



## H. T. HARVEY & ASSOCIATES

Ecological Consultants

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1212 BORDEAUX DRIVE  
SUNNYVALE, CA

### ARBORIST REPORT

Project #3475-36

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## Executive Summary

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Devcon Construction Inc. is currently preparing redevelopment plans for an existing commercial property at 1212 Bordeaux Drive in Sunnyvale, California. Demolition of the existing building and construction of a new building are expected to impact existing trees on-site. This report was revised to reflect the Tree Preservation and Demolition Plan updated by Devon Construction Inc. on 28 June 2016. The report was amended to include an evaluation of impacts to existing Protected trees resulting from construction of a new sidewalk and planting strip along Bordeaux Drive as proposed by the City of Sunnyvale.

This Arborist Report, prepared by an ISA-Certified and Registered Consulting Arborist, fulfills the City of Sunnyvale's requirement for a tree survey and report for development projects. The report includes a brief site and project description, which is illustrated by the Tree Preservation and Demolition Plan (Appendix A) and a diagram showing the location of existing trees (Appendix B). Section 3 describes and summarizes the findings of the 15 March 2016 inventory and assessment conducted for this project.

Evaluation of construction impacts and general recommendations for tree protection, pruning, removal, disposal and replacements based on the City's Municipal Code and best management practices for the project are included in Section 4. In addition, Section 5 provides a calculation of value for each Protected tree on-site.

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## Section 1.0 Purpose of the Report

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### 1.1 Background and History

Devcon Construction Inc. is currently preparing redevelopment plans for an existing commercial property at 1212 Bordeaux Drive in Sunnyvale, California. Demolition of the existing building and construction of a new building are expected to impact existing trees on-site (see Appendix A: Tree Preservation and Demolition Plan, revised 28 June 2016).

### 1.2 Assignment

A tree survey conducted by an arborist certified by the International Society of Arboriculture is part of the required application materials for all use, design, or special development permits on redeveloping property in the City of Sunnyvale, as described in Chapter 19.94 (Tree Preservation) of the City's Municipal Code.

This Arborist Report for the 1212 Bordeaux Drive redevelopment project includes:

- An inventory of all trees on-site with trunks greater than 4 inches in diameter;
- An assessment of the health, structural condition, and suitability for preservation of each tree;
- An assessment of the impacts to trees when constructing the proposed project;
- Design guidelines and tree protection during the design, construction, and maintenance phases of development;
- A calculation of value for each Protected tree on-site; and
- A written Arborist Report documenting and summarizing observations, professional opinions, and recommendations.

### 1.3 Limits of the Assignment

This report is based on observations made during a site visit by ISA-Certified and Registered Consulting Arborist Laurel Kelly, H.T. Harvey & Associates, on 15 March 2016 and includes a basic visual inspection of the trees from the ground to evaluate their health and general condition. The scope of work did not include an excavation of the root zones of the trees, drilling for decay detection, collecting soil samples for laboratory testing, sending animal or vegetative material for laboratory testing, climbing the trees for an aerial inspection, or a tree risk assessment (see Appendix E: Assumptions and Limiting Conditions and Appendix F: Certification of Performance).

## Section 2.0 Tree Survey Assessment Methods

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Field data collection was conducted using a diameter tape to measure tree trunk diameter at breast height (DBH) at 54 inches above finish grade. All trees with a DBH greater than 4 inches were included in the survey, as required by the City of Sunnyvale. An iPad 4 and GIS Pro app suite were used to determine and record the location of each tree. Geographic data are compiled in a KMZ (Google Earth) file, which is organized by tree tag number. The KMZ file is accompanied by a folder containing photos of each surveyed tree, labelled by tree tag number.

Tree assessment was based on ground-level visual observations and physical measurements with the previously mentioned tools. An advanced assessment to quantify interior wood structure, root condition, or upper canopy condition was not performed and is not required for this report.

The tree survey was conducted as follows.

1. Tagging each tree with an identifying number (sequential numbering assigned to the project).
2. Identifying each tree as to species (scientific name) and common name.
3. Recording the location of each tree.
4. Measuring the trunk DBH.
5. Recording the number of multiple trunks.
6. Identifying Protected trees.
7. Evaluating tree condition using a scale of **1** to **5** as shown in Table 1 (adapted from Purcell 2012). Evaluations of Tree Health consider crown indicators such as vigor, density, leaf size, quality, and stem shoot extensions. Evaluations of Tree Structure condition consider root condition/formation, trunk condition, and branch assembly and arrangement.
8. Evaluating the potential ecological threat or invasiveness of each tree species as shown in Table 3.
9. Rating the suitability for preservation as **high**, **moderate**, or **low** as shown in Table 4.

Table 1. Evaluating Tree Health and Structural Condition

Condition Rating	Tree Health	Tree Structure
5	A healthy, vigorous tree with a well-balanced crown. No apparent pest problems or signs and symptoms of disease. Normal to exceeding shoot length on new growth. Leaf size and color normal. Exceptional life expectancy for the species.	Root plate undisturbed and clear of any obstructions. Root flare has normal development. Trunk is sound and solid. No visible trunk defects or cavities. Branch spacing / structure and attachments are free of any defects.
4	Tree with slight decline in vigor. Imperfect canopy density in few parts of the tree, 10% or less, lacking natural symmetry. Less than half normal growth rate and minor deficiency in leaf development. Few pest issues or damage, controllable. Normal branch and stem development with healthy growth. Small amount of twig dieback. Typical life expectancy for the species.	Root plate appears normal; only minor damage may be found. Possible signs of root dysfunction around trunk flare. Minor trunk defects from previous injury, with good closure; less than 25% of bark section missing. Good branch habit, minor dieback with some signs of previous pruning. Co-dominant stem formation may be present. Minor corrections required.
3	Tree with moderate vigor. Crown decline and dieback up to 30% of the canopy. Overall poor symmetry. Leaf color somewhat chlorotic with smaller leaves. Shoot extensions indicate some stunting and stressed growing conditions. Obvious signs of pest problems contributing to lesser condition. Some decay areas found in main stem and branches. Below average life expectancy.	Root plate reveals previous damage or disturbance and dysfunctional roots may be visible around main stem. Evidence of trunk damage or cavities with decay or defects present. Less than 30% of bark sections missing on trunk. Co-dominant stems are present. Branching habit and attachments indicate poor pruning or damage, which requires moderate corrections.
2	Tree in decline. Epicormic growth. Lacking full crown, more than 50% decline and dieback, especially affecting larger branches. Stunting obvious with little evidence of growth on smaller stems. Leaf size and color reveal overall stress in the plant. Insect or disease infestation may be severe. Overmature. Life expectancy is low.	Root plate disturbance and defects indicate major damage with girdling roots around the trunk flare. Trunk reveals more than 50% of bark section missing. Branch structure has poor attachments, with several structurally important dead or broken branches. Canopy reveals signs of severe damage or topping, with major corrective actions required. Extensive decay or hollow.
1	Tree in severe decline. Crown has very little vigor and/or has a disease or insect problem that is ultimately fatal and, if not corrected, may threaten other nearby trees.	Root plate has major structural problems that present an unacceptable risk. Tree is in severe decline, with dieback of scaffold branches and / or trunk.



## Section 3.0 Suitability for Preservation

### 3.1 Summary of Findings

The commercial property at 1212 Bordeaux Drive included a one-story office building completely surrounded by driveways and paved surface parking lots. Examination of historic aerial photographs indicated that, as late as 1948, this property was used as agricultural land with no evidence of trees within current property lines (Google Earth, 9/25/1948). The site was likely developed in late 1960s or early 1970s as commercial property. By 1978, olive tree canopies were visible (Google Earth, 4/1/1978).

The March 2016 tree survey found that trees were located in close proximity to the west and south sides of the building in continuous planting areas. Trees were also located along the site's western perimeter at Bordeaux Drive, most in a raised, grass-covered berm and in an ivy-covered, continuous planting area along the site's eastern perimeter. The balance of trees were located in parking lot cut-outs and along the fence at the site's southern perimeter. The location of each tree is shown on the diagram in Appendix B.

Results of the assessment of each tree are included in Appendix C (Tree Assessment), including trunk diameter (DBH) in inches, Protected tree status, tree condition, suitability for preservation, and comments. Table 2 provides a summary of the ninety-three (93) trees, representing eight (8) species, which were assessed.

**Table 2. Tree Summary**

Common Name	Scientific Name	Tree Condition*			Total Trees
		Poor	Fair	Good	
Lemon bottlebrush	<i>Melaleuca citrina</i>	—	2	5	7
Olive	<i>Olea europaea</i>	2	7	3	12
London plane	<i>Platanus x hispanica</i>	10	25	—	35
Yew pine	<i>Podocarpus macrophyllus</i>	1	1	—	2
Lombardy poplar	<i>Populus nigra 'Italica'</i>	6	—	—	6
Callery pear	<i>Pyrus calleryana</i>	8	7	3	18
African sumac	<i>Rhus lancea</i>	12	—	—	12
Brazilian pepper	<i>Schinus terebinthifolius</i>	1	—	—	1
<b>Total</b>		<b>40</b>	<b>42</b>	<b>11</b>	<b>93</b>
		43%	45%	12%	

\*Tree Condition ratings are defined in Section 3.2 below.

