

APPENDIX B-3
TREE INVENTORY AND VALUATION

March 30, 2017

Erik Hayden
Hayden Land Company
15732 Los Gatos Boulevard, #101
Los Gatos, CA 95032

Via Email: erik.hayden@haydenlandco.com

Subject: Tree Inventory and Appraisal, Cavallo Highlands Property, City of Hayward,
Alameda County, California

Dear Mr. Hayden:

This tree inventory and appraisal was prepared to identify and appraise the monetary value of trees on the Cavallo Highlands site (project site) that are protected by the City of Hayward's Tree Preservation Ordinance. The project site is located on the east side of Carden Lane in the City of Hayward, Alameda County, California (Figure 1). The property is situated on the 7.5-minute USGS Hayward, California quadrangle, and is centered at UTM 4167727 Northing/586959 Easting. Figure 1 depicts the regional location and vicinity of the project site. The project site contains a single family residence, horse paddocks, and a paved road situated in a semi-rural setting with fields of non-native grasslands, exotic landscape tree species, and native tree species. The naturally occurring trees species on the site include coast live oak (*Quercus agrifolia*), red willow (*Salix laevigata*), big leaf maple (*Acer macrophyllum*), and California bay (*Umbellularia californica*).

Tree Ordinance

Prior to conducting any fieldwork, LSA Certified Arborist Timothy Milliken (International Society of Arboriculture Certification #WE-5539A) reviewed the City of Hayward's (City) Tree Preservation Ordinance and website for regulations and policies regarding tree protection. This arborist report was prepared according to provisions and policies of the City's Municipal Code Chapter 10, Article 15 Tree Preservation (Ordinance), which states that "no person shall remove, destroy, perform cutting of branches over one-inch in diameter, or disfigure or cause to be removed or destroyed or disfigured any Protected Tree without having first obtained a permit to do so." ¹

¹ Hayward Municipal Code Chapter 10-15.13 defines a protected as: any tree having a minimum trunk diameter of eight inches measured at 54" above the ground. When measuring a multi-trunk tree, the diameters of the largest three trunks shall be added together; street trees or other trees such as those required as a condition of approval, Use Permit, or other Zoning requirement, regardless of size; all memorial trees dedicated by an entity recognized by the City, and all specimen trees that define a neighborhood or community; trees of the following species that have reached a minimum of four inches in diameter trunk size: big leaf maple (*Acer macrophyllum*), California buckeye (*Aesculus californica*), Pacific madrone (*Arbutus menziesii*), western dogwood (*Cornus nuttallii*), Western sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*), canyon live oak (*Quercus chrysolepis*), blue oak (*Quercus douglasii*), Oregon white oak (*Quercus garryana*), California black oak (*Quercus kelloggii*), valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), California bay (*Umbellularia californica*); and any tree or trees of any size planted as replacement for a protected tree.

A protected tree removal permit should be coordinated with building permits and should be issued prior to the issuance of any grading, trenching, encroachment, demolition, or building permit for development. Any protected tree removal permit issued shall be valid for a period of one year from date of issuance, or, if an appeal is taken, one year from the date of the final decision. Appeals to permit decisions made by the City Landscape Architect may be made in writing to the Planning Director within 10 days of the permit decision. Further appeals are made to the Planning Commission in accordance with Section 10-1.2845 of the municipal code.

An application for a protected tree removal or cutting permit shall be filed for all protected trees along with the inspection fee as established by the City's Master Fee Schedule. Upon receipt of a completed tree removal permit application, the City Landscape Architect shall inspect the premises and determine which protected trees may be removed or what reshaping or cutting may occur. Conditions of approval may include, but are not limited to, the following:

- Replacement of protected trees removed or destroyed with a tree or trees equal in size and species or value;
- The retention of a certified arborist to supervise all pruning of branches and roots, re-shaping, trimming, or relocation of protected trees;
- Implementation measures to protect branch and root structure of protected trees designated to remain on the site following construction or trees relocated on the site (see section on tree protection measures); and
- Routine maintenance of protected trees designated to remain on the site during the construction period.

Section 10-15.20 of the Ordinance requires replacement trees to compensate for protected tree removal. The City Landscape Architect will determine which permitted tree removals shall be replaced with like-sized, like-kind trees, or a tree or trees of equal value. If such a replacement tree is not available, the value of the original protected tree shall be determined using the latest edition of "Guide for Plant Appraisal" published by the International Society of Arboriculture. The valuation shall be used to determine the number and size of replacement trees required. The replacement trees shall be located on the site wherever possible. If the City Landscape Architect determines sufficient room on the site is not available for the replacement trees, an off-site location may be approved. Off-site replacement trees shall not be counted as part of the required trees to meet zoning standards for the original site.

METHODS

Tree Survey

On June 1, 2016, Mr. Milliken and LSA Senior Biologist John Kunna surveyed trees on and immediately adjacent to the project site. During the tree survey, the team identified each tree greater than 4 inches in diameter at 4.5 feet above the natural grade (diameter at breast height or DBH), mapped the location of each tree, estimated each tree's height and canopy spread, marked each surveyed tree with a metal tag with a unique identification number (for cross-referencing mapped trees to tabular data), and made a qualitative assessment on the health, structure, and overall condition of each tree. The locations of a few trees adjacent to the project site were also noted and mapped. If

an individual tree had multiple trunks, the diameters of all the trunks were totaled. When present, disease, deadwood, or hazardous tree conditions were noted. These data were also utilized in the tree appraisal (see below).

The condition of each tree with respect to overall health was recorded according to the following system:

- Good – New growth is vigorous as evidenced by stem elongation and color, canopy is dense;
- Fair – Tree is developing in a manner typical of others in the area, canopy is full;
- Poor – Tree displays some die-back of branches, foliar canopy is sparse, little to no sign of new growth or vigor, possible pathogen infection;
- Dead – Dead tree

Tree Appraisal

The “Trunk Formula Method” (TFM) as described on page 70 in the *Guide for Plant Appraisal, 9th Edition* (guide, CTLA 2000) in conjunction with the regional supplement for Northern California areas with coastal influence, *Species Classification and Group Assignment* (regional supplement, WC-ISA 2004), were used to appraise the value of the protected trees on the project site. Tree size (protected tree trunk area) was measured as trunk cross-sectional area (square inches), calculated by $0.785 \times (\text{DBH})^2$; a circular cross-section was assumed. For trees larger than 30 inches DBH, the trunk area was modified using the adjusted trunk area (ATA) formula: $\text{ATA} = -0.335(\text{DBH})^2 + 69.3d - 1,087$. The condition rating (0 to 100 percent) was determined from the condition of the roots, trunk, branches, and foliage/buds. The location rating (0 to 100 percent) was determined from the average of the site, contribution, and placement percentage ratings.

