BROOKSIDE GOLF COURSE IMPROVEMENTS PROJECT

Tree Report

Prepared for

George Cunningham

Rose Bowl Operating Company

November 2020

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BROOKSIDE GOLF COURSE IMPROVEMENT PROJECT

Tree Report

Introduction

On behalf of the Rose Bowl Operating Company (RBOC), Environmental Science Associates (ESA) conducted a tree survey at the proposed site of the Brookside Golf Course Improvements Project (Project), located in the City of Pasadena (City), Los Angeles County, California. The survey was conducted to document protected trees as defined in the City of Pasadena Code of Ordinances (Pasadena, 2018) that are within the proposed grading limits of the Project, including those that may be removed, encroached, or avoided by the project.

The City's Trees and Tree Protection Ordinance (Title 8, Chapter 8.52) defines a Protected tree as "a native, specimen, landmark, landmark-eligible, mature (except for the trees in RS or RM-12 Zones), or public tree". Furthermore, it defines native trees as:

> "*any tree with a trunk more than 8 inches in diameter at a height of 4 ½ feet above natural grade that is one of the following species: Quercus agrifolia (coast live oak), Quercus engelmanii (Engelmann oak), Quercus chrysolepis (canyon oak), Platanus racemosa (California sycamore), Juglans californica (California walnut), Quercus berberidifolia (scrub oak), Quercus lobata (valley oak), Umbellularia californica (California bay), Populus fremontii (cottonwood), Alnus rhombifolia (California alder), Populus trichocarpa (black cottonwood), Salix lasiolepis (arroyo willow), and Aesculus californica (California buckeye)*."

In accordance with the Ordinance, public trees are defined as "*a tree located in a place or area under ownership or control of the city including but without limitation streets, parkways, open space, parkland, and including city owned property under the operational control of another entity by virtue of a lease, license, operating or other agreement*". All trees located within the boundaries of the Brookside Golf Course are considered public trees and are therefore protected. Mature trees are defined as "*an otherwise non-protected tree with a diameter-at-breast-height (DBH) of 19 inches or greater*". The City also provides a list[1] of tree species and criteria of trees that possess distinctive form, size or age at certain trunk diameters or heights, herein referred to as 'specimen' trees. Specimen trees are also considered protected.

[1] https://www.cityofpasadena.net/wp-content/uploads/sites/52/2017/06/TPO_6-Specimen-Tree-List.pdf

Existing Conditions

The Project site is located at the Brookside Golf Course, which is within the Central Arroyo Seco area of Arroyo Seco Canyon in the western portion of the City (See **Figure 1 – Project Vicinity** and **Figure 2 – Project Location**). Central Arroyo Seco is generally bounded by the Colorado Street Bridge to the south, Arroyo Boulevard and Arroyo Terrace to the east, Interstate-210 to the north/east, and Linda Vista Avenue to the west. Uses surrounding the golf course include residential uses to the west and east, Interstate-210 to the north, and the Rose Bowl to the south. Project site is surrounded by the golf course to the north, east and south, and the Arroyo Seco abuts its western boundary. The Arroyo Seco is a concrete-lined channel that is a major tributary of the Los Angeles River. The golf course is a contributor to the Pasadena Arroyo Parks and Recreation District, which is loosely defined as the central and lower Arroyo and is listed on the National Register of Historic Places (NRHP) for its cultural landscape.

Project Description

The Project proposes to relocate and expand the existing driving range and construct a new 36-hole miniature golf facility. The expanded driving range and new miniature golf facility would generally be located in the same area as the existing driving range, which is currently located between the concrete channeled Arroyo Seco to the west, the Brookside Clubhouse to the east, and the C.W. Koiner Course to the north and south. The proposed expansion of the driving range would increase the number of hitting bays from 20 to 60 . Brookside Golf Course would remain a championship layout and the course reduction would be designed to improve the pace of play.

A previous tree survey was conducted for the entire Brookside Golf Course by Davey Resource Group in 2016 and provided detailed information for trees within the Project including tree number and species. Those trees were reassessed and are included in this report.

Methods

ESA Arborist Douglas Gordon-Blackwood (See **Appendix C – Resume**) conducted the field survey on October 5 and 6, 2020. During the field survey, the area identified by RBOC as the grading limits (See **Figure 2**) was walked and a Global Positioning System with sub-meter accuracy (Eos Arrow 100 Global Navigation Satellite System) unit used in conjunction with ESRI's Collector for Arc GIS (Classic) application to collect location and survey data. At the discretion of RBOC, previously affixed tree tags and numbering were utilized in order to remain consistent with previous tree inventories conducted by Davey Resource Group (2016), Arborjet and other unknown arborists. A Canon EOS Rebel T3i DSLR Camera was used to take photographs of each surveyed tree.

SOURCE: ESRI, 2020; ESA, 2020

Brookside Golf Course Improvements Project

Figure 1
Regional Location

ESA

SOURCE: Mapbox, 2020; ESA, 2020.

Brookside Golf Course Improvements Project

Figure 2
Project Location

ESA

Data collected for all protected trees included the tree species and physical characteristics. Survey data for each tree is provided in **Appendix A –Tree Measurements** and photographs of each tree are provided in **Appendix B – Tree Photographs**. The following physical condition and characteristic data was collected for each tree:

Physical Characteristics

- Diameter at Breast Height (DBH) – measured four feet, six inches from the base of the tree using a forester's diameter-equivalent tape. For Palms, Height-to-brown-trunk (base of lowest frond) is measured in place of DBH.
- Canopy spread: The canopy spread from the trunk to the dripline in eight (8) directions (N, NE, E, SE, S, SW, W, NW).
- Height – Measured using a Nikon Forestry Pro Laser hypsometer.
- Balance and symmetry of the tree based on the crown radius measurements and whether the tree leans or is otherwise unstable.

Physical Condition

- Identification of damage caused by pathogens or insect pests, by natural causes such as lightning, or by human activity (such as golf ball damage).
- Evaluation of vigor based on such parameters as amount of new growth, leaf color, abnormal bark, dead wood, evidence of wilt, excessive necrosis or leaf chlorosis, thinning of crown, etc.
- Assessment of the overall health of the tree based on the evaluation of vigor, presence of damage, and comparison to the typical archetype tree of the same species.
- Evaluation of vigor based on such parameters as amount of new growth, leaf color, abnormal bark, dead wood, evidence of wilt, excessive necrosis or leaf chlorosis, thinning of crown, etc.

Rating

For each tree, a subjective alphabetical rank of "A" through "F" was assigned for health, vigor, balance and aesthetic. Ranks were based on the criteria described below:

- "A" = Very Healthy/Excellent: A healthy and vigorous tree characteristic of its species and reasonably free of any visible signs of stress, disease, or pest infestation. With regards to balance and aesthetics, trunks are straight and canopies well balanced and the tree exemplifies the ideal archetype for the species.
- "B" = Healthy/Good: A healthy and vigorous tree with minor visible signs of stress, disease, and/or pest infestation. Some maintenance measures may need to be implemented, such as pruning of dead wood or broken branches. Tree may lean slightly, canopies may not be evenly balanced, or the tree may otherwise be marginally challenged aesthetically.
- "C" = Average Health/Fair: Although healthy in overall appearance, there is abnormal amount of stress or disease/insect infestation, and a substantial amount of maintenance may be needed. The trunk may be growing at a more substantial angle or the canopy may have "holes" or be further out of balance.

- "D" = Dying/Poor: A tree that may be exhibiting substantially more stress, disease, or insect damage than what is expected for the species. The tree may be in a state of rapid decline, and may show various signs of dieback, necrosis, or other symptoms caused by pathogens or insect pests. The tree may lean significantly and the canopy is far out of balance.
- "F" = Dead/Very Poor: This tree has no foliage and exhibits no sign of life or vigor. Tree may be prone on the ground or otherwise severely aesthetically compromised.

Scope of Work Limitations

Measurement estimates were made for 6 trees (#'s 58, 65, 71, 85, 87, and 88) located within the driving range, because the driving range was open during the assessments and the arborist was unable to access these trees safely.

Results

Eighty-one (81) trees were surveyed. Fifteen (15) trees are native trees that include three coast live oaks (*Quercus agrifolia*; trees 91, 109, & 179), three California bay laurels (*Umbellularia californica*; tree's 115, 116, & 160), eight California sycamores (*Platanus racemosa*; tree's 85, 87, 88, 89, 90, 103, 165, & 1064), and one white alder (*Alnus rhombifolia*; tree 111). Six (6) trees are specimen trees that include one American sweetgum (*Liquidambar styraciflua*; tree 69), one red ironbark (*Eucalyptus sideroxylon;* tree 84), two Sydney red gums (*Angophora costata*; trees 105 & 110), and two Italian stone pines (*Pinus pinea*; trees 167 and 177).

All of the surveyed trees are considered 'public trees' that include: one Mexican fan palm (*Washingtonia robusta*; tree 102), twenty-seven (27) Peruvian pepper trees (*Schinus molle*; tree's 55, 56, 57, 59, 60, 61, 62, 63, 64, 66, 67, 68, 70, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 86, and 174), five (5) shamel ash trees (*Fraxinus uhdei*; tree's 106, 107, 108, 173, 1051), one Chinese privet (*Ligustrum lucidum*; tree 104), five (5) holly oaks (*Quercus ilex*; tree's 65, 127, 134, 161, and 162), six (6) Canary Island pines (*Pinus* canariensis; tree #168, 169, 170, 172, 175, and 178), two (2) American sweetgums (tree's 112 and 164), one Chinese elm (*Ulmus parvifolia*; tree 1556), four (4) red ironbark (tree's 150, 156, 157, and 158), two (2) carob trees (*Ceratonia siliqua;* tree's 148 and 152), two (2) swamp mahogany trees (*Eucalyptus robusta*; tree's 113 and 114), one Japanese yew (*Podocarpus macrophyllus*; tree 71) and two (2) white paperbark trees (*Melaleuca quinquenervia*; tree's 58 and 159). The locations of the trees are provided in **Figure 3 – Tree Locations** and the tree canopies are provided in **Figure 4 – Tree Canopies**.

As shown in **Table 1**, forty-seven (47) trees are located within the grading limits of the Project footprint and could be removed as a result of the project (tree's 58, 61, 63, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 90, 91, 102, 103, 104, 105, 106, 107, 108, 109, 110, 157, 158, 169, 160, 161, 162, 163, 164, 1051, and 1064). Sixteen (16) trees will be encroached by construction activities (tree's 55, 59, 60, 66, 89, 112, 114, 115, 116, 127, 134, 148, 152, 156, 179, and 1556). Eighteen (18) trees will be completely avoided (tree's 56, 57, 62, 64, 111, 113, 150, 167, 168, 169, 170, 171, 172, 173, 174, 175, 177, and 178. Of the 81 trees inventoried, 93 percent, or 76 trees, were rated to be in excellent to fair condition

(A, B, or C health grade). This includes ten trees in excellent (A) condition, 32 trees in good (B) condition and34 in fair (C) condition. In addition, 5 trees were rated in poor (D) condition.

TABLE 1
TREE IMPACT SUMMARY

Removals	Encroachments	Avoided
58, 61, 63, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 90, 91, 102, 103, 104, 105, 106, 107, 108, 109, 110, 157, 158, 169, 160, 161, 162, 163, 164, 1051, and 1064	55, 59, 60, 66, 89, 112, 114, 115, 116, 127, 134, 148, 152, 156, 179, and 1556	56, 57, 62, 64, 111, 113, 150, 167, 168, 169, 170, 171, 172, 173, 174, 175, 177, and 178

SOURCE: Mapbox, 2020; ESA, 2020.

Brookside Golf Course Improvements Project

Figure 3
Tree Locations

ESA

SOURCE: Mapbox, 2020; ESA, 2020.

Brookside Golf Course Improvements Project

Figure 4
Tree Canopies

ESA

SOURCE: RBOC; ESA, 2020.

Brookside Golf Course Improvements Project

Figure 5
Tree Encroachments

ESA

Discussion

All 81 of the trees that were surveyed are considered protected trees in accordance with the City's ordinance. Based on the current project description which is subject to change, forty-seven (47) of the protected trees are could require removal to accommodate project construction, sixteen (16) could be encroached upon to accommodate project construction, and eighteen (18) protected trees within the survey area could be avoided. In addition, trees qualifying as specimen or native also exist within the grading limits of the project and are included in the aforementioned trees that could be removed, encroached and avoided.

The City Manager is responsible for the review of this tree report, and will make determinations on public tree removal based upon tree reports prepared by certified arborists, other relevant facts, and upon established public tree removal criteria and review development and construction plans as they affect mature, landmark, landmark-eligible, native, public and specimen trees. If trees are to be removed as a result of the Project, the City Manager gives at least 10-days' notice to abutting property owners prior to the removal. Projects that would result in the removal of 3 or more public trees, notification will be provided to the city council, the design commission, and any neighborhood organizations in such area which are known. Tree replacements or alternative solutions (based on discretionary approval) will be provided after consultation with the City Manager and the design commission.

The City Manager can deny permits for removal of protected trees, including native or specimen trees, unless there is (1) a public, health or safety benefit from the removal of the tree, (2) the tree is deemed dead/dying and determined that it is not likely to survive, (3) there are objective features of the tree that make the tree not suitable for protections (such as invasive, damaging or nuisance trees), (4) the tree represents a substantial financial/recreational hardship to the property owner, (5) the tree injury/removal would constitute a taking of the underlying real property or (6) the corresponding landscape design plan will result in a greater canopy coverage than the tree being removed (within a reasonable time frame). The proposed Project could be considered a 'public benefit' (as defined within Code 8.52) in that it provides upgraded recreational areas and facilities which would broaden the usability of the site for the general public.