Sections 3.2 through 3.6 describe in greater detail those significant factors that contribute to suitability for preservation as follows:

- Section 3.2: Summary of tree conditions
- Section 3.3: Protected tree status



- Section 3.4: Descriptions of individual tree species
- Section 3.5: Invasiveness ratings for each tree species
- Section 3.6: Site conditions contributing to the overall poor or fair condition of trees

Section 3.7 provides a summary of significant findings that determine each tree's suitability for preservation.

## 3.2 Tree Conditions

The majority of trees were in poor (43%) to fair (45%) condition as shown in Table 2.

The condition ratings below include Tree Assessment Condition ratings from Appendix C and Tree Structure ratings from Table 1. Trees received a condition rating of:

- **Good** if their Tree Assessment Condition received an overall rating of **70%** or greater and a Tree Structure rating of **3** or greater;
- **Fair** if their Tree Assessment Condition received an overall rating less than **70%** but at least **50%** and a Tree Structure rating of **3** or greater; and
- **Poor** if their Tree Assessment Condition received an overall rating less than **50%** and a structural rating of **2** or less.

## 3.3 Protected Trees

The City of Sunnyvale Municipal Code (Section 19.94.030) provides special provisions for **Protected trees**, which the code defines as trees of significant size. **Protected trees** include:

- single-trunk trees with a DBH measuring more than 12 inches, and
- multi-trunk trees with at least one trunk DBH measuring more than 12 inches or with a total trunk DBH measuring at least 36 inches.

Based on this definition, twenty-nine (29) Protected trees were identified (see Appendix C: Tree Assessment). Calculations of value for each Protected tree are shown in Table 7.

## 3.4 Description of Trees

Information related to life span, growth rate, branch strength, and root damage potential was gathered from individual tree species records at SelecTree's online site, which is maintained by the Urban Forest Ecosystems Institute at Cal Poly State University (see References). Species tolerance to construction impacts and calculations for adequate Tree Protection Zones were derived from *Trees and Development* (Matheny and Clark 1998). Tolerances to reclaimed / recycled irrigation water were derived from UCANR's RW/Salt Tolerant list (see References). Invasiveness ratings are described in more detail in Section 3.5, Table 3.

### 3.4.1 Olive (*Olea europaea*)

Olive trees, which accounted for 13% of site trees, were planted in a prominent location on a raised berm at the property's street front. Although none of the olives existed on-site prior to 1948, they contributed to the site aesthetic. Olives, in general, are associated with the California Rancho period (mid-1800s), and the ten (10) mature, Protected olives may be perceived as sharing this historical perspective. Although olives receiving good care and maintenance have an expected life span of more than 150 years and a moderate tolerance to construction impacts, they are intolerant of changes to existing grades within adequate Tree Protection Zones (at least one foot per inch of trunk diameter). Olives have a slow-to-moderate growth rate and a low tolerance to salt and reclaimed / recycled water. They are considered to have limited invasiveness.

### 3.4.2 London plane (*Platanus x hispanica*)

London plane trees were the most frequently planted trees on-site (38%). They were located primarily in parking lot cut-outs and along the fence at the site's southern perimeter. Although they are expected to have a fast growth rate given adequate conditions for healthy tree development, none had reached a mature, significant size. All were found to be in poor-to-fair condition and had achieved less than one-half of their expected mature height. London plane trees, in general, require ample growing room and have a high root damage potential. They have a good tolerance to construction impacts, but a low tolerance to salt and reclaimed / recycled irrigation water. London plane trees pose an ecological threat to California sycamores (*Platanus racemosa*) due to their propensity for hybridizing with the native species.

### 3.4.3 Lombardy poplar (*Populus nigra 'Italica'*)

Lombardy poplars were planted in several prominent locations: near the olives on a raised berm at the property's street front and along the site's east and north perimeters. However, most of the east and north perimeter trees were located outside the property boundary and were not included in this report. All the Lombardy poplars on the site were overmature and in poor condition, and all six (6) within the property boundary had reached a significant size to be considered Protected. Lombardy poplars, in general, are expected to have a fast growth rate, with branch strength rated as weak and root damage potential rated as high. They often have multiple suckers at their bases and on their roots, which are considered invasive. They are sensitive to construction impacts, and healthy trees of this size require a Tree Protection Zone of at least 1.5 feet per inch of trunk diameter. They have a low tolerance to salt. Finally, Lombardy poplars are very susceptible to stem canker disease, which limits their expected life span considerably. This tree is "usually not included on any recommended tree lists" (Gilman and Watson 1993).

### 3.4.4 Callery pear (*Pyrus calleryana*)

Callery pears accounted for nearly 20% of site trees. Most were located in close proximity to the west side of the building in continuous planting areas; the balance were planted along the fence at the site's southern perimeter. Although most were mature-to-overmature trees in poor-to-fair condition, three (3) were in good condition and had reached a significant size to be considered Protected. One Protected Callery pear was in

fair condition. In general, they have an expected life span of 50 to 150 years, a moderate growth rate, and a low tolerance to salt and reclaimed / recycled irrigation water. While they have a moderate tolerance to construction impacts, they are intolerant of root pruning and healthy trees would require a Tree Protection Zone ranging from 1.0 to 1.25 feet per inch of trunk diameter. Callery pears are considered to be invasive throughout much of the country and in sensitive habitats in California.

### 3.4.5 African sumac (*Rhus lancea*)

Twelve (12) African sumacs, which were located in an easement, provided screening at the site's eastern perimeter. All were found to be mature-to-overmature trees in poor condition, primarily due to damaging pruning practices, and eight (8) had reached significant size to be considered Protected. In general, African sumacs have an expected life span of 50 to 150 years and a moderate growth rate. They have a moderate tolerance to construction impacts, and healthy trees would require a Tree Protection Zone ranging from 1.0 to 1.25 feet per inch of trunk diameter. They are considered to be highly invasive in riparian systems in the western United States.

### 3.4.6 Other trees

The single mature-to-overmature Brazilian pepper (*Schinus terebinthifolius*), which was located at the existing building's west entrance, was the only other Protected tree on-site. It was in poor condition primarily due to damaging pruning practices. Given adequate conditions for healthy tree development, peppers are expected to have a life span of 50 to 150 years, a moderate growth rate, and a low tolerance to salt. They are considered to have limited invasiveness.

Mature-to-overmature lemon bottlebrush trees (*Melaleuca citrina*) and young yew pines (*Podocarpus macrophyllus*) were planted in close proximity to the south and west sides of building. Most bottlebrush trees were in good condition (5 out of 7). Lemon bottlebrush (formerly known as *Callistemon citrinus*) are small, fast growing, usually multi-trunk trees with a life span of 40 to 150 years and a moderate tolerance to salt and reclaimed / recycled water. The yew pines were in poor-to-fair condition, with poor form and trunk lean. They are in general, long-lived trees (more than 150 years) with a moderate growth rate and a low tolerance to salt and reclaimed / recycled water.

## 3.5 Invasive Tree Species and Ecological Threats

Most tree species found on-site were considered to be invasive by the California Invasive Plant Council (Cal IPC 2006, 2007) or had been identified as posing a potential ecological threat in this area of Northern California (see Table 3). Given the property's location along a waterway that has some ecological value, special consideration should be given to removing existing plant species that present any threat of invasiveness or hybridization, as well as careful selection of proposed species for new landscaping to ensure they are consistent with the site's environmental / ecological context.

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Table 3. Invasiveness Ratings

Common Name	Scientific Name	Cal IPC Invasive Rating	Other Comments
Lemon bottlebrush	<i>Melaleuca citrina</i>	—	—
Olive	<i>Olea europaea</i>	limited	Can invade riparian corridors (McClain, personal observation). Seed dispersal by birds is important, but probably does not often extend beyond one (1) kilometer (Cal IPC 2006, 2007).
London plane	<i>Platanus x hispanica</i>	—	Considered hybridization hazard with native sycamore; very undesirable species (Johnson et al. 2016)
Yew pine	<i>Podocarpus macrophyllus</i>	—	—
Lombardy poplar	<i>Populus nigra 'Italica'</i>	—	Has naturalized in California. May be considered for removal from the trade through discussions with the horticulture industry and also watched for further spread into wildlands (Brusati et al. 2014). Roots can be invasive (McClain, personal observation; Gilman and Watson 1993).
Callery pear	<i>Pyrus calleryana</i>	—	Invades margins of creeks, streams, and emergent wetlands in California's Sacramento Valley (McClain, personal observation). Considered invasive in Mid-Atlantic region by the National Park Service (2010) and the US Fish and Wildlife Service
African sumac	<i>Rhus lancea</i>	—	Considered highly invasive in riparian systems; spreads by both copious seeds and root suckers (ANPS 2016).
Brazilian pepper	<i>Schinus terebinthifolius</i>	limited	(Cal IPC 2006, 2007)
English ivy	<i>Hedera helix</i>	high	Several planting areas were infested with English ivy (Cal IPC 2006, 2007)

## 3.6 Tree Care and Site Conditions

Tree health and structural stability are directly affected by many site factors, including soil volumes and soil quality in planting areas, mechanical injuries, and the availability and quality of supplemental water during plant establishment and in drought conditions. The following are major factors that negatively affected the condition of trees and their value to this property.