Regional supplement Table 11 (Appendix A) lists replacement tree size based on trunk sizes as provided in one of four Nursery Groups: 1 = 2.09 inch²; 2 = 2.24 inch²; 3 = 3.80 inch²; 4 = 4.75 inch². The regional supplement also provides an average cost of \$172.73 for the largest commonly available replacement tree size (24-inch box) and suggests use of this value for appraisal. The regional supplement also provides an estimated installed tree cost to equal twice the wholesale cost (i.e., $\$172.73 + \$172.73 = \$345.46$).

The procedures in the guide require the calculation of Appraised Tree Size Increase in square inches (difference between the Adjusted Trunk Area and the Replacement Tree Size) and the Unit Tree Cost (replacement tree cost (\$172.73) divided by the cross-sectional area of the replacement tree). Replacement tree sizes are provided in the Table 11 (Appendix A) of the regional supplement and listed by Nursery Group: 1 = \$82.82/ inch²; 2 = \$77.04/ inch²; 3 = \$45.46 / inch²; 4 = \$36.36 / inch². The guide also requires the calculation of Basic Tree Cost (sum of the Installed Tree Cost, and the Appraised Tree Size Increase multiplied by Unit Tree Cost). The Basic Tree Cost is then adjusted by the Species, Condition, and Location Ratings to obtain the Appraised Tree Value. The Appraised Tree Value equation is: Basic Tree Cost x Species Rating (%) x Condition Rating (%) x Location Rating (%). Appendix B summarizes all these assignments by species.

RESULTS

Protected Tree Inventory

As summarized in Table A, the survey identified 76 protected trees on the project site representing 11 species, including 1 blackwood acacia (*Acacia melanoxylon*), 1 big leaf maple, 1 deodar cedar (*Cedrus deodara*), 54 blue gum (*Eucalyptus globulus*), 1 olive (*Olea europaea*), 3 Aleppo pine (*Pinus halepensis*), 1 longleaf pine (*Pinus palustris*), 3 plum (*Prunus cerasifera*), 4 coast live oak, 1 red willow, and 6 California bay. . The survey also included two non-protected blue gum eucalyptus trees on the project site. These trees are excluded from the protected tree evaluation. Except for big leaf maple, coast live oak, red willow, and California bay, none of the other tree species in the project site are indigenous to the region. Seven protected coast live oaks occur within 20 feet of the project site boundary. Details for individual trees are included in Table B, and the location of each tree is shown in Figure 2.

Table A: Summary of Protected Trees within the Cavallo Highlands Project Site

Tree Species	Number of Protected Trees	Species Valuation Rating	Comment
Blackwood acacia (<i>Acacia melanoxylon</i>)	1	20%	Cal-IPC list
Big leaf maple (<i>Acer macrophyllum</i>)	1	30%	Native to region
Deodar cypress (<i>Cedrus deodara</i>)	1	90%	Non-native ornamental
Blue gum (<i>Eucalyptus globulus</i>)	54	0%	Cal-IPC list
Olive (<i>Olea europaea</i>)	1	60%	Cal-IPC list
Aleppo pine (<i>Pinus halepensis</i>)	3	50%	Non-native ornamental
Longleaf pine (<i>Pinus palustris</i>)	1	70%	Non-native ornamental
Plum (<i>Prunus cerasifera</i>)	3	40%	Cal-IPC list
Coast live oak (<i>Quercus agrifolia</i>)	4	90%	Native to region
Red willow (<i>Salix laevigata</i>)	1	70%	Native to region
California bay (<i>Umbellularia californica</i>)	6	70%	Native to region
Total	76		

Protected Tree Evaluation

The protected tree evaluation relies on field collected data and calculations performed in the Tree Appraisal Matrix (Appendix B). The regional supplement provides numerical percent ratings of overall species desirability and gives the appraiser discretion to adjust the rating +/- 10 percent based on specific conditions. The ratings for tree species on the project site are shown in Table A. The ratings values for species listed on the California Invasive Plant Council's (Cal-IPC 2006) Invasive Plant Inventory Database (acacia, eucalyptus, and olive) were reduced 10 percent due to their low desirability in the landscape.

The matrix table provides the appraised value of each protected tree in the project area and a total of all protected tree values. The total appraised value of all protected trees on the project site is equal to \$682,015.93.

CONCLUSION

The tree survey identified, mapped, and assessed the condition of 76 protected trees on the project site. These trees are protected by the Hayward Tree Preservation Ordinance. At this time it is anticipated that all 76 of the protected trees on the site will be removed. Prior to the removal of any protected trees on the property, a protected tree removal permit should be obtained from the City Landscape Architect.

The survey also identified, mapped, and assessed seven protected trees located between within 20 feet of the outside edge of the project site. These off-site protected trees (#s 1704, 1705, 1706, 1707, 1708, 1715, and 1785) will remain following construction and shall be protected from impacts related to development.

A protected tree evaluation was performed. The total assessed value of protected trees on the project site was calculated to equal \$682,015.93.

Tree protection measures minimize potential negative impacts of construction injury including: mechanical injury to roots, trunks, or branches; reduction of tree root function by soil compaction; suffocation of tree roots from fill on grade; alteration of water table; exposing sheltered trees to sun or wind; and stripping of topsoil. The following best management practices (BMPs) shall be used to protect **trees adjacent** to the project site during project construction:

- **Tree Avoidance.** The project plan shall avoid protected trees adjacent to the project site. The project plan shall incorporate placement of Tree Protection Fencing (TPF) outside the drip line of off-site protected trees (#s 1704, 1705, 1706, 1707, 1708, 1715, and 1785). The location of the TPF should be shown on project plans.
- **Excavation.** Within the drip line of retained trees, digging shall be done with low impact machinery and hand tools. If the roots of retained trees become exposed during construction and need to be removed to allow construction to proceed, these roots must be cut cleanly with a sharp saw blade. Tree roots shall not be pulled or torn.
- **Tree Protection Fencing.** Prior to the start of construction, TPF shall be installed at the drip line of protected trees to be retained. The TPF should be maintained during the construction process to prevent direct damage to trees and their growing environment. The TPF should consist

of high density polyethylene fencing with 3.5 inch by 1.5 inch openings (orange warning barrier fence) supported by metal “T-post” fence posts.

- **Use of Heavy Equipment.** Heavy machinery shall not be staged or operated within the drip line of retained trees.
- **Incidental Damage to Retained Trees.** The attachment of wires, signs, and ropes to any retained tree shall be prohibited. Injury to trees must be avoided.
- **Trimming.** The pruning of retained trees shall comply with the guidelines established by the International Society of Arboriculture; BMP; tree pruning and any special conditions as determined by a certified arborist.

LSA appreciates the opportunity to provide this arborist report to you. Please feel free to contact me if you have questions or comments.