Based on the Project as described in this report (which is subject to refinement), it could result in the removal of 47 protected trees and the encroachment of 16 protected trees. These activities have the potential to negatively affect not only the encroached trees, but also other trees present in the vicinity of construction activities. For example, Project-related activities such as excavation, trenching, soil compaction, change of grade, drainage, pruning, mechanical damage from construction equipment, landscaping, and irrigation may negatively affect the root system of trees in the vicinity without implementing protective measures. The guidelines provided in the City of Pasadena Tree Protection Guidelines (**Appendix D – City of Pasadena Tree Protection Guidelines**) should be implemented to ensure that all preserved trees within or adjacent to the property will be protected during construction activities, as well as in perpetuity following completion of the Project.

Certification of Performance

I, Douglas Gordon-Blackwood, certify:

- That I have personally inspected the tree(s) and/or the property referred to in this report, and have stated my findings accurately.
- That I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved;
- That the analysis, opinions, and conclusions stated herein are my own;
- That my analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices;
- That no one provided significant professional assistance to the consultant, except as indicated within the report;
- That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party.

I further certify that I am a member of the American Society of Consulting Arborists, Registered Consulting Arborist #689, and acknowledge, accept, and adhere to the ASCA Standards of Professional Practice. I am an International Society of Arboriculture Certified Arborist, and have been involved in the practice of arboriculture and the study of trees for over 13 years.

Signed:

Date: 11/9/2020

Douglas Gordon-Blackwood
Registered Consulting Arborist, #689
Certified Arborist, WE-11726-AU
Qualified Tree Risk Assessor

This report comprises a total of 13 pages, plus appendices. Unauthorized separation or removal of any portion of this report deems it invalid as a whole.

Conditions represented in this report are limited to the inventory date and time. Rating for health and structure do not constitute a health or structural guarantee beyond that date. Risk assessments were not performed for the purposes of this report.

Appendix A
Tree Measurements

Appendix A – Tree Measurements

Tree Number[1]	Common Name	Latin Name	Latitude	Longitude	Protected Tree Classification[2]	DBH[3]	Height[5]	Canopy North[6]	Canopy NorthWest	Canopy West	Canopy SouthWest	Canopy South	Canopy SouthEast	Canopy East	Canopy NorthEast	Health	Aesthetics	Balance	Vigor	Comments	Soil Condition
55	Peruvian pepper	*Schinus molle*	34.1646235	-118.1680865	P	15.0	22	5	11	23	19	16	12	11	6	B	C	B	B	exposed damaged roots	normal
56	Peruvian pepper	*Schinus molle*	34.16462881	-118.1682396	P	13.7	25	11	12	13	15	15	16	12	13	B	B	B	C	slight lean, minor root damage	normal
57	Peruvian pepper	*Schinus molle*	34.16465072	-118.168289	P	14.7	20	10	8	13	12	12	8	9	8	C	C	D	C	strong lean, exposed damaged roots, crown raised and lion tailed	normal
58	white paperbark tree	*Melaleuca quinquinervia*	34.16528314	-118.1682843	P, M	21	24	3	6	13	6	3	2	2	2	C	C	D	C	severe golf ball damage, topped, damaged exposed roots, measurements estimated due to location on active driving range	normal
59	Peruvian pepper	*Schinus molle*	34.16462272	-118.1683236	P	10.5	20	8	13	15	15	13	10	4	4	B	C	C	C	self corrected lean, root damage, exposed roots, basal sprouting	normal
60	Peruvian pepper	*Schinus molle*	34.1646015	-118.1682719	P	8.0	13	1	1	18	16	5	1	1	1	C	C	D	C	strong lean to w-sw, basal sprouting, lion tailed, exposed damaged roots, decay at base	normal
61	Peruvian pepper	*Schinus molle*	34.164594	-118.1683748	P	15.6	30	11	12	10	14	18	15	12	8	B	B	C	C	root damage, self corrected lean, basal sprouting,	normal
62	Peruvian pepper	*Schinus molle*	34.16460405	-118.1684377	P	13.1	26	10	12	13	16	15	14	12	13	C	B	B	C	damaged roots with decay, crown raised, recommend decay assessment	normal
63	Peruvian pepper	*Schinus molle*	34.1647125	-118.1684683	P	14.5	25	5	11	15	17	17	11	14	6	C	C	C	B	basal sprouting, lopsided due to presence of driving range fence, built up soil over roots, burls on trunk	normal
64	Peruvian pepper	*Schinus molle*	34.16456372	-118.1684914	P	12.7	19	10	11	12	16	13	12	6	4	C	B	B	C	exposed roots, mechanical damage at base, slight lean	normal
65	holly oak	*Quercus ilex*	34.16534225	-118.1684775	P, M	19.0, 15.0 (24.2)[4]	30	7	6	7	9	6	6	5	6	C	C	C	C	golfball damage, topped, dead hangers in canopy, measurements estimated due to location on active driving range	normal
66	Peruvian pepper	*Schinus molle*	34.16455606	-118.1685528	P	14.1	25	10	17	15	10	11	14	10	6	C	C	B	C	root decay present, exposed damaged roots, fungus at base, basal sprouting, recommend decay assessment	normal
67	Peruvian pepper	*Schinus molle*	34.16455511	-118.1686195	P	12.5	23	13	12	14	14	15	9	5	8	B	B	B	B	crown raised, built up soil over roots	normal
68	Peruvian pepper	*Schinus molle*	34.16452709	-118.1687499	P	15.0	23	10	14	17	15	14	15	14	12	B	C	B	B	basal sprouting, minor bark beetle	pavement over roots
69	American sweetgum	*Liquidambar styraciflua*	34.16549444	-118.1687804	P, S	23	50	16	20	18	14	15	18	15	16	C	C	B	C	dieback in canopy with multiple dead hangers, leaf scorch, golfball damage, exposed damaged roots, remove dead hangers	normal
70	Peruvian pepper	*Schinus molle*	34.16476468	-118.1688068	P	14.5	19	11	13	15	15	13	12	10	6	C	C	C	C	golfball damage, slight lean, large limb removal, bark beetle, basal sprouting	normal
71	Japanese yew	*Podocarpus macrophyllus*	34.16553927	-118.1688504	P	11.0	20	6	8	6	6	4	6	7	6	D	D	C	C	golfball damage, dieback in crown, multiple dead hangers, mold/mildew on trunk due to sprinkler overspray, measurements estimated due to location on active driving range	normal
72	Peruvian pepper	*Schinus molle*	34.16476679	-118.1688848	P	13.3	26	14	16	15	18	16	20	15	13	C	C	B	C	golfball damage, basal sprouting, bark beetle	saturated
73	Peruvian pepper	*Schinus molle*	34.1646987	-118.1689294	P	15.5	29	12	15	12	11	11	14	12	10	C	C	B	C	built up turf over crown, basal sprouting, possible decay at base	normal
74	Peruvian pepper	*Schinus molle*	34.16479735	-118.1689614	P	13.3	25	12	13	9	13	10	7	8	9	B	C	C	B	golfball damage, basal sprouting	normal
75	Peruvian pepper	*Schinus molle*	34.1647948	-118.1690292	P	18.3	18	10	11	19	11	12	12	13	11	C	C	C	C	golfball damage, exposed damaged roots	normal
76	Peruvian pepper	*Schinus molle*	34.1648121	-118.1690845	P	8.3	14	10	12	11	10	12	7	5	5	C	C	B	C	golfball damage, basal sprouting, crown raised	normal
77	Peruvian pepper	*Schinus molle*	34.16481319	-118.1691521	P	13.3	28	9	13	14	15	13	12	12	8	C	B	C	C	golfball damage, crown raised	normal
78	Peruvian pepper	*Schinus molle*	34.1648411	-118.1692159	P	8.3	18	6	8	10	9	10	6	7	7	C	C	C	C	golfball damage, basal sprouting, crown raised	normal
79	Peruvian pepper	*Schinus molle*	34.16483821	-118.1692768	P	12.3	25	13	14	13	19	12	11	13	12	B	B	B	C	golfball damage, crown raised, basal sprouting	normal
80	Peruvian pepper	*Schinus molle*	34.16486196	-118.1693348	P	8.0	16	6	8	9	7	8	6	4	3	D	C	C	C	slight lean, decay at base, basal sprouting, flush cuts along trunk	compacted
81	Peruvian pepper	*Schinus molle*	34.16485852	-118.1694193	P	8.4	16	2	5	8	11	12	9	6	6	C	C	B	C	basal sprouting, golfball damage, exudate in upper canopy	normal
82	Peruvian pepper	*Schinus molle*	34.16488537	-118.1694786	P	7.0	11	5	6	6	6	7	5	4	4	C	B	B	C	golfball damage, lean,	compacted
83	Peruvian pepper	*Schinus molle*	34.16488429	-118.1695386	P	9.1	18	8	7	7	6	5	6	9	8	B	B	B	C	golfball damage, crown raised, basal sprouting	normal
84	red ironbark	*Eucalyptus sideroxylon*	34.16439789	-118.1695949	P, S	26.6	30	14	17	11	10	11	13	12	9	C	C	B	C	epicormic and basal sprouting, included bark, built up turf/soil on crown	normal
85	western sycamore	*Platanus racemosa*	34.16583031	-118.1696162	P, N, M	29	19	5	5	5	5	5	5	5	5	D	F	D	D	tree mostly dead, basal resprouts present, upper 20 feet of canopy all dead decaying wood, measurements estimated due to location on driving range, recommend removal	normal
86	Peruvian pepper	*Schinus molle*	34.16490345	-118.1696161	P	10.4	20	6	8	7	8	10	6	6	7	B	C	B	B	golfball damage, slight lean, crown raised	compacted
87	western sycamore	*Platanus racemosa*	34.16514762	-118.1696988	P, N	12	28	10	10	10	10	10	10	10	10	C	D	C	C	golfball damage, dieback in crown, ISHB-FD[7] likely, measurements estimated due to location on active driving range	normal
88	western sycamore	*Platanus racemosa*	34.16515487	-118.1697231	P, N, M	23	30	10	8	12	15	18	10	10	10	C	D	C	C	ISHB-FD likely, dieback in crown, large dead hangers in canopy, golfball damage, measurements estimated due to location on active driving range	normal
89	western sycamore	*Platanus racemosa*	34.16420445	-118.1699793	P, N, M	27.5	50	17	19	21	15	17	19	19	14	D	C	C	C	ISHB-FD likely, basal resprout, decay in trunk, termites, frass	pavement over roots
90	western sycamore	*Platanus racemosa*	34.16586899	-118.1700128	P, N, M	23.4	37	20	23	19	19	24	16	20	19	C	C	C	C	multiple cavities and woodpecker holes, ISHB-FD likely, golfball damage, lean	normal