### 3.6.1 Mechanical Injury

Inappropriate and damaging cultural practices produced injuries, pruning wounds, and oozing sap in many trees throughout the site. Best management practices, in general, limit pruning cuts to branches with diameters no greater than 2 inches, prohibit pruning cuts flush with the bark, and discourage shortening major tree trunks (topping). However, pruning wounds much larger than 2 inches were observed on many trees (especially African sumacs and olives), as well as pruning flush cuts on more than 70% of the tree, and topping of major trunks at two (2) trees.

### 3.6.2 Availability and Type of Supplemental Water in Drought Conditions

Although established mature trees may have required little to no supplemental irrigation in years with more rainfall, California's current five-year drought has taken a toll on trees. The California Urban Forest Council has reported that mature trees growing near heat traps (such as the paved driveways, parking lots, and building foundations at the project site) require supplemental irrigation.

No information was available regarding the availability and type of supplemental water provided to site trees during the current drought. However, the decline observed in more than 50% of site trees may be the result of drought stress. Also, most tree species on-site are intolerant of the salts found in reclaimed / recycled water.

### 3.6.3 Soil Conditions

Impervious surfaces comprised the majority of the property, with planting beds generally much smaller than the dripline area of the trees within them. Soils within the upper 12 to 24 inches of planting beds were likely to be cultivated (as a result of prior agricultural use) or imported fill. Visual observations suggest that these upper soils were well drained but may have been inadequately mulched for moisture retention.

The NRCS describes the soils of Map Unit #145, which includes the property and all areas surrounding it, as *Urbanland-Hangerone complex, 0 to 2 percent slopes, drained* (NRCS 2016). Urbanland soils are comprised of disturbed and human-transported material. This likely included the raised grassy berm along the western side of the property, which supported several large olive and Lombardy poplar trees. Hangerone soils, which may underlie much of the site, are characterized by poorly drained clays to a depth of 35 inches and a mixture of clay loams and gravelly loams below 35 inches. Depth to a restrictive feature, as well as to a water table, are

greater than 80 inches. Some areas may have experienced poor drainage, where heavy clays are present in the soil profile.

### 3.7 Suitability for Preservation

Trees were evaluated for suitability for preservation prior to evaluating the anticipated construction impacts of the redevelopment project (see Section 4).

Trees, especially large and healthy specimens, provide aesthetic and environmental benefits that merit protection. However, trees impacted by development or redevelopment should be selected carefully to make sure they survive construction, adapt to new environmental conditions, and perform well in their new setting with a low risk of damage or injury if they fail (City of Sunnyvale Municipal Code Section 19.94.060).

Major factors in determining which trees to preserve are:

- Suitability of the species to the new land use, including considerations of life span and invasiveness,
- Tree condition, including health and structural stability,
- Species tolerance to changes in the environment, and
- Level of maintenance that will be provided following impact (FS 1993).

Suitability, condition, and tolerance to construction impacts (as described in Sections 3.2 through 3.6) were considered in developing the findings presented in Table 4.

No trees received a high suitability rating, which would have made them the best candidates for preservation. Only 30% were considered moderately suitable for preservation depending on the intensity of proposed site changes. The majority of trees (70%) were rated as having a low suitability for preservation. However, with proper maintenance and remedial care (as described in Section 4.3.4), the health of some of these trees may improve, and they could continue to provide benefits, such as shade and beauty, to the project site.

**Table 4. Suitability for Preservation**

<b>High</b>	Trees with a high suitability for preservation are in good health and structural stability, are not an invasive species, and are likely to continue to thrive with proper protection during construction. None of the trees on-site were highly suitable for preservation.
<b>Moderate</b>	These trees are in good –to-fair health and/or have structural defects that could be improved and corrected with good management and monitoring (an overall Tree Assessment Condition rating less than 70% but at least 50% and a Tree Structure rating of 3 or greater). They are not considered an invasive species. They are likely to survive during construction with proper protection, although their lifespans may be shorter than trees in good health. Twenty-eight (28) tree were moderately suitable for preservation, including seven (7) bottlebrush trees, one (1) yew pine, ten (10), olives and ten (10) Callery pears. Thirteen (13) were Protected trees, including ten (10) olives and three (3) Callery pears.
<b>Low</b>	These are trees with poor health and/or have significant structural defects that may not be likely to improve with routine management. Without remedial care and increased maintenance, they are expected to continue to decline due to inadequate soil volumes, poor soils, the negative results of prior pruning practices, overmaturity, or unavoidable construction impacts. Some species or individual trees may be considered undesirable or unsuited to the landscape setting or location in which they occur. Sixty-five (65) trees were in this category, including one (1) yew pine, two (2) olives, eight (8) Callery pears, and the balance of trees on-site. Sixteen (16) were Protected trees, including six (6) Lombardy poplars, one (1) Callery pear, eight (8) African sumacs, and one (1) Brazilian pepper.



## Section 4.0 Tree Protection Plan and Recommendations

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### 4.1 Evaluation of Impacts

#### 4.1.1 General

Demolition of the existing building and construction of a new building, driveways, sidewalks, and reconfigured parking areas are expected to impact the majority of trees on-site (see Appendix A: Tree Preservation and Demolition Plan, revised 28 June 2016). As summarized in Table 5, fifty-seven (57) trees are recommended for removal, including diseased or damaged trees in decline, overmature trees, and trees that have outgrown their useful landscape value due to their inappropriate species, size, or location. Nine (9) Protected trees are included in this total. Thirty-six (36) trees are recommended for preservation, including nine (9) Protected olive trees at the property's street front, three (3) Protected Lombardy poplars at the property's street front and at the easement along the eastern perimeter, and eight (8) African sumacs at the site's eastern perimeter. Recommendations for preservation assume that existing grades will be maintained within each Tree Protection Zone and that damage to existing tree roots will be avoided during construction (see tree preservation and protection requirements and recommendations in Section 4.3).

Recommendations for preservation or removal of individual trees are provided in Appendix D.

Based on City requirements (see Section 4.2.1 below), a minimum of seventeen (17) trees (24-inch box or larger) would be required as mitigation for the approved removal of nine (9) Protected trees as follows:

- 12 to 18-inch diameter trees (5)
- 18 to 24-inch diameter trees (2)
- Over 24-inch diameter trees (2)

For each Protected tree that is removed but where a replacement tree cannot be provided, the tree replacement in-lieu fee shall be the value established as shown in Section 5.

Table 5. Summary of Recommendations for Preservation or Removal

Common Name	Total Number of Trees	Number of Protected Trees	Recommendations
African sumac	12	8	<b>Preserve</b> and protect all, including eight (8) Protected trees. Provide remedial care as described in Section 4.3.4. Remove ivy. Conduct soils test if understory replanting is considered in locations of existing trees.
Brazilian pepper	1	1	<b>Remove</b> one (1) Protected tree.
Callery pear	18	4	<b>Preserve</b> and protect three (3) trees. <b>Remove</b> fifteen (15) trees, including four (4) Protected trees.
Lemon bottlebrush	7	—	<b>Remove</b> all.
Lombardy poplar	6	6	<b>Preserve</b> and protect three (3) Protected trees after conducting tree risk assessment. Provide remedial care for preserved trees as described in Section 4.3.4. <b>Remove</b> three (3) Protected trees.
London plane	35	—	<b>Preserve</b> and protect nine (9) trees. Provide remedial care for preserved trees as described in Section 4.3.4. <b>Remove</b> twenty-six (26) trees. Conduct soils test if replanting is considered in locations of trees to be removed.
Olive	12	10	<b>Preserve</b> and protect nine (9) Protected trees and retain existing grading within TPZ. Provide remedial care for preserved trees as described in Section 4.3.4. <b>Remove</b> three (3) trees including one (1) Protected tree.
Yew pine	2	—	<b>Remove</b> all.
<b>Totals</b>	<b>93</b>	<b>29</b>	<b>Preserve</b> and protect thirty-six (36) trees, including twenty (20) Protected trees. <b>Remove</b> fifty-seven (57) trees, including nine (9) Protected trees.