Sincerely,

LSA ASSOCIATES, INC.



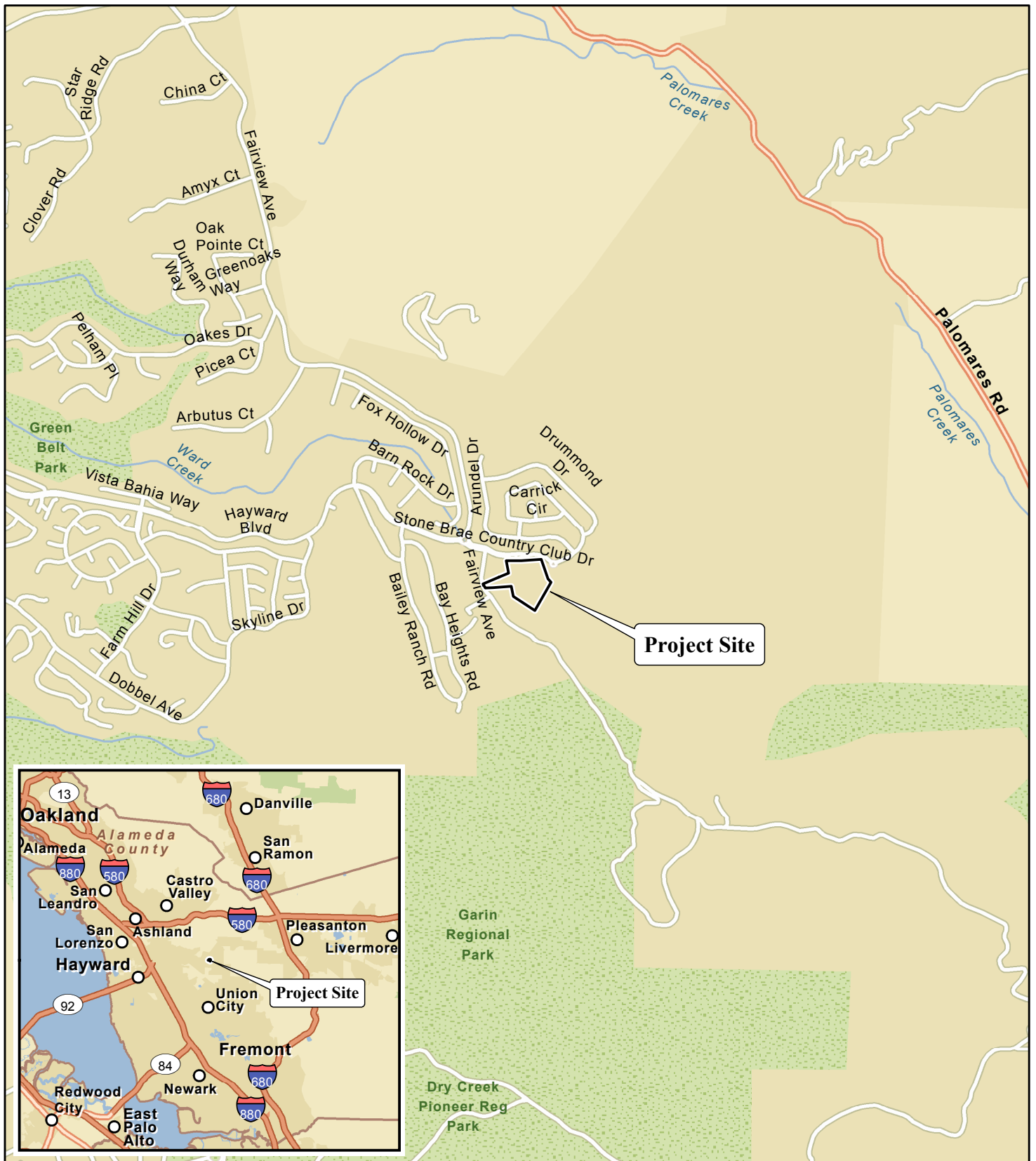
Timothy Milliken

International Society of Arboriculture (ISA) Certified Arborist WE-5539A

Enclosures: Figure 1: Regional Location
Figure 2: Tree Map
Table A: Summary of Protected Trees within the Cavallo Highlands Project Site
Table B: Protected Tree Table – Cavallo Highlands Site
Appendix A: Species Classification and Group Assignment
Appendix B: Tree Appraisal Matrix

REFERENCES

- California Invasive Plant Inventory (Cal-IPC). 2006. Cal-IPC Publication 2006-02. California Invasive Plant Council: Berkeley, CA. Available: www.cal-ipc.org.
- Council of Tree and Landscape Appraisers (CTLA). 2000. Guide for Plant Appraisal. 9th Ed. International Society of Arboriculture. Champagne, Illinois.
- Western Chapter International Society of Arboriculture (WC-ISA). 2004. Species Classification and Group Assignment: A Regional Supplement to the CTLA Guide for Plant Appraisal, 9th Edition. Porterville, California.



LSA

FIGURE 1



0 1000 2000
FEET

SOURCE: ESRI StreetMap North America (2012).

F:\HLC1601\GIS\Maps\Biological Survey\Figure 1_Regional Location.mxd (2/19/2016)

Cavallo Highlands
Hayward, Alameda County, California
Regional Location



Table B: Protected Tree Table – Cavallo Highlands Site

Tree #	Common Name (Species Name)	DBH (inches)	Health Condition	Notes
1701	Aleppo pine (<i>Pinus halepensis</i>)	16	Good	One of three in grove.
1702	Aleppo pine (<i>Pinus halepensis</i>)	22	Good	One of three in grove.
1703	Aleppo pine (<i>Pinus halepensis</i>)	28	Good	One of three in grove.
1704	Coast live oak (<i>Quercus agrifolia</i>)	4	Good	On other side of fence, not calculated in protected tree evaluation.
1705	Coast live oak (<i>Quercus agrifolia</i>)	5	Good	On other side of fence, not calculated in protected tree evaluation.
1706	Coast live oak (<i>Quercus agrifolia</i>)	5	Good	On other side of fence, not calculated in protected tree evaluation.
1707	Coast live oak (<i>Quercus agrifolia</i>)	9	Good	On other side of fence, not calculated in protected tree evaluation.
1708	Coast live oak (<i>Quercus agrifolia</i>)	10	Good	On other side of fence, not calculated in protected tree evaluation.
1709	California bay (<i>Umbellularia californica</i>)	200	Good	8 stems. Fairly typical for a wildland tree. Part of larger grove of bays growing in and around rock outcrop. Full canopy.
1710	California bay (<i>Umbellularia californica</i>)	60	Good	7 stems.
1711	California bay (<i>Umbellularia californica</i>)	60	Good	8 stems. Fairly typical for a wildland tree. Part of larger grove of bays growing in and around rock outcrop. Full canopy.
1712	California bay (<i>Umbellularia californica</i>)	90	Good	Many stems. One broken branch.
1713	California bay (<i>Umbellularia californica</i>)	48	Good	Giant tree with full canopy. Some rot in branches.
1714	California bay (<i>Umbellularia californica</i>)	48	Good	Asymmetric canopy normal for tree in grove setting.
1715	Coast live oak (<i>Quercus agrifolia</i>)	15	Good	On other side of fence, not calculated in protected tree evaluation.
1716	Blue gum (<i>Eucalyptus globulus</i>)	52	Fair	Large tree with asymmetric canopy.