Appendix A – Tree Measurements

Tree Number[1]	Common Name	Latin Name	Latitude	Longitude	Protected Tree Classification[2]	DBH[3]	Height[5]	Canopy North[6]	Canopy NorthWest	Canopy West	Canopy SouthWest	Canopy South	Canopy SouthEast	Canopy East	Canopy NorthEast	Health	Aesthetics	Balance	Vigor	Comments	Soil Condition
91	coast live oak	*Quercus agrifolia*	34.16571731	-118.1700568	P, N, M	19.0, 18.6, 15.0 (30.53)	40	18	21	30	28	25	20	18	14	C	C	B	C	built up soil over roots, dieback and canker in upper canopy, dead hangers, golfball damage	normal
102	Mexican fan palm	*Washingtonia robusta*	34.16434393	-118.1702501	P	30 bt	35	5	5	5	5	5	5	5	5	B	B	A	B	ash tree growing from base	compacted
103	western sycamore	*Platanus racemosa*	34.16465106	-118.1702749	P, N, M	28.6	65	21	20	19	28	30	24	28	27	C	C	C	C	ISHB-FD likely, large limb dead in lower canopy, basal sprouting, remove dead limb	normal
104	Chinese privet	*Ligustrum lucidum*	34.16458844	-118.1702719	P	10.1	19	6	4	3	3	5	5	5	5	A	A	A	A	Grouping of 3 hedges with one trunk of appropriate size	normal
105	Sydney red gum	*Angophora costata*	34.16534667	-118.170263	P, S, M	34.5	50	18	6	4	6	27	25	20	23	C	C	B	C	multiple dead hangers in upper canopy, golfball damage, dieback in crown	normal
106	shamel ash	*Fraxinus uhdei*	34.16507957	-118.1702809	P, M	10.0, 10.2, 14.0 (20.0)	35	16	18	20	22	24	10	11	16	B	C	C	B	large exposed buttress roots with mechanical damage, multiple trunks, fence girdling trunk and base, growing over concrete	compacted
107	shamel ash	*Fraxinus uhdei*	34.16475871	-118.1702734	P	8.1, 2.0, 1.0 (8.4)	21	10	8	9	10	10	8	8	11	B	B	B	A	multiple trunks, growing in fence	normal
108	shamel ash	*Fraxinus uhdei*	34.16491561	-118.1702779	P	10.0	20	11	10	12	9	8	1	1	1	B	C	D	B	growing in fence, half of tree pruned at fence, basal sprouting	normal
109	coast live oak	*Quercus agrifolia*	34.16540595	-118.1702754	P, N	4.0	10	5	6	4	4	6	7	6	5	B	B	C	B	growing in fence, poor pruning,	pavement over roots
110	Sydney red gum	*Angophora costata*	34.16538686	-118.1702957	P, S, M	28.0	45	20	23	20	23	25	12	6	10	B	B	B	B	roots covered by concrete, fence pruning made tree lopsided	pavement over roots
111	white alder	*Alnus rhombifolia*	34.16540811	-118.167398	P, N	9.7	35	12	11	10	10	10	9	12	13	B	B	A	B	slight lean, golfball damage and mechanical damage at base	normal
112	American sweetgum	*Liquidambar styraciflua*	34.16526892	-118.1675728	P	8.5	33	8	7	8	6	5	6	8	9	A	A	B	A	mechanical damage at base	normal
113	swamp mahogany	*Eucalyptus robusta*	34.16534997	-118.1675964	P, M	19.9	35	11	7	6	12	17	18	11	10	B	B	B	B	slight lean, large cavity on main trunk, golfball damage, wetwood on east side,	pavement over roots
114	swamp mahogany	*Eucalyptus robusta*	34.16539175	-118.167642	P, M	31.2	50	11	16	17	21	13	16	12	13	B	B	B	B	cart path cut part of buttress roots, small cavities thought mid trunk, golfball damage	pavement over roots
115	California bay laurel	*Umbellularia californica*	34.165444	-118.1676746	P, N, M	26.8	45	12	14	17	20	16	7	8	17	B	B	B	A	large burl at base, buttress roots cut off for cart path, mechanical damage at base	pavement over roots
116	California bay laurel	*Umbellularia californica*	34.16556045	-118.1677838	P, N, M	41.2	45	14	16	17	18	16	18	19	18	A	A	A	A	large burl at base, damaged buttress roots, cavity in main trunk with 4-6" of decay	normal
127	holly oak	*Quercus ilex*	34.16536036	-118.1682581	P, M	24.1	45	19	23	22	10	6	11	19	22	B	B	A	A	epicormic shoots along trunk, golfball damage, mechanical damage at base, soil deeply saturated	saturated
134	holly oak	*Quercus ilex*	34.16547632	-118.1684952	P, M	25.7	40	17	19	21	18	12	14	14	17	B	C	B	B	epicormic shooting in upper canopy, mechanical damage at base, exposed damaged roots, basal sprouting, golfball damage	saturated
148	carob	*Ceratonia siliqua*	34.16632124	-118.1687484	P, M	23.0	35	17	14	15	12	15	13	13	15	C	B	B	B	golfball damage, large exposed damaged roots, laege cavities in trunk with decay and planted growing,	normal
150	red ironbark	*Eucalyptus sideroxylon*	34.16646765	-118.1687582	P	17.3	35	7	5	10	12	13	16	12	13	B	B	C	B	poor structure, basal sprouting	normal
152	carob	*Ceratonia siliqua*	34.16627251	-118.1687672	P	16.0	25	10	11	12	12	12	11	8	5	C	B	B	B	basal sprouting, exposed damaged roots, poor structure, sapsucker damage	normal
156	red ironbark	*Eucalyptus sideroxylon*	34.16640767	-118.1688308	P	16.0	35	3	4	4	18	23	17	12	6	C	C	C	C	large amounts of exudate, fissures in bark, poor structure, lean, dead hangers on south side of canopy	normal
157	red ironbark	*Eucalyptus sideroxylon*	34.1663857	-118.1688827	P	18.3	37	8	7	12	15	19	15	12	6	B	B	C	B	large amounts of exudate, lean, basal sprouting, large exposed damaged roots	normal
158	red ironbark	*Eucalyptus sideroxylon*	34.16640099	-118.1689186	P	16.2	35	3	6	6	12	14	16	6	4	B	C	D	B	large exposed damaged roots, basal sprouting, poor structure, large limbs removed, lean	normal
159	white paperbark tree	*Melaleuca quinquinervia*	34.16579962	-118.1691422	P, M	24.9	38	15	17	15	13	14	15	16	15	B	B	B	C	golfball damage, damaged buttress roots, included bark	normal
160	California bay laurel	*Umbellularia californica*	34.16578085	-118.1692414	P, N, M	19.8	35	22	15	10	15	14	16	12	10	C	B		B	large burl at base with root decay present, exposed damaged roots, golfball damage, basal sprouting	saturated
161	holly oak	*Quercus ilex*	34.16584171	-118.1692638	P, M	27.6	40	21	22	19	25	24	19	16	15	B	B	A	B	golfball damage, basal sprouting, exfoliating bark on large limbs	saturated
162	holly oak	*Quercus ilex*	34.16588395	-118.1694883	P, M	22.2	45	17	16	21	16	12	15	19	17	A	B	A	B	epicormic sprouting in mid canopy, golfball damage, damaged exposed roots	saturated
163	western sycamore	*Platanus racemosa*	34.16598456	-118.1697542	P, N, M	28.9	49	23	26	22	20	19	17	19	22	C	C	C	C	ISHB-FD likely, Arborjet tag suggests insecticide/fungicide injections and/or soil drench, golfball damage, woodpecker holes, poor structure (topped, poor attachment)	normal
164	American sweetgum	*Liquidambar styraciflua*	34.16618527	-118.1700547	P, M	21.1	40	12	11	10	8	13	15	10	11	C	B	B	B	minor dieback in crown, leaf scorch, golfball damage	pavement over roots
167	Italian stone pine	*Pinus pinea*	34.16674606	-118.1702519	P, S, M	30.1	40	25	40	32	12	10	7	18	15	A	B	C	A	strong lean, exposed damaged roots	normal
168	Canary Island pine	*Pinus canariensis*	34.16649608	-118.1702985	P, M	23.2	45	17	24	20	17	12	14	18	15	A	A	A	A		normal

Appendix A – Tree Measurements

Tree Number[1]	Common Name	Latin Name	Latitude	Longitude	Protected Tree Classification[2]	DBH[3]	Height[5]	Canopy North[6]	Canopy NorthWest	Canopy West	Canopy SouthWest	Canopy South	Canopy SouthEast	Canopy East	Canopy NorthEast	Health	Aesthetics	Balance	Vigor	Comments	Soil Condition
169	Canary Island pine	*Pinus canariensis*	34.16645168	-118.170296	P, M	19.8	40	12	13	10	12	10	11	14	13	B	B	A	B	exposed, damaged roots	normal
170	Canary Island pine	*Pinus canariensis*	34.16653639	-118.1702995	P, M	25.2	45	13	15	16	17	13	10	10	12	A	A	A	A	slight lean	normal
171	Italian stone pine	*Pinus pinea*	34.16638824	-118.1703019	P, M	17.1, 14.2 (22.2)	40	12	27	30	22	17	19	20	14	B	C	C	B	slight lean, sparse canopy, exposed roots	pavement over roots
172	Canary Island pine	*Pinus canariensis*	34.16656722	-118.1702999	P	15.0	43	14	13	15	13	13	10	15	16	B	B	B	B	slight lean, sparse canopy	normal
173	shamel ash	*Fraxinus uhdei*	34.1666734	-118.170298	P	6.3, 5.2 (8.2)	35	8	9	11	12	12	13	15	15	A	B	B	A	multiple trunks, rubbing against pine	normal
174	Peruvian pepper	*Schinus molle*	34.16668904	-118.1702951	P	9.3, 8.2 (12.4)	30	15	18	13	12	13	14	15	19	B	B	C	B	multiple trunks with included bark	normal
175	Canary Island pine	*Pinus canariensis*	34.16647073	-118.1702944	P	17.2	40	18	20	19	15	17	13	18	15	A	B	A	A	minor dieback in canopy	normal
177	Italian stone pine	*Pinus pinea*	34.16671919	-118.1702833	P, S, M	36.2	38	5	10	38	35	33	3	1	1	C	C	D	C	lean, exposed, damaged roots, damp pocket in trunk growing grass, column of decay possibly present	normal
178	Canary Island pine	*Pinus canariensis*	34.16641794	-118.1702989	P	14.2	38	10	12	13	15	12	8	8	12	A	B	B	B	exposed, damaged roots	normal
179	coast live oak	*Quercus agrifolia*	34.166267	-118.1703074	P, N, M	38.8	40	25	35	33	37	33	21	19	25	B	A	B	B	Arroyo Seco concrete banks burying roots, minor dieback in crown, self corrected lean	pavement over roots
1051	shamel ash	*Fraxinus uhdei*	34.16498135	-118.1702949	P	6.3, 5.4, 3.8 (9.1)	25	12	6	5	7	11	10	11	14	C	C	B	C	Roots growing over concrete, girdling roots, multiple trunks, golfball damage, fence girdling stem	normal
1064	western sycamore	*Platanus racemosa*	34.16491637	-118.1697157	P, N, M	10.1, 22.5, 17.0 (29.9)	50	18	19	16	20	18	21	20	18	D	C	C	D	large dead hangers in upper canopy, woodpecker holes, ISHB-FD likely, golfball damage, large cavities in trunk with decay, basal sprouting, investigate decay in trunk, extent of fusarium dieback	normal
1556	Chinese elm	*Ulmus parvifollia*	34.16646706	-118.16913	P, M	20.6	30	11	10	12	14	16	23	20	18	C	C	B	C	large damaged buttress roots with decay present, compaction In root zone, large cavity in trunk with decay, golfball damage	compacted

1: Existing Davey Tree Tag/Tree numbers utilized

2: P=Public, N=Native, S=Specimen M=Mature

3: Diameter at Breast Height or 4.5 feet above ground. Diameter measured in inches

4: Measurements in parentheses are the trees combined diameter as a function of the combined area measurements for each individual trunk as defined in Ordinance 8.52.020

5: Height measured in feet

6: Canopy measured in feet

7: ISHB-FD: Invasive shot-hole borers - Fusarium Dieback

Appendix B
Tree Photographs

Tree 55 - Peruvian pepper

Tree 56 - Peruvian pepper

Tree 57 - Peruvian pepper

Tree 58 - white paperbark tree

Tree 59 - Peruvian pepper

Tree 60 - Peruvian pepper

D202000261.00

SOURCE: ESA, 2020

Brookside Golf Course Improvements Project

Appendix B
Tree Photographs

ESA

Tree 61 - Peruvian pepper

Tree 62 - Peruvian pepper

Tree 63 - Peruvian pepper

Tree 64 - Peruvian pepper

Tree 65 - Peruvian pepper

Tree 66 - holly oak

Tree 67 - Peruvian pepper

Tree 68 - Peruvian pepper

D202000261.00

SOURCE: ESA, 2020

Brookside Golf Course Improvements Project

Appendix B
Tree Photographs

ESA

Tree 69 - American sweetgum

Tree 70 - Peruvian pepper

Tree 71 - Japanese yew

Tree 72 - Peruvian pepper

Tree 73 - Peruvian pepper

Tree 74 - Peruvian pepper

Tree 75 - Peruvian pepper

D202000261.00

SOURCE: ESA, 2020

Brookside Golf Course Improvements Project

Appendix B
Tree Photographs

ESA

Tree 76 - Peruvian pepper

Tree 77 - Peruvian pepper

Tree 78 - Peruvian pepper

Tree 79 - Peruvian pepper

Tree 80 - Peruvian pepper

Tree 81 - Peruvian pepper

Tree 82 - Peruvian pepper

Tree 83 - Peruvian pepper

D2020002611.00

SOURCE: ESA, 2020

Brookside Golf Course Improvements Project

Appendix B
Tree Photographs

ESA

Tree 84 - red ironbark

Tree 85 - western sycamore

Tree 86 - Peruvian pepper

Tree 87 - western sycamore

Tree 88 - western sycamore

Tree 89 - western sycamore

Tree 90 - western sycamore

D202000261.00

SOURCE: ESA, 2020

Brookside Golf Course Improvements Project

Appendix B
Tree Photographs

ESA

Tree 91 - coast live oak

Tree 102 - Mexican fan palm

Tree 103 - western sycamore

Tree 104 - Chinese privet

Tree 105 - Sydney red gum

Tree 106 - shamel ash

Tree 107 - shamel ash

Tree 108 - shamel ash

D202000261.00

SOURCE: ESA, 2020

Brookside Golf Course Improvements Project

Appendix B
Tree Photographs

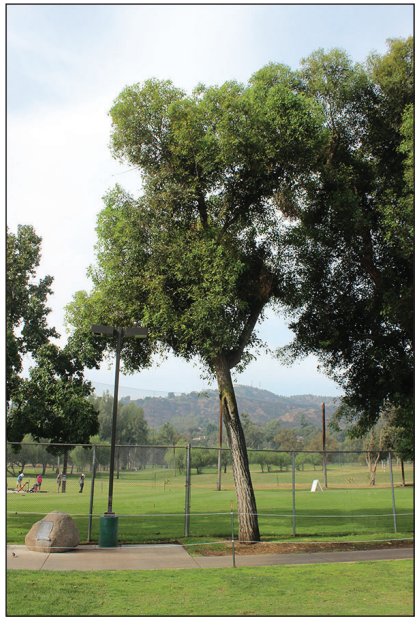
ESA

Tree 109 - coast live oak

Tree 110 - Sydney red gum

Tree 111 - white alder

Tree 112 - American sweetgum



Tree 113 - swamp mahogany

Tree 114 - swamp mahogany

Tree 115 - California bay laurel

Tree 116 - California bay laurel

D202000261.00

SOURCE: ESA, 2020

Brookside Golf Course Improvements Project

Appendix B
Tree Photographs

ESA

Tree 127 - holly oak

Tree 134 - holly oak

Tree 148 - carob

Tree 150 - red ironbark

Tree 152 - carob

Tree 156 - red ironbark

Tree 157 - red ironbark

Tree 158 - red ironbark

D202000261.00

SOURCE: ESA, 2020

Brookside Golf Course Improvements Project

Appendix B
Tree Photographs

ESA

Tree 159 - white paperbark tree

Tree 160 - California bay laurel

Tree 161 - holly oak

Tree 162 - holly oak

Tree 163 - western sycamore

Tree 164 - American sweetgum

Tree 167 - Italian stone pine

Tree 168 - Canary Island pine

D202000261.00

SOURCE: ESA, 2020

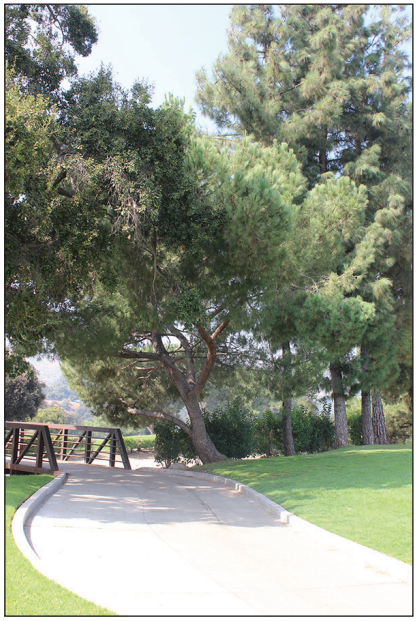
Brookside Golf Course Improvements Project

