tree.

2.3.2 Root Protection Zone

Root protection zone is defined as a circle with a radius equal to the length of the longest limb measured from the trunk to the dripline.

2.3.3 Health

Health is an indication of the overall vigor and vitality of the tree expressed as a rating of Good, Good-Fair, Fair, Fair-Poor, or Poor. Ratings for health were based on the criteria in Table 1.

Table 1
CRITERIA FOR RATING TREE HEALTH

Good	Little or No Evidence of Stress, Disease, Infestation, or Nutrient Deficiency. Foliage (if present on deciduous species) is of average or better density, size, and color for the species; foliage in the canopy is evenly distributed; twig elongation and bud density are normal for the species; there is no evidence of dieback; there is little or no epicormic growth (water sprouts); there are not excessive numbers of galls or excessive evidence of herbivory; callusing, if present, is vigorous; bark is healthy and intact; there are no signs of senescence.
Fair	Moderate Evidence of Stress, Disease, Infestation, or Nutrient Deficiency. Foliage is below average density, size, or color for the species; foliage density may be lower in some parts of the canopy; twig elongation and bud density may be moderately reduced; some evidence of dieback may be present; some epicormic growth may be present; gall or herbivore load is higher than average for the species; callusing of old wounds is not well-developed; there may be evidence of small areas of infection such as bark swelling or sloughing; the tree may be over-mature or beginning to senesce.
Poor	Abundant Evidence of Stress, Disease, Infestation, or Nutrient Deficiency. Foliage and/or buds are sparse; leaves are reduced in size or of unhealthy color; the canopy is sparse and underdeveloped; there is widespread evidence of dieback; twig elongation is severely reduced; there is abundant epicormic growth; gall load, insect exit holes, or evidence of herbivory is severe; old wounds are not callused; there is widespread evidence of bark swelling, splitting, or sloughing in the root crown, trunk, or major limbs; the tree is senescent.

2.3.4 Structure

Structure is an indication of the structural stability and failure potential of the tree expressed as a rating of Good, Good-Fair, Fair, Fair-Poor, or Poor. Ratings for structure were based on the criteria in Table 2.

Table 2
CRITERIA FOR RATING TREE STRUCTURE

Good	Low Potential for Failure. No wounds, cavities, decay, or indications of hollowness evident in the root crown, trunk, or major limbs; no exposed anchor roots or circling roots; no codominant branching or multiple trunk attachments; no crossing limbs; little or no included bark at branch attachments; no dead major limbs; no major limb failures; no overburdened limbs; no excessive or unnatural lean; proper development of trunk taper; structure is more or less symmetrical.
Fair	Moderate Potential for Failure. Small to moderate wounds, cavities, decay, or indications of hollowness may be present in the root crown, trunk, or major limbs; minor exposure of anchor roots; no circling roots; codominant trunks or multiple trunk attachments are present but included bark is absent or not well-developed; no large crossing limbs are present; small or medium-sized dead limbs may be present in the canopy; no large limb failures; limbs may be

	slightly overburdened; natural or only minor lean is evident with well-developed reaction wood; canopy development may be slightly to moderately asymmetrical.
Poor	High Potential for Failure. Significant wounds, cavities, decay, or indications of hollowness evident in the root crown, trunk, or major limbs; anchor roots are exposed or the tree has lost anchorage; circling roots are present; codominant branching or multiple trunk attachments are present; large crossing limbs are present; significant amounts of included bark are present at trunk and branch attachments; large dead limbs are present in the canopy; evidence of past large limb failures; overburdened limbs; poor trunk taper; excessive or unnatural lean or drastically unbalanced canopy development.

3.0 RESULTS

3.1 General Site Conditions

The Study Area is located in a mixed residential and commercial area within the community of Carmichael in Sacramento County. Land uses surrounding the Study Area include single-family residential, high-density residential, and commercial centers.

3.2 Arborist Inventory

A total of 49 trees were inventoried within or overhanging the Study Area during the arborist survey, consisting of seven interior live oaks (*Quercus wislizeni*), six laurels (*Umbellularia sp.*), five prunus (*Prunus sp.*), five valley oaks (*Quercus lobata*), four deodar cedars (*Cedrus deodara*), three Japanese zelkovas (*Zelkova serrata*), three swamp wattles (*Acacia retinodes*), three Chinese elms (*Ulmus parvifolia*), two southern catalpas (*Catalpa bignonioides*), two Chinese privets (*Ligustrum lucidum*), two Oregon ashes (*Fraxinus latifolia*), one Arroyo willow (*Salix lasiolepis*), one hawthorn (*Crataegus sp.*), one crab apple (*Peraphyllum ramosissimum*), one callery pear (*Pyrus calleryana*), one olive (*Olea europaea*), one black oak (*Quercus kelloggii*), and one liquid amber (*Liquidambar styraciflua*).

