Appendices

Appendix B Arborist Survey Report

Arborist Survey Report for the Nicholas Elementary School Replacement Project

Sacramento County, California

Prepared For:

PlaceWorks, Inc.

Prepared By:



February 21, 2023

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
DBH	Diameter at breast height
Study Area	Nicholas Elementary School
USGS	U.S. Geological Survey
Value	Transplant and Biological Value

1.0 INTRODUCTION

ECORP Consulting, Inc. conducted an arborist survey for the Nicholas Elementary School Replacement Project (Study Area), located in Sacramento County, California. The purpose of this survey was to identify, map, and assess the general condition of all trees within the Study Area according to Chapter 19.12 of the Sacramento County Code for Tree Preservation and Protection (Tree Preservation Code) and the Arborist Report Submittal Guidelines (collectively County Guidelines). However, the County Guidelines do not apply to schools so they were only used to guide the survey. ECORP anticipates all trees within the Study Area will either be removed, pruned, or have some ground-disturbing activity within the Protected Zone of a Protected Tree.

2.0 SITE DESCRIPTION

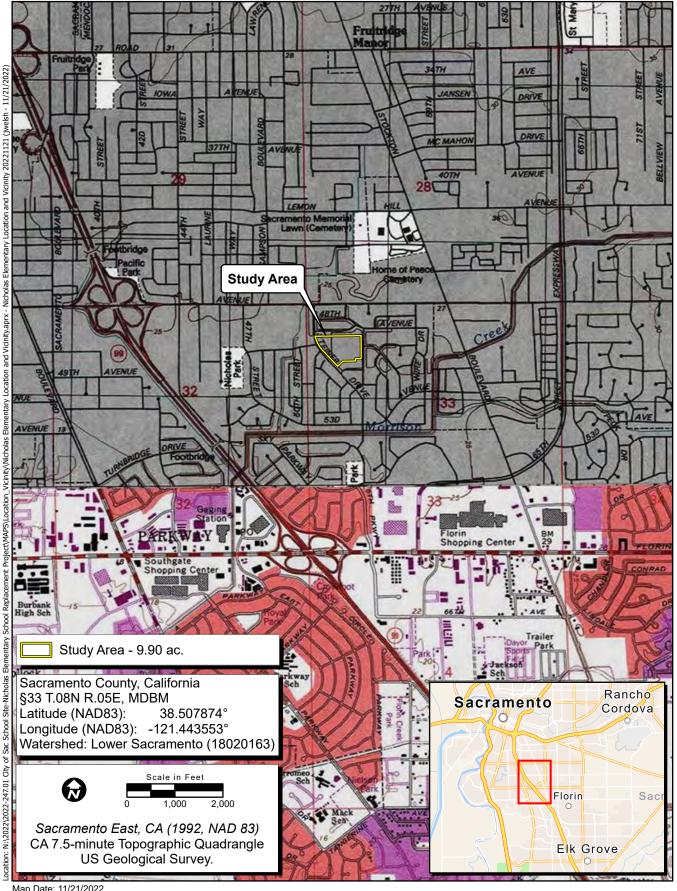
The Study Area is located north of Frawley Way, east of Steiner Drive, south of Sitton Way, and west of Vernace Way in Sacramento County, California (Figure 1). The approximately 9.9-acre Study Area corresponds to a portion of Section 33, Township 8 North, Range 5 East (Mount Diablo Base and Meridian) of the "Sacramento East, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1992). The approximate center of the Study Area is located at 38.507874° North and -121.443553° West within the Lower Sacramento Watershed (Hydrologic Unit Code #18020163; Natural Resources Conservation Service et al. 2019). The Study Area is a school; therefore, the grounds are primarily composed of asphalt, mowed grass, and maintained beds planted with primarily ornamental trees but some native trees as well. The surrounding land use is heavily residential.

3.0 METHODS

ECORP arborist Krissy Walker-Berry (International Society of Arboriculture Certification #WE-11308A), with ECORP biologist Levon Bajakian, conducted the field survey on November 10, 2022 by walking the Study Area during the field survey and recording data using a submeter capable Global Positioning System unit.