Appendix B
Tree Photographs

ESA

Tree 169 - Canary Island pine

Tree 170 - Canary Island pine



Tree 171 - Italian stone pine

Tree 172 - Canary Island pine

Tree 173 - shamel ash

Tree 174 - Peruvian pepper

Tree 175 - Canary Island pine

Tree 177 - Italian stone pine

D202000261.00

SOURCE: ESA, 2020

Brookside Golf Course Improvements Project

Appendix B
Tree Photographs

ESA

Tree 178 - Canary Island pine

Tree 179 - coast live oak

Tree 1051 - shamel ash

Tree 1064 - western sycamore

Tree 1556 - Chinese elm

D202000261.00

SOURCE: ESA, 2020

Brookside Golf Course Improvements Project

Appendix B
Tree Photographs

ESA

Appendix C
Resumes

Douglas Gordon-Blackwood

Biologist III

EDUCATION

BS, Botany, California State Polytechnic University, Pomona

14 YEARS OF EXPERIENCE

CERTIFICATIONS/ REGISTRATION

American Society of Consulting Arborists Registered Consulting Arborist #689

International Society of Arboriculture, Certified Arborist/Utility Specialist - #WE-11726-AU

International Society of Arboriculture, Tree Risk Assessment Qualified (TRAQ)

Wetland Training Institute 40-hour Wetland Delineator Certification Program 2018

Helicopter Flight/Safety Training, Burns & McDonnell

CDFW Rare Plant Voucher Collecting Permit 2081(a)-17-021-V

University of California Cooperative Extension 2018 Gold-spotted Oak Borer / Invasive Shot Hole Borer Workshop

PROFESSIONAL AFFILIATIONS

California Native Plant Society

California Invasive Plant Council

American Society of Consulting Arborists

Douglas is a consulting biologist with 9 years of experience in biological resources and habitat restoration, and 14 years with arboriculture. During his career he has conducted or supervised biological surveys and mapping of plant communities, jurisdictional areas and wildlife throughout Southern California. He has acted as lead biologist on several large utility, development, and transportation projects throughout Southern California.

His experience includes extensive survey experience for biological resource assessments, habitat and vegetation mapping, nesting bird surveys, restoration site assessments, arboricultural assessments, invasive species eradication, and biological compliance monitoring.

Experience Themes

Botany. As a botanist, Douglas has over 9 years' experience conducting rare plant surveys throughout Southern and Central California. He has extensive vegetation classification and mapping experience utilizing CNPS-CDFW combined vegetation rapid assessment and Relevé methods. Douglas has overseen field efforts for clients like Southern California Edison (SCE), California High Speed Rail Authority, Caltrans, LADPW, OCPW, IRWD, and Southern California Gas.

Arboriculture Douglas is certified by the American Society of Consulting Arborists (ACSCA) as a Registered Consulting Arborist (RCA). He is certified by the International Society of Arboriculture (ISA) as a Certified Arborist, Utility Specialist, and is Tree Risk Assessment Qualified. He is also a member of the ASCA, ISA, Western chapter of the ISA, and the Utility Arborist Association. Douglas has over 14 years' experience working with native and ornamental trees throughout California. Douglas is currently pursuing his ISA Board Certified Master Arborist (BCMA).

Habitat Restoration Ecologist Douglas has over 8 years of habitat restoration experience throughout various habitat types in Southern California. He has extensive experience conducting restoration site assessments, through qualitative and quantitative monitoring. Douglas has overseen invasive and nonnative plant species inventory, control and monitoring for restoration sites throughout the Angeles, Los Padres, San Bernardino and Cleveland National Forests. He is also skilled in preparation of various mitigation documents including Habitat Mitigation and Monitoring Plans, Long Term Management Plans, project work plans, and annual reporting.

CERTIFICATIONS/ REGISTRATION (CONTINUED)

International Society of Arboriculture – Western Chapter

Utility Arborist Association

Department of Water Resources OP-2 Awareness Training

Union Pacific Railroad Orientation and safety Training

BNSF Contractor Safety Orientation
TPZP Safety Training

Utility Transmission Projects. Working in various roles with Southern California Edison, Douglas has acted as a lead biological monitor, lead botanist, lead weed abatement monitor, arborist, nesting bird support and restoration ecologist throughout Kern, Los Angeles, San Bernardino, Ventura, Riverside, and Orange Counties. He also assisted with preparation of SCE GO-131 memorandum, habitat resource assessments, Biological Opinion, habitat restoration and weed management planning.

Relevant Experience

Transportation

Los Angeles County Department of Public Works Creek Fire Restoration Projects, Sylmar, CA. *Biologist*. Douglas conducted rare plant and oak tree surveys, conducted vegetation mapping, and weed abatement monitoring for four sites (MM 15.12, 15.62, MM15.67, and MM 16.92) along Little Tujunga Road within the Angeles National Forest. 4 days; January 2019 – November 2020.

Dillon Road Bridge over Coachella Valley Stormwater Channel (aka Whitewater River Channel) Project, Dillon Road Joint Powers Authority, City of Coachella, CA. *Botanist.* Douglas acted as botanist for habitat mapping, rare plant survey, and general biological surveys for the Dillon Road Bridge project. 3 Days; November 2019

San Bernardino County Transportation Authority I-215 Bi-County Landscape Project, Colton/Grand Terrace, CA. *Botanist/Arborist.* Douglas acted as botanist and arborist for habitat mapping, tree inventory, and biological surveys along Interstate 215 for a highway landscape renovation project in San Bernardino and Riverside Counties. Observed sensitive species include *Juglans californica.* 1 day; June 2019.

Los Angeles World Airport LAX Landside Access Modernization Program Tree Survey, **Los Angeles, CA.** *Arborist.* Douglas acted as project manager and arborist for the 127-acre Manchester Square property adjacent to the Los Angeles World Airport. Douglas provided arboricultural, mapping and reporting services for approximately 1100 ornamental trees within the Los Angeles World Airport property. 2.5 Weeks; January 2019.

Metro Purple Line Extension, Beverly Hills, CA. *Independent Compliance Monitor.* Douglas conducted noise and compliance monitoring for the Metropolitan Transportation Authority Purple Line Extension Project. 20-30 days; July 2017-September 2018.

California High Speed Rail Project, Angeles National Forest, CA. *Lead Botanist.* Douglas performed rare plant and invasive plant surveys for the Palmdale – Burbank & Fresno to Merced spans of the California High Speed Project. He also assisted with habitat restoration, weed management, Daily EMMA reporting and agency interaction with National Forest Service botanists and various other agencies. 15 Days; August 2015 – Present.

Development

Mammoth Mountain Resorts Woolly Tube Park/Proposed Snowmaking Facilities Botanical Survey, Mammoth Mountain, CA. *Botanist.* Douglas acted as the lead botanist (subcontracted through Ascent Environmental) for botanical surveys at Woolly's tube park and various snowmaking facilities throughout Mammoth Mountain Ski Area within Inyo/Mono National Forests. 5 Days; July 2020.

Wiley Canyon (Smiser Ranch) Mixed Use Development, Santa Clarita, CA. *Biologist/Arborist*. Douglas conducted biological and arboricultural inventory and report for a mixed use development in the City of Santa Clarita. 2 Weeks; December 2019

Scripps College Science Center Preconstruction Nesting Bird Surveys, Claremont, CA. *Biologist*. Douglas conducted preconstruction nesting bird surveys and nest monitoring for the construction of a science building on the campus of Scripps College in the City of Claremont. 1 Week; April 2020

Trails at Santiago Creek Development, Orange, CA. *Biologist/Botanist.* Douglas conducted rare plant, vegetation mapping, Jurisdictional delineations, and Burrowing owl surveys of a 11-acre parcel of Rio Santiago, a large development located in the City of Orange. 1 week; April 2020

Calamigos Tennis Ranch Biological Support, Calabasas, CA. *Biologist/Arborist.* Douglas conducted oak and native tree inventory, biological survey, mapped sensitive environmental resource areas, and provided reporting for an 8-acre mixed-use facility in support of the Santa Monica Mountains LCP Biological Assessment requirements. 7 days; October 2019 – Present

4700 Avenida Del Mar Biological Assessment, Malibu, CA. *Botanist/Biologist.* Douglas conducted and wrote a general biological assessment in accordance with the City of Malibu Local Coastal Program, and including vegetation mapping, jurisdictional delineations, biological inventory and mapping of Environmentally Sensitive Habitat Areas (ESHA's). 6 Days; November 2019

25860 Dark Creek Road Biological Assessment, Monte Nido, CA. *Botanist/Biologist.* Douglas conducted a general biological assessment in accordance with the Santa Monica Mountains Local Coastal Program, and including vegetation mapping, jurisdictional delineations, biological inventory and tree mapping. Douglas also wrote the biological assessment. 5 Days; December 2019

Oaks at Monte Nido/Monte Nido Estates Residences Project, Monte Nido, CA. *Biologist.* Douglas conducted biological and arboricultural surveys and documentation in support of a coastal development permit application in the rural community of Monte Nido. 4 Days; November 2019

EF International Language Campus Project, Costa Mesa, CA. *Biologist.* Douglas conducted a biological and landscape assessment of the former Trinity Broadcasting Network facility for a proposed college campus in support of CEQA documents. 2 Days; September 2019

Legado Properties Playa Del Rey Beachfront Properties Project, Playa Del Rey, CA. *Biologist.* Douglas conducted a vegetation mapping, post impact analysis, and a historical site assessment for beachfront properties located within Environmentally Sensitive Habitat Areas. 2 Days; August 2019

Rutter Santiago Saddle Crest Development, Trabuco Canyon, CA. *Habitat Restoration Monitor.* Douglas gathered transect and field data for qualitative and quantitative site assessments and annual reporting for mitigation sites within the Cleveland National Forest. Douglas also helped produce annual reporting for Special-status plant, Sensitive Natural Communities, and Regional Water Quality Control Board annual reporting. Observed sensitive species include *Nolina cismontana* and *Calochortus weedii* var. *intermedius.* 20 Days; January 2019 - Present.

March Joint Powers Authority Heacock Street Truck Terminal Facility, March Inland Port Airport (Unincorporated Riverside County, CA). *Habitat Restoration Ecologist.* Douglas prepared the Habitat Mitigation and Monitoring Plan (HMMP) for the Heacock Street Truck Terminal project located within the March Joint Powers Authority. 5 Days; December 2018.

Trumark Homes Henry Avocado Ranch Tree Survey, Escondido, CA. *Arborist.* Douglas conducted a tree survey of 300 trees within a 34-acre proposed development in Escondido, CA. 1 Day; April 2019

Netflix Triunfo Canyon Corporate Retreat, Agoura Hills, CA. *Botanist/Arborist.* Douglas conducted rare plants, wildlife and habitat mapping of the Oak Canyon Ranch property within Triunfo Canyon. Douglas also conducted tree inventories and hazardous tree assessments. Observed sensitive species included *Lilium humboldtii* ssp. *ocellatum*, *Calochortus catalinae,* and *Juglans californica.* 2 days; May 2019 – June 2019

Stephens Ranch Cemetery Project, La Verne, CA. *Botanist.* Douglas conducted habitat mapping, wildlife surveys and rare plant surveys of the 187-acre Stephens Ranch Cemetery project located within the San Dimas Canyon/San Antonio Wash Significant Ecological Areas of Los Angeles County. Observed sensitive species included *Romneya coulteri*, *Berberis nevinii*, and *Quercus durata* var. *gabrielensis.* 3 Days; April 2019 – June 2019.

Hidden Oaks Ranch Country Club Project, Chino Hills, CA. *Botanist.* Douglas conducted habitat mapping and rare plant surveys for a 537-acre site located within the City of Chino Hills. Observed sensitive species included *Calochortus catalinae*. 2 days; May 2019 - Present

Boy Scouts of America Camp Cherry Valley Biological Constraints Survey and Reporting, Two Harbors - Santa Catalina Island, CA. *Botanist*. Douglas conducted rare plant and habitat mapping of Camp Cherry Valley property adjacent to Two Harbors. Observed sensitive species included *Constancea nevinii, Crossosoma californicum, Calochortus catalinae, Piperia cooperi, Ribes viburnifolium, Quercus pacifica, Galium catalinense* ssp. *catalinense, Eriogonum giganteum* var. *giganteum, Deinandra clementina, Arctostaphylos catalinae,* and *Acmispon dendroideus* var. *dendroideus.* 1 Day, June 4th, 2019

Under Canvas Joshua Tree Recreational Facility Project, Yucca Valley, CA. *Botanist.* Douglas conducted rare plant surveys, desert native plant inventory and habitat assessments of a 640-acre property within the town of Yucca Valley, CA. Observed sensitive species included *Saltugilia latimeri.* 3 Days; April 2019 – May 2019

Christopher Homes (CD/CFG Lake Ranch LLP) Lake Ranch Project, Lake Mathews (Unincorporated Riverside County), CA. *Biologist.* Douglas helped prepare various habitat restoration documents for the Lake Ranch project including the Habitat Mitigation and Monitoring Plan, the Fencing Plan, and the Long-term Monitoring Plan for a 110-acre land development site located within the Western Riverside Multiple Species Habitat Conservation Plan. September 2018.