Eight oak trees in the Study Area (trees #102, 111-114, 129, and 138-139) are large enough to be regulated by the Sacramento County Tree Protection Ordinance. In addition, 33 of the trees within the Study Area (trees #101, 103-105, 109, 110, 115-117, 119-123, 125-128, 131-136, 143, 146-149) are likely protected under the Policy CO-146 in the General Plan for non-native canopy cover, six are likely not protected (trees #124, 130, 137, 140-142, 146) due to their small size, and two trees are not protected and are recommended for removal due to poor condition (trees #118 and 144).

Fifteen trees on-site would likely be impacted by the project footprint (trees #101-105, 108, 109, 114-117, 119, 120, 123, 125). Of these trees, seven are likely suitable for transplant (trees #101, 103, 115, 116, 119, 123, 125), five are somewhat likely suitable for transplant (trees #102, 104, 109, 114, 117), and three are unlikely to be successfully transplanted (trees #105, 108, 120). See Appendix E for recommendations and best management practices for trees to be transplanted.

Removal of protected trees to facilitate the development of the project would require a permit from the Sacramento County Director of Public Works. Removal of these trees may require mitigation, either by replacement in-kind or through payment of in-lieu fees, in accordance with Policies CO-139 and CO-146 of the Sacramento County General Plan. If any trees are preserved on-site, then appropriate tree

preservation and protection measures should be implemented. See Appendix D for recommendations for trees to be preserved on-site.

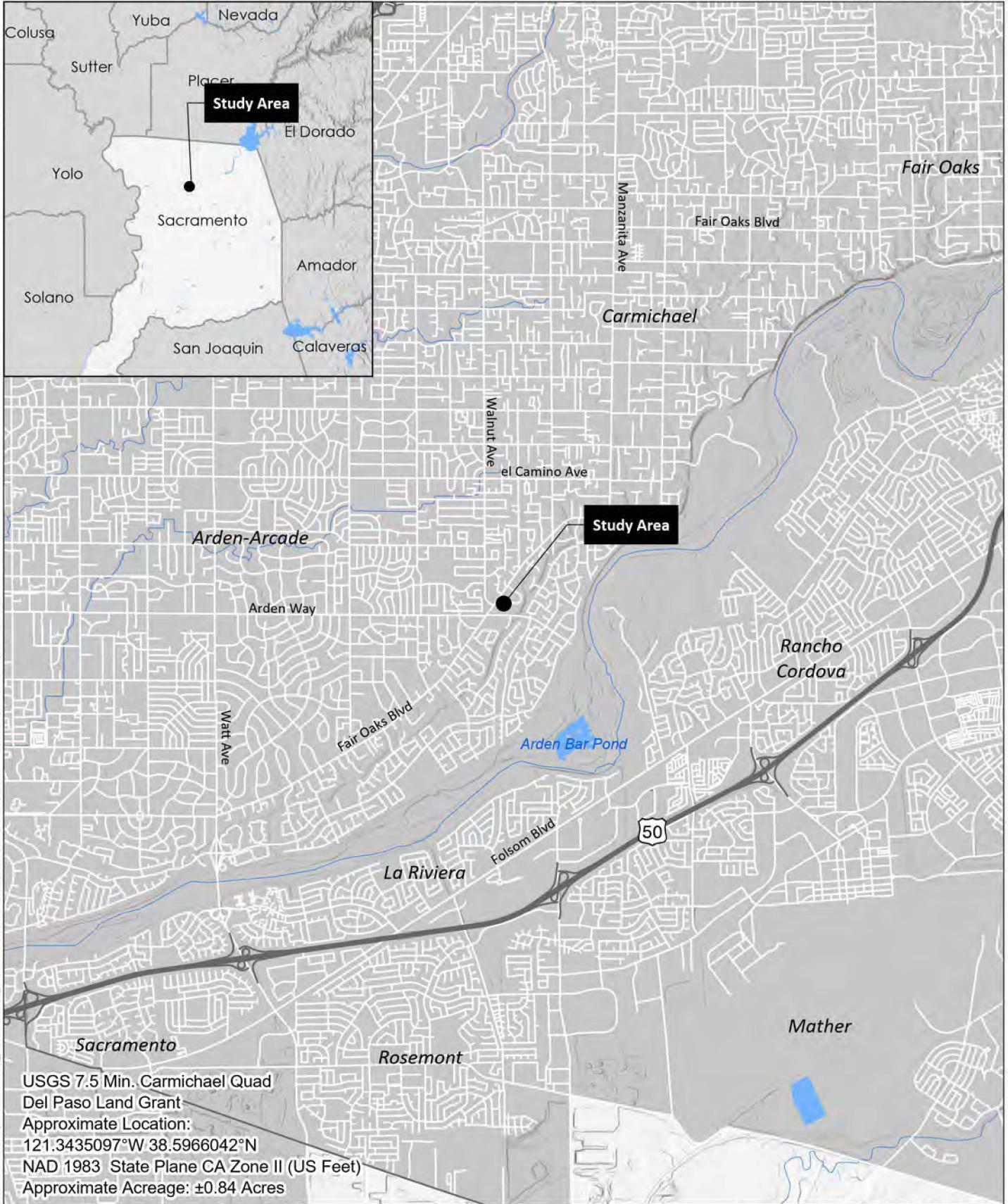
Approximate tree locations are shown in Figure 2. Site topography and approximate tree locations are included in Figure 3, *Topographic Tree Inventory Map*. Detailed tree data is provided in Appendix B. Representative photographs of the Site are provided in Appendix C. Tree Protection Recommendations are provided in Appendix D.