ECORP surveyed all trees with trunks or a portion of their dripline radius in the Study Area. ECORP installed no tree tags on trees that were inaccessible or were located on private property and assigned numbers 1 to 37. The following terms are defined in the County Guidelines:

■ **Diameter at breast height (DBH):** Measured diameter of the trunk at 54 inches above grade; if other than DBH, then alternate measurement height must be identified. If the tree is multitrunked, include the diameter of all stems that are 1-inch DBH and larger. Size must be rounded to the nearest inch. For multi-trunked trees, this report lists total aggregate diameter along with each trunk's diameter.



Map Date: 11/21/2022 Sources: ESRI, USGS

Figure 1. Project Location and Vicinity



- **Dripline:** A circle with the radius being the measurement of the length of the distance from the trunk to the end of the longest limb.
- **Dripline Environment:** A brief written description of the growing condition of the immediate area beneath the defined dripline protection zone (i.e., natural grasses, steep terrain, existing roadway or structure, utility lines, drainage swales, previous grading cuts or fills, fire damage)
- **Health:** A measure of overall vigor and vitality of the tree and rated as good, fair, or poor based on an assessment of crown density, leaf color and size, active callusing, shoot growth rate, extent of crown dieback, cambium layer health, and tree age.
- **Heritage Tree:** This classification is for a California native oak tree growing on any land in Sacramento County, including privately owned land, with a trunk 60 inches or greater in girth (equal to 19 inches DBH or larger) measured 4.5 feet above the ground.
- **Landmark Tree:** An especially prominent or stately tree, or a special variety of a certain tree. It can be any native or nonnative tree that is exceptional for its type that is in good health and structural condition. Size is not a mandatory criterion.
- **Native Tree:** All native oak and specified non-oak native trees (refer to species list) that are 4 inches in diameter (DBH) and larger, or 10-inch aggregate diameter for multi-trunk native oak and Northern California black walnut trees.
- Overall Tree Condition: Based on the foregoing tree health and structural assessment, the arborist shall assign a numerical rating of the tree based on the following ratings: 0) dead, 1) severe decline, 2) declining, 3) fair, 4) good, and 5) excellent.

Species List:

- Valley oak (Quercus lobata)
- Interior live oak (Quercus wislizeni)
- Blue oak (Quercus douglasii)
- Coast live oak (Quercus agrifolia), in the Delta area
- Oracle oak (Quercus X morehus)
- Native oak hybrids
- California sycamore (*Platanus racemosa*)
- Northern California black walnut (Juglans californica var. hindsii)
- Oregon ash (*Fraxinus latifolia*)
- Goodding's black willow (Salix gooddingii)
- Box elder (Acer negundo var. californicum)
- White alder (Alnus rhombifolia)

- California buckeye (Aesculus californica)
- **Structure:** A measure of the tree's structural stability and failure potential and rated as good, fair, or poor based on assessment of specific structural features (e.g., decay, conks, codominant trunks, included bark, abnormal lean, one-sided canopy, history of failure, prior construction impact, pruning history).

The surveyors collected data, which included species, tree tag number, DBH, dripline radius, health, structure, dripline environment, and overall tree condition. The survey results are intended for general Project planning purposes only; therefore, these results should not be considered a detailed tree analysis (i.e., results do not include hazard assessment, tree health diagnosis, preservation/removal recommendations, or pruning advisement).

Additionally, the trees proposed for removal were evaluated for their transplant and biological value (Value). This Value is based on the following data:

- 1. Overall Tree Condition better health was given a higher Value;
- 2. Species invasive species were given a lower Value;
- 3. Location trees that would be difficult to transplant were given a lower Value;
- 4. Size large, otherwise health trees were given a moderate Value due to increased complications with transplanting and lower chances of survivability.