Berkeley Tuolumne Family Campground, Tuolumne Meadows, CA. *Lead Arborist.* Douglas conducted an arboricultural inventory for 2000+ trees burned during the 2013 Rim Fire within the City of Berkeley Family Campground. Douglas conducted tree risk assessments for each tree, mapped each location using sub-meter GPS, and tagged trees with appropriate tagging. Douglas also conducted vegetation mapping of portions of the site. 2 Weeks; January – February 2018

Seefried Industrial Properties Project, Fontana, CA *Lead Arborist.* Douglas conducted an arboricultural survey and reporting for A 17.6-acre proposed industrial site within Fontana, CA. Reporting was prepared in accordance with the City of Fontana Tree Policy Manual. 2 days; February 2018

Chevron West Coyote Hills, Fullerton, CA *Lead Botanist* Douglas conducted rare plant surveys, Calochortus spp. mapping, and habitat site assessments of the West Coyote Hills development. 2 Days; June 2017

Moreno Rose Retirement Village, Moreno Valley, CA *Burrowing Owl Support.* Douglas conducted a habitat and resources assessment, and prepared reporting for a proposed retirement community within Moreno Valley, CA. 1 Day; February 2018

Pardee Homes Butterfield DBESP, Beaumont, CA *Burrowing Owl Support.* Douglas served as burrowing owl support for protocol burrowing owl surveys of the proposed Butterfield property within the City of Beaumont, CA. 2 Days; May 2017

William Lyon Homes Avery Place, Menifee, CA. *Burrowing Owl Support.* Douglas served as burrowing owl support for MSHCP 30-day Preconstruction survey of a housing development within Menifee, CA. 1 Day; January 2019

Utility

AT&T Communications Clock Tower Project, Newhall, CA. *Biologist.* Douglas conducted biological inventory, vegetation mapping and site assessment for a proposed cell tower located within the Santa Susana Mountains/Simi Hills Significant Ecological Area and prepared the corresponding Biological Constraints Analysis and Biota Report. Observed sensitive species includes *Juglans californica.* 1 Week; February 2020

Inland Empire Utilities Agency Groundwater Recharge Basins Burrowing Owl Presence/Absence Surveys, Inland Empire, CA. *Burrowing Owl Support.* Douglas acted as a burrowing owl support for burrowing owl presence/absence surveys within groundwater recharge basins throughout the Inland Empire. 10 days; May 2019 to Present.

Department of Water Resources Cedar Springs Spillway Repair Project, Hesperia, CA. *Biological Monitor.* Douglas provided biological monitoring and nesting bird surveys for the Cedar Springs spillway repair project located within the Silverwood Lake State Recreation Area. May 20, 2019 - Present

Department of Water Resources San Joaquin Field Division Subsidence Surveys, Kern County, CA *Burrowing Owl.* Douglas conducted burrowing owl habitat assessments, burrow inventory, and protocol surveys along the California Aqueduct within Kern County. 2 Days: June 2019.

Department of Water Resources Lake Perris Geological Instrumentation Installation Monitoring, Perris, CA. *Biological Monitor.* Douglas provided biological monitoring for the installation of geological testing equipment installations throughout the Lake Perris State Recreation Area. July 1st and 2nd, 2019

SCE Deteriorated Pole Replacement, Southern California, CA. *Biologist*. Douglas conducted Habitat Resource Assessments for multiple deteriorated SCE utility poles throughout Southern California. Douglas conducted habitat and vegetation mapping, prepared project evaluation memos and conducted desktop analysis and monitored pole replacement in a wide range of sensitive species habitats. 10-20 Days; June 2017 - March 2018.

SCE HTRP/DRHTP Hazardous Tree Removal Program & Drought Related Hazardous Tree Program, Southern California, CA. *Biologist/Arborist.* Douglas acted as an arborist for SCE's hazardous tree program. Douglas conducted tree surveys, habitat assessment, jurisdictional assessments, and tree removal monitoring for hazardous trees throughout Southern California. 20-30 Days; June 2017 - March 2018.

Metropolitan Water District (MWD) Foothill Blow-off Feeder, Santa Clarita, CA. *Biological Monitor.* Douglas served as a biological monitor overseeing vegetation removal and site clearing for foothill feeder blow-off stations located within Santa Clarita, CA. Douglas also prepared site resource assessments for work at the feeders. 1 day; March 2018

SCE/Plains Kinsey 12 kV Restoration Site, Gorman, CA. *Restoration Ecologist* Douglas oversaw seed collection, seeding, planting, BMP maintenance, and weed abatement of a SCE and Plains Pipeline restoration site within the Angeles National Forest. Observed sensitive species included *Calochortus clavatus* var. *gracilis* and *Delphinium parryi* ssp. *purpureum.* 10 days; December 2017- March 2018

SCE Tahquitz Substation Replacement Project, Mountain Center, CA *Botanist.* Douglas conducted rare plant surveys and Special Status plant focused construction monitoring for the Tahquitz Substation wreck out and replacement. Observed sensitive species include *Deinandra mohavensis*, *Calochortus palmeri* var. *munzii*, and *Galium angustifolium* ssp. *jacinticum.* June 2018 to August 2018.

SCE McGrath Beach Substation and Peaker Station, Oxnard, CA. *Lead Botanist /Restoration Ecologist.* Douglas conducted Daubenmire cover class vegetation sampling and rare plant surveys for the SCE McGrath Beach Peaker Station. Douglas also oversaw site restoration, weed abatement, and irrigation maintenance of a 37-acre site associated with SCE's McGrath Beach Substation. Observed sensitive species observed included *Astragalus pycnostachyus* var. *lanosissimus* and *Juncus acutus* ssp. *leopoldii.* 2-3 weeks; April 2017 – August 2018.

EDF Energy Valentine Wind Farm and Gen-Tie, Antelope Valley, CA. *Lead Botanist.* Douglas oversaw rare plant surveys and Desert Native Plant Act (DNPA) inventory of the Valentine Wind Farm and Gen-Tie alignment. Douglas also assisted with jurisdictional delineations and reporting for the site. 5 days; June 2017

SCE Mira Loma-Serrano Alignment Project, Yorba Linda, CA. *Restoration Ecologist.* Douglas conducted annual restoration site monitoring, willow stake planting, and reporting for a disturbed riparian site adjacent to SCE's Mira Loma-Serrano Alignment. 5 Days; April 2017 – June 2017.

SCE Serrano Valley Restoration Site, Corona, CA. *Restoration Ecologist.* Douglas conducted quarterly restoration site assessments and invasive species mapping for a riparian restoration site along SCE's Serrano Valley transmission line. Douglas also oversaw weed abatement and BMP installation and maintenance for the site. 5-6 days; April 2017 - June 2017

SCE Santa Catalina Pole Replacement Surveys, Santa Catalina, CA. *Lead Botanist.* Douglas oversaw and lead botanical, wildlife and habitat assessment surveys of pole replacement impact areas for SCE distribution lines throughout Santa Catalina Island. Douglas also conducted detailed reporting and impact assessment. *Observed sensitive species Arctostaphylos catalinae, Atriplex coulteri, Calochortus catalinae, Ceanothus megacarpus* var. *insularis, Cercocarpus betuloides* var. *blancheae, Cistanthe maritima, Crossosoma californicum, Dendromecon harfordii* var. *rhamnoides, Dichondra occidentalis, Dudleya virens* ssp. *hassei, Eriogonum giganteum* var. *giganteum, Galium catalinense ssp. catalinense, Galium nuttallii ssp. insulare, Harpagonella palmeri, Lyonothamnus floribundus* ssp. *floribundus, Malacothamnus fasciculatus* var. *catalinensis, Microseris douglasii* ssp. *platycarpha, Piperia cooperi, Quercus pacifica, Quercus tomentella, Rhamnus pirifolia,* and *Scrophularia villosa.* 1 week; April 2017.

EDF Renewable Energy Tropico Solar Project, Rosamond, CA. *JD Support.* Douglas served as a jurisdictional delineation support for a 215-acre proposed solar site. Douglas also conducted rare plant and special status wildlife general survey of the site. 3 Days; December 2018.

SCE Vista-Colton Deteriorated Pole Replacement Project, Colton, CA. *Lead Botanist.* Douglas conducted rare plant, vegetation and habitat mapping within the floodplain of the Santa Ana River. Observed sensitive species included *Eriastrum densifolium* ssp. *sanctorumi.* 2 days; April 2018

SCE Arrowhead Subtransmission Line Realignment Project, Hesperia, CA *Lead Botanist.* Douglas conducted rare plant and habitat assessments of a 115 kV transmission line. 1 Day; September 2018.

SCE Garnet Substation Project, North Palm Springs, CA *Lead Botanist.* Douglas conducted botanical and wildlife surveys of the Garnet substation and alignment near North Palm Springs, CA. Observed sensitive species include *Astragalus lentiginosus* var. *coachellae*. 2 Days; August 2017

SCE Cottonwood-Permanente Deteriorated Pole Replacement Project, Cushenbury Springs, CA *Lead Botanist.* Douglas conducted rare plant, vegetation and habitat surveys for a pole replacement project within the unique carbonate habitat of Cushenbury Springs, CA. Observed sensitive species included *Rosa woodsii* var. *glabrata* and *Calochortus striatus.* 2 days; June 2017

SCE El Casco Substation Restoration Project, El Casco, CA *Restoration Ecologist.* Douglas conducted weed abatement and restoration site assessments for a smooth tarplant (*Centromadia pungens* ssp. *laevis*) restoration site adjacent to SCE's El Casco Substation. Observed sensitive species included *Centromadia pungens* ssp. *laevis*, and *Juglans californica.* 5 days; June 2017

SCE Calcite Substation Project, Lucerne Valley, CA *Lead Botanist.* Douglas conducted botanical, wildlife, and habitat assessment surveys of the Calcite substation and alignment. Observed sensitive species *Cryptantha clokeyi*, *Eriogonum ovalifolium* var. *vineum*, *Calochortus striatus*, *Erigeron parishii*, and *Muilla coronata.* 2 Days; May 2017

SCE Alberhill – Valley Ivy Glen Alignment, Temescal Valley, CA *Lead Botanist. BUOW support.* Douglas conducted MSHCP Botanical, Vernal Pool, and Burrowing owl surveys of the Alberhill and Valley Ivy Glen alignment. Observed sensitive species included *Abronia maritima* var. *aurita, Ambrosia pumila, Atriplex coronata* var. *notatior, Centromadia pungens* ssp. *laevis, Chorizanthe polygonoides* var. *longispina, Chorizanthe xanti* var. *leucotheca, Chorizanthe leptotheca, Deinandra paniculata, Dodecahema leptoceras, Dudleya multicaulis, Harpagonella palmeri, Juglans californica, Lasthenia glabrata* ssp. *coulterti, Lepidium virginicum* var. *robinsonii, Pseudognaphalium leucocephalum,* and *Romneya coulteri. 10-15 Days;* April 2017 – June 2018

SCE Gale-Pisgah Alignment Project, Daggett, CA *Lead Botanist.* Douglas conducted botanical and wildlife surveys of SCE Gale-Pisgah alignment and Substation. Observed sensitive species *Menodora spinescens* var. *mohavensis* and *Funastrum utahense*. 3 days; April 2017.

SCE Eldorado-Lugo-Mohave Upgrade Project (LVRAS) Baker, CA *Lead Botanist.* Douglas conducted botanical and desert tortoise surveys of a SCE line replacement within the Mojave National Preserve between Barstow and the Nevada Border. Douglas also acted as a support for jurisdictional delineations throughout the survey area. Observed sensitive species included *Astragalus bernardinus*, *Astragalus layneae*, *Astragalus tidestromii, Castela emoryi, Cymopterus multinervatus*, *Grusonia parishii*, and *Sphaeralcea rusbyi* var. *eremicola.* 3.5 Weeks; April 2017 – May 2017.

SCE La Fresa Substation, Torrance, CA *Biological Monitor.* Douglas served as a biological monitor and nesting bird biologist. Douglas conducted nest monitoring of red-tailed hawk and common raven nests within SCE's La Fresa substation. 2 days; April 2017.

SCE Lake Success Project, Porterville, CA *Lead Botanist.* Douglas conducted botanical and vegetation mapping of the Option 2 SCE alignment surrounding Lake Success. Observed sensitive species included *Clarkia springvillensis*, *Convolvulus simulans*, *Eryngium spinosepalum*, *Navarretia nigelliformis* ssp. *nigelliformis*, and *Pseudobahia perisonii.* 9 days; April 2017 – May 2017.

EDF Catalina Solar/Pacific Wind Farm, Antelope Valley, CA *Botanist.* Douglas conducted Daubenmire cover class mapping and botanical surveys throughout Catalina Solar and Pacific Wind farms in the Antelope Valley.5 days; March 2017.