#### 4.1.2 Bordeaux Drive Sidewalk and Planting Strip

The impacts of constructing a sidewalk at Bordeaux Drive within the tree protection zones (TPZ) of olive trees #478, #480, and #482 were evaluated. Although current plans exclude construction of a planting strip in this area, the construction of a new sidewalk adjacent to the existing curb may also impact a significant percentage of these trees' roots (see Appendix 2: Tree Preservation and Demolition Plan, revised 28 June 2016). In addition, a new curb/gutter, sidewalk, and planting strip are shown in the area south of tree #482, and this construction may also impact a significant percentage of the roots of olive trees #483 and #486. Remedial care (as described in Section 4.3.4) is recommended for these trees to mitigate construction impacts.

Should a new curb/gutter, sidewalk, and planting strip be constructed adjacent to olive trees #478, #480, and #482 (as proposed by the City of Sunnyvale), excavation for construction of the sidewalk would occur at or under the structural root plate of each tree and would sever major roots along the entire length of each TPZ, likely compromising these trees' structural stability and health. If this plan is pursued, removing trees #478, #480, and #482 is recommended in the interest of public safety.

Table 6 provides a summary of the factors that influenced the recommendations for olive trees #478, #480, and #482—including tree condition, structural root plate estimated diameters, recommended tree protection zones (in which no grading should occur), and estimated percentage of root disturbance within each tree's critical root radius.

**Table 6. Summary of Evaluation of Olive Trees #478, #480, and #482**

<b>Tree #</b>	<b>DBH (inches)</b>	<b>Suitability for Preservation</b>	<b>Condition</b>	<b>Radius of Structural Root Plate<sup>1</sup></b>	<b>Critical Root Radius (CRR)<sup>1</sup></b>	<b>TPZ<sup>2</sup></b>	<b>Distance from Sidewalk<sup>3</sup></b>	<b>% of Root Disturbance within CRR</b>
478	32/12	Moderate	Fair	10 ft	40 ft	44 ft	6 ft	>25%
480	18/16/14	Moderate	Good	8 ft	22.5 ft	48 ft	2 ft	>25%
482	35	Moderate	Fair	10 ft	42.5 ft	35 ft	7 ft	>25%

<sup>1</sup>estimate based on largest diameter stem (Coder 1996)

<sup>2</sup>Matheny and Clark (1998)

<sup>3</sup>from center of stem/trunk to eastern edge of sidewalk with planting strip included (estimate)

## 4.2 Design Requirements and Recommendations

Any changes to the redevelopment plans (Appendix A) that affect trees to be removed or protected should be reviewed by the City or Consulting Arborist to evaluate changes to tree impacts. These include plans and details related to demolition and grading, site and building improvements, utilities and drainage, and landscape and irrigation.

### 4.2.1 Replanting Requirements

Sunnyvale's Municipal Code Section 19.94.090 regulates the minimum size for the replacement of Protected trees and requires certain conditions for replanting programs when Protected trees must be removed as follows:

The minimum size for the replacement of a Protected tree shall be a California Association of Nurserymen's standard twenty-four (24) inch box size tree. The director of community development shall have the authority to require larger or smaller replacement trees upon review of specific cases. Smaller trees may be approved if the applicant can document the long term advantages of using the smaller tree size.

The following items shall be included in replanting programs when Protected trees must be removed:

- a. Minimum distances between trees and between trees and buildings shall be provided such that the health of the replacement trees shall be ensured.
- b. Replanting shall occur within a specified time period.
- c. Mixed species shall be used in large replantings whenever possible to reduce the likelihood of disease and infestations.
- d. Tree care procedures shall be included in all replanting plans and shall include, but not be limited to, the following items: mulching; straightening; new staking or restaking; fertilizing; and any other procedures deemed necessary by the city.

In addition, Section 13.08.240 prohibits the use of guys wires attached to trees unless specifically authorized by the development permit.

### 4.2.2 Replanting Recommendations

The following recommendations focus on expanding the capability of new tree plantings to contribute to human and environmental health through the choice of tree species better suited to the microclimatic and soil conditions of the site setting. The primary goal of these recommendations is to increase ecosystem services and benefits to human health and well-being while decreasing maintenance requirements.

- **Plant the right tree in the right place for the right purpose.** Choose tree species that are well-adapted for each site location. Do not plant invasive species. Focus tree planting on species that can

provide increased ecosystem services and improved human health and well-being and are responsive to the challenges of climate change. Increase and diversify tree species.

- **Consider planting smaller nursery stock where appropriate.** Smaller nursery stock, which have shallower root balls, are a better option for poorly draining sites. They also have a shorter establishment period and require less water for establishment.
- **Provide adequate root space and the right soil for root growth.**
- **Provide water efficiently and effectively.** All new trees are likely to require supplemental irrigation during establishment. To thrive in periods of drought or in stressful growing conditions, many trees will continue to require irrigation throughout their life spans.
- **Maintain good drainage.** Site soil conditions and a high water table can create water-logged conditions in planting areas. Provide and maintain conditions that promote tree health in these challenging circumstances.
- **Institute an ongoing program for the maintenance and long-term management of site trees.**

Maintaining high levels of ecosystem services and restoring native biodiversity can also make a contribution to enhancing the Bay Area's ecological resilience and preserving our high quality of life.

#### 4.2.3 Tree Protection Zones (TPZ)

- Establish a Tree Protection Zone (TPZ) around each tree to be preserved.
- The size and conformation of Tree Protection Zones are required by the City of Sunnyvale to be no smaller than the dripline of each Protected tree to be preserved. However, we recommend that the size of each TPZ be increased based on each species' sensitivity to construction impacts, the health and age of the tree, the root and crown conformation, and development constraints. It may be necessary to identify where roots actually are through hand excavation in order to properly protect a highly valued tree (Matheny and Clark 1998).
- The following activities shall be prohibited within each Tree Protection Zone:
  - Storage of construction materials, debris, excavated material, waste, or washout water.
  - Parking construction trailers, vehicles, or equipment.
  - Foot traffic.
  - Erection of sheds or structures.
  - Impoundment of water.
  - Excavation for underground utilities, drain or irrigation lines, or other digging unless approved by the City or Consulting Arborist.
  - Attachment of signs to or wrapping materials around trees or plants unless approved by the City or Consulting Arborist.

## 4.3 Tree Protection Plan

The City of Sunnyvale requires a Tree Protection Plan to safeguard the health of Protected trees before and during construction (Municipal Code Sections 19.94.110, 19.94.120, and 19.94.140).

### 4.3.1 Preconstruction Requirements

- A tree bond may be required for the value of any tree required to remain as a condition of permit approval during development activities on a site.
  1. The bond may be for a maximum period of five years.
  2. The value of the tree shall be determined by the director of community development.
  3. The bond will be released back to the developer if the tree remains in good health through the end of the bond period.
  4. In the event the tree dies or begins to decline in poor health, the bond will be used by the City to replace the aesthetic value of the tree that was lost.
- Soil mitigation, including structural soils, may also be required in any location deemed appropriate for future or existing tree growth.

### 4.3.2 Requirements for Tree Protection during Construction

Protected trees designated for preservation shall be protected during construction of a project by use of the following methods:

- Protective fencing shall be installed no closer to the trunk than the dripline, and far enough from the trunk to protect the integrity of the tree. The fence shall be a minimum of four (4) feet in height and shall be set securely in place. The fence shall be of a sturdy but open material (i.e., chain link) to allow visibility to the trunk for inspections and safety.
- The existing grade level around a tree shall normally be maintained out to the dripline of the tree. Alternate grade levels, as described in the tree protection plan, may be approved by the director of community development.
- Drain wells shall be installed whenever impervious surfaces will be placed over the root system of a tree (the root system generally extends to the outermost edges of the branches).
- Pruning that is necessary to accommodate a project feature, such as a building, road or walkway shall be reviewed and approved by the department of community development and the department of public works. Pruning, if necessary, shall be reviewed and approved by the City Arborist.
- New landscaping installed within the dripline of an existing tree shall be designed to reproduce a similar environment to that which existed prior to construction.
- Appropriate city staff shall be authorized to conduct on-site inspections during construction to ensure that tree preservation procedures are being followed and replanting plans implemented.

### 4.3.3 Recommendations for Tree Protection during Construction

The following recommendations are intended to supplement City requirements.