4.0 RESULTS

ECORP inventoried a total of 73 Protected Trees in the Study Area consisting of 13 Chinese privet *Ligustrum sinense*), 10 Chinese pistache (*Pistacia chinensis*), seven California sycamore, four Chinese hackberry (*Celtis sinensis*), four crepe myrtle (*Lagerstroemia indica*), three incense cedar (*Calocedrus decurrens*), three camphor tree (*Cinnamomum camphora*), three mulberry (*Morus* sp.), three Callery pear (*Pyrus calleryana*), three wild plum (*Prunus americana*), three zelkova (*Zelkova* sp.), two fig (*Ficus carica*), two oleander (*Nerium oleander*), one pineapple guava (*Acca sellowiana*), one Japanese maple (*Acer palmatum*), one Judas tree (*Cercis siliquastrum*), one citrus (*Citrus* sp.), one English walnut (*Juglans regia*), one liquidambar (*Liquidambar styraciflua*), one European olive (*Olea europaea*), one date palm (*Phoenix dactylifera*), one cherry (*Prunus* sp.), one valley oak, one red oak (*Quercus rubra*), one interior live oak, and one Mexican fan palm (*Washingtonia robusta*). A map depicting the locations of the inventoried trees is included as Appendix A. Detailed tree survey data for each tree are included as Appendix B. Representative site photographs are included as Appendix C.

Nine inventoried trees are considered County Trees because they fall under the County Guidelines. These include trees with tag numbers 15, 959, 960, 964, 970, and 984 through 987. The interior live oak with tag

number 964 is a heritage tree. Tree number 15, the valley oak, is unknown whether it is a heritage tree as it is in a residential backyard and the trunk was not visible during the survey.

5.0 IMPACTS AND CONCLUSIONS

Based on the limits of work provided by Kitchell CEM, Inc., 58 of the 73 trees found during the inventory are proposed for removal¹. The remaining 15 trees have trunks located on private property or are proposed for protection (Tree 964) and will have indirect impacts, which means that there will be impacts at the soil level within the Protected Zone of the tree through some form of ground disturbance.

Of the 58 trees proposed for removal, seven have a high Value, 19 have a moderate Value, and 32 have a low Value. It is recommended that trees with a high Value be transplanted and trees with a moderate Value be transplanted or replaced at a 2:1 ratio or higher.

Tree number 964 will be retained and protected within the Study Area. The recommendations in Section 6.0 apply to this tree.

6.0 TREE PRESERVATION RECOMMENDATIONS

ECORP recommends that all transplanting occur during the dormant season (November to February) and that all transplanted citrus trees be relocated in soils of the same pH as their current location. Generally, citrus thrives in soils with pH levels between 6 and 8.

6.1 Development Recommendations

The following recommendations will help mitigate damage to oak trees caused by land development:

- a. Avoid grade cuts greater than 1 foot within the driplines of oak trees, and within 5 feet of their trunks.
- b. Avoid fill greater than 1 foot within the driplines of oak trees and any placement of fill within 5 feet of their trunks.
- c. Avoid trenching within the driplines of oak trees. If it is absolutely necessary to install underground utilities within the driplines of an oak tree, it is recommended that the trench be either bored or drilled.
- d. Avoid installing irrigation systems within the driplines of oak tree(s) as it may be detrimental to the long term survival of the oak tree(s).

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¹ This assumes that trees growing through or against the fences along the Study Area limits will be removed.

e. Limit landscaping beneath oak trees be limited to nonplant materials such as boulders, cobbles, wood chips, etc., or plant species tolerant of the natural semi-arid environs of the trees. Drip irrigation should be limited to approximately twice per summer for the understory plants.

6.2 Grading Beneath Tree Driplines

Grading beneath trees to be saved should be given special attention to avoid creating conditions adverse to the tree's health. The natural ground within the driplines of protected trees should remain as undisturbed as possible. Specific recommendations for work within the dripline are as follows:

- a. Major roots 2 inches or greater in diameter encountered within the tree's dripline in the course of excavation from beneath trees that are not to be removed should be kept moist and covered with earth as soon as feasible. Roots 1 inch to 2 inches in diameter that are severed should be trimmed, treated with pruning compound, and covered with earth as soon as possible.
- Support roots that are inside the dripline of the tree should be protected to the extent feasible.
 Hand-digging is recommended in the vicinity of major trees to prevent root cutting and mangling by heavy equipment.

7.0 REFERENCES

- Sacramento County. 2022. Tree Preservation and Protection- Chapter 19.12, Article 19.50 Woodland Conservation. Available online at: https://library.qcode.us/lib/sacramentocounty _ca/pub/county_code/item/title_19-chapter_19_12. Accessed online November 21, 2022.
- Natural Resources Conservation Service (NRCS), U.S. Geological Survey (USGS), and U.S. Environmental Protection Agency (USEPA). 2019. Watershed Boundary Dataset for California. Available online: https://datagateway.nrcs.usda.gov.
- U.S. Geological Survey (USGS). 1992. "Sacramento East, California" 7.5-minute Quadrangle.