4.0 SUMMARY/CONCLUSION

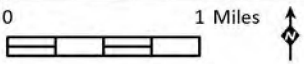
A total of 49 trees were inventoried within or overhanging the Study Area. Eight native oaks are protected under the Sacramento County Tree Ordinance. Two of the 49 trees were recommended for removal due to poor condition. Twenty-nine of the trees are likely covered under Policy CO-146 of the General Plan for non-native canopy cover and may require mitigation. The ten remaining trees will likely not require mitigation due to their small size. Twelve of the 15 trees likely to be impacted by the project footprint may be suitable candidates for transplant. Removal of protected trees to facilitate the development of the project would require a permit from the Sacramento County Director of Public Works. Additionally, removal of trees may require mitigation, either by replacement in-kind or through payment of in-lieu fees as determined by the County Environmental Coordinator. If any trees are preserved on-site, then the appropriate tree preservation and protection measures should be implemented (see Appendix D for recommended protection measures).

Appendix A

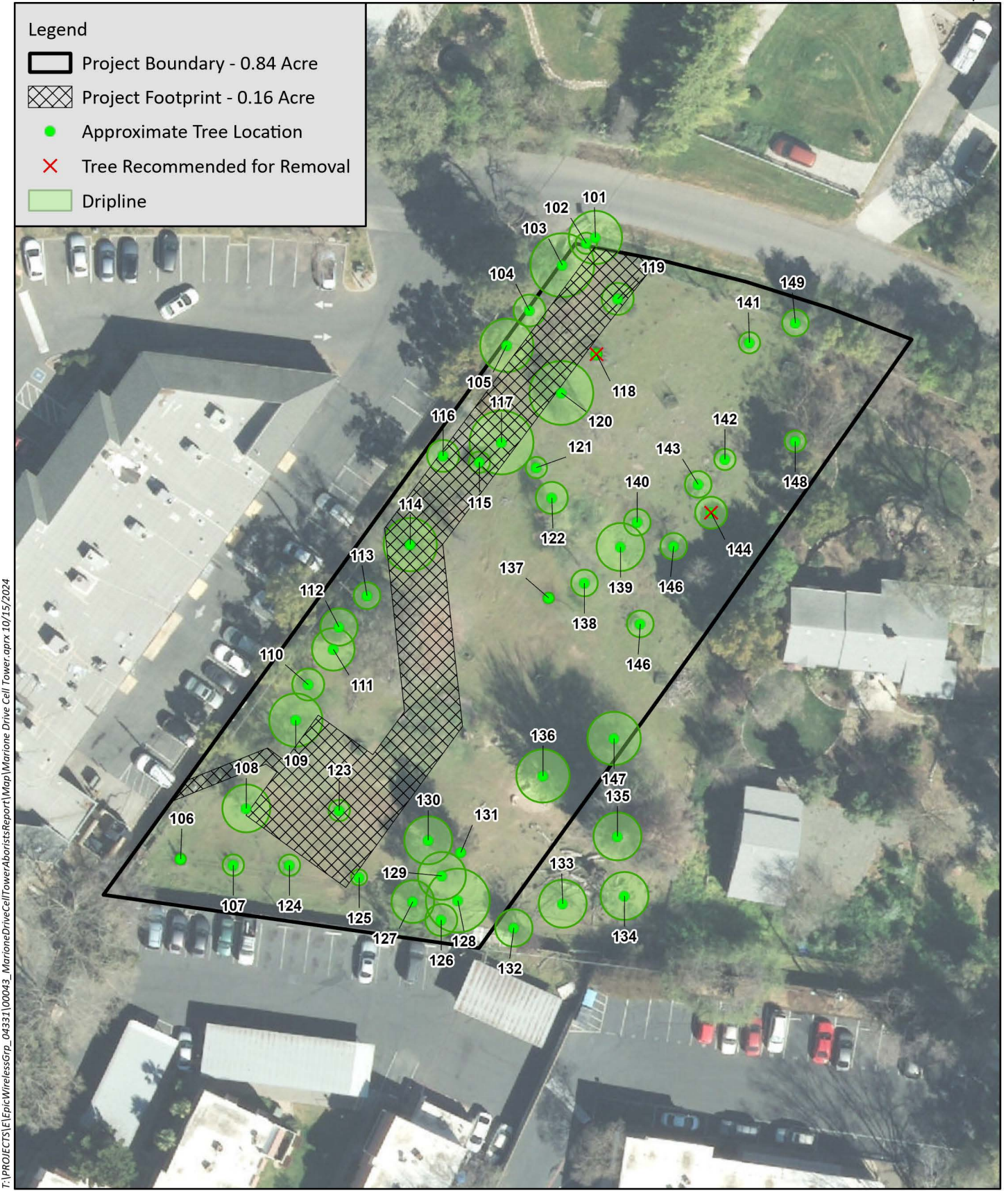
Figures



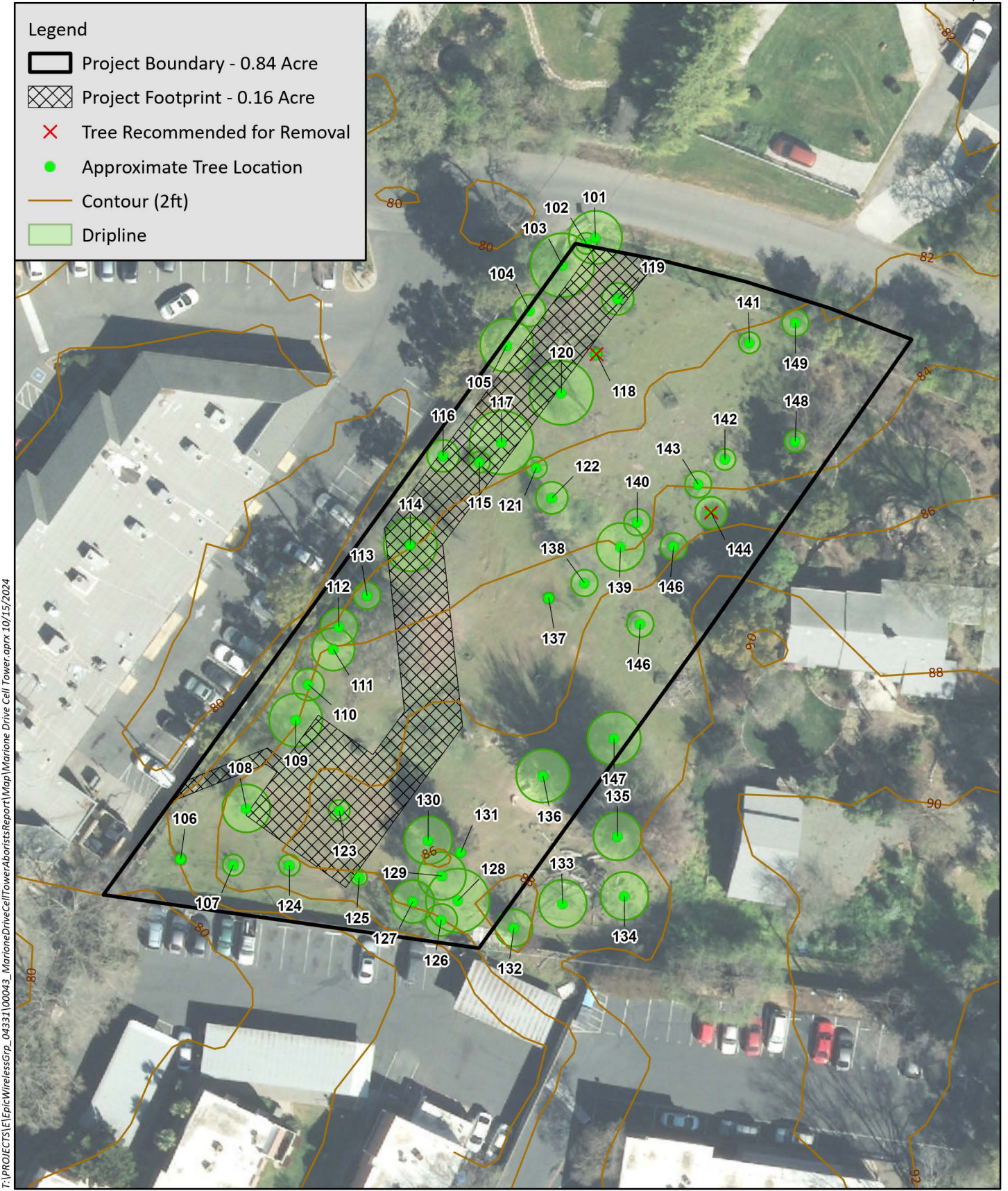
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Source: Base Map Layers (Esri, USGS, NGA, NASA)