Tree #	Common Name (Species Name)	DBH (inches)	Health Condition	Notes
1717	Blue gum (<i>Eucalyptus globulus</i>)	24	Fair	Suppressed tree with rot in trunk.
1718	Blue gum (<i>Eucalyptus globulus</i>)	20	Fair	Dead top.
1719	Blue gum (<i>Eucalyptus globulus</i>)	32	Fair	Suppressed tree with rot in trunk.
1720	Blue gum (<i>Eucalyptus globulus</i>)	48	Fair	Large tree is typical of all trees in grove; asymmetric crown.
1721	Blue gum (<i>Eucalyptus globulus</i>)	24	Fair	
1722	Blue gum (<i>Eucalyptus globulus</i>)	14	Fair	Cavity in trunk.
1723	Blue gum (<i>Eucalyptus globulus</i>)	16	Fair	Cavity in trunk.
1724	Blue gum (<i>Eucalyptus globulus</i>)	16	Fair	
1725	Blue gum (<i>Eucalyptus globulus</i>)	16	Fair	
1726	Blue gum (<i>Eucalyptus globulus</i>)	16	Fair	
1727	Blue gum (<i>Eucalyptus globulus</i>)	48	Fair	
1728	Blue gum (<i>Eucalyptus globulus</i>)	22	Fair	
1729	Blue gum (<i>Eucalyptus globulus</i>)	28	Fair	
1730	Blue gum (<i>Eucalyptus globulus</i>)	12	Fair	
1731	Blue gum (<i>Eucalyptus globulus</i>)	20	Fair	
1732	Blue gum (<i>Eucalyptus globulus</i>)	48	Fair	
1733	Blue gum (<i>Eucalyptus globulus</i>)	10	Fair	
1734	Blue gum (<i>Eucalyptus globulus</i>)	6	Poor	Not protected , DBH < 8 inches. Most of trunk rotten.
1735	Blue gum (<i>Eucalyptus globulus</i>)	18	Fair	Moderately good form considering other trees in grove.
1736	Blue gum (<i>Eucalyptus globulus</i>)	42	Fair	Moderately good form considering other trees in grove.
1737	Blue gum (<i>Eucalyptus globulus</i>)	23	Fair	
1738	Blue gum (<i>Eucalyptus globulus</i>)	22	Fair	
1739	Blue gum (<i>Eucalyptus globulus</i>)	18	Poor	2 stems. Poor form. Half of tree dead.
1740	Blue gum (<i>Eucalyptus globulus</i>)	28	Poor	Leans.
1741	Blue gum	19	Fair	

Tree #	Common Name (Species Name)	DBH (inches)	Health Condition	Notes
	<i>(Eucalyptus globulus)</i>			
1742	Blue gum <i>(Eucalyptus globulus)</i>	50	Fair	Leans.
1743	Blue gum <i>(Eucalyptus globulus)</i>	19	Fair	Broken top.
1744	Blue gum <i>(Eucalyptus globulus)</i>	72	Fair	2 stems. Poor form. Half of tree dead.
1745	Blue gum <i>(Eucalyptus globulus)</i>	12	Poor	Poor form. Leans.
1746	Blue gum <i>(Eucalyptus globulus)</i>	36	Fair	
1747	Blue gum <i>(Eucalyptus globulus)</i>	30	Fair	
1748	Blue gum <i>(Eucalyptus globulus)</i>	6	Fair	Not protected , DBH < 8 inches.
1749	Blue gum <i>(Eucalyptus globulus)</i>	32	Poor	3 stem. Poor form.
1750	Blue gum <i>(Eucalyptus globulus)</i>	36	Fair	Moderately good form considering other trees in grove.
1751	Blue gum <i>(Eucalyptus globulus)</i>	48	Fair	
1752	Blue gum <i>(Eucalyptus globulus)</i>	36	Poor.	3 stems. Broken top.
1753	Blue gum <i>(Eucalyptus globulus)</i>	8	Fair	Moderately good form considering other trees in grove.
1754	Blue gum <i>(Eucalyptus globulus)</i>	28	Fair	Poor form, rotten trunk.
1755	Blue gum <i>(Eucalyptus globulus)</i>	20	Fair	Poor form.
1756	Blue gum <i>(Eucalyptus globulus)</i>	26	Fair	2 stems. Poor form.
1757	Blue gum <i>(Eucalyptus globulus)</i>	48	Fair	2 stems.
1758	Blue gum <i>(Eucalyptus globulus)</i>	26	Fair	2 stems. Poor form.
1759	Blue gum <i>(Eucalyptus globulus)</i>	36	Fair	3 stems. Significant rot in main stem.
1760	Blue gum <i>(Eucalyptus globulus)</i>	46	Fair	Moderately good form considering other trees in grove.
1761	Blue gum <i>(Eucalyptus globulus)</i>	48	Fair	Moderately good form considering other trees in grove.
1762	Blue gum <i>(Eucalyptus globulus)</i>	26	Fair	Moderately good form considering other trees in grove.
1763	Blue gum <i>(Eucalyptus globulus)</i>	28	Fair	Moderately good form considering other trees in grove.
1764	Blue gum <i>(Eucalyptus globulus)</i>	30	Fair	Cankers.
1765	Blue gum <i>(Eucalyptus globulus)</i>	100	Fair	Multiple upright stems.