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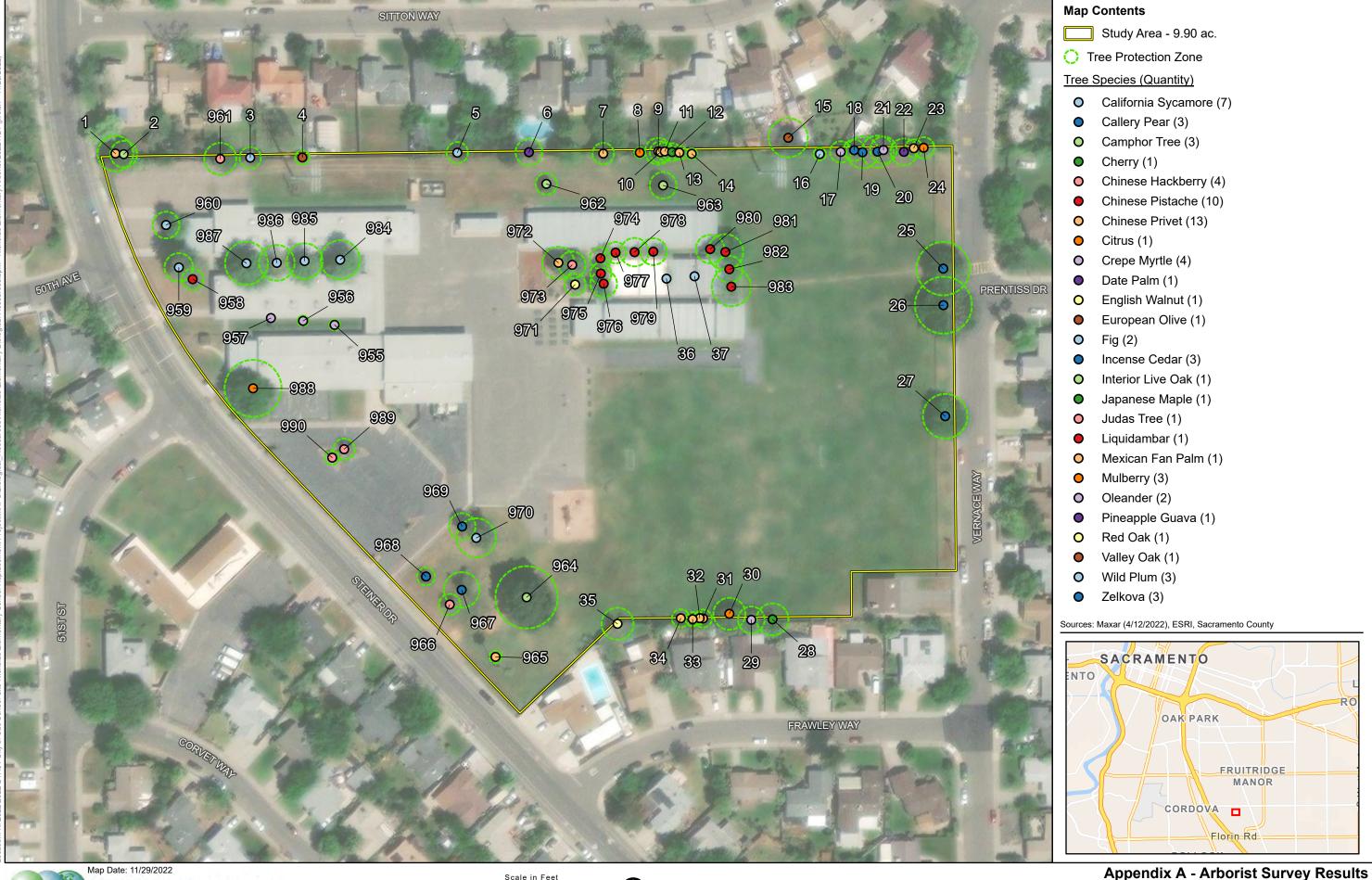
Appendix A – Arborist Survey Results