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Source: Sac County; Aerial (DigitalGlobe, 4/26/2022)

Appendix B

Tree Data

Tree Number	Species	Number of Trunks	DBH (inches)	DLR (feet)	Height (feet)	Health	Structure	Notes	Protected?	Suitable for Transplant (If impacted)
101	Southern catalpa <i>Catalpa bignonioides</i>	1	4.4	10	15	GF	GF	<i>growing near fencing</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Likely
102	Interior live oak <i>Quercus wislizeni</i>	12	all less than 1 DBH	4	7	GF	F	<i>epicormic sprouts from cut tree</i>	Yes – under Sacramento County	Somewhat likely
103	Chinese privet <i>Ligustrum lucidum</i>	1	5	12	20	GF	GF	<i>approximate DBH, growing under communication lines, asymmetrical canopy</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Likely
104	Chinese privet <i>Ligustrum lucidum</i>	1	7	6	25	F	F	<i>approximate DBH, growing under communication lines, minor epicormic sprouts</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Somewhat likely
105	Arroyo willow <i>Salix lasiolepis</i>	2	4.75, 2	10	15	FP	P	<i>sprouts from felled tree</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Unlikely
106	Laurel <i>Umbellularia</i> sp.	1	2	2	6	FP	F	<i>approximate DBH, caged tree, epicormic sprouts</i>	May not be protected due to size	
107	Laurel <i>Umbellularia</i> sp.	2	2,1	4	7	GF	GF	<i>approximate DBH, caged, codominant leaders</i>	May not be protected due to size	
108	<i>Prunus</i> sp.	3	3, 2, 1	9	14	F	F	<i>Exposed inner cambium, ants, insect damage, fused limbs, codominant leaders, included bark</i>	May not be protected due to size	Unlikely
109	Japanese zelkova <i>Zelkova serrata</i>	2	6.5, 6	10	25	GF	GF	<i>Minor die back, codominant leaders, and included bark</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Somewhat likely

Tree Number	Species	Number of Trunks	DBH (inches)	DLR (feet)	Height (feet)	Health	Structure	Notes	Protected?	Suitable for Transplant (If impacted)
110	Japanese zelkova <i>Zelkova serrata</i>	2	4, 3	6	15	F	F	<i>trunk wounds at 4 feet, minor dieback</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Unlikely
111	Valley oak <i>Quercus lobata</i>	1	6.5	8	18	GF	F	<i>lean, minor dieback, good compartmentalization of dead or dying wood</i>	Yes – under Sacramento County	Likely
112	Interior live oak <i>Quercus wislizeni</i>	1	8.2	7	24	GF	GF	<i>Minor lateral fissures</i>	Yes – under Sacramento County	Likely
113	Interior live oak <i>Quercus wislizeni</i>	1	4	5	14	GF	GF		Yes – under Sacramento County	Likely
114	Valley oak <i>Quercus lobata</i>	2	5.75, 5	10	18	GF	F	<i>codominant trunks</i>	Yes – under Sacramento County	Somewhat likely
115	Deodar cedar <i>Cedrus deodara</i>	1	1	4	6	G	G	<i>approximate DBH, tree caged</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Likely
116	Swamp wattle <i>Acacia retinodes</i>	1	2.5	6	14	G	G	<i>estimated DBH, tree is caged</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Likely
117	Hawthorn <i>Crataegus sp.</i>	3	3, 2.5, 2	12	12	F	F	<i>lean, dieback</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Somewhat likely
118	Laurel <i>Umbellularia sp.</i>	1	1	2	6	P	F	Recommended for removal, dying	No- due to poor health and/or structure	
119	Interior live oak <i>Quercus wislizeni</i> and Southern catalpa <i>Catalpa bignonioides</i>	4	4 Interior live oak, Southern catalpa 1, 0.5, 0.25	6	12	GF	GF	<i>Southern catalpa growth at the base of oak, roots entwined</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Likely