Tree #	Common Name (Species Name)	DBH (inches)	Health Condition	Notes
1766	Plum (<i>Prunus cerasifera</i>)	8	Poor	Multiple stems, 2 are greater than 4 inches.
1767	Plum (<i>Prunus cerasifera</i>)	24	Poor	Multiple stems, 2 are greater than 4 inches.
1768	Blue gum (<i>Eucalyptus globulus</i>)	15	Fair	Moderately good form considering other trees in grove.
1769	Pine (<i>Pinus</i> sp.)	44	Fair	2 co-dominant stems.
1770	Red willow (<i>Salix laevigata</i>)	8	Good	Multiple stems. Tree typical of species.
1771	Coast live oak (<i>Quercus agrifolia</i>)	7	Good	In rock outcrop. Tree typical of species.
1772	Olive (<i>Olea europaea</i>)	16	Good	
1773	Deodar cedar (<i>Cedrus deodara</i>)	54	Good	
1774	Blackwood acacia (<i>Acacia melanoxylon</i>)	40	Fair	
1775	Plum (<i>Prunus cerasifera</i>)	16	Poor	Poor form. Half of tree dead.
1776	Blue gum (<i>Eucalyptus globulus</i>)	48	Fair	
1777	Blue gum (<i>Eucalyptus globulus</i>)	72	Fair	
1778	Blue gum (<i>Eucalyptus globulus</i>)	15	Fair	
1779	Blue gum (<i>Eucalyptus globulus</i>)	11	Fair	
1780	Blue gum (<i>Eucalyptus globulus</i>)	19	Fair	
1781	Coast live oak (<i>Quercus agrifolia</i>)	42	Good	Nice specimen tree.
1782	Coast live oak (<i>Quercus agrifolia</i>)	40	Good	Tree has fallen over but is still alive.
1783	Big leaf maple (<i>Acer macrophyllum</i>)	52	Poor	Tree is half dead.
1784	Coast live oak (<i>Quercus agrifolia</i>)	27	Good	3 stems. Nice tree.
1785	Coast live oak (<i>Quercus agrifolia</i>)	51	Good	3 stems. Tree is on knoll outside of property boundary, not calculated in protected tree evaluation.

APPENDIX A

TABLES FROM THE WESTERN CHAPTER INTERNATIONAL SOCIETY OF ARBORICULTURE, SPECIES CLASSIFICATION AND GROUP ASSIGNMENT

A REGIONAL SUPPLEMENT TO THE CTLA, GUIDE FOR PLANT APPRAISAL, 9TH EDITION

Northern California Sub-region: Table 11

Nursery Group #	Trunk Area (inches ²)	Basic Price \$ Cost/ inch ² of trunk area
1	2.09	\$82.82
2	2.24	\$77.04
3	3.38	\$45.46
4	4.75	\$36.36

Species classification system rates the overall desirability using the following:

- 1 = 90%
- 2 = 70%
- 3 = 50%
- 4 = 30%
- 5 = 10%

Appraisers have the options to add or deduct 10% to the above figures depending on specific circumstances. Local considerations need to be made.

Tree Species	Nursery Group	Species Rating Group
<i>Acacia melanoxylon</i>	Blackwood acacia	4
<i>Acer macrophyllum</i>	Big leaf maple	4
<i>Cedrus deodara</i>	Deodar cypress	1
<i>Eucalyptus globulus</i>	Blue gum	5
<i>Olea europaea</i>	Olive	2
<i>Pinus halepensis</i>	Aleppo pine	3
<i>Pinus palustris</i>	Longleaf pine	2
<i>Prunus cerasifera</i>	Plum	4
<i>Quercus agrifolia</i>	Coast live oak	1
<i>Salix laevigata</i>	Red willow	2
<i>Umbellularia californica</i>	California bay	2