Appendix B – Tree Survey Data (November 10, 2022)

Appendix C – Representative Site Photographs

APPENDIX A

Arborist Survey Results









APPENDIX B

Tree Survey Data (November 10, 2022)

Tree Tag#	Common Name	Latin Name	DBH (inches, rounded)	Stem Description	Dripline (feet)	Dripline Environment	Height (feet)	Structure	Health	Overall Tree Condition	Field Notes	Proposed for Removal?	County Tree?	Heritage Tree?	Transplant and Biological Value
1	Chinese Privet	Ligustrum sinense	-		20	Asphalt and Dirt	35	Fair	Fair	3-Fair	Unable to see dbh	No	No	No	-
2	Camphor Tree	Cinnamomum camphora	14		15	Asphalt and Dirt	35	Fair	Fair	3-Fair		No	No	No	-
3	Wild Plum	Prunus americana	30	1,1.5,1.5,2,1,2.5,5,3.5,1,1.5,1.5,2,6	12	Dirt	16	Poor	Poor	2-Declining	Growing through fence, multiple branch cuts	Yes	No	No	Low
4	European Olive	Olea europaea	16	2,2,3,5,2,2	8	Dirt	15	Poor	Poor	2-Declining	Growing through fence	Yes	No	No	Low
5	Wild Plum	Prunus americana	13	1,2,5,1,2,2	12	Lawn	25	Poor	Poor	2-Declining	Sap oozing from multiple spots on stem	Yes	No	No	Low
6	Date Palm	Phoenix dactylifera	36		15	Lawn	25	Fair	Fair	3-Fair	Growing between fences	Yes	No	No	Low
7	Chinese Privet	Ligustrum sinense	34	12,8,14	12	Lawn	25	Fair	Poor	2-Declining	Growing against fence	Yes	No	No	Low
8	Mulberry	Morus sp.	6	3,3	6	Lawn	12	Poor	Poor	2-Declining	Growing through fence	Yes	No	No	Low
9	Chinese Privet	Ligustrum sinense	24	2,1,3,3,4,5,4,2	15	Lawn	25	Poor	Fair	2-Declining	Growing through fence	Yes	No	No	Low
10	Chinese Privet	Ligustrum sinense	12	8,4	12	Lawn	25	Fair	Fair	3-Fair		Yes	No	No	Low
11	Chinese Privet	Ligustrum sinense	13	3,1,2,2,5	10	Lawn	25	Poor	Fair	2-Declining	Growing through fence	Yes	No	No	Low
12	Cherry	Prunus sp.	-		10	Lawn	25	Fair	Good	3-Fair	Unable to see dbh	No	No	No	-
13	Chinese Privet	Ligustrum sinense	24	7,4,2,1,3,2,5	8	Duff	20	Poor	Good	3-Fair		Yes	No	No	Low
14	Chinese Privet	Ligustrum sinense	16	1,3,6,5,1	6	Lawn	18	Fair	Good	3-Fair	Growing against fence	Yes	No	No	Low
15	Valley Oak	Quercus lobata	-		22	Lawn	30	Good	Good	4-Good	Unable to see dbh	No	Yes	Unknown	-