Tree Number	Species	Number of Trunks	DBH (inches)	DLR (feet)	Height (feet)	Health	Structure	Notes	Protected?	Suitable for Transplant (If impacted)
120	Southern catalpa <i>Catalpa bignonioides</i>	1	25	12	30	FP	F	<i>rot at base</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Unlikely
121	Laurel <i>Umbellularia</i> sp.	7	all less than 1	4	7	F	F	<i>dieback, sunburned leaves</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
122	Crab apple <i>Peraphyllum ramosissimum</i>	1	5	6	15	F	GF	<i>dieback</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
123	Deodar cedar <i>Cedrus deodara</i>	1	1	4	6	GF	GF	<i>estimated DBH, tree caged</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Likely
124	Laurel <i>Umbellularia</i> sp.	1	1.5	4	6	F	GF	<i>estimated DBH, tree caged, dieback, sunburnt leaves</i>	May not be protected due to size	Likely
125	Deodar cedar <i>Cedrus deodara</i>	1	1	3	5.5	GF	GF	<i>estimated DBH, tree caged</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	Likely
126	<i>Prunus</i> sp.	5	2, remaining 1	6	14	F	F	<i>dieback, previous pruning cuts</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
127	<i>Prunus</i> sp.	1	6	8	12	F	F	<i>lean, dieback</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
128	<i>Prunus</i> sp.	15	4,3,2,1.75, 1.50, remaining less than 1	12	18	FP	FP	<i>mix of living and dead limbs, previous pruning, epicormic sprouts</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	

Tree Number	Species	Number of Trunks	DBH (inches)	DLR (feet)	Height (feet)	Health	Structure	Notes	Protected?	Suitable for Transplant (If impacted)
129	Interior live oak <i>Quercus wislizeni</i>	2	8, 4	9	18	F	F	<i>good compartmentalization of dead or dying wood, codominant leaders</i>	Yes – under Sacramento County	
130	Interior live oak <i>Quercus wislizeni</i>	1	4.5	9	14	F	F	<i>lean, trunk wounds at base and at 3 feet</i>	May not be protected due to size	
131	Deodar cedar <i>Cedrus deodara</i>	1	1	1.5	4	GF	GF	<i>minor lean</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
132	<i>Prunus</i> sp.	1	5	7	15	F	F		Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
133	Chinese elm <i>Ulmus parvifolia</i>	2	4.5, 4	9	15	F	F		Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
134	Chinese elm <i>Ulmus parvifolia</i>	2	4, 4	9	15	F	F	<i>minor lean, codominant leaders</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
135	Chinese elm <i>Ulmus parvifolia</i>	1	9	9	14	F	GF	<i>dieback</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
136	Callery pear <i>Pyrus calleryana</i>	1	7.75	10	18	F	F	<i>drought stress, trunk damage at base, and 3 feet</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
137	Valley oak <i>Quercus lobata</i>	1	1	2	6	GF	GF	<i>estimated DBH, tree caged</i>	May not be protected due to size	
138	Oregon ash <i>Fraxinus latifolia</i>	1	4	5	12	F	F	<i>lean, dieback</i>	Yes – under Sacramento County CEQA Planning	
139	Oregon ash <i>Fraxinus latifolia</i>	1	9	9	18	GF	GF	<i>minor lean</i>	Yes – under Sacramento County CEQA Planning	