APPENDIX B

TREE APPRAISAL MATRIX

Tree #	Species	Common Name	Nursery Group	Multi-stem	Total DBH (inches)	Species Rating	Estimated Height (feet)	Crown Radius (feet)	Condition Rating	Site Rating	Contribution Rating	Location Rating	Protected Tree Trunk Area (square inches)	Adjusted Trunk Area (square inches)	Replacement Tree Trunk Area (square inches)	Replacement Size Basic Price Per Trunk Area	Installed Tree Cost	Approximate Tree Trunk Increase	Average Regional Tree Cost	Unit Tree Cost	Difference Between Appraised Tree Increase and Replacement Tree Size	Basic Tree Cost	Appraised Tree Value
1701	<i>Pinus halepensis</i>	Aleppo pine	3	no	16	50%	20	15	100%	50%	40%	50%	201	201	3.8	\$45.46	\$345.46	197	172.73	\$45	\$8,961.96	\$9,307.42	\$ 2,326.85
1702	<i>Pinus halepensis</i>	Aleppo pine	3	no	22	50%	20	15	100%	50%	40%	50%	380	380	3.8	\$45.46	\$345.46	376	172.73	\$45	\$17,097.54	\$17,443.00	\$ 4,360.75
1703	<i>Pinus halepensis</i>	Aleppo pine	3	no	28	50%	20	15	100%	50%	50%	50%	615	615	3.8	\$45.46	\$345.46	612	172.73	\$45	\$27,802.26	\$28,147.72	\$ 7,036.93
1704	<i>Quercus agrifolia</i>	Coast live oak	1	no	4	90%	20	15	100%	50%	30%	50%	13	13	2.09	\$82.82	\$345.46	10	172.73	\$83	\$865.30	\$1,210.76	\$ 544.84
1705	<i>Quercus agrifolia</i>	Coast live oak	1	no	5	0%	20	15	100%	50%	30%	50%	20	20	2.09	\$82.82	\$345.46	18	172.73	\$83	\$1,449.20	\$1,794.66	\$ -
1706	<i>Quercus agrifolia</i>	Coast live oak	1	no	5	90%	20	15	100%	50%	30%	50%	20	20	2.09	\$82.82	\$345.46	18	172.73	\$83	\$1,449.20	\$1,794.66	\$ 807.60
1707	<i>Quercus agrifolia</i>	Coast live oak	1	no	9	0%	20	15	100%	50%	30%	50%	64	64	2.09	\$82.82	\$345.46	61	172.73	\$83	\$5,082.31	\$5,427.77	\$ -
1708	<i>Quercus agrifolia</i>	Coast live oak	1	no	10	90%	20	15	100%	50%	30%	50%	79	79	2.09	\$82.82	\$345.46	76	172.73	\$83	\$6,314.98	\$6,660.44	\$ 2,997.20
1709	<i>Umbellularia californica</i>	California bay	1	yes	100	70%	30	30	100%	50%	50%	50%	7,850	2,493	2.09	\$82.82	\$345.46	2,491	172.73	\$83	\$205,863.58	\$206,209.04	\$ 72,173.16
1710	<i>Umbellularia californica</i>	California bay	1	yes	60	70%	30	25	100%	50%	50%	50%	2,826	1,865	2.09	\$82.82	\$345.46	1,863	172.73	\$83	\$153,961.94	\$154,307.40	\$ 54,007.59
1711	<i>Umbellularia californica</i>	California bay	1	yes	60	70%	30	20	100%	50%	50%	50%	2,826	1,865	2.09	\$82.82	\$345.46	1,863	172.73	\$83	\$153,961.94	\$154,307.40	\$ 54,007.59
1712	<i>Umbellularia californica</i>	California bay	1	yes	90	70%	30	15	94%	50%	50%	50%	6,359	2,437	2.09	\$82.82	\$345.46	2,434	172.73	\$83	\$201,194.09	\$201,539.55	\$ 66,130.16
1713	<i>Umbellularia californica</i>	California bay	1	no	48	70%	30	20	97%	50%	50%	50%	1,809	1,468	2.09	\$82.82	\$345.46	1,465	172.73	\$83	\$121,115.14	\$121,460.60	\$ 41,182.73
1714	<i>Umbellularia californica</i>	California bay	1	no	48	70%	30	20	100%	50%	50%	50%	1,809	1,468	2.09	\$82.82	\$345.46	1,465	172.73	\$83	\$121,115.14	\$121,460.60	\$ 42,511.21
1715	<i>Quercus agrifolia</i>	Coast live oak	1	no	15	90%	20	15	100%	50%	40%	50%	177	177	2.09	\$82.82	\$345.46	175	172.73	\$83	\$14,424.61	\$14,770.07	\$ 6,646.53
1716	<i>Eucalyptus globulus</i>	Blue gum	5	no	52	10%	100	30	97%	50%	50%	50%	2,123	1,611	4.75	\$36.36	\$345.46	1,606	172.73	\$36	\$58,401.29	\$58,746.75	\$ 2,845.55
1717	<i>Eucalyptus globulus</i>	Blue gum	5	no	24	10%	60	30	84%	50%	50%	50%	452	452	4.75	\$36.36	\$345.46	447	172.73	\$36	\$16,269.71	\$16,615.17	\$ 700.95
1718	<i>Eucalyptus globulus</i>	Blue gum	5	no	20	10%	75	30	84%	50%	40%	50%	314	314	4.75	\$36.36	\$345.46	309	172.73	\$36	\$11,245.63	\$11,591.09	\$ 489.00
1719	<i>Eucalyptus globulus</i>	Blue gum	5	no	32	10%	60	30	84%	50%	50%	50%	804	788	4.75	\$36.36	\$345.46	783	172.73	\$36	\$28,466.27	\$28,811.73	\$ 1,215.49
1720	<i>Eucalyptus globulus</i>	Blue gum	5	no	48	10%	80	30	81%	50%	50%	50%	1,809	1,468	4.75	\$36.36	\$345.46	1,463	172.73	\$36	\$53,193.93	\$53,539.39	\$ 2,175.04
1721	<i>Eucalyptus globulus</i>	Blue gum	5	no	24	10%	80	30	81%	50%	50%	50%	452	452	4.75	\$36.36	\$345.46	447	172.73	\$36	\$16,269.71	\$16,615.17	\$ 674.99
1722	<i>Eucalyptus globulus</i>	Blue gum	5	no	14	10%	60	30	78%	50%	40%	50%	154	154	4.75	\$36.36	\$345.46	149	172.73	\$36	\$5,422.27	\$5,767.73	\$ 225.30
1723	<i>Eucalyptus globulus</i>	Blue gum	5	no	16	10%	55	30	78%	50%	40%	50%	201	201	4.75	\$36.36	\$345.46	196	172.73	\$36	\$7,135.02	\$7,480.48	\$ 292.21
1724	<i>Eucalyptus globulus</i>	Blue gum	5	no	16	10%	50	30	81%	50%	40%	50%	201	201	4.75	\$36.36	\$345.46	196	172.73	\$36	\$7,135.02	\$7,480.48	\$ 303.89
1725	<i>Eucalyptus globulus</i>	Blue gum	5	no	16	10%	35	30	81%	50%	40%	50%	201	201	4.75	\$36.36	\$345.46	196	172.73	\$36	\$7,135.02	\$7,480.48	\$ 303.89
1726	<i>Eucalyptus globulus</i>	Blue gum	5	no	16	10%	60	30	81%	50%	40%	50%	201	201	4.75	\$36.36	\$345.46	196	172.73	\$36	\$7,135.02	\$7,480.48	\$ 303.89
1727	<i>Eucalyptus globulus</i>	Blue gum	5	no	48	10%	60	30	81%	50%	50%	50%	1,809	1,468	4.75	\$36.36	\$345.46	1,463	172.73	\$36	\$53,193.93	\$53,539.39	\$ 2,175.04
1728	<i>Eucalyptus globulus</i>	Blue gum	5	no	22	10%	60	30	81%	50%	40%	50%	380	380	4.75	\$36.36	\$345.46	375	172.73	\$36	\$13,643.49	\$13,988.95	\$ 568.30
1729	<i>Eucalyptus globulus</i>	Blue gum	5	no	28	10%	80	30	81%	50%	50%	50%	615	615	4.75	\$36.36	\$345.46	611	172.73	\$36	\$22,207.26	\$22,552.72	\$ 916.20
1730	<i>Eucalyptus globulus</i>	Blue gum	5	no	12	10%	45	30	81%	50%	30%	50%	113	113	4.75	\$36.36	\$345.46	108	172.73	\$36	\$3,937.88	\$4,283.34	\$ 174.01
1731	<i>Eucalyptus globulus</i>	Blue gum	5	no	20	10%	30	30	81%	50%	40%	50%	314	314	4.75	\$36.36	\$345.46	309	172.73	\$36	\$11,245.63	\$11,591.09	\$ 470.89
1732	<i>Eucalyptus globulus</i>	Blue gum	5	no	48	10%	80	30	81%	50%	50%	50%	1,809	1,468	4.75	\$36.36	\$345.46	1,463	172.73	\$36	\$53,193.93	\$53,539.39	\$ 2,175.04
1733	<i>Eucalyptus globulus</i>	Blue gum	5	no	10	10%	35	30	81%	50%	30%	50%	79	79	4.75	\$36.36	\$345.46	74	172.73	\$36	\$2,681.86	\$3,027.32	\$ 122.98
1734	<i>Eucalyptus globulus</i>	Blue gum	5	no	6	0%	30	30	69%	50%	30%	50%	28	28	4.75	\$36.36	\$345.46	24	172.73	\$36	\$854.92	\$1,200.38	\$ -
1735	<i>Eucalyptus globulus</i>	Blue gum	5	no	18	10%	75	30	81%	50%	40%	50%	254	254	4.75	\$36.36	\$345.46	250	172.73	\$36	\$9,076.14	\$9,421.60	\$ 382.75
1736	<i>Eucalyptus globulus</i>	Blue gum	5	no	42	10%	90	30	81%	50%	50%	50%	1,385	1,233	4.75	\$36.36	\$345.46	1,228	172.73	\$36	\$44,651.98	\$44,997.44	\$ 1,828.02
1737	<i>Eucalyptus globulus</i>	Blue gum	5	no	23	10%	80	30	81%	50%	40%	50%	415	415	4.75	\$36.36	\$345.46	411	172.73	\$36	\$14,928.05	\$15,273.51	\$ 620.49
1738	<i>Eucalyptus globulus</i>	Blue gum	5	no	22	10%	80	30	81%	50%	40%	50%	380	380	4.75	\$36.36	\$345.46	375	172.73	\$36	\$13,643.49	\$13,988.95	\$ 568.30
1739	<i>Eucalyptus globulus</i>	Blue gum	5	yes	18	10%	35	30	69%	50%	40%	50%	254	254	4.75	\$36.36	\$345.46	250	172.73	\$36	\$9,076.14	\$9,421.60	\$ 323.87
1740	<i>Eucalyptus globulus</i>	Blue gum	5	no	28	10%	40	30	69%	50%	50%	50%	615	615	4.75	\$36.36	\$345.46	611	172.73	\$36	\$22,207.26	\$22,552.72	\$ 775.25
1741	<i>Eucalyptus globulus</i>	Blue gum	5	no	19	10%	60	30	81%	50%	40%	50%	283	283	4.75	\$36.36	\$345.46	279	172.73	\$36	\$10,132.34	\$10,477.80	\$ 425.66
1742	<i>Eucalyptus globulus</i>	Blue gum	5	no	50	10%	90	30	78%	50%	50%	50%	1,963	1,541	4.75	\$36.36	\$345.46	1,536	172.73	\$36	\$55,846.34	\$56,191.80	\$ 2,194.99