Avangrid Renewables Tule Wind Project, Boulevard, CA. *Designated Biologist.* Douglas acted as a designated biologist for 200 megawatt wind turbine project within the McCain Valley on BLM and Ewiiaapaayp Tribal lands. As a restoration ecologist, Douglas oversaw large scale cactus and succulent salvage and storage. Douglas also acted as a biological monitor during the site clearing, civil work and turbine construction. 15-20 Days; October 2016 – March 2017

SCE Tehachapi Renewable Transmission Project (TRTP) – Kern, Los Angeles, and San Bernardino Counties, CA. *Lead Botanist/ Lead Biological Monitor.* Douglas served as lead botanist, lead biological monitor, lead weed abatement monitor, nesting bird surveyor, and restoration ecologist for the Southern California Edison's (SCE) TRTP project spanning a 173-mile transmission line corridor, including construction of 500 kV overhead and underground high-voltage electric transmission lines. Douglas conducted rare plant surveys throughout Kern, Los Angeles, and San Bernardino counties. Douglas oversaw invasive species mapping and removal throughout the Angeles National Forest, Puente Hills habitat preserve, and Tonner Canyon preserves. He acted as a support for riparian bird and nesting bird surveys throughout the project area for species including Coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, and burrowing owls. He also provided oversight for plant salvage activities within the Angeles National Forest. Observed sensitive plant species included *Heuchera caespitosa, Berberis nevinii, Dudleya cymosa* ssp. *crebrifolia, Dudleya densiflora, Opuntia basilaris* var. *brachyclada, Centromadia parryi* ssp. *australis, Hulsea vestita* ssp. *gabrielensis, Galium grande, Orobanche valida* ssp. *valida, Lilium humboldtii* ssp. *ocellatum, Arctostaphylos glandulosa* ssp. *gabrielensis, Lepechinia fragrans, Calystegia felix, Syntrichopappus lemmonii, Calochortus catalinae, Calochortus plummerae, Calochortus palmeri* var. *palmeri, Castilleja gleasoni, Malacothamnus davidsonii, Quercus durata* var. *gabrielensis* and *Juglans californica.* 6 Years; March 2011 – March 2017.

Southern California Gas North/South Project, San Bernardino and Riverside Counties, California. *Lead Botanist.* Douglas conducted botanical and wildlife surveys of the Southern California Gas North/South alignment. 2 Days; March 2014

Municipal

Newport Bay Conservancy Big Canyon Phase 2A Restoration Project, Newport Beach, CA. *Restoration Ecologist/Arborist.* Douglas conducted habitat restoration monitoring, arboricultural assessments, and invasive Shot-hole borer assessments of Newport Bay Phase 2A big canyon site. 2 Days; August 2020

Orange County Public Works Caspers Wilderness Park Entry Road Repair Project, San Juan Capistrano, CA. *Biologist.* Douglas provided biological monitoring and reporting for an Arizona Crossing Repair project. 4 Days; July 2020 – Present

Orange County Public Works Peters Canyon Bikeway Extension Project, Orange/Tustin, CA. *Biologist.* Douglas conducted a biological assessment and composed the Natural Environment Study (Minimal Impact) for the project located within portions of the Orange County HCP. June 2020 – Present.

Los Angeles Department of Public Works Los Angeles River Bike Path (Willowcrest Ave to Barham Blvd), Universal City, CA. *Arborist.* Douglas conducted a tree inventory and reporting for the LA River bike path between Willowcrest Avenue and Barham Boulevard, and within the Universal Studios Specific Plan Area. 6 days; June 2020

Orange County Public Works Villa Park Biological Monitoring, Orange, CA. *Biologist.* Douglas provided biological and restoration monitoring and reporting for a brush clearance project at the Villa Park Dam facility and within fuel modification areas adjacent to the dam. 5 days; December 2019 – Present.

Palos Verdes Peninsula Water Reliability Project Environmental Compliance Monitoring, Palos Verdes, CA. *Compliance Monitor.* Douglas conducted daily compliance monitoring of a pipeline replacement project within Palos Verdes and Rolling Hills Estates. September 2018 – Present.

Orange County Public Works Countywide Long Term Routine Maintenance Program Channel Categorizations 2019 & 2020, Orange County, CA. *Biologist.* Douglas conducted channel categorizations, biological surveys, jurisdictional delineations, vegetation mapping and reporting for various channels and basins throughout Orange County, CA. 45 days; April 2019 – Present.

Orange County Public Works San Diego Creek Sediment Removal Project, Irvine, CA *Biologist.* Douglas conducted daily site spot checks and nesting bird surveys of a sediment removal project within the San Diego Creek. 15-20 Days; September 2018 to May 2019.

San Manuel Band of Mission Indians Hot Springs Lake Dam Project, Highland, CA. *Biologist.* Douglas conducted biological and vegetation mapping surveys of the Hot Springs Lake Dam area on the San Manuel reservation and provided technical memorandum for the project. 2 Days; September 2019

Los Angeles County Department of Public Works Santa Anita Canyon Road Improvement Project, Sierra Madre, CA. *Biologist.* Douglas conducted biological site assessment and vegetation mapping for a road repair project along Santa Anita Canyon Road. 6 Days; October 2019

Los Angeles County Department of Public Works Vasquez Canyon Road at Bouquet Bridge Project, Santa Clarita, CA. *Biological Monitor.* Douglas provided biological monitoring for a sediment removal project beneath the Vasquez Canyon bridge. 2 days; September 2019.

Los Angeles County Department of Public Works San Francisquito Canyon Creek Bridge Project, Santa Clarita, CA. *Botanist.* Douglas conducted vegetation mapping of proposed bridge replacement and road improvement project in the Angeles National Forest. Observed sensitive species included least Bell's vireo and *Berberis nevinii.* 1 Day; August 2019.

Los Angeles County Department of Public Works Santa Monica Mountains/Mulholland Highway Storm Repair Project, Malibu, CA. *Biological Monitor.* Douglas provided biological monitoring and biological assessments for various road repair sites along Mulholland Highway. 7 Days; December 2019 – Present.

City of Los Angeles Department of Recreation and Parks Peck Park Annual Brush Clearance Monitoring, San Pedro, CA. *Biologist.* Douglas provided nesting bird surveys and biological monitoring for annual brush clearance activities for Lake Machado, Peck Park, and Harbor Park Golf Course within the city of San Pedro, CA. 4 days; June 2019 – September 2019.

Los Angeles Unified School District Elizabeth Learning Center Habitat Gardens Assessment, Cudahy, CA. *Botanist.* Douglas provided a botanical and biological inventory for specialized chaparral, vernal pool, and desert habitat gardens at Elizabeth Learning Center. September 2019.

Cali Lake RV Park Project, Santa Clarita, CA. *Botanist.* Douglas conducted a rare plant survey and vegetation mapping of recreational campground and RV park within the Santa Clara River Significant Ecological Area. 1 Day; July 2019

County of San Diego Department of Parks and Recreation Hellhole Canyon Preserve Additions Biodiversity Survey and Habitat Maps, Valley Center, CA. *Botanist.* Douglas conducted habitat mapping, rare plant, and invasive plant surveys of 5 large parcel additions to the Hellhole Canyon Preserve totaling 692 Acres. Observed sensitive species included *Harpagonella palmeri, Xanthisma junceum, Quercus engelmanii,* and *Allium marvinii.* 9 Days; March 2019 – April 2019

County of San Diego Department of Parks and Recreation Ramona Sheriff Station Vernal Pool Survey and Vegetation Mapping, Ramona, CA. *Botanist.* Douglas conducted vegetation mapping, rare plant mapping, and vernal pool surveys of a property adjacent to Ramona Sheriff Station. Observed sensitive species included San Diego fairy shrimp (*Branchinecta sandiegonensis*). 1 Day; March 2020.

County of San Diego Management & Monitoring Rare Plant Inspect and Monitoring Program 2019, Sycamore Canyon/Goodan Ranch Preserve, CA. *Botanist.* Douglas conducted Rare Plant Inspect and Manage monitoring for San Diego Thornmint (*Acanthomintha ilicifolia*) populations located within Sycamore Canyon and Goodan Ranch Preserves. Observed sensitive species included *Acanthomintha ilicifolia, Convolvulus simulans, Harpagonella palmeri,* and *Selaginella cinerescens.* April 15th and 16th, 2019.

Los Angeles Unified School District Marshall High School Nesting Bird Surveys, Los Angeles, CA. *Nesting Bird Surveyor.* Douglas provided nesting bird surveys and monitoring for a building upgrade project at Marshall High School. June 2019 – July 2019

Irvine Ranch Water District Syphon Reservoir Improvement Project, Irvine, CA *Botanist/Arborist.* Douglas conducted habitat assessments, tree mapping, western spadefoot toad surveys and rare plant surveys within Syphon Reservoir. Observed sensitive species included *Dudleya multicaulis, Viguiera laciniata* and *Calochortus catalinae.* 10 days; December 2018 – December 2019

City of San Diego Wetland/Restoration Mitigation Opportunities Site Evaluations, San Diego, CA. *Botanist.* Douglas conducted Wetlands Mitigation Opportunities assessments and filled out site evaluation forms of Mission Valley, Sunshine-Berardini, West Bernardo, Lopez Canyon, East Black Mountain, Camino Del Sur, Upper Penasquitos Watershed, and South-56 potential mitigation sites throughout the City of San Diego. Observed sensitive species included *Viguiera laciniata, Harpagonella palmeri, Artemisia palmeri, Quercus dumosa, Adolphia californica, Ferocactus viridesecens, Selaginella cinerescens, Iva hayesiana, Adolphia californica,* and *Juncus acutus* ssp. *leopoldii.* 15 Days; March 2019 – Present.

Los Angeles County Department of Public Works Eaton Wash Reservoir, Altadena, CA. *Compliance Monitor.* Douglas conducted daily weed abatement and vegetation removal monitoring during annual maintenance activities within the Eaton Wash Flood Control Basin. 5 Days; September 2018 – October 2018.

Gregory C. Ainsworth

Senior Arborist

EDUCATION

M.C.R.P., Environmental Planning, California Polytechnic State University, San Luis Obispo

B.S., Environmental Horticulture Science, California Polytechnic State University, San Luis Obispo

18 YEARS EXPERIENCE

CERTIFICATIONS AND TRAININGS

International Society of Arboriculture Certified Arborist (Cert# WE 7473A)

International Society of Arboriculture, Tree Risk Assessor Qualified (TRAQ)

REFERENCES

Maureen Tamuri, City of Calabasas, Community Development Director.
Email: mtamuri@cityofcalabasas.com
Phone: (818) 224-1701

Doug Hooper, City of Agoura Hills, Planning Director
Email: dhooper@ci.agoura-hills.ca.us
Phone: (818) 597-7342

Kelly Kim, Los Angeles County Fire Department-Urban Forestry Division.
Email: kkim@fire.lacounty.gov
Phone: (818) 890-5719

Greg has extensive experience conducting tree assessments, health risk assessments, tree appraisals, and providing expert witness testomony to municipalities. He is an certified arborist with the International Society of Arboriculture and serves as the City Arborist for the cities of Calabasas and Agoura Hills. In adition, Greg has an on-call master service agreement for arborist services with the Los Angeles County Beaches and Harbors Department and the Ventura County Channel Islands Harbor Department, and heis a pre-approved arborist with the City of Malibu and the County of Los Angeles, and interacts regularly with the Los Angeles County Forestry Division. Greg has experience conducting tree surveys and preparing reports for several other municipalities and counties, including but not limited to, City of Pasadena, City of Thousand Oaks, City of Santa Clarita, Ventura County and San Luis Obispo County. He has assisted dozens of clients with obtaining descretionary permits involving tree impacts. Greg was a member of the Oak Woodland Habitat Conservation Alliance; a team of professional arborists, forestry personnel and planners that recently completed an Oak Woodland Conservation and Management Plan for the County of Los Angeles.

Relevant Experience

Pasadena Non-Potable Reuse Water Project, City of Pasadena, Public Works Department. The City of Pasadena Public Works Department proposes to install a non-potable recycled water line along various streets that bisect residential neighborhoods to the east and west of Brookside Golf Course. Greg led a survey of more than 200 trees that could potentially be effected and prepared a risk assessment for several mature Canary Island Pine Trees located on Laurel Street that were of concern to adjacent residents. Greg prepared a tree survey report and Canary Island Pine Risk Assessment Report, and assisted the Director of Public Works in facilitating a public workshop on the project's potential impacts to city-trees, and the potential risks associated with installing underground utilities on Laurel Street.

Historic Deodar Cedar Impact Assessment, City of Santa Monica, CA. Greg conducted a focused assessment of a Deodar Cedar tree listed as a historic resource by the City of Santa Monica. The purpose of the assessment was to verify if a proposed residential development could present short-term or long-term negative impacts on the tree. Greg's assessment included reviewing historical information on the tree's health and conducting his own detailed evaluation, including assessing potential direct and indirect impacts to the tree from a change in the site's hydrology, as well as sunlight/shade influence from the proposed project.

Boething Treeland Farm Residential Development, City of Los Angeles, CA. The Boething Treeland Farms Residential Development includes the development of a 95-small lot subdivision, a 26-lot single-family subdivision, an eldercare facility, parking lots, community pools, pet park and fitness/hiking trails. Greg conducted a focused survey of approximately 500 trees on the project site, including city rights-of-ways and prepared a tree report in accordance with the City of Los Angeles Tree Protection Ordinance. This proposed project is still under review by the City of Los Angeles.