Tree Number	Species	Number of Trunks	DBH (inches)	DLR (feet)	Height (feet)	Health	Structure	Notes	Protected?	Suitable for Transplant (If impacted)
140	Valley oak <i>Quercus lobata</i>	1	3	5	14	GF	GF	<i>estimated DBH, tree caged</i>	May not be protected due to size	
141	Interior live oak <i>Quercus wislizeni</i>	1	3	4	12	GF	GF	<i>estimated DBH, tree caged</i>	May not be protected due to size	
142	Laurel <i>Umbellularia</i> sp.	2	2,1	4	9	F	F	<i>estimated DBH, tree caged, epicormic growth</i>	May not be protected due to size	
143	Olive <i>Olea europaea</i>	1	1	5	9	GF	GF	<i>estimated DBH, tree caged</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
144	Black oak <i>Quercus kelloggii</i>	1	6.8	6	15	P	FP	<i>Recommended for removal dying</i>	No- due to poor health and/or structure	
146	Valley oak <i>Quercus lobata</i>	1	4	5	7	GF	GF	<i>estimated DBH, tree caged</i>	May not be protected due to size	
146	Swamp wattle <i>Acacia retinodes</i>	1	4	5	14	GF	GF	<i>estimated DBH, tree caged</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
147	Japanese zelkova <i>Zelkova serrata</i>	1	7	10	18	GF	GF		Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
148	Liquid amber <i>Liquidambar styraciflua</i>	1	6	4	18	GF	F	<i>lean</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	
149	Swamp wattle <i>Acacia retinodes</i>	1	6	5	16	GF	GF	<i>estimated DBH, tree caged</i>	Likely - Policy CO-146 of the General Plan for non-native canopy cover replacement	

¹ Orange shading indicated trees recommended for removal due to poor health and structure. Green shading indicates protected trees. Blue shading indicates the tree likely requires canopy mitigation under Policy CO-146 of the General Plan.

² P = Poor; F = Fair; G = Good

DBH = diameter at breast height; DLR = drip line radius

Appendix C

Site Photos



Photograph 1: Image of tree #102, a protected interior live oak. Date: 9/9/2024. Photographer: Marisa Britts



Photograph 2: Image of tree #111, a protected valley oak. Date: 9/9/2024. Photographer: Marisa Britts

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Photograph 3: Image of tree #116, a swamp wattle that is likely protected.
Date: 9/9/2024. Photographer: Marisa Britts



Photograph 4: Image of tree #118, a dying laurel recommended for removal.
Date: 9/9/2024 Photographer: Marisa Britts

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Photograph 5: Image of tree #129, a protected interior live oak. Date: 9/9/2024. Photographer: Marisa Brilts



Photograph 6: Image of tree #140, a small valley oak that may not be protected due to small size. Date: 9/9/2024. Photographer: Marisa Brilts

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Appendix D

Tree Protection Recommendations

Tree protection recommendations are provided below to minimize the potential for injury or damage to occur to avoided trees adjacent to the project footprint. These recommendations should be integrated into the construction documents, as applicable to the project.

1. *Trenching procedure.* Trenching within the protected zone of a protected tree, when permitted, may only be conducted with hand tools or compressed air, or as otherwise directed by an arborist, in order to avoid root injury.
 - a. When a trenching machine is being used adjacent to the dripline of protected trees, and roots are encountered smaller than two inches, the wall of the trench adjacent to the trees shall be hand-pruned, making clear, clean cuts through the roots. All damaged, torn, and cut roots shall be given a clean cut to remove ragged edges, which promote decay. Trenches shall be filled within 24 hours; where this is not possible, the side of the trench adjacent to the trees shall be kept shaded with four layers of dampened, untreated burlap, wetted as frequently as necessary to keep the burlap wet. Roots two inches or larger, when encountered, shall be reported immediately to the Project Arborist, who will decide whether the Contractor may cut the root as mentioned above or shall excavate by hand or with compressed air under the root. All exposed roots are to be protected with dampened burlap.
 - b. Where possible, route pipes outside of the dripline of a protected tree to avoid conflict with roots.
 - c. Where it is not possible to reroute pipes or trenches, the contractor shall bore or tunnel beneath the dripline of the tree. The boring shall take place not less than three feet below the surface of the soil in order to avoid encountering "feeder" roots. All boring equipment must be staged outside of the dripline of protected trees.
2. *Root, trunk, and crown protection.*
 - a. No vehicles, construction or otherwise, and no materials, construction or otherwise, shall be placed for any period of time within the protected zone other than those described in this section.
 - b. Staging areas for equipment shall be established far enough from existing trees to ensure adequate protection of the root zone.
 - c. Entry and exit routes shall be established and fenced off with chain link or construction fencing. When planning routes, avoid utility access corridors.
 - d. A six-inch layer of coarse mulch or wood chips is to be installed within the Tree Protection Zone of protected trees. Mulch shall be kept 12 inches away from the trunk.
 - e. When determined necessary by an arborist, trunks of trees shall be protected with a single wrap of Geocomposite. Geocomposite shall be double sided, Geonet core with non-woven covering (such as Tenax Tendrain 770/2), or equivalent.

3. *Cutting roots.*

- a. Minor roots less than one inch in diameter may be cut, but damaged roots shall be traced back and cleanly cut behind any split, cracked or damaged area.
- b. Major roots over one inch in diameter may not be cut without approval of an Arborist. Depending upon the type of improvement being proposed, bridging techniques or a new site design may need to be employed to protect the root and the tree.