Tree #	Species	Common Name	Nursery Group	Multi-stem	Total DBH (inches)	Species Rating	Estimated Height (feet)	Crown Radius (feet)	Condition Rating	Site Rating	Contribution Rating	Location Rating	Protected Tree Trunk Area (square inches)	Adjusted Trunk Area (square inches)	Replacement Tree Trunk Area (square inches)	Replacement Size Basic Price Per Trunk Area	Installed Tree Cost	Approximate Tree Trunk Increase	Average Regional Tree Cost	Unit Tree Cost	Difference Between Appraised Tree Increase and Replacement Tree Size	Basic Tree Cost	Appraised Tree Value
1743	<i>Eucalyptus globulus</i>	Blue gum	5	no	19	10%	25	30	78%	50%	40%	50%	283	283	4.75	\$36.36	\$345.46	279	172.73	\$36	\$10,132.34	\$10,477.80	\$ 409.29
1744	<i>Eucalyptus globulus</i>	Blue gum	5	no	72	10%	100	30	78%	50%	50%	50%	4,069	2,166	4.75	\$36.36	\$345.46	2,161	172.73	\$36	\$78,590.70	\$78,936.16	\$ 3,083.44
1745	<i>Eucalyptus globulus</i>	Blue gum	5	no	12	10%	30	30	63%	50%	30%	50%	113	113	4.75	\$36.36	\$345.46	108	172.73	\$36	\$3,937.88	\$4,283.34	\$ 133.85
1746	<i>Eucalyptus globulus</i>	Blue gum	5	no	36	10%	60	30	81%	50%	50%	50%	1,017	974	4.75	\$36.36	\$345.46	969	172.73	\$36	\$35,232.92	\$35,578.38	\$ 1,445.37
1747	<i>Eucalyptus globulus</i>	Blue gum	5	no	30	10%	65	30	78%	50%	50%	50%	707	707	4.75	\$36.36	\$345.46	702	172.73	\$36	\$25,518.58	\$25,864.04	\$ 1,010.31
1748	<i>Eucalyptus globulus</i>	Blue gum	5	no	6	0%	25	30	78%	50%	30%	50%	28	28	4.75	\$36.36	\$345.46	24	172.73	\$36	\$854.92	\$1,200.38	\$ -
1749	<i>Eucalyptus globulus</i>	Blue gum	5	yes	32	10%	60	30	69%	50%	50%	50%	804	788	4.75	\$36.36	\$345.46	783	172.73	\$36	\$28,466.27	\$28,811.73	\$ 990.40
1750	<i>Eucalyptus globulus</i>	Blue gum	5	no	36	10%	100	30	78%	50%	50%	50%	1,017	974	4.75	\$36.36	\$345.46	969	172.73	\$36	\$35,232.92	\$35,578.38	\$ 1,389.78
1751	<i>Eucalyptus globulus</i>	Blue gum	5	no	48	10%	45	30	78%	50%	50%	50%	1,809	1,468	4.75	\$36.36	\$345.46	1,463	172.73	\$36	\$53,193.93	\$53,539.39	\$ 2,091.38
1752	<i>Eucalyptus globulus</i>	Blue gum	5	yes	36	10%	100	30	69%	50%	50%	50%	1,017	974	4.75	\$36.36	\$345.46	969	172.73	\$36	\$35,232.92	\$35,578.38	\$ 1,223.01
1753	<i>Eucalyptus globulus</i>	Blue gum	5	no	8	10%	35	30	81%	50%	30%	50%	50	50	4.75	\$36.36	\$345.46	45	172.73	\$36	\$1,654.21	\$1,999.67	\$ 81.24
1754	<i>Eucalyptus globulus</i>	Blue gum	5	no	28	10%	25	30	78%	50%	50%	50%	615	615	4.75	\$36.36	\$345.46	611	172.73	\$36	\$22,207.26	\$22,552.72	\$ 880.97
1755	<i>Eucalyptus globulus</i>	Blue gum	5	no	20	10%	60	30	78%	50%	50%	50%	314	314	4.75	\$36.36	\$345.46	309	172.73	\$36	\$11,245.63	\$11,591.09	\$ 452.78
1756	<i>Eucalyptus globulus</i>	Blue gum	5	yes	26	10%	60	30	78%	50%	50%	50%	531	531	4.75	\$36.36	\$345.46	526	172.73	\$36	\$19,124.30	\$19,469.76	\$ 760.54
1757	<i>Eucalyptus globulus</i>	Blue gum	5	yes	48	10%	90	30	78%	50%	50%	50%	1,809	1,468	4.75	\$36.36	\$345.46	1,463	172.73	\$36	\$53,193.93	\$53,539.39	\$ 2,091.38
1758	<i>Eucalyptus globulus</i>	Blue gum	5	yes	26	10%	80	30	78%	50%	50%	50%	531	531	4.75	\$36.36	\$345.46	526	172.73	\$36	\$19,124.30	\$19,469.76	\$ 760.54
1759	<i>Eucalyptus globulus</i>	Blue gum	5	yes	36	10%	100	30	81%	50%	50%	50%	1,017	974	4.75	\$36.36	\$345.46	969	172.73	\$36	\$35,232.92	\$35,578.38	\$ 1,445.37
1760	<i>Eucalyptus globulus</i>	Blue gum	5	no	46	10%	100	30	78%	50%	50%	50%	1,661	1,392	4.75	\$36.36	\$345.46	1,387	172.73	\$36	\$50,444.07	\$50,789.53	\$ 1,983.97
1761	<i>Eucalyptus globulus</i>	Blue gum	5	no	48	10%	100	30	78%	50%	50%	50%	1,809	1,468	4.75	\$36.36	\$345.46	1,463	172.73	\$36	\$53,193.93	\$53,539.39	\$ 2,091.38
1762	<i>Eucalyptus globulus</i>	Blue gum	5	no	26	10%	60	30	78%	50%	50%	50%	531	531	4.75	\$36.36	\$345.46	526	172.73	\$36	\$19,124.30	\$19,469.76	\$ 760.54