City of Calabasas, City Arborist, Los Angeles County, CA. Greg is the City of Calabasas' arborist. His services include verification of tree survey reports, tree damage assessments, tree appraisals, tree risk assessments, expert witness testimony, review of Healthy Tree Permit Applications, and overall implementation of the City's Oak Tree Preservation Guidelines (Ordinance) for the City's Planning Department and Code Enforcement Division. Greg works closely with planning staff, code enforcement personnel, and legal counsel, providing recommendations for preserving and mitigating the city's oak tree population, as well as support in determining retribution for oak tree violation cases.

City of Agoura Hills, City Oak Tree Consultant, Los Angeles County, CA. Greg is the City of Agoura Hills' consulting arborist. His services include verification of tree survey reports, tree damage assessments, tree appraisals, tree risk assessments, review of Oak Tree Permit Applications, and overall implementation of the City's Oak Tree Ordinance. Greg works closely with planning staff in determining project effects on native oak trees and in determining appropriate replacement mitigation and/or in-lieu fees.

Los Angeles County Department of Public Works, Flood Maintenance Division, Los Angeles County, CA. Greg has conducted several tree inventories and focused surveys and reports for various flood maintenance projects in support of permitting and/or environmental review. Surveys have included county-protected oak trees, as well as inventories of riparian tree species in support of regulatory permit applications to determine impacts and mitigation. Greg has prepared restoration plans and implemented restoration for channel maintenance projects that have impacted riparian trees.

City of Commerce Sidewalks Improvement Project, City of Commerce, CA. *Lead Biologist/Arborist***.** ESA prepared an Initial Study/Mitigated Negative declaration for the Sidewalk Improvement and Tree Reforestation Project for the City of Commerce. The purpose of the project is to repair the severe displacement of sidewalk and other hardscape along Slauson Avenue caused by City tree roots. Greg conducted a tree survey and prepared a biological assessment report in support of the CEQA analysis, and prepared a plant palette that included drought tolerant trees with suitable form and root structure to be planted along Slauson Avenue.

City of Los Angeles, Brentwood School Tree Survey, Los Angeles, CA. *Consulting Arborist.* Greg conducted a protected tree survey per the City of Los Angeles Protected Tree Ordinance and prepared a technical tree report for the Brentwood School Master Plan Project in Los Angeles, California. This project required an inventory appraisal and evaluation of over 300 ornamental and native trees located on the school's east and west campuses.

City of Los Angeles, Mountain Gate Development, Los Angeles, CA. *Consulting Arborist.* Greg surveyed over 1000 trees on the Mountain Gate Development project and submitted a detailed tree inventory report for project permitting. The project is located on Mountain Gate Drive, just west of the San Diego Freeway (405) in the City of Los Angeles.

Oak Woodland Habitat Conservation Strategic Alliance, Los Angeles County, CA. *Consulting Arborist*. Greg was a member of group or arborists and academic professors that developed an Oak Woodlands Conservation Management Plan for Los Angeles County that provides a pragmatic, economically equitable and defensible framework to guide the protection and restoration of Oak Woodlands. The plan serves as a blueprint for community outreach and identify economic, social and ecological benefits associated with functional Oak Woodlands.

County of Los Angeles, Newhall Land and Farming, Los Angeles, CA. Consulting Arborist/Biologist. Greg managed and performed annual biological surveys for a 13,000-acre Specific Plan area located in northwestern Los Angeles County, California. Surveys conducted include over 4,000 oak trees in accordance with the County of Los Angeles Oak Tree Ordinance and identification of suitable trees for relocation.

California Department of Water Resources, Pyramid Lake Maintenance Projects, Angeles National Forest, Los Angeles County, CA. Greg conducted a focused tree survey in support of two separate maintenance projects located within the Angeles National Forest (ANF) at Pyramid Lake. Native oak trees were surveyed in accordance with the ANFs survey and reporting requirements, and results were included in a federal Biological Assessment/Biological Evaluation Report and associated regulatory permits for the Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife.

Ventura County Harbor Department Channel Island Harbor. *Consulting Arborist/Biologist.* Since 2005, Mr. Ainsworth has provided the Harbor Department with on-call arborist and biologist services that have included conducting an inventory of all trees within the Harbor and identification of trees that should be removed or replaced with better specimens based on environmental factors such as placement, wind, salt exposure, and aesthetics. Greg conducted a study that evaluated effects of Myoporum thrips on Myoporum trees and provided recommendations for control. He also provides on-call monitoring services that include assessment and monitoring of the breeding and roosting heron population at the harbor.

Sunshine Canyon Landfill, Arborist Support, Los Angeles County, CA. *On-call Arborist.* Greg conducted annual monitoring for several mitigation requirements that include City of Los Angeles oak tree mitigation, PM10 tree buffer mitigation, big cone Douglas fir mitigation, coastal sage scrub restoration, coastal sage scrub and chaparral revegetation required by the Air Quality Control Management District. Greg assessed fire damage of coast live oak, valley oak, and canyon live oak on mature stands of oaks, as well as planted groves for mitigation. Greg

determined which trees had potential to survive, which survived based on indicators such as basal growth and healthy tissue, and those that would need to be removed. He prepared a restoration and revegetation plan introducing oak woodland, native coastal sage scrub and chaparral vegetation between the landfill and adjacent neighborhoods. Greg provided on-call services that also included: preconstruction bird surveys, protected tree surveys for proposed grading activities, and identification of suitable native revegetation sites throughout the landfill property.

City of Commerce Sidewalks Improvement Project, City of Commerce, CA. *Lead Biologist/Arborist.* ESA prepared an Initial Study/Mitigated Negative declaration for the Sidewalk Improvement and Tree Reforestation Project located on Slauson Avenue, from I-710 FWY to Telegraph Road. The purpose of the project is to repair the severe displacement of sidewalk and other hardscape along Slauson Avenue caused by City tree roots, while striving for a balance between the urban forest and pedestrian/motorist safety on this heavily travelled corridor. Greg conducted a tree survey and prepared a biological assessment report in support of the CEQA analysis, and prepared a plant palette that included drought tolerant trees with suitable form and root structure to be planted along Slauson Avenue. Greg supported the planning department with a public scoping meeting where he answered questions on the project pertaining to street tree impacts and mitigation.

Corporate Ridge Development Project, City of Agoura Hills, CA. *Lead Arborist.* Greg served as the lead arborist in providing construction monitoring support for the development of the Corporate Ridge Development Project. Job duties that were performed included monitoring of work conducted near oak trees, spontaneous development of methods to avoid construction impacts to protected oak trees, monitoring of the health of oak trees following construction, preparation of daily monitoring reports, and coordination with the construction manager and the City of Agoura Hills' Arborist, Anne Burroughs.

County of Los Angeles, Newhall Land and Farming, Los Angeles, CA. *Consulting Arborist/Biologist.* Greg managed and performed annual biological surveys for a 13,000-acre Specific Plan area located in northwestern Los Angeles County, California. Surveys conducted include over 4,000 oak trees in accordance with the County of Los Angeles Oak Tree Ordinance and identification of suitable trees for relocation. Greg assessed the health and risk of oak trees that had been burned by various fire and provided assessments based on variables, such as percent fire scare, broken/dead limbs, exfoliating bark, basal growth, scorched crown.

Grossmont Union High School District, Grossmont High School Tree Survey, San Diego, CA. *Arborist*. Greg conducted a tree survey on over 200 oak trees for a proposed high school alternative location for the Grossmont Union High School District. The locations of oak trees and mature riparian woodland species located on the alternative high school site were assessed and mapped by Greg, our certified arborist. A subsequent tree report was prepared and all attribute data (e.g., tree number, size, health, balance) collected were provided in the report. The report identified the number of trees that were removed, encroached, and preserved by the proposed alternative high school location.

Las Virgenes Municipal Water District, April Road Reservoir Environmental Constraints Analysis, Agoura Hills, CA. *Senior Arborist/Biologist.* Greg prepared a Biological Constraints Analysis for the proposed April Road Recycled Water Reservoir Site for the Las Virgenes Municipal Water District. The purpose of the assessment is to identify fatal flaws of the site and to characterize key biological resource hurdles. His analysis includes an assessment of potential incompatibilities with Los Angeles County's Sensitive Ecological Areas, impacts to wildlife migration corridors and sensitive plants and wildlife, and potential mitigation options. Greg prepared a draft oak tree appraisal to assessment the potential cost of impacting approximately 200 coast live oak trees and conducted a rare plant survey of the proposed project site.

Young Nak Retreat Center, Tree Surveying, County of Los Angeles, CA. *Consulting Arborist.* Greg conducted an oak tree survey and health assessment on over 300 oaks trees in accordance with the Los Angeles County Oak Tree Ordinance and prepared an oak tree report for the expansion of the Young Nak Retreat Center.

Greystar Real Estate Partners, Channel Islands Harbor, Ventura County, CA. *Senior Biologist/Arborist.* Mr. Ainsworth conducted an assessment of all trees within the Paz Mar Select and Paz Mar Reserve condominium complexes for presence of bird nests and active heron roost sites prior to annual tree trimming activities. All trees with sign of heron presence were flagged and specific tree trimming procedures were applies based on recommendations provided by Mr. Ainsworth.

Newhall Land and Farming, Mission Village Oak Tree Report, County of Los Angeles, CA. *Consulting Arborist.* Greg prepared an oak tree report in accordance with the County of Los Angeles Oak Tree Ordinance for Mission Village development project. He met with County forestry personnel to discuss proposed impacts to oak trees and feasible mitigation measures were developed through negotiations.

E. Rojas Landscape Inc., Channel Islands Harbor, Ventura County, CA. *Senior Biologist/Arborist.* Mr. Ainsworth conducted an assessment of all trees within the Paz Mar Select and Paz Mar Reserve condominium complexes for presence of bird nests and active heron roost sites prior to annual tree trimming activities. All trees with sign of heron presence were flagged and specific tree trimming procedures were applies based on recommendations provided by Mr. Ainsworth.

Newhall Land and Farming, Landmark Village Oak Tree Report, County of Los Angeles, CA. *Consulting Arborist.* Greg prepared an oak tree report in accordance with the County of Los Angeles Oak Tree Ordinance for the Landmark Village development project. He met with County forestry personnel to discuss proposed impacts to oak trees and feasible mitigation measures were developed through negotiations.

Marine Emporium Landing, LLC, Channel Islands Harbor, Ventura County, CA. *Lead Biologist.* Conducted biological assessments and prepared technical reports for two separate development projects at the Channel Islands Harbor. Conducted construction monitoring for potential impacts to great blue herons and black-crowned night heron during the construction phases.

Newhall Land and Farming, The Old Road Oak Tree Report, Los Angeles County, CA. *Consulting Arborist.* Greg prepared an oak tree report in accordance with the County of Los Angeles Oak Tree Ordinance for the widening of the Old Road near Magic Mountain Theme Park. Greg met with County forestry personnel to discuss proposed impacts to oak trees and feasible mitigation measures were developed through negotiations.

Vintage Marina, Channel Islands Harbor, Ventura County, CA. *Project Manager/Senior Biologist.* Managed and conducted construction monitoring for potential impacts to great blue herons and black-crowned night herons at the Channel Islands Harbor, Oxnard, California. Monitor efforts includes an assessment of short- and long-term construction related impacts on breeding and foraging herons. Provided on-call biological resource-related services for various projects within the Harbor.

City of Los Angeles, Scrub Television Set Tree Inventory, Los Angeles, CA. *Consulting Arborist.* Greg conducted an inventory of all ornamental and native trees located on the Scrub television set located in Los Angeles in accordance with the City of Los Angeles Tree Survey Guidelines. The inventory included the identification of species, tree measurements (height, canopy distances, trunk diameter), evaluation of physical characteristics, maintenance measures, and recommendations for preserving or relocating trees.

City of Santa Clarita, KOAR Real Estate Advisors, Santa Clarita, CA. *Consulting Arborist/Biologist*. Greg prepared a biological impact assessment, mapped plant communities, and conducted an oak tree survey, health assessment and tree appraisal in accordance with the City of Santa Clarita's Oak Tree Ordinance on the proposed Robinson Ranch Residential Development Project.

City of Agoura Hills, Corporate Ridge Development Project, Agoura Hills, CA. *Consulting Arborist.* Greg provided on-call arborist and construction monitoring support for the development of the Corporate Ridge Development Project. Job duties that were performed included construction monitoring of work conducted near oak trees, spontaneous development of methods to avoid construction impacts to protected oak trees, monitored the health of oak trees following construction, prepared daily monitoring reports, and coordinated with the construction manager and the Agoura Hills' Arborist, Anne Burroughs.

City of San Dimas, Arborist Support, San Dimas, CA. *Consulting Arborist.* Greg provided construction monitoring of work activities conducted near protected oak tree in accordance to development permit conditions for a 15 parcel residential development. He provided avoidance measures to protect saved trees such as requiring the use of hand tools for work conducted within the dripline of the trees, identification of roots that could be cut, verification of fencing to protect trees, and methods to pour concrete for retaining walls without removing large roots.

Metropolitan Water District, Tree Ordinance Compliance and Breeding Bird Surveys, La Verne, CA. *Senior Biologist*. Greg conducted a significant tree survey, prepared a tree report, and submitted a tree permit to the City of La Verne for the Metropolitan Water District Weymouth Treatment Plan Main Line Project. Greg conducted a preconstruction breeding bird and nest survey for the proposed project and identified appropriate buffers to avoid impacts to breeding birds.

Channel Islands Development Partners, Arborist Support, Ventura County, CA. *Biologist/ Consulting Arborist.* Greg conducted focused surveys for arroyo chub, southwestern pond turtle, two-striped garter snake, and special-status plants, and a protected tree survey in accordance with the Ventura County Protected Tree Ordinance on the proposed Wildwood Stable Estates development site. He prepared a protected tree report and technical biological assessment report, and identified unknown populations of the Federally-Threatened Conejo Dudleya plant on the project site.