16	Wild Plum	Prunus americana	-		7	Lawn	18	Fair	Fair	3-Fair	Unable to see dbh	No	No	No	-
17	Oleander	Nerium oleander	-		12	Lawn	18	Fair	Fair	3-Fair	Unable to see dbh	No	No	No	-
18	Incense Cedar	Calocedrus decurrens	15		12	Duff	30	Poor	Poor	2-Declining	Topped due to power line	Yes	No	No	Low
19	Incense Cedar	Calocedrus decurrens	43	15,28	18	Duff	30	Poor	Poor	1-Severe Decline	Topped due to power line	Yes	No	No	Low
20	Incense Cedar	Calocedrus decurrens	21		18	Lawn	30	Poor	Poor	1-Severe Decline	Topped due to power line	Yes	No	No	Low
21	Oleander	Nerium oleander	15	3,6,3,2,1	15	Lawn	25	Fair	Good	3-Fair		Yes	No	No	Low
22	Pineapple Guava	Acca sellowiana	37	2,1,3,4,5,1,3,5,3,2,4,4	15	Lawn	18	Fair	Good	4-Good	Growing through fence	Yes	No	No	Low
23	Chinese Privet	Ligustrum sinense	8	4,4	10	Duff	20	Fair	Fair	3-Fair		Yes	No	No	Low
24	Citrus	Citrus sp.	17	7,10	12	Duff	18	Good	Good	4-Good		Yes	No	No	High
25	Zelkova	Zelkova sp.	22		30	Lawn	45	Fair	Good	4-Good	Light pole in tree canopy	Yes	No	No	Moderate
26	Zelkova	Zelkova sp.	28		32	Lawn	50	Fair	Good	4-Good		Yes	No	No	Moderate
27	Zelkova	Zelkova sp.	28		25	Lawn	35	Good	Fair	3-Fair		Yes	No	No	Moderate
28	Japanese Maple	Acer palmatum	-		18	Lawn	20	Fair	Fair	2-Declining	Unable to see dbh	No	No	No	-
29	Crepe Myrtle	Lagerstroemia indica	-		15	Lawn	20	Fair	Fair	3-Fair	Unable to see dbh	No	No	No	-
30	Mulberry	Morus sp.	29	13,16	18	Lawn	20	Fair	Fair	3-Fair	Growing through fence	No	No	No	-
31	Chinese Privet	Ligustrum sinense	5		10	Lawn	18	Fair	Good	4-Good		No	No	No	-
32	Chinese Privet	Ligustrum sinense	4		7	Lawn	20	Good	Good	4-Good		No	No	No	-
33	Chinese Privet	Ligustrum sinense	6	1,2,3	8	Lawn	20	Good	Good	4-Good		No	No	No	-
34	Chinese Privet	Ligustrum sinense	24	3,5,3,5,2,2,4	10	Lawn	22	Fair	Good	4-Good		No	No	No	-
35	English Walnut	Juglans regia	-		18	Lawn	27	Fair	Fair	3-Fair	Unable to see dbh	No	No	No	-
36	Fig	Ficus carica	-		2	-	-	-	-	-	Growing between trailers, unable to assess	Yes	No	No	Low
37	Fig	Ficus carica	-		2	-	_	-	-	-	Growing between trailers, unable to assess	Yes	No	No	Low
955	Crepe Myrtle	Lagerstroemia indica	4	2.5,1.6	6	Lawn	16	Good	Good	4-Good		Yes	No	No	High