- Protective fencing should completely enclose the Tree Protection Zone and should be installed prior to demolition, grubbing, or grading. Protective fencing should be maintained in good condition and free of trash, debris, excess soil, chemicals, or equipment until construction is completed and accepted by the City inspector.
- Pruning prior to construction with the intent of improving tree health is not recommended. Where temporary clearance is needed for access, tree branches should be tied back to provide clearance. If any tree to be preserved requires pruning to provide construction clearance, the work must be approved in advance by the City or Consulting Arborist and performed by a Certified Arborist or Tree Worker according to the latest edition of the ANSI Z133 and A300 standards as well as the *Best Management Practices—Tree Pruning* published by the International Society of Arboriculture. Pruning should not occur during periods of flight of adult boring insects.
- Any work that is expected to encounter tree roots should be monitored by the City or Consulting Arborist.
- Excavation at the edge of Tree Protection Zones should include the following tree protection measures:
  - Hand excavate under or around tree roots to depth of three (3) feet.
  - Tunneling should only be employed with approval of the City or Consulting Arborist.
  - Do not cut main lateral tree roots or taproots. When main lateral tree roots or taproots are exposed, excavation should be discontinued until instructions to resolve the conditions are received from the City or Consulting Arborist.
  - Redirect roots in backfill areas where possible.
  - Expose main lateral roots beyond excavation limits as required to bend and redirect them without breaking.
  - If redirection is not practical, cut roots approximately three (3) inches back from new construction.
  - Protect exposed roots from drying out before placing permanent backfill.
- Prune roots that are affected by temporary and permanent construction only with the prior approval of the City or Consulting Arborist. Prune roots as follows:
  - Cut roots manually.
  - Cleanly cut exposed roots one (1) inch diameter and greater with sharp pruning instrument.
  - Do not use a backhoe or other equipment that rips, tears, or pulls roots.
  - Do not paint cut root ends.



- Injuries to any Protected trees during construction should be reported to the City or Consulting Arborist, who can evaluate the injury and recommend appropriate treatments.

#### 4.3.4 Long-Term Maintenance Recommendations

During the first three (3) years post construction and planting, trees require additional care and maintenance to promote healthy growth and development. The following are major tasks that are recommended during this period.

- Monitor and evaluate the health and structure of preserved and newly planted trees on an annual basis (or more frequently as needed).
- Prune dead and/or hanging branches to improve safety.
- Evaluate and monitor the effectiveness of the irrigation system to insure that it meets best management practices for water-efficient irrigation.
- Develop and implement an Integrated Pest Management (IPM) program, which (1) focuses on long-term prevention of pests or their damage by managing tree health and (2) combines management approaches to pest control—biologic, cultural, physical, mechanical, and chemical—for greater effectiveness.
- Provide remedial care for trees to be preserved that have a low suitability for preservation as described in this report. Olives were found to have a moderate suitability for preservation and a moderate tolerance to construction impacts, but are intolerant of grades changes. Olives located adjacent to sidewalk construction at Bordeaux Drive may also need remedial care as a result of construction within their TPZs. The following are additional recommended actions to promote tree health.
  - Conduct soils tests in each tree planting area and amend soils as recommended by the soil testing laboratory.
  - Provide and maintain six (6) inches of organic mulch within each TPZ during construction, then spread to a depth of 2 to 3 inches and maintain as needed.
  - Consider soil moisture sensors at each tree during periods of drought, particularly the London plane trees in parking areas and the olives at Bordeaux Drive.
  - Monitor and control insect infestations and diseases monthly, especially for trees with known susceptibilities (SelecTree 2016), as follows:
    - African sumac: Susceptible to root rot and verticillium
    - Callery pear: Susceptible to white fly, sooty mold
    - Lombardy poplar: Susceptible to beetle borers, scales and thrip, anthracnose, stem canker, crown rot, and mistletoe.

- London plane: Susceptible to scales and spider mites, anthracnose, and powdery mildew
- Olive: Susceptible to scales, anthracnose, oak root rot, phytophthora, root rot, sooty mold, and verticillium
- Remove and replace trees in decline. Inspect trees annually for hazard potential. As trees age, the likelihood of branch or entire tree failure increases.

## 4.4 Further Evaluation and Testing

Soil testing prior to replanting is recommended to document any deficiencies that would negatively affect the health of replacement trees. Suitable local testing facilities include the Soil and Plant Laboratory Inc. in San José (phone: 408.727.0330).

A tree risk assessment is highly recommended for Lombardy poplars to be preserved. The assessment should be performed by an ISA-Certified or Registered Consulting Arborist who has received training in and is qualified to perform tree risk assessments, including the following services:

- Root zone excavation to determine the structural integrity of root plates and buttress roots; and
- Boring or drilling of tree trunks or roots to investigate the possibility of decay in either of these critical structural elements.

Certified Tree Risk Assessors in Northern California include John Leffingwell (HortScience Inc., phone 925.484.5096), Dennis Yniguez (Tree Decisions, phone: 510.649.9291), and Torrey Young (Dryad LLC, phone: 877.206.4001), who are also ISA-Certified and Registered Consulting Arborists.

## Section 5.0 Valuation

The tree replacement in-lieu fee for all Protected trees that are not replaced is based on the value shown in Table 7. As required by Sunnyvale Municipal Code, the value for the following twenty-nine (29) Protected trees was established using the trunk formula method described in the *Guide for Plant Appraisal*, 9<sup>th</sup> edition, by the Council of Tree and Landscape Appraisers (CTLA 2000) and the *Species Classification and Group Assignment* in the Regional Supplement by the Western Chapter of the International Society of Arboriculture (ISA 2004).

**Table 7. Valuation of Protected Trees**

Tree ID	Common Name	Tree Species	DBH Total (Inches)	Valuation
419	African sumac	<i>Rhus lancea</i>	13	\$1,387
421	African sumac	<i>Rhus lancea</i>	22	\$1,109
422	Lombardy poplar	<i>Populus nigra 'Italica'</i>	48	\$847
425	African sumac	<i>Rhus lancea</i>	14	\$1,266
427	African sumac	<i>Rhus lancea</i>	16	\$1,058
430	African sumac	<i>Rhus lancea</i>	15	\$995
431	African sumac	<i>Rhus lancea</i>	14	\$1,058
432	African sumac	<i>Rhus lancea</i>	13	\$19,977
433	African sumac	<i>Rhus lancea</i>	13	\$34,052
464	Callery pear	<i>Pyrus calleryana</i>	12	\$17,319
467	Brazilian pepper	<i>Schinus terebinthifolius</i>	15	\$44,378
470	Callery pear	<i>Pyrus calleryana</i>	12	\$34,052
472	Callery pear	<i>Pyrus calleryana</i>	13	\$24,060
474	Callery pear	<i>Pyrus calleryana</i>	12	\$26,390
477	Olive	<i>Olea europaea</i>	29	\$25,251
478	Olive	<i>Olea europaea</i>	44	\$37,055
479	Olive	<i>Olea europaea</i>	27	\$34,052
480	Olive	<i>Olea europaea</i>	48	\$7,194
481	Olive	<i>Olea europaea</i>	44	\$3,150
482	Olive	<i>Olea europaea</i>	35	\$1,357
483	Olive	<i>Olea europaea</i>	38	\$1,099
484	Olive	<i>Olea europaea</i>	36	\$4,862
486	Olive	<i>Olea europaea</i>	47	\$1,387
487	Olive	<i>Olea europaea</i>	44	\$1,109
488	Lombardy poplar	<i>Populus nigra 'Italica'</i>	75	\$847
489	Lombardy poplar	<i>Populus nigra 'Italica'</i>	36	\$1,266
490	Lombardy poplar	<i>Populus nigra 'Italica'</i>	20	\$1,058
491	Lombardy poplar	<i>Populus nigra 'Italica'</i>	18	\$995
492	Lombardy poplar	<i>Populus nigra 'Italica'</i>	49	\$1,058

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## Appendix A. Tree Preservation and Demolition Plan

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## 1212 BORDEAUX DRIVE SUNNYVALE CA

**DEVCON**  
CONSTRUCTION  
INCORPORATED  
690 Citiville Drive  
Manteca, California 95035  
(408) 941-8200 U.C. #399163

**690 Gibraltar Drive**  
Milpitas, California 95035  
(408) 947-8700 or #309163

**OWSW | oshea+wilson siteworks**  
702 RIDGE ST  
CHARLOTTEVILLE, VA 22902  
P 434.923.8100  
[www.djnetworks-walsh.com](http://www.djnetworks-walsh.com)

**GENERAL NOTES:**

CONTRACTORS SHALL FELD VERIFY ALL JOB CONDITIONS AND DIMENSIONS. VARIATIONS THEREOF FROM THE DRAWINGS MUST BE REPORTED TO THE ARCHITECT.

ALL DIMENSIONS INDICATED ON THE DRAWINGS ARE REPRESENTATIVE AND TYPICAL. ALL ATTACHMENTS TO THE DRAWINGS SHALL BE CONSIDERED PART OF THE CONTRACT. CONTRACTORS SHALL BE RESPONSIBLE FOR THE DESIGN AND CONNECTIONS SHALL BE PART PRACTICE AND SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

THESE DRAWINGS EMPLOYED IDEAL, USUAL, ARRANGEMENTS, PLANS AND SPECIFICATIONS WHICH ARE NOT TO BE CONSIDERED AS A BASIS FOR CONSTRUCTION. CONTRACTORS SHALL BE RESPONSIBLE FOR THE DESIGN AND DEVELOP FOR THE JOB, SOLELY IN CONNECTION WITH THE SPECIFIED PROJECT. NO TRANSFER OF RIGHTS OR INTERESTS IN THE PROJECT SHALL BE MADE TO ANY OTHER PARTY. NO PART OF THE PROJECT SHALL BE REPRODUCED OR COPIED OR REPRODUCED IN ANY MANNER, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT. NO PART OF THE PROJECT SHALL BE REPRODUCED OR COPIED OR REPRODUCED IN ANY MANNER, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT. NO PART OF THE PROJECT SHALL BE REPRODUCED OR COPIED OR REPRODUCED IN ANY MANNER, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT.