4. *Protective fencing.*

- a. Type of fencing. A minimum five-foot high chain link or substitute fence should be installed at the outermost edge of the protected zone of each protected tree or groups of protected trees. Exceptions to this policy may occur in cases where protected trees are located on slopes that will not be graded. However, approval must be obtained from the Department to omit fences in any area of the project.
- b. Fence installation. The fences should be installed in accordance with the approved fencing plan prior to the commencement of any grading operations or such other time as determined by the review body.
- c. Fence removal. Once approval has been obtained, the fences shall remain in place throughout the entire construction period.

5. *Grading.*

- a. Every effort should be made to avoid cut and/or fill slopes within or in the vicinity of the protected zone of any protected tree.
- b. No grade changes are permitted which cause water to drain to within twice the longest radius of the protected zone of any protected tree.
- c. No grade changes are permitted that will lower the ground on all sides of the tree.
- d. All grade changes within the dripline of a protected tree shall be supervised by the Project Arborist. Cuts or fills of soil within the dripline of a protected tree may have a retaining wall system installed as approved by the Project Arborist.

6. *Impact avoidance measures.* The following practices shall be prohibited at all times unless specifically allowed in the Arborist Report or the Tree Permit Conditions of Approval.

- a. Run off or spillage of potentially damaging materials into the area below any tree canopy.
- b. Fires under and adjacent to trees.
- c. Discharge of exhaust into foliage.
- d. Securing of cable, chain, or rope to trees or shrubs.

- e. Application of soil sterilizers under pavement within driplines of existing trees.

Appendix E

Tree Transplant Recommendations

General Guidelines for Trees Suitable for Transplant

Determining Suitability of a Tree for Transplant:

- Transplanting can remove up to 95% of a tree's root system and can be extremely stressful to a tree. Transplanting should therefore be planned in advance to improve the chances of survival and continued growth.
- A tree's suitability for transplant depends on size, health, species, and location. Younger, smaller trees in good health are more likely to survive transplant.
- The replanting site should be examined before designating trees for transplanting. Light levels, soil pH and composition, drainage, and exposure should all be considered.
- A qualified arborist or tree care professional should be consulted before removal and transplant.

Timing and Preparation for Transplant

- In temperate climates, the best time to transplant most tree species is when the tree is dormant, typically in the early spring or fall.
- Root pruning is a recommended tactic to improve chances of survival after transplant. Root pruning is a process of digging around a root ball one or more times to increase the density of root development in the final root ball before transplant and should take place several months to one year before transplant. Date of transplant should consider the time required to properly root prune a tree in preparation for transplant.
- Another method for root pruning is trenching, which involved digging a trench and refilling it with soil around the tree being transplanted to encourage feeder root growth around the tree.

Transplanting Process

- Trees being prepared for transplant can be packaged through several methods. The traditional method is balled and burlap (B&B) using natural burlap.
- A tree spade can be used to form the soil ball of the tree to prepare it for transplant. Trees transplanted with a tree spade may require special care after planting (extra watering, antitranspirant application).
- Care must be taken when moving the tree itself, the tree must never be lifted by the trunk. If more support is needed, protect the trunk with padding and a wide sling should be used so the bark tissues are protected.
- Trees should be secured and covered during transport to prevent injury and desiccation.
- The root ball of transported trees being prepared for transplant needs to remain moist during transport.

Planting

- Digging of the transplant hole should take place prior to the transplant of the tree.
- Root depth should be considered when planting the tree. The bottom of the trunk flare should be at or above the finished grade of the soil.

- Planting hole depth depends on root depth. For B&B root balls, the planting hole can be 1-2 inches shallower than the root ball depth (with the trunk flare correctly placed at the soil surface).
- Planting hole width depends on soil quality. If the soil quality is poor, a wider planting hole may be needed.
- The planting hole should be wider at the top than the bottom.
- The hole should be no deeper than the root ball and at least three times as wide as the root ball.
- The tree should be carefully placed in the middle of the planting hole, and the root ball should be stabilized by tamping soil firmly around the base.
- When backfilling around the newly planted tree, the soil should be lightly compacted and watered in layers to prevent air pockets.
- About two inches of mulch can be placed around the tree, avoiding direct contact with the trunk.

Post Planting Care

- Soil should be monitored for moisture and aeration to help roots grow.
- The root ball should remain moist in the first couple years after planting.
- In some cases, antitranspirants can be used to reduce water loss through leaf surface.