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Tree Tag#	Common Name	Latin Name	DBH (inches, rounded)	Stem Description	Dripline (feet)	Dripline Environment	Height (feet)	Structure	Health	Overall Tree Condition	Field Notes	Proposed for Removal?	County Tree?	Heritage Tree?	Transplant and Biological Value
956	Crepe Myrtle	Lagerstroemia indica	4	2.2,1.3	6	Lawn	13	Good	Good	4-Good		Yes	No	No	High
957	Crepe Myrtle	Lagerstroemia indica	3	2,1.3	4	Lawn	11	Good	Fair	4-Good		Yes	No	No	High
958	Liquidambar	Liquidambar styraciflua	11		12	Lawn	28	Fair	Poor	2-Declining	Dead top, dead end of limbs	Yes	No	No	Low
959	California Sycamore	Platanus racemosa	24		16	Lawn	55	Good	Good	4-Good		Yes	Yes	No	Moderate
960	California Sycamore	Platanus racemosa	16		15	Lawn	40	Good	Fair	3-Fair	Some dead ends of limbs	Yes	Yes	No	Moderate
961	Chinese Hackberry	Celtis sinensis	22	6.4,16	18	Dirt	35	Poor	Fair	3-Fair	Growing through fence	Yes	No	No	Low
962	Camphor Tree	Cinnamomum camphora	10		12	Lawn	25	Fair	Fair	3-Fair		Yes	No	No	Moderate
963	Camphor Tree	Cinnamomum camphora	15		15	Lawn	30	Poor	Fair	2-Declining	Trunk rot	Yes	No	No	Low
964	Interior Live Oak	Quercus wizlizeni	41		35	Lawn	55	Good	Good	4-Good		No	Yes	Yes	-
965	Mexican Fan Palm	Washingtonia robusta	15		7	Lawn	65	Good	Fair	4-Good		Yes	No	No	Low
966	Chinese Hackberry	Celtis sinensis	5		12	Lawn	22	Fair	Fair	3-Fair		Yes	No	No	Moderate
967	Callery Pear	Pyrus calleryana	10		20	Lawn	28	Fair	Poor	2-Declining		Yes	No	No	Low
968	Callery Pear	Pyrus calleryana	7		10	Lawn	25	Fair	Fair	3-Fair		Yes	No	No	Low
969	Callery Pear	Pyrus calleryana	9		15	Lawn	28	Fair	Fair	3-Fair	Sucker sprouts, some dead branches	Yes	No	No	Low
970	California Sycamore	Platanus racemosa	15		22	Lawn	35	Fair	Poor	2-Declining	Sucker sprouts, thin canopy	Yes	Yes	No	Low
971	Red Oak	Quercus rubra	6		12	Dirt	25	Poor	Poor	1-Severe Decline	Trunk splitting	Yes	No	No	Low
972	Chinese Privet	Ligustrum sinense	11		18	Dirt	28	Fair	Fair	3-Fair		Yes	No	No	Low
973	Chinese Hackberry	Celtis sinensis	10		15	Dirt	20	Fair	Poor	2-Declining		Yes	No	No	Low
974	Chinese Pistache	Pistacia chinensis	6		12	Lawn	22	Fair	Fair	3-Fair		Yes	No	No	Moderate
975	Chinese Pistache	Pistacia chinensis	5		12	Lawn	22	Good	Fair	3-Fair		Yes	No	No	Moderate
976	Chinese Pistache	Pistacia chinensis	9		15	Lawn	25	Good	Good	4-Good		Yes	No	No	High
977	Chinese Pistache	Pistacia chinensis	6		12	Dirt	22	Good	Fair	3-Fair		Yes	No	No	Moderate
978	Chinese Pistache	Pistacia chinensis	8		16	Dirt	25	Fair	Fair	3-Fair		Yes	No	No	Moderate
979	Chinese Pistache	Pistacia chinensis	8		15	Dirt	28	Fair	Fair	3-Fair		Yes	No	No	Moderate
980	Chinese Pistache	Pistacia chinensis	11		16	Lawn	30	Good	Fair	3-Fair		Yes	No	No	Moderate
981	Chinese Pistache	Pistacia chinensis	11		20	Lawn	30	Fair	Good	3-Fair		Yes	No	No	Moderate
982	Chinese Pistache	Pistacia chinensis	9		15	Lawn	28	Fair	Fair	3-Fair		Yes	No	No	Moderate
983	Chinese Pistache	Pistacia chinensis	12		22	Lawn	35	Good	Good	4-Good		Yes	No	No	High
984	California Sycamore	Platanus racemosa	26		22	Lawn	55	Good	Fair	4-Good		Yes	Yes	No	Moderate
985	California Sycamore	Platanus racemosa	25		20	Lawn	47	Fair	Fair	3-Fair		Yes	Yes	No	Moderate
986	California Sycamore	Platanus racemosa	17		20	Lawn	50	Fair	Fair	3-Fair		Yes	Yes	No	Moderate
987	California Sycamore	Platanus racemosa	30		24	Lawn	60	Good	Good	4-Good		Yes	Yes	No	Moderate
988	Mulberry	Morus sp.	32		32	Wood Chips	40	Fair	Fair	3-Fair		Yes	No	No	Moderate
989	Chinese Hackberry	Celtis sinensis	16	6,6.5,3.4	12	Dirt	18	Poor	Fair	2-Declining		Yes	No	No	Low
990	Judas Tree	Cercis siliquastrum	7	4,2.7	8	Duff	12	Poor	Poor	1-Severe Decline	Nearly dead, heart rot	Yes	No	No	Low

APPENDIX C

Representative Site Photographs



Photo 1. View of trees along northern boundary, looking northeast. Photo taken November 10, 2022.



Photo 3. View of large interior live oak that will be preserved, looking east. Photo taken November 10, 2022.



Photo 2. View of mulberry in playground, looking northwest. Photo taken November 10, 2022.



Photo 4. View of zelkova along the eastern edge of the project, looking east. Photo taken November 10, 2022.