FOR OTHER INFORMATION, CONTACT THE ARCHITECT AT THE FOLLOWING ADDRESS: [Address]

© [Year] [Firm Name], INC.

© DEVCON CONSTRUCTION, INC.

[illegible]

	TREE PRESERVATION AND DEMOLITION PLAN
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JOB NO. 2000.01	SHEET NO.
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DATE: 06/28/2016

DRAWN: JRF

CHECKED: PJO

**ISSUE: PLANNING**

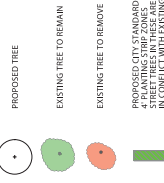
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Project	Total Trees to be Removed	Total Protected Trees to be	Total Replacement Trees Re-	Total Number of Documented
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2	1	1	1	1
3	1	1	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
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86	1	1	1	1
87	1	1	1	1
88	1	1	1	1
89	1	1	1	1
90	1	1	1	1
91	1	1	1	1
92	1	1	1	1
93	1	1	1	1
94	1	1	1	1

Tree Replacement	Replacements Trees per Tree Removed	Total Replacement Trees Required
Trees to be removed 32" - 18" Diameter: <b>5</b>	(1) 2" Box or (3) 15 Gal.	(5) 24" Box
18" - 24" Diameter: <b>2</b>	(1) 32" Box or (2) 24" Box	(4) 24" Box

[illegible]

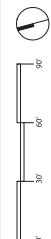
**TREE DEMOLITION /  
PRESERVATION LEGEND**



## TREE REPLACEMENT NOTES

- REFER TO REVISED AND AMENDED ARBORIST REPORT  
COMPLETED BY HT HARVEY & ASSOCIATES ON JUNE 27, 2016
- REFER TO L1.05 & L1.06 FOR PLANTING PLANS
- TREES TO REMAIN SHALL BE ADEQUATELY  
PROTECTED DURING CONSTRUCTION PROCESS

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SCALE: 1"= 30'-0"

01 TREE PRESERVATION AND DEMOLITION PLAN

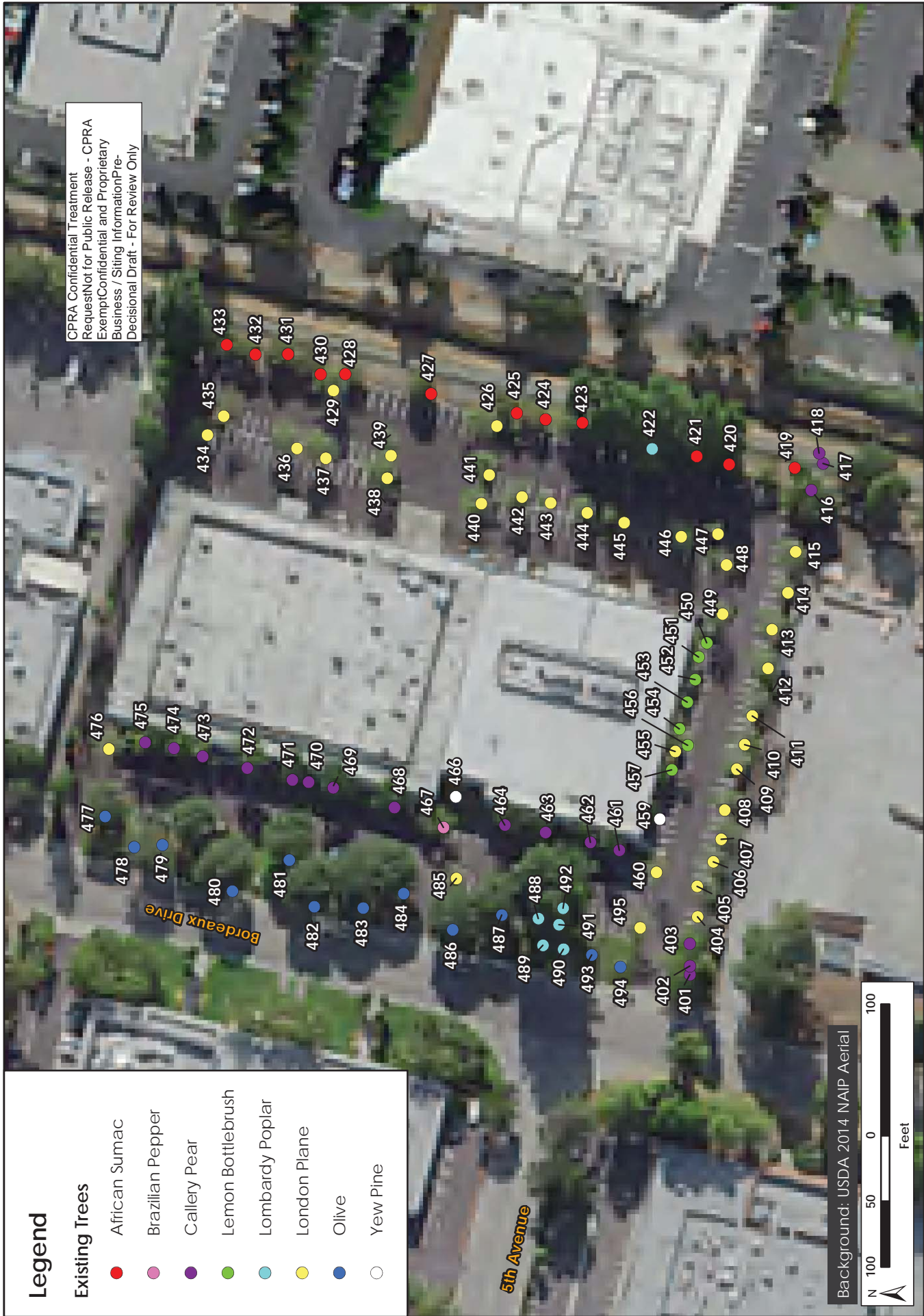
נכס 18 - ח.א. 18



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## Appendix B. Locations of Existing Trees

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**Appendix B. Locations of Existing Trees**  
1212 Bordeaux Drive, Sunnyvale, CA Arborist Report (3475-36)  
March 2016

## Appendix C. Tree Assessment

Tree ID	Common Name	Trunk Diameter (inches)	Protected	Condition	Suitability for Preservation	Comments
401	Callery pear	11	-	70%	Mod	Pruning flush cuts, intolerant of root pruning
402	Callery pear	8	-	70%	Mod	Pruning flush cuts, intolerant of root pruning
403	Callery pear	11	-	70%	Mod	Pruning flush cuts, intolerant of root pruning
404	London plane	4	-	50%	Low	Decline, pruning flush cuts
405	London plane	6	-	50%	Low	Decline, pruning flush cuts
406	London plane	6	-	40%	Low	Decline, pruning flush cuts, trunk lean
407	London plane	7	-	40%	Low	Decline, pruning flush cuts, trunk lean
408	London plane	6	-	40%	Low	Decline, pruning flush cuts, trunk lean
409	London plane	7	-	50%	Low	Decline, twig dieback, pruning flush cuts, trunk lean
410	London plane	6	-	40%	Low	Decline, pruning flush cuts
411	London plane	6	-	50%	Low	Decline, pruning flush cuts, trunk lean
412	London plane	7	-	50%	Low	Decline, hanger
413	London plane	6	-	50%	Low	Decline, twig dieback
414	London plane	5	-	50%	Low	Decline, twig dieback, pruning flush cuts
415	London plane	6	-	50%	Low	Twig dieback, pruning flush cuts
416	Callery pear	6	-	40%	Low	Decline, poor form, pruning flush cuts, intolerant of root pruning
417	Callery pear	7	-	50%	Mod	Decline, pruning flush cuts, intolerant of root pruning
418	Callery pear	7	-	50%	Mod	Decline, pruning flush cuts, intolerant of root pruning