1763	<i>Eucalyptus globulus</i>	Blue gum	5	no	28	10%	80	30	78%	50%	50%	50%	615	615	4.75	\$36.36	\$345.46	611	172.73	\$36	\$22,207.26	\$22,552.72	\$ 880.97
1764	<i>Eucalyptus globulus</i>	Blue gum	5	no	30	10%	70	30	78%	50%	50%	50%	707	707	4.75	\$36.36	\$345.46	702	172.73	\$36	\$25,518.58	\$25,864.04	\$ 1,010.31
1765	<i>Eucalyptus globulus</i>	Blue gum	5	no	100	10%	90	30	81%	50%	50%	50%	7,850	2,493	4.75	\$36.36	\$345.46	2,488	172.73	\$36	\$90,483.25	\$90,828.71	\$ 3,689.92
1766	<i>Prunus cerasifera</i>	Plum	3	yes	8	30%	10	88	81%	50%	30%	50%	50	50	3.8	\$45.46	\$345.46	46	172.73	\$45	\$2,110.94	\$2,456.40	\$ 299.37
1767	<i>Prunus cerasifera</i>	Plum	3	yes	24	30%	12	12	75%	50%	40%	50%	452	452	3.8	\$45.46	\$345.46	448	172.73	\$45	\$20,380.32	\$20,725.78	\$ 2,331.65
1768	<i>Eucalyptus globulus</i>	Blue gum	5	no	15	10%	55	30	84%	50%	40%	50%	177	177	4.75	\$36.36	\$345.46	172	172.73	\$36	\$6,250.10	\$6,595.56	\$ 278.25
1769	<i>Pinus palustris</i>	Longleaf pine	2	yes	44	70%	80	20	81%	50%	50%	60%	1,520	1,314	2.24	\$77.04	\$345.46	1,311	172.73	\$77	\$101,124.16	\$101,469.62	\$ 34,626.51
1770	<i>Salix laevigata</i>	Red willow	2	no	8	70%	10	12	100%	50%	30%	60%	50	50	2.24	\$77.04	\$345.46	48	172.73	\$77	\$3,701.36	\$4,046.82	\$ 1,699.66
1771	<i>Quercus agrifolia</i>	Coast live oak	1	no	7	90%	10	10	100%	50%	30%	60%	38	38	2.09	\$82.82	\$345.46	36	172.73	\$83	\$3,006.25	\$3,351.71	\$ 1,809.92
1772	<i>Oleo europeaea</i>	Olive	2	no	16	20%	20	12	100%	50%	40%	70%	201	201	2.24	\$77.04	\$345.46	199	172.73	\$77	\$15,323.62	\$15,669.08	\$ 2,193.67
1773	<i>Cedrus deodora</i>	Deodar cedar	1	no	54	90%	75	25	100%	50%	50%	70%	2,289	1,678	2.09	\$82.82	\$345.46	1,676	172.73	\$83	\$138,535.25	\$138,880.71	\$ 87,494.84
1774	<i>Acacia melanoxylon</i>	Blackwood acacia	4	no	40	20%	30	25	84%	50%	50%	70%	1,256	1,149	4.75	\$36.36	\$345.46	1,144	172.73	\$36	\$41,609.75	\$41,955.21	\$ 4,955.96
1775	<i>Prunus cerasifera</i>	Plum	3	no	16	30%	15	15	69%	50%	40%	70%	201	201	3.8	\$45.46	\$345.46	197	172.73	\$45	\$8,961.96	\$9,307.42	\$ 1,343.76
1776	<i>Eucalyptus globulus</i>	Blue gum	5	no	48	10%	90	30	81%	50%	50%	70%	1,809	1,468	4.75	\$36.36	\$345.46	1,463	172.73	\$36	\$53,193.93	\$53,539.39	\$ 3,045.05
1777	<i>Eucalyptus globulus</i>	Blue gum	5	no	72	10%	100	30	84%	50%	50%	70%	4,069	2,166	4.75	\$36.36	\$345.46	2,161	172.73	\$36	\$78,590.70	\$78,936.16	\$ 4,662.17
1778	<i>Eucalyptus globulus</i>	Blue gum	5	no	15	10%	40	30	84%	50%	40%	70%	177	177	4.75	\$36.36	\$345.46	172	172.73	\$36	\$6,250.10	\$6,595.56	\$ 389.55
1779	<i>Eucalyptus globulus</i>	Blue gum	5	no	11	10%	50	30	81%	50%	30%	70%	95	95	4.75	\$36.36	\$345.46	90	172.73	\$36	\$3,281.32	\$3,626.78	\$ 206.27
1780	<i>Eucalyptus globulus</i>	Blue gum	5	no	19	10%	75	30	84%	50%	40%	70%	283	283	4.75	\$36.36	\$345.46	279	172.73	\$36	\$10,132.34	\$10,477.80	\$ 618.85
1781	<i>Quercus agrifolia</i>	Coast live oak	1	no	42	90%	35	35	100%	50%	50%	70%	1,385	1,233	2.09	\$82.82	\$345.46	1,231	172.73	\$83	\$101,701.61	\$102,047.07	\$ 64,289.65
1782	<i>Quercus agrifolia</i>	Coast live oak	1	no	40	90%	2	30	81%	50%	50%	70%	1,256	1,149	2.09	\$82.82	\$345.46	1,147	172.73	\$83	\$94,787.45	\$95,132.91	\$ 48,696.16
1783	<i>Acer macrophyllum</i>	Bigleaf maple	4	no	52	30%	25	25	69%	50%	50%	50%	2,123	1,611	4.75	\$36.36	\$345.46	1,606	172.73	\$36	\$58,401.29	\$58,746.75	\$ 6,058.26
1784	<i>Quercus agrifolia</i>	Coast live oak	1	yes	27	90%	15	20	100%	50%	50%	50%	572	572	2.09	\$82.82	\$345.46	570	172.73	\$83	\$47,122.64	\$47,468.10	\$ 21,360.65
1785	<i>Quercus agrifolia</i>	Coast live oak	1	yes	51	0%	25	20	100%	50%	50%	50%	2,042	1,576	2.09	\$82.82	\$345.46	1,574	172.73	\$83	\$130,074.37	\$130,419.83	\$ -
																					Total Tree Appraisal Evaluation		\$ 693,012.09