City of Lompoc, Arborist Support, Lompoc, CA. *Consulting Arborist/ Biologist*. Greg conducted an oak tree survey in accordance to the City of Lompoc Tree Ordinance, a habitat assessment, and a biological resource section of a draft EIR for the Santa Rita Winery project.

Rockwell Scientific, Arborist Support, Ventura County, CA. *Consulting Arborist.* Greg conducted a protected tree survey and health assessment, and prepared a tree report per the City of Thousand Oaks Protected Tree Ordinance and the County of Ventura Tree Ordinance for a proposed residential development.

WRA Engineering, Technical Tree Report, Los Angeles County, CA. *Consulting Arborist.* Greg conducted a protected tree survey and impact assessment per the Los Angeles County Oak Tree Ordinance and prepared a technical tree report for a proposed 300-acre residential development project known as Quest Ranch in Los Angeles County, California. He conducted jurisdictional delineation of protected streams and prepared a draft EIR for the proposed project.

Apollo Real Estate Group and Big Rock Partners, Biological Resources Impact Study, Los Angeles County, CA. *Lead Biologist.* Greg prepared the biological resource impact study for a two separate development projects known in Malibu, California. Responsibilities also include focused botanical surveys, raptor surveys, and wildlife surveys, and a tree survey and report in accordance with the City of Malibu's Protected Tree Ordinance.

Salem Communications, Biological Assessment Report and Biota Report, Los Angeles County, CA. *Lead Biologist/Arborist.* Greg managed and conducted oak tree surveys and health assessments on approximately 600 oak trees for the proposed KRLA AM Radio Tower site in unincorporated Los Angeles County, California. He prepared an oak tree report in accordance with the requirements of the Los Angeles County Oak Tree Ordinance, a Biological Assessment Report and Biota Report per the guidelines of the Los Angeles County Sensitive Ecological Area Technical Advisory Committee, and a biological resource section of a draft EIR for the County of Los Angeles.

Eric Lloyd Wright & Associates, Arborist Support, Los Angeles County, CA. *Consulting Arborist.* Conducted a protected tree survey for two separate residential project sites located in unincorporated Los Angeles County, near the City of Malibu, California.

Civil Design & Drafting, BC Land Group, and DR Horton, Tree Surveys, Palmdale, CA. *Biologist/Consulting Arborist*. Greg managed and conducted Joshua tree surveys and health assessments and focused surveys on the desert tortoise, Mohave ground squirrel, burrowing owl, coast horned lizard, arroyo toad, and special-status plants on a 600-acre site proposed for the College Park Specific Plan development in Palmdale, California. He prepared several technical reports based on focused survey results, including a Joshua Tree Preservation and Relocation Plan, a Landscape Concept Plan, and an Invasive Species Removal Program. Greg identified mitigation areas for affected biological resources located on the site. He preparing Section 1602 Streambed Alteration Agreement and Section 404 permits for proposed impacts to jurisdictional drainages.

City of Ojai, Libby Bowl Reconstruction Project, Ventura County, CA. *Arborist.* Greg conducted a focused survey of all trees located at the Libby Bowl. Greg prepared a detailed tree assessment report for the City of Ojai that included data collected on the health and physical structure of each tree, as well as recommendation for preserving trees and mitigating those trees that would be removed or otherwise impacted.

Conejo Valley Development Corporation, Corporate Ridge Development Project, Ventura County, CA. *Arborist.* Greg conducted on-call monitoring of oaks to be preserved within the development project. Greg prescribed specific measures for avoiding impacts to oak trees and monitored all construction activities within 15 feet from all protected tree canopies. Greg prepared monitoring logs and communicated directly with the City of Agoura Hills Arborist on prescribed preservation and avoidance measures.

City of Santa Paula, East Area 1 Specific Plan, Santa Paula, CA. *Lead Biologist.* Mr. Ainsworth prepared a biological impact assessment, mapping and characterization of plant communities, and a migration corridor study on the proposed East Area 1 Specific Plan project site in Santa Paula, California. Conducting a protected tree survey per the requirements of the City of Santa Paula's Protected Tree Guidelines.

Helix Water District, El Monte Groundwater Recharge, Mining and Reclamation Project EIR, San Diego, CA. *Arborist.* Greg conducted a tree survey and identify trees that should be removed based on poor health conditions and which should be preserved based on overall value and aesthetics. He collected specific information during the assessment such as: type of species, trunk diameter, estimated height and radius of canopy, physical conditional and overall health rating. A subsequent tree report was prepared and all attribute data collected were provided in the report. The report identified the number of trees that were removed, encroached, and preserved.

U.S. Forest Service, Hot Shot Fire Crew, Los Padres Forest (1997 – 1998). Greg was on the Crew 3 (currently known as Crew 7) hot shot fire crew based out of San Luis Obispo. Greg was on a 21-person hand crew where he conducted vegetation clearing using a double-headed pulaski hand tool, while working under extreme fire hazard conditions. Greg and his crew either hiked into front-line fire areas or where transported via helicopter. During Greg's tenure, he gained experience cutting fire lines, working under extreme weather and high hazard conditions, and effective communication with fellow firefighters. Greg and his crew responded to many different fire situations ranging from single-tree lightning strikes in oak savannah to large-scale wildland fires that burned over 80,000 acres in San Luis Obispo and Santa Barbara counties. Because of Greg's education in horticulture and arboriculture, he was responsible for helping to assess fire scar on mature oak and conifer trees to determine which trees should be removed or pruned.

Appendix D
City of Pasadena Tree Protection Guidelines

City of Pasadena
Tree Protection Guidelines

Revised 5/13/19

Purpose:

The City's Tree Protection Guidelines are established for projects subject to Chapter 8.52 'City Trees and Tree Protection' and for projects for which compliance with the Tree Protection Guidelines is a condition of approval. Specifically, the guidelines seek to avoid negative impacts to protected trees that may occur during construction such as:

- Mechanical injury to roots, trunks or branches
- Compaction of soil
- Changes to existing grade, which may expose or suffocate roots

Definitions for standardized terms and diagrams are included in the guidelines.

A. General Requirements:

1. Applicants may be required to place a security deposit in the amount of the assessed value of the tree as determined using the most recent version of the International Society of Arboriculture guide to plant appraisal. The security deposit will be returned to the applicant upon successful completion of the project and upon verification that the tree has not sustained significant damage during construction. If significant damage has been sustained, and the subject tree requires further monitoring post-construction, the City Manager or designee may hold the security deposit for an additional period of time. If the subject tree has fallen into irreversible decline and must be removed based on its condition, the applicant may forfeit the deposit to the City in order to cover removal and replacement costs.

2. Violations of the City Trees and Tree Protection Ordinance may result in administrative fines in an amount up to the Tree Replacement Value of the subject tree(s).

3. Compliance Orders issued respective to violations of the City Trees and Tree Protection Ordinance may include corrective action to replace the tree canopy loss that resulted from tree removal or catastrophic damage to a protected tree.

4. Violations to the Tree Protection Guidelines may result in fines assessed per day and imposed per violation, and the potential generation of a stop work order on the construction project.

5. When a tree protection plan is required, the plan may include written recommendations for the health and long-term welfare of the protected trees during the pre-construction, demolition, construction, and post-construction development phases. Notes on the plans would include specifics on avoiding injury, damage treatment and inspections of protected trees.

6. If an applicant finds that the implementation of the following guidelines is impracticable due to the unique site, landscaping, or other characteristics of the project, the applicant may submit a request to deviate from the guidelines to the Department reviewing the permit application. The Department of Public Works and the Department of Planning and Community Development will review the applicant's tree protection measures for public trees and private trees, respectively. The Director of Public Works and the Director of Planning and Community Development (or their designees) may approve requests to deviate from these guidelines.

Such requests may be submitted by the applicant on a tree protection plan; consulting arborist report; or other manner that articulates how the tree protection measures cannot be reasonably implemented.

B. Tree Protection Zone:

The Tree Protection Zone (TPZ) shall be established to the extent of the tree's dripline plus four (4) radial feet. The guidelines herein shall be applied to the TPZ to safeguard the health of protected trees. Tree roots are generally located in the top 12–24 inches of soil and can extend to a distance exceeding the trees height and/or width.

1. Refer to Standard Plan S-642 'Tree Protection Standard' for full details.
2. Protective (6-foot high minimum) chain-link fencing with an access gate of minimal width should be installed around the TPZ to the extent practicable subject to approval by staff prior to the commencement of any grading, construction, or demolition. Fencing must also include 8 ½" x 11" (minimum) signage that includes the following information: Tree Protection Zone; name and contact information of project owner or authorized representative; and "Please contact the Pasadena Citizen Service Center to report any concerns (626) 744-7311."
3. The TPZ shall be irrigated sufficiently with clean water to keep the tree in good health and vigor before, during, and after construction. This may mean deeply soaking the ground periodically.
4. No construction staging or disposal of construction materials or byproducts including but not limited to paint, plaster, or chemical solutions is allowed in the TPZ.
5. The TPZ should not be subjected to flooding incidental to the construction work.
6. All work conducted in the ground within the TPZ of any protected tree should be accomplished with hand tools, unless an air spade is utilized. Trenches in the TPZ should be tunneled, or completed with an air spade to avoid damage to roots within the TPZ. Information regarding air spades is available from staff.
7. Where structural footings are required and major roots (over 3" in diameter) will be impacted, the engineer of record should submit acceptable footing design alternatives and or location alternatives to staff before proceeding with further plan review.
8. Where more than 50% of the TPZ is impacted or roots greater than 3 inches in diameter are to be removed within the TPZ, the engineer of record should submit acceptable design alternatives to staff for review.
9. Any required trenching should be routed in such a manner as to minimize root damage. Radial trenching (radial to the tree trunk) is preferred as it is less harmful than tangential trenching. Construction activity should be diverted from the TPZ. Cutting of roots should be avoided (i.e. place pipes and cables below uncut roots). Wherever possible and in accordance with applicable code requirements, the same trench should be used for multiple utilities.
10. "Natural" or pre-construction grade should be maintained in the TPZ. At no time during or after construction should soil be in contact with the trunk of the tree above the basal flair.
11. In areas where the grade around the protected tree will be lowered, some root cutting may be unavoidable. Cuts should be clean and made at right angles to the roots. When practical, cut roots back to a branching lateral root.

12. When removing existing pavement in the TPZ, avoid the use of heavy equipment, which will compact and damage the root system.

13. If staff requires mulch in the TPZ, the mulch materials and location should be shown on the plan. Larger projects will require construction staging plans to indicate where materials will be stored and how the equipment will move in and around the property to minimize damage to the TPZ. Root damage and soil compaction may be mitigated in some cases by using trench covers or mulch in the TPZ.

C. Pruning:

* Pruning guidelines are for private trees only. Contact the Department of Public Works for public tree service requests 626-744-7311.

1. Pruning of all trees should be in accordance with industry standards (International Society of Arboriculture or ANZI 133.1).

2. Pruning of oaks should be limited to the removal of dead wood and the correction of potentially hazardous conditions, as evaluated by a qualified arborist. Excessive pruning is harmful to oaks. Removal or reduction of major structural limbs should be done only as required for actual building clearance or safety. If limbs must be removed, cuts should be made perpendicular to the branch, to limit the size of the cut face. The branch bark collar should be preserved (i. e. no "flush cuts"), and cuts should be made in such a way as to prevent the tearing of bark from the tree.

3. Pruning of trees other than oaks should be limited to the removal or reduction of major structural limbs and should be done only as required for actual building clearance or safety. If limbs must be removed, cuts should be made perpendicular to the branch, to limit the size of the cut face. The branch bark collar should be preserved (i. e. no "flush cuts"), and cuts should be made in such a way as to prevent the tearing of bark from the tree.

4. Landmark Trees must be pruned by or under the direction of a qualified arborist.

D. Inspections:

1. Inspection of Protective Fencing: City staff may require inspection of fencing to verify placement and approval of materials prior to the commencement of construction.

2. Pre-construction meeting. City staff may require an on-site pre-construction meeting with the contractor and or applicant to discuss tree protection with the site supervisor, grading equipment contractors, and demolition crew.

3. Inspection of rough grading. City staff my require inspection to ensure protected trees will not be injured by compaction, cut or fill, drainage and trenching activities.

4. Special Activity in the Tree Protection Zone: City staff may require the direct on-site supervision of work in the tree protection zone.

5. Periodic Inspections: City staff may require inspections verifying adherence to tree protection measures during the on-going construction process. The cost for inspections by City staff or a contract Certified Arborist may be invoiced to the property owner.

E. Definitions:

1. *Basal flair* or *root crown* means the tree trunk where it emerges from the root system and flairs out

to create the base of the tree.

2. *Canopy* means the area of a tree that consists primarily of branches and leaves.

3. *Dripline* means the outermost area of the tree canopy (leafy area of tree).

4. *Certified Arborist* means an individual who has demonstrated knowledge and competency through obtainment of the current International Society of Arboriculture arborist certification, or who is a member of the American Society of Consulting Arborists.

5. *Tree Protection Zone (TPZ)* means the area within a circle with a radius equal to the greatest distance from the trunk to any overhanging foliage in the tree canopy plus four (4) radial feet.

6. *Tree Replacement Value/Cost:* the value or cost of the injured or removed tree determined utilizing the most recent edition of the Guide for Plant Appraisal, published by the International Society of Arboriculture ("ISA").

APPROVED BY:

Steve Mermell, City Manager