Tree ID	Common Name	Trunk Diameter (inches)	Protected	Condition	Suitability for Preservation	Comments
419	African sumac	13	P	50%	Low	Poor form, pruning flush cuts, ivy at base
420	African sumac	8	-	50%	Low	Basal sprouts, poor form, pruning flush cuts, ivy at base
421	African sumac	22	P	50%	Low	Ivy at base, poor form, pruning flush cuts
422	Lombardy poplar	43, 5	P	40%	Low	Multi-trunk, ivy at base, overmature
423	African sumac	9	-	50%	Low	Dieback, ivy at base, poor form, pruning flush cuts
424	African sumac	10	-	50%	Low	Ivy at base, pruning flush cuts, trunk lean
425	African sumac	14	P	50%	Low	Ivy at base, poor form, pruning flush cuts
426	London plane	7	-	50%	Low	Dieback, Trunk lean
427	African sumac	16	P	50%	Low	Ivy at base, poor form, epicormic growth, pruning flush cuts, trunk lean
428	African sumac	11	-	40%	Low	Ivy at base, poor form, many pruning flush cuts
429	London plane	8	-	40%	Low	Ivy at base, co-dominant trunks at 8 ft, included bark
430	African sumac	15	P	40%	Low	Ivy at base, galls on main stem, poor form, epicormic growth, pruning flush cuts
431	African sumac	14	P	40%	Low	Ivy at base, galls on main stem, poor form, epicormic growth
432	African sumac	13	P	50%	Low	Ivy at base, poor form, pruning flush cuts, trunk lean
433	African sumac	13	P	40%	Low	Ivy at base, poor form
434	London plane	6	-	50%	Low	Parking lot tree, decline, twig dieback
435	London plane	6	-	40%	Low	Parking lot tree, decline, twig dieback, poor form, pruning flush cuts
436	London plane	7	-	50%	Low	Parking lot tree, decline, twig dieback

Tree ID	Common Name	Trunk Diameter (inches)	Protected	Condition	Suitability for Preservation	Comments
437	London plane	8	-	40%	Low	Parking lot tree, decline, twig dieback, trunk lean
438	London plane	8	-	50%	Low	Parking lot tree, decline, minor twig dieback, pruning flush cuts, possible wood decay at pruning cut
439	London plane	6	-	50%	Low	Parking lot tree, decline, twig dieback, pruning flush cuts
440	London plane	7	-	40%	Low	Parking lot tree, decline, twig dieback, co-dominant trunks at 8 ft
441	London plane	7	-	50%	Low	Parking lot tree, decline, twig dieback, pruning flush cuts
442	London plane	7	-	40%	Low	Parking lot tree, decline, twig dieback, pruning flush cuts, possible wood decay at pruning cut
443	London plane	4	-	50%	Low	Parking lot tree, decline, twig dieback
444	London plane	6	-	50%	Low	Parking lot tree, decline, twig dieback, pruning flush cuts
445	London plane	4	-	50%	Low	Parking lot tree, decline, twig dieback, pruning flush cuts
446	London plane	5	-	50%	Low	Parking lot tree, decline, twig dieback
447	London plane	4	-	50%	Low	Parking lot tree, decline, twig dieback
448	London plane	6	-	50%	Low	Parking lot tree, decline, twig dieback, pruning flush cuts
449	London plane	7	-	50%	Low	Parking lot tree, decline, twig dieback
450	Lemon bottlebrush	6, 1	-	70%	Mod	Growing against building, multi-trunk, pruning flush cuts
451	Lemon bottlebrush	5, 3, 3, 2, 1	-	70%	Mod	Growing against building, multi-trunk, pruning flush cuts
452	Lemon bottlebrush	3, 3, 2	-	70%	Mod	Growing against building, multi-trunk
453	Lemon bottlebrush	2, 2	-	70%	Mod	Growing against building, multi-trunk
454	Lemon bottlebrush	4, 2	-	60%	Mod	Growing against building, multi-trunk, pruning flush cuts



Tree ID	Common Name	Trunk Diameter (inches)	Protected	Condition	Suitability for Preservation	Comments
455	London plane	6	-	50%	Mod	Decline, twig dieback, pruning flush cuts
456	Lemon bottlebrush	2, 2, 2	-	60%	Mod	Growing against building, multi-trunk, twig dieback
457	Lemon bottlebrush	3, 3, 2, 1, 1	-	70%	Mod	Growing against building, multi-trunk
459	Yew pine	5	-	60%	Mod	Growing against building, poor form
460	London plane	5	-	50%	Mod	Decline, twig dieback, pruning flush cuts
461	Callery pear	10	-	50%	Mod	Decline, twig dieback, pruning flush cuts
462	Callery pear	10	-	50%	Mod	Decline, twig dieback, pruning flush cuts, co-dominant trunks at 7 ft, included bark
463	Callery pear	7	-	40%	Mod	Decline, twig dieback, pruning flush cuts, co-dominant trunks at 6 ft, included bark
464	Callery pear	12	P	40%	Low	Decline, twig dieback, pruning flush cuts
466	Yew pine	2, 5	-	40%	Low	Leaning away from building, unbalanced canopy
467	Brazilian pepper	15	P	40%	Low	Ivy at base, pruning flush cuts with sap ooze
468	Callery pear	5	-	40%	Low	Decline, twig dieback, main trunk has been topped, pruning flush cuts
469	Callery pear	11	-	40%	Low	Decline, twig dieback, pruning flush cuts, co-dominant trunks at 7 ft, included bark
470	Callery pear	12	P	50%	Mod	Decline, twig dieback, pruning flush cuts, reaction wood on scaffold branch
471	Callery pear	9	-	50%	Mod	Decline, twig dieback, pruning flush cuts
472	Callery pear	13	P	40%	Mod	Decline, minor twig dieback, pruning flush cuts, co-dominant trunks at 6 ft, included bark

Tree ID	Common Name	Trunk Diameter (inches)	Protected	Condition	Suitability for Preservation	Comments
473	Callery pear	6	-	50%	Low	Decline, major twig dieback, main trunk has been topped, pruning flush cuts, epicormic growth
474	Callery pear	12	P	50%	Mod	Decline, pruning flush cuts, intolerant of root pruning
475	Callery pear	11	-	40%	Mod	Decline, major twig dieback, unbalanced crown, pruning flush cuts
476	London plane	6	-	50%	Low	Decline, dieback, pruning flush cuts
477	Olive	29	P	70%	Mod	Pruning flush cuts
478	Olive	32, 12	P	60%	Mod	Multi-trunk, pruning flush cuts with sap ooze
479	Olive	27	P	70%	Mod	Pruning flush cuts, included bark
480	Olive	18, 16, 14	P	70%	Mod	Multi-trunk, pruning flush cuts
481	Olive	19, 13, 12	P	60%	Mod	Multi-trunk, pruning flush cuts, damage to surface roots, cavities in main trunk, trunk lean
482	Olive	35	P	60%	Mod	Pruning flush cuts with sap ooze, included bark
483	Olive	38	P	60%	Mod	Pruning flush cuts, reaction wood on scaffold branch, cavities in trunk
484	Olive	36	P	60%	Mod	Reaction wood on scaffold branch, cavities in trunks
485	London plane	5	-	30%	Low	Decline, pruning flush cuts, co-dominant trunks
486	Olive	35, 12	P	60%	Mod	Multi-trunk, decline, twig dieback, large cavities in trunks
487	Olive	16, 16, 12	P	60%	Mod	Multi-trunk, girdling surface root, pruning flush cuts, reaction wood on scaffold branch
488	Lombardy poplar	62, 13	P	30%	Low	Multi-trunk, pruning flush cuts with sap ooze, girdling surface root, possible wood decay at trunk base, overmature



Tree ID	Common Name	Trunk Diameter (inches)	Protected	Condition	Suitability for Preservation	Comments
489	Lombardy poplar	36	P	30%	Low	Damage to surface root, possible wood decay at trunk, overmature
490	Lombardy poplar	20	P	40%	Low	Girdling surface root, pruning flush cuts, overmature,
491	Lombardy poplar	18	P	40%	Low	Girdling surface root, overmature
492	Lombardy poplar	25, 15, 9	P	30%	Low	Multi-trunk, girdling surface root, included bark, overmature
493	Olive	5, 3, 3, 2	-	20%	Low	Multi-trunk, decline, twig dieback, pruning flush cuts, epicormic growth
494	Olive	4, 3, 1	-	20%	Low	Multi-trunk, decline, twig dieback, pruning flush cuts, missing bark on main trunk
495	London plane	7	-	50%	Low	Decline, twig dieback, pruning flush cuts

## Appendix D. Recommendations for Preservation or Removal

Tree ID	Common Name	Trunk Diameter (inches)	Recommendations
401	Callery pear	11	<b>Remove</b> , within grading and paving footprint
402	Callery pear	8	<b>Remove</b> , within grading and paving footprint
403	Callery pear	11	<b>Remove</b> , within grading and paving footprint
404	London plane	4	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care
405	London plane	6	<b>Remove</b> ; conduct soils test if replanting in this area is desired
406	London plane	6	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care
407	London plane	7	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care
408	London plane	6	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care
409	London plane	7	<b>Remove</b> ; within grading and paving footprint, conduct soils test if replanting in this area is desired
410	London plane	6	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care
411	London plane	6	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care
412	London plane	7	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care, remove hanger
413	London plane	6	<b>Remove</b> ; within grading and paving footprint, conduct soils test if replanting in this area is desired
414	London plane	5	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care
415	London plane	6	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care
416	Callery pear	6	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care
417	Callery pear	7	<b>Protect</b> , retain existing grading within TPZ
418	Callery pear	7	<b>Protect</b> , retain existing grading within TPZ
419	African sumac	13	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care. Remove ivy. Conduct soils test if understory replanting in this area is desired.
420	African sumac	8	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care. Remove ivy. Conduct soils test if replanting in this area is desired.
421	African sumac	22	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care. Remove ivy. Conduct soils test if replanting in this area is desired.
422	Lombardy poplar	43, 5	<b>Protect</b> and <b>conduct tree risk assessment</b> ; retain existing grade in TPZ, provide remedial care. Remove ivy. Conduct soils test if understory replanting in this area is desired.

Tree ID	Common Name	Trunk Diameter (inches)	Recommendations
423	African sumac	9	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care. Remove ivy. Conduct soils test if understory replanting in this area is desired.
424	African sumac	10	<b>Protect</b> , retain existing grade in TPZ, and provide remedial care. Remove ivy. Conduct soils test if understory replanting in this area is desired.
425	African sumac	14	<b>Protect</b> , retain existing grading within TPZ, and provide remedial care. Remove ivy. Conduct soils test if understory replanting in this area is desired.
426	London plane	7	<b>Remove</b> ; within grading and paving footprint for parking area
427	African sumac	16	<b>Protect</b> , retain existing grading within TPZ, and provide remedial care. Remove ivy. Conduct soils test if understory replanting in this area is desired.
428	African sumac	11	<b>Protect</b> , retain existing grading within TPZ, and provide remedial care. Remove ivy. Conduct soils test if understory replanting in this area is desired.
429	London plane	8	<b>Remove</b> ; within grading and paving footprint for parking area
430	African sumac	15	<b>Protect</b> , retain existing grading within TPZ, and provide remedial care. Remove ivy. Conduct soils test if understory replanting in this area is desired.
431	African sumac	14	<b>Protect</b> , retain existing grading within TPZ, and provide remedial care. Remove ivy. Conduct soils test if understory replanting in this area is desired.
432	African sumac	13	<b>Protect</b> , retain existing grading within TPZ, and provide remedial care. Remove ivy. Conduct soils test if understory replanting in this area is desired.
433	African sumac	13	<b>Protect</b> , retain existing grading within TPZ, and provide remedial care. Remove ivy. Conduct soils test if understory replanting in this area is desired.
434	London plane	6	<b>Remove</b> , within grading and paving footprint for road
435	London plane	6	<b>Remove</b> , within grading and paving footprint for road
436	London plane	7	<b>Remove</b> , within grading and paving footprint for parking area
437	London plane	8	<b>Remove</b> , within grading and paving footprint for parking area
438	London plane	8	<b>Remove</b> , within grading and paving footprint for path
439	London plane	6	<b>Remove</b> , within grading and paving footprint for parking area
440	London plane	7	<b>Remove</b> , within grading and paving footprint for loading area
441	London plane	7	<b>Remove</b> , within grading and paving footprint for road
442	London plane	7	<b>Remove</b> , within grading and paving footprint for parking area
443	London plane	4	<b>Remove</b> , within grading and paving footprint for parking area
444	London plane	6	<b>Remove</b> , within grading and paving footprint for parking area

Tree ID	Common Name	Trunk Diameter (inches)	Recommendations
445	London plane	4	<b>Remove</b> , within grading and paving footprint for parking area
446	London plane	5	<b>Remove</b> , within grading and paving footprint for path
447	London plane	4	<b>Remove</b> , within grading and paving footprint for road
448	London plane	6	<b>Remove</b> , within grading and paving footprint for road
449	London plane	7	<b>Remove</b> , within grading and paving footprint for road
450	Lemon bottlebrush	6, 1	<b>Remove</b> , within grading and paving footprint for parking area
451	Lemon bottlebrush	5, 3, 3, 2, 1	<b>Remove</b> , within grading and paving footprint for parking area
452	Lemon bottlebrush	3, 3, 2	<b>Remove</b> , within grading and paving footprint for parking area
453	Lemon bottlebrush	2, 2	<b>Remove</b> , within grading and paving footprint for parking area
454	Lemon bottlebrush	4, 2	<b>Remove</b> , within grading and paving footprint for parking area
455	London plane	6	<b>Remove</b> , within grading and paving footprint for parking area
456	Lemon bottlebrush	2, 2, 2	<b>Remove</b> , within grading and paving footprint for parking area
457	Lemon bottlebrush	3, 3, 2, 1, 1	<b>Remove</b> , within grading and paving footprint for parking area
459	Yew pine	5	<b>Remove</b> , within grading and paving footprint for parking area
460	London plane	5	<b>Remove</b> , within grading and paving footprint for parking area
461	Callery pear	10	<b>Remove</b> , within plaza footprint
462	Callery pear	10	<b>Remove</b> , within plaza footprint
463	Callery pear	7	<b>Remove</b> , within plaza footprint
464	Callery pear	12	<b>Remove</b> , plaza footprint
466	Yew pine	2, 5	<b>Remove</b> , within new building footprint
467	Brazilian pepper	15	<b>Remove</b> , within new building footprint
468	Callery pear	5	<b>Remove</b> , within new building footprint
469	Callery pear	11	<b>Remove</b> , within new building footprint
470	Callery pear	12	<b>Remove</b> , within new building footprint
471	Callery pear	9	<b>Remove</b> , within new building footprint
472	Callery pear	13	<b>Remove</b> , within new building footprint
473	Callery pear	6	<b>Remove</b> , within grading footprint
474	Callery pear	12	<b>Remove</b> , within grading and paving footprint for path
475	Callery pear	11	<b>Remove</b> , within grading and paving footprint for parking
476	London plane	6	<b>Remove</b> , within grading and paving footprint for road
477	Olive	29	<b>Remove</b> , within grading and paving footprint for road

Tree ID	Common Name	Trunk Diameter (inches)	Recommendations
478	Olive	32, 12	<b>Protect</b> , retain existing grade within TPZ, and provide remedial care
479	Olive	27	<b>Protect</b> , retain existing grading within TPZ
480	Olive	18, 16, 14	<b>Protect</b> , retain existing grading within TPZ, and provide remedial care
481	Olive	19, 13, 12	<b>Protect</b> , retain existing grading within TPZ
482	Olive	35	<b>Protect</b> , retain existing grading within TPZ, and provide remedial care
483	Olive	38	<b>Protect</b> , retain existing grading within TPZ, , and provide remedial care
484	Olive	36	<b>Protect</b> , retain existing grading within TPZ
485	London plane	5	<b>Remove</b> , within grading footprint
486	Olive	35, 12	<b>Protect</b> , retain existing grading within TPZ, and provide remedial care
487	Olive	16, 16, 12	<b>Protect</b> , retain existing grading within TPZ
488	Lombardy poplar	62, 13	<b>Protect</b> and <b>conduct tree risk assessment</b> ; retain existing grade in TPZ. Conduct soils test if understory replanting in this area is desired.
489	Lombardy poplar	36	<b>Protect</b> and <b>conduct tree risk assessment</b> ; retain existing grade in TPZ. Conduct soils test if understory replanting in this area is desired.
490	Lombardy poplar	20	<b>Remove</b> , within grading and paving footprint. Conduct soils test if replanting in this area is desired; otherwise <b>conduct tree risk assessment</b> if preservation is desired
491	Lombardy poplar	18	<b>Remove</b> , within grading and paving footprint. Conduct soils test if replanting in this area is desired; otherwise <b>conduct tree risk assessment</b> if preservation is desired
492	Lombardy poplar	25, 15, 9	<b>Remove</b> , within grading and paving footprint. Conduct soils test if replanting in this area is desired; otherwise <b>conduct tree risk assessment</b> if preservation is desired.
493	Olive	5, 3, 3, 2	<b>Remove</b> ; within grading and paving footprint for plaza
494	Olive	4, 3, 1	<b>Remove</b> , within grading and paving footprint for road
495	London plane	7	<b>Remove</b> , within grading and paving footprint for road

## Appendix E. Assumptions and Limiting Conditions

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1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
2. Care has been taken to obtain all information from reliable sources. All data have been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others.
3. The consultant shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
4. Loss or alteration of any part of this report invalidates the entire report.
5. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant.
6. Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the prior expressed written or verbal consent of the consultant particularly as to value conclusions, identity of the consultant, or any reference to any professional society or institute or to any initialed designation conferred upon the consultant as stated in her qualifications.
7. This report and values expressed herein represent the opinion of the consultant, and the consultant's fee is in no way contingent upon the reporting of specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
8. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
9. Unless expressed otherwise: a) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and b) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.

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## Appendix F. Certification of Performance

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I, Laurel Kelly, certify that:

I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation is stated in the attached report and the terms of the assignment.

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.

The analysis, opinions, and conclusions stated herein are my own and are based on current scientific procedures and facts.

My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.

No one provided significant professional assistance to me, except as indicated within the report.

Compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.



Registered Consulting Arborist 508  
ISA-Certified Arborist WE-8661